SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

1st International Conference on

RESEARCH AND SCIENTIFIC DEVELOPMENT IN PHYSICAL EDUCATION &YOGIC SCIENCES

4th & 5th October 2023

Organized by

DIRECTORATE OF SPORTS

(Faculty of Science and Humanities)
Kattankulathur - 603 203

Editor

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Founder Chancellor's Message



Dear Esteemed Participants,

It is with great pleasure and anticipation that I welcome you to this prestigious international conference on Research and Scientific Development in Physical Education and Yogic Sciences. The fusion of sports with various facets of our lives, including culture, religion, and academics, has become increasingly profound. In particular, the integration of sports into higher education institutions has witnessed remarkable growth over the years, with a plethora of national and international competitions that showcase the extraordinary talents and dedication of our students.

The dynamic relationship between academics and sports is a topic of ongoing debate among parents, guardians, lecturers, and other stakeholders in the university system. This conference serves as a critical platform for us to delve into the multifaceted impact of sports on academic performance and explore the diverse perspectives that exist in this context.

Our goal is to bring together leading academic scientists, researchers, and scholars who have dedicated their time and expertise to the study of sports science and yogic science. This gathering provides a unique opportunity for the exchange of knowledge and the sharing of experiences in these fields. Through this collaboration, we hope to shed light on the latest research findings, innovations, trends, and concerns, as well as practical challenges and solutions in the world of sports science and sports biomechanics.

The significance of this conference lies not only in the academic insights it offers but also in the potential to influence real-world practices and policies. It is our belief that the outcomes of this event will contribute to the enhancement of the educational and athletic experiences of our students, fostering a balanced and holistic approach to their development. I encourage each and every one of you to actively participate, engage in discussions, and make the most of this platform for networking and knowledge sharing. The success of this conference is contingent on your contributions, and I have no doubt that your collective expertise will enrich our understanding of the intricate relationship between sports and academia.

I extend my sincere gratitude to all the organizers, presenters, and attendees for making this event possible. I am confident that the knowledge and insights gained here will have a lasting impact on our institutions and, ultimately, on the future of sports in academia. Wishing you a productive and enlightening conference.

Warm regards,

Dr. T. R. Paarivendhar, M.P

Founder Chancellor of SRM Institute of Science and Technology

Pro Chancellor (Administration) Message



Dear Esteemed Participants,

It is with immense pleasure and anticipation that I extend a warm welcome to each one of you to the International Conference on Research and Scientific Development in Physical Education and Yogic Sciences, meticulously organized by the Directorate of Sports at SRM Institute of Science and Technology, Kattankulathur.

In the tapestry of holistic well-being, physical education and yogic sciences form threads that intricately weave together the fabric of our overall health. This conference stands as a testament to our collective commitment to advancing these vital fields, exploring innovative ideas, and delving into cutting-edge research that will undoubtedly shape the future of health and wellness.

As Pro Chancellor (Administration), I extend my heartfelt commendation to the dedicated organizing team whose tireless efforts have brought this event to fruition. To the participants, your passion and commitment to the pursuit of knowledge in physical education and yogic sciences are truly commendable.

May this conference serve as a dynamic platform for the convergence of diverse perspectives, fostering an environment where innovative ideas are exchanged, and collaborative research takes center stage. The significance of this gathering lies not only in the wealth of knowledge it promises to unveil but also in the relationships it will forge and the opportunities it will create for the advancement of these pivotal fields. In the spirit of unity and shared purpose, I encourage you to engage actively in discussions, share your experiences, and embrace the collective wisdom that this conference embodies. Together, let us explore the frontiers of physical education and yogic sciences, pushing the boundaries of what is known and paving the way for new and transformative insights.

May this conference be a beacon of knowledge, illuminating the path to progress in physical education and yogic sciences. I extend my sincere wishes for a successful, enriching, and inspiring event. Your contributions are integral to the success of this conference, and I am confident that the knowledge shared here will resonate far beyond these days, leaving an indelible mark on the landscape of health and well-being.

Sincerely,

Dr. Ravi Pachamuthu
Pro Chancellor (Administration)
SRM Institute of Science and Technology, Kattankulathur

Pro Chancellor (Academics) Message



Dear Participants,

I extend my warmest greetings to all attendees of the International Conference on Research and Scientific Development in Physical Education and Yogic Sciences, organized by the Directorate of Sports at SRM Institute of Science and Technology, Kattankulathur

This gathering marks a significant moment as we come together to explore and celebrate the interconnected realms of physical education and yogic sciences. The diversity of minds and ideas in this conference is a testament to our shared commitment to fostering advancements in both physical and mental well-being.

Physical education and yogic sciences are not merely academic disciplines; they are holistic approaches to life that contribute to the well-rounded development of individuals.

As Pro-Chancellor (Academics), I take great pride in the role of our institution in facilitating this convergence of knowledge.

My best wishes for the grand success of this conference.

Best regards,

Dr. P. Sathyanarayanan
Pro Chancellor (Academics)
SRM Institute of Science and Technology, Kattankulathur

Vice Chancellor Message

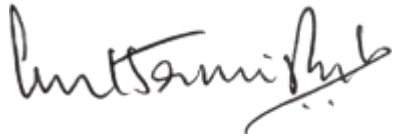


I am extremely happy to note that the Directorate of Sports, SRM Institute of Science and Technology, Kattankulathur, is organizing an International Conference on Research and Scientific Development in Physical Education and Yogic Sciences, scheduled for the 4th and 5th of October, 2023,

Physical Education and Yoga Sciences have different approaches and objectives but share a common goal of promoting the physical and mental well-being of all. In our rapidly evolving world, both fields are valuable for maintaining and improving one's physical, and mental health and individuals have the privilege of choosing which aligns best with their goals and preferences. Particularly, sports enthusiasts and athletes alike require more scientific training to prepare them for the challenges of the future. I am certain this International Conference will serve as the right platform for deliberations that pave the way to promote a healthier lifestyles and will be of great value to the younger generations, notably the sports community.

I wish the Conference a grand success.

Warm regards,



Prof. C. Muthamizhchelvan

Vice-Chancellor of SRM Institute of Science and Technology

Registrar Message



Greetings from SRM Institute of Science and Technology!!!

I am pleased to extend my warmest welcome to all of you for the International Conference on Research and Scientific Development in Physical Education and Yogic Sciences, organized by the Directorate of Sports at the SRM Institute of Science and Technology, Kattankulathur, on the 4th and 5th of October 2023.

This conference comes at a time when the intersection of science, education, and sports is more critical than ever. The importance of scientific training in sports, physical education, and yoga cannot be overstated. This conference covers a diverse range of themes that are at the forefront of the field, promising to shed light on new horizons of knowledge.

The success of sports not only relies on the dedication of athletes but also on effective management, organization, and administration. Management, in particular, plays a pivotal role in ensuring that sports and fitness programs meet their objectives, maintain high standards, and are well-coordinated. It is a pleasure to see the emphasis on management in this conference.

India is a treasure trove of untapped potential in the world of sports, and our journey towards becoming a global superpower is intrinsically linked to our performance in sports. It is, therefore, imperative that we revisit our strategies and renew our commitment to this endeavor.

I believe that the proceedings of this conference will serve as a valuable resource for the sports community and the academic world alike. The knowledge shared here will undoubtedly be instrumental in shaping the future of physical education, sports, and yoga. I extend my sincere appreciation to the organizers and participants for their dedication to making this conference a grand success. Your collective efforts will undoubtedly contribute to the advancement of our understanding in these critical fields.

Wishing you a fruitful and insightful conference.

Warm regards,

Prof. S. Ponnusamy
Registrar
SRM Institute of Science and Technology

Additional Registrar Message



Dear Participants,

It brings me immense joy to extend a warm welcome to all the distinguished guests, researchers, scholars, and participants attending the International Conference on Research and Scientific Development in Physical Education and Yogic Sciences, scheduled for the 4th and 5th of October 2023.

The Directorate of Sports at SRM Institute of Science and Technology, Kattankulathur, is proud to host this significant event that bridges the realms of Physical Education and Yogic Sciences. These fields, although distinct in their approaches, share a common objective of enhancing the holistic well-being of individuals. In our dynamic world, the pursuit of both physical and mental health is paramount, and this conference provides a unique platform to explore the synergies between these disciplines.

In the contemporary landscape, where choices abound, individuals have the privilege of selecting avenues that resonate with their personal goals and preferences. The conference acknowledges this diversity and aims to foster dialogue and collaboration between experts, researchers, and practitioners from both Physical Education and Yogic Sciences. This inclusive approach is especially crucial for sports enthusiasts and athletes, who require scientifically informed training to navigate the challenges of the future.

I am confident that the International Conference will serve as a catalyst for insightful deliberations, fostering the exchange of ideas and knowledge that will contribute significantly to promoting healthier lifestyles. The younger generations, particularly those in the sports community, stand to gain invaluable insights that will shape their approach to physical and mental well-being.

I extend my gratitude to all the participants for their contributions and commitment to advancing research and scientific development in these vital fields. May this conference be a resounding success, propelling us towards a future where physical and mental health are prioritized and celebrated.

Best Regards,

Dr. T. Mythili
Additional Registrar (MSL)
SRM Institute of Science and Technology, Kattankulathur

Director Sports Message



Dear Distinguished Guests, Researchers, and Sports Enthusiasts,

It is with immense pleasure and enthusiasm that I extend my warm welcome to all of you at the International Conference on Research and Scientific Development in Physical Education and Yogic Sciences, hosted by the Directorate of Sports at the SRM Institute of Science and Technology, Kattankulathur, on October 4th and 5th, 2023.

In today's world, the fusion of sports with science, education, and holistic well-being is more pertinent than ever. This conference is a testament to the growing recognition of the pivotal role played by scientific advancements in enhancing the world of sports, physical education, and yogic sciences. The diverse range of themes covered in this conference reflects the dynamic and evolving landscape of these fields.

As the Director Sports, I understand the intrinsic importance of effective management, organization, and administration in achieving success in sports. The emphasis on these aspects within the conference agenda is commendable. Sports management is not just about ensuring the efficiency of sporting events; it's about shaping the future of athletes and fostering a culture of fitness and wellness.

India, a nation of unparalleled talent and diversity, holds vast untapped potential in the field of sports. It is our collective responsibility to unlock this potential and pave the way for India to be recognized as a global sports superpower. The confluence of academia and sports sciences plays a pivotal role in this journey. I am confident that the knowledge shared and discussed during this conference will not only enrich our understanding of sports, physical education, and yoga but will also provide a roadmap for future developments in these fields. The printed monograph of the conference will serve as an enduring reference for students, scholars, and the broader academic community.

I extend my heartfelt congratulations to the organizers, researchers, and participants, and I am certain that this conference will be a resounding success, contributing significantly to the advancement of sports and well-being.

Wishing you a productive and enlightening conference.

Warm regards,

Prof. R. Mohanakrishnan
Director Sports, SRM Institute of Science and Technology

Dean Message



Dear Delegates,

It is with great pleasure and enthusiasm that I extend my warmest welcome to all participants, researchers, scholars, and delegates to the International Conference on Research and Scientific Development in Physical Education and Yogic Sciences. This gathering of inquisitive minds and dedicated individuals marks a significant milestone in our ongoing pursuit of knowledge and excellence in these fields.

Physical education and yogic sciences hold a pivotal place in promoting holistic well-being, and their intersection is a fascinating area of study. This conference offers a unique platform for experts, practitioners, and students to share their research, experiences, and insights, fostering a dynamic exchange of ideas that enriches our collective understanding.

As we delve into the diverse aspects of physical education and yogic sciences, I am confident that the presentations and discussions here will pave the way for groundbreaking discoveries and innovative practices. The world is in need of solutions that enhance our physical and mental health, and your contributions to this conference are crucial steps in this journey.

I encourage all participants to engage fully, share their expertise, and collaborate with fellow attendees to advance our collective knowledge. Together, we can explore new frontiers, transcend boundaries, and make a lasting impact on the fields of physical education and yogic sciences.

I would like to express my gratitude to the organizing committee, sponsors, and volunteers for their tireless efforts in making this conference a reality. Your dedication is the driving force behind the success of this event.

I wish you all an inspiring and productive conference experience. May your contributions in the conference proceedings continue to inspire and inform researchers and practitioners around the world, furthering our understanding of these vital subjects.

Thank you for your commitment to the advancement of physical education and yogic sciences.

Sincerely,

Dr. A. Duraisamy,
Dean, Faculty of Science and Humanities, SRMIST.

Deputy Dean Message



Dear participants, distinguished guests, and fellow enthusiasts of physical education and yogic sciences,

It is a privilege and an honor to welcome you to the International Conference on Research and Scientific Development in Physical Education and Yogic Sciences. As the Deputy Dean, I am delighted to address this esteemed gathering of researchers, scholars, and practitioners from around the world.

This conference represents a significant milestone in the ongoing pursuit of knowledge and innovation in the fields of physical education and yogic sciences. It is a testament to our collective commitment to advancing these domains and addressing the challenges and opportunities they present.

Physical education and yogic sciences are integral components of a healthy and balanced lifestyle. In a world where well-being and mental and physical health are of paramount importance, your work and contributions in these fields are of great significance. Your research, insights, and experiences will undoubtedly shape the future of these disciplines and impact the lives of individuals and communities.

I encourage you to make the most of this unique opportunity to network, collaborate, and share your research findings with fellow participants. The multidisciplinary nature of this conference fosters an environment conducive to cross-pollination of ideas, and I am confident that the ensuing discussions will inspire fresh perspectives and innovative solutions.

I would like to express my gratitude to the dedicated individuals who have worked tirelessly to organize this conference, as well as our sponsors and partners for their valuable support. Your collective efforts have made this event possible, and your commitment is deeply appreciated.

As Deputy Dean, I wish you a productive and enriching experience at this conference. May the interactions and knowledge shared here continue to propel us forward in our exploration of physical education and yogic sciences.

Thank you for your dedication to these fields and for your participation in this significant event.

Sincerely,

Dr. S. Albert Antoney Raj
Deputy Dean, Faculty of Science and Humanities,
SRMIST.

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ANALYSIS OF MALLAKHAMB PRACTICES AND YOGASANAS TRAINING ON SPEED AND AGILITY AMONG SPORTS CLUB U-17 BASKETBALL PLAYERS

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ABSTRACT

The purpose of the study was to find out the Analysis of mallakhamb practices and yogasanas training on speed and agility among sports club u-17 basketball players. In order to achieve the purpose of the study thirty men sports club -17 basketball players were randomly selected from Dindigul district, Tamilnadu state sports clubs and they were equally divided in to three groups of ten each as experimental group-I, experimental group-II and control group. The experimental groups and control group undergone normal routine basketball practices and in addition the experimental group-I underwent high intensity interval training and experimental group-II underwent resistance circuit training for one hour in the morning sessions. The control group was not given any special training. The period of training was eight weeks in a schedule of weekly three days for alternate days. The data were collected on the selected dependent variables before and after the training period. The collected the data were statistically analyzed by using Analysis of Covariance (ANCOVA) and Scheffe's post hoc test. To test the significance .05 level of confidence was fixed. Based on the results the study it was concluded that the mallakhamb practices and yogasanas training were significantly improved the speed and agility among sports clubs u-17 basketball players.

***Key words**: Mallakhamb practices, Yogasanas training, Speed and Agility*

Introduction

"We could all use a little coaching. When you're playing the game, it's hard to think of everything." - Jim Rohn

Now a days, more and more individuals particularly boys and girls are affected by sports activities and increasing the number that are representing in the sports area. As preventive and curative health measures, it has become more successful throughout the world and, millions of teenagers should have chance of enjoying sports. Sport is the way which we use our physical capacities to play. Sports is an important in other ways, when one's body works better his mind works better, his brain and his body are interrelated. Sports allows you to blow of tension, to forget your problems for a while and to go out and have a good time no matter what other pressures one may be under in his life (Uppal A.K et al., 1998)

Basketball is one of the most popular team based sports played and watched throughout the world. It is played by both males and females of all ages and fitness levels. This quality is not present in every player as everyone wants to win, and they don't want to lose. It is very difficult for the one to lose, and if you are a player with a good sportsmanship then it doesn't mean that you always lose. People think both on and off situations of the game. It is a game despite how much you love the game. For optimal performance during the play basketball at an elite level a variety of areas must be addressed. These include the high skill level, speed, flexibility, muscular strength, endurance and importantly the specific use of both the aerobic and anaerobic energy systems. (Derek Chen, 1999)

The origin of this ancient Indian sports can be traced to earlier part of 12th century. A mention of wrestlers exercising on wooden poles is found in the Manasholes, written by Chalukya in 1153 A.D. It was revived late in the 19th century by Balambhatta Dada Deodhar, physical instructor to Bajirao Peshwa-II. He took great efforts to popularize these sports. Resemblance of the shape of the Ancient and modern mallakhamb to the human structure can

be easily seen .At first mallakhamb was always concerned with kusti, to learn different styles of kusti .Now a days the game also includes gymnastics. It is leaving ancient grips. The present game includes supple body, alert muscles and mind, concentration and expansion of the muscles, rhythm in breath, eyes wide open etc. now a days at the competitive level the degree of difficulty is increasing day by day. This game is a mother discipline which builds an ideal physical body structure. The mallakhamb needs concentration, speed and flexibility etc. required for the sports like football, basketball, swimming, Kho-Kho, tennis etc. can be improved by per forming mallakhamb. It is the only game which is played against gravity .It is a good exercise to our body especially for backbone. Our whole body gets a message while performing on mallakhamb. So let's come together to promote the pure Indian activity.

The word yoga derived from the sanskirit root 'yuj' meaning to bind; join; and yoke; to direct and concentrates one's attention on; to use; and apply. It is also means union or communication. It is the true union of our will with the will of god. Yoga is a practical aid, not a religion. Yoga is an ancient art based on a harmonizing system of development for the body, mind and spirit. The continued practice of yoga will lead you to a sense of peace and wellbeing and also a feeling of being at one with the environment the practice of yoga makes the body strong and flexible. It also improves the functioning of the respiratory, circulatory, digestive and hormonal systems. (Kurland.Zack, 2007)

Reviews and Literature

Baljinder Singh Bal et al, (2012) study was to determine the effects of 6-week rope mallakhamb training on speed of movement, vital capacity and peak expiratory flow rate. The research population included 30 inter college girls (Mean ± SD: age 21.33 ± 1.43 years, height 1.67 ± 0.036m, body mass 62.50 ± 3.55 kg) of Guru Nanak Dev University, Amritsar, Punjab.They were purposively assigned into rope mallakhamb (M) and control (C) groups, n = 15 each. The M group was subjected to 6- week training consisting of various asanas (i.e., Bajrang pakad, Padamasana, Dhanurasana, Needle, Nidrasana, Paschimottanasana, A Ari and Simple cross) the control group participated in the routine yoga mallakhamb training not containing the asanas mentioned. The level of $p \leq 0.05$ was considered significant. The 6-week rope Mallakhamb training brought about significant improvement in speed of movement ($t = 3.45$), vita capacity ($t = 2.98$) and peak expiratory flow rate ($t = 1.82$) in Group (M) as compared with the control one. The 6-week rope mallakhamb training had significant effect on speed of movement, vital capacity and peak expiratory flow rate. Thus, such mallakhamb training may be recommended to improve speed of movement, vital capacity and peak expiratory flow rate may contribute to enhance concentration based performance and voluntary control of breathing. Finally the investigator was concluded the findings of the study will help to understand the benefits of rope mallakhamb training had significant effect on speed of movement, vital capacity and peak expiratory flow rate. The present manuscript will also be useful feedback for one and all concerned with these mallakhamb players.

Sosamma John et al., (2011) were examined that the Yoga practices Weight training and Iron Yoga on Strength, Endurance, Flexibility and Vital capacity among college Softball players. To achieve the purpose forty male students were selected randomly and divided into four groups namely experimental groups I, II & III and control group. Each group consists of ten subjects. The period of study was 24 weeks. ANCOVA was used for statistics. It was concluded that the yoga practices, weight training and iron yoga had significantly improved the strength, endurance and flexibility and vital capacity among college softball players.

Methodology

The purpose of study was to investigate the analysis of mallakhamb practices and yogasanas training on selected speed and agility among sports club u-17 basketball players. In order to achieve the purpose of the study 30 men sports club basketball players were selected randomly and they were equally divided in to three groups of 10 each as experimental group-

I, experimental group-II and control group. The experimental groups and control group undergone normal routine basketball practices and in addition the experimental group-I underwent mallakhamb practice and experimental group-II underwent yogasanas training for one hour in the morning before starting the routine basketball practices. The control group was not given any special training. The period of training was 8 weeks in a schedule of weekly 3 days for alternate days. The data were collected on the variables of speed and agility before and after the training period. The collected the data were statistically analyzed by using Analysis of Covariance (ANCOVA) and Scheffe's post hoc test. To test the significance .05 level of confidence was fixed.

Criterion Measures

TABLE - I

Variables	Test	Measurers in Unit
Speed	50mts Run	Seconds
Agility	4×100m Shuttle run	Seconds

Results and Discussion

The analysis of covariance and scheffe's post hoc test on the data obtained on Speed and Agility of Experimental and Control groups have been analyzed and tabulated in Table-II, Table-III, Table-IV and Table-V.

Table - II
ANALYSIS OF COVARIANCE FOR PRE AND POST TESTS DATA ON SPEED OF EXPERIMENTAL AND CONTROL GROUPS

	Control Group	Mallakhamb	Yogasanas	Source of Variance	Sum of Squares	Df	Mean Squares	'F' Ratio
Pretest	7.93	7.82	7.99	Between	0.15	2	0.07	0.18
				Within	10.97	27	0.41	
Post test	8.23	7.38	7.36	Between	4.93	2	2.47	6.40*
				Within	10.40	27	0.39	
Adjusted Post test	8.21	7.47	7.29	Between	4.83	2	2.41	66.13*
				Within	0.94	26	0.04	

*Significance at .05 level, df 2 and 27= 3.35, 2 and 26=3.37

Table - II shows that the pretest means on speed of control, mallakhamb practices and yogasanas training groups are 7.93, 7.82 and 7.99 respectively. The obtained 'F' ratio value of 0.18 for pretest mean is less than the required table value of 3.35 for not significance at .05 level. The post-test mean on speed of control, mallakhamb practices and yogasanas training groups are 8.23, 7.38 and 7.36 respectively. The obtained 'F' ratio value of 6.40 for post-test data is greater than the required table value of 3.35 for significance at .05 level. The adjusted post-test mean on speed of control, mallakhamb practices and yogasanas training groups are 8.21, 7.47 and 7.29 respectively. The obtained 'F' ratio value of 66.13 for adjusted post-test data is greater than the required table value of 3.37 for significance at .05 level. It reveals that there is significant difference among the groups on speed as a result of mallakhamb practices and yogasanas training. The scheffe's post-hoc test was applied to find out the significant paired mean difference.

Table - III
Ordered Scheffe's Post Hoc Test for Mean Difference between Groups on Speed

Mean values			Mean Difference	CI
Control	Mallakhamb	Yogasanas		
8.21	7.47	-	0.75	0.21
8.21	-	7.29	0.93	0.21
-	7.47	7.29	0.18	0.21

Table - III shows that the ordered weighted mean difference of scheffe's post-hoc test values on speed of the control group, mallakhamb practices and yogasanas training. The mean difference of speed is significant at .05 level of confidence. The difference in means between control group and mallakhamb practices and control group and yogasanas training group on speed of the paired means didn't differ significantly.

Table - IV
ANALYSIS OF COVARIANCE FOR PRE AND POST TESTS DATA ON AGILITY OF EXPERIMENTAL AND CONTROL GROUPS

	Control Group	Mallakhamb	Yogasanas	Source of Variance	Sum of Squares	df	Mean Squares	'F' Ratio
Pretest	12.09	11.73	12.01	Between	0.71	2	0.35	1.54
				Within	6.28	27	0.23	
Post test	12.47	11.32	11.83	Between	6.64	2	3.32	17.25*
				Within	5.20	27	0.19	
Adjusted Post test	12.35	11,50	11.77	Between	3.43	2	1.71	65.82*
				Within	0.67	26	0.03	

*Significance at .05 level, df 2 and 27= 3.35, 2 and 26=3.37

Table - IV shows that the pretest means on agility of control, mallakhamb practices and yogasanas training groups are 12.09, 11.73 and 12.01 respectively. The obtained 'F' ratio value of 1.54 for pretest mean is less than the required table value of 3.35 for not significance at .05 level. The post-test mean on agility of control, mallakhamb practices and yogasanas training groups are 12.47, 11.32 and 11.83 respectively. The obtained 'F' ratio value of 17.25 for post-test data is greater than the required table value of 3.35 for significance at .05 level.

The adjusted post-test mean on agility of control, mallakhamb practices and yogasanas training groups are 12.35, 11.50 and 11.77 respectively. The obtained 'F' ratio value of 65.82 for adjusted post-test data is greater than the required table value of 3.37 for significance at .05 level. It reveals that there is significant difference among the groups on agility as a result of mallakhamb practices and yogasanas training. The scheffe's post-hoc test was applied to find out the significant paired mean difference.

Table - V
Ordered Scheffe's Post Hoc Test for Mean Difference between Groups on Agility

Mean values			Mean Difference	CI
Control	Mallakahmb	Yogasanas		
12.35	11.50	-	0.84	0.18
12.35	-	11.77	0.57	0.18
-	11.50	11.77	-0.27	0.18

Table - V shows that the ordered weighted mean difference of scheffe's post-hoc test values on agility of the control group, mallakhamb practices and yogasanas training group. The

mean difference of agility is significant at .05 level of confidence. The difference in means between control group and mallakhamb practices and control group and yogasanas training group on agility.

Discussion on Findings

In the resent times Mallakhamb practices and Yogasanas training is offered as a better method for developing speed and agility. The results and discussions of the present studies Baljinder Singh Bal et al, (2012) study was to determine the effects of 6-week rope mallakhamb training on speed of movement, vital capacity and peak expiratory flow rate. The study will help to understand the benefits of rope Mallakhamb training had significant effect on speed of movement, vital capacity and peak expiratory flow rate. The present manuscript will also be useful feedback for one and all concerned with these mallakhamb players and another study wasSosamma John et al., (2011) were examined that the Yoga practices Weight training and Iron Yoga on Strength, Endurance, Flexibility and Vital capacity among college Softball players.had significantly improved due to the yoga practices.

Conclusions

From the results of the study and discussion the following conclusions were drawn.

1. There is a significant difference on speed and agility between all the groups.
2. There is a significance improvement on speed and agility due to mallakhamb practices and yogasanas training.

Recommendations

1. Similar study may be conducted for various age groups.
2. The same study may be extended to further time period.
3. The present study is mainly focused on males only. The same study may be done on females

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EFFECT OF SPECIFIC HANDBALL TRAINING ON SELECTED SKILL PERFORMANCE VARIABLES AMONG INTER COLLEGIATE PLAYERS

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Abstract

The purpose of the current study was to ascertain how particular handball training affected particular skill performance factors intercollegiate players. Intercollegiate athletes were chosen from Nachiyappa Swamigal Arts and Science College in Koviloor, Sivagangai District, Tamil Nadu, India, to accomplish the study's goals. The person is between the ages of 17 and 25. The chosen participants were split into two equal groups, the experimental group and the control group, each of which contained 20 male handball players. The experimental group spent twelve weeks going through a specific handball skill training program. Throughout the trial, there was no training provided to the control group. Right wing, left wing, and defending were used as the study's criterion variables. Before the training period, a pre-test was administered, and after the twelve-week training period, a post-test was administered. In order to compare the means of the experimental group's and the control group's pre- and post-test data, statistical technique 't' ratio was applied. The findings showed that the criterion variables had a substantial difference. When compared to the control group, the experimental group received specialized handball skill training in right wing, left wing and defending which is why there is a difference.

Key words: *specific handball training, right wing left wing and defending in handball players.*

INTRODUCTION

In a word, sport training is the process of getting ready to perform, and it helps athletes develop their strength, endurance, skill, and confidence. As easy as it sounds, creating a systematic training program that achieves all physical objectives is crucial. The training regiment has a big impact on the results that are wanted, therefore it's important that it's appropriate for the goal and sport that you want to pursue.

PERFORMANCE COMPONENTS OF HANDBALL PLAYERS

A successful handball player must be physically fit, have excellent motor movement components through technical proficiency, tactical competence, and strategic mastery, as well as mental strength. Competitive handball is a top-notch technologically tactical sport that demands enormous strength, complete awareness, superior wisdom, and exceptional playing ability.

A handball player must, above all else, have good running abilities and the capacity to sprint quickly. The player should be skilled in the ability to catch and throw accurately, be able to dribble when necessary, and finally be able to shoot at goal. The body, arms, and legs must move in unison with one another and in balance to meet these requirements. (Bujji Babu & Johnson. 2013).

Selection of Subjects

The purpose of the current study was to ascertain how particular handball training affected particular skill performance indicators in intercollegiate handball players. Intercollegiate handball players from Nachiyappa Swami Arts and Science College in Koviloor, Sivagangai District, Tamil Nadu, India, were chosen to carry out the study's objectives.

Selection of variable

Independent Variable

- Specific Handball Skill Training

Dependent Variables

- Right wing,
- Left wing
- Defending

EXPERIMENTAL DESIGN AND IMPLEMENTATION

The chosen participants were split into two equal groups, the experimental group and the control group, each of which contained 20 intercollegiate handball players. The experimental group participated in a 12-week handball skill development program. Throughout the trial, there was no training provided to the control group. Right wing, left wing, and defending were used as the study's criterion variables. Before the training period, a pre-test was administered, and after the twelve-week training period, a post-test was administered.

Statistical Technique

The 't' test was utilized to analyze any significant differences between the groups, if any.

Level of Significance

To test the level of significance that was deemed adequate, the 0.05 level of confidence was fixed.

ANALYSIS OF THE DATA

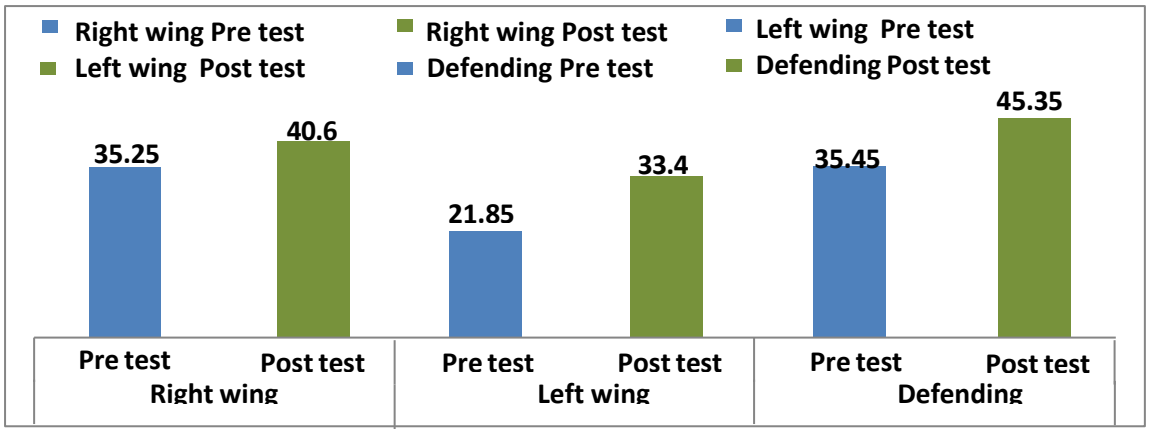
Pre-test was used to determine whether the experimental group's mean differences were significant. After data analysis, the dependent 't' test was applied with a confidence level of 0.05.

RESULTS Table-I Comparison of Mean, and 't'-Values of Skill Performance Variables between Pre & Post Test among Experimental and Control Groups

Group		Mean	Standard Deviation	't' Ratio
Right wing	Pre test	35.25	2.07	16.94*
	Post test	40.60	4.20	
Left wing	Pre test	21.85	4.02	16.65*
	Post test	33.40	5.90	
Defending	Pre test	35.45	2.09	12.21*
	Post test	45.35	3.15	

Table-3 reveals that the obtained mean values for per test and post test of the right wing group was 35.25 and 40.60. The resulted with 't' ratio of 16.94 it was statistically significance. The obtained mean values for per test and post test of the left wing group were 21.85and 33.40. The resulted with 't' ratio of 16.65 it was statistically significance. The obtained mean values for per test and post test of the defending group were 35.45 and 45.35. The resulted with a 't' ratio of 12.21 it was statistically significance. The tabulated 't' value is 3.15 at 0.05 level of confidence for the degree of freedom 19. The calculated 't' ratio was greater than the table value. It is found to be significant change in, right wing group, left wing group and defending group of the handball players.

Figure -1 Bar diagram showing the pre test and post test on skill performance variables of experimental and control groups



DISCUSSION ON FINDINGS

The study's findings showed that specialized handball skill training considerably enhanced the performance factors for the chosen skills, including right wing, left wing and defending. The adequate planning, preparation, and execution of the training program provided to the players were blamed for the alterations in the chosen parameters. The results of this study and those of Abdul Halik (2021), Jenith (2021), Ooraniyan (2021), and S Senthil Kumaran (2018) were identical. The findings of this study show that the chosen handball training techniques are an effective protocol for raising the level of intercollegiate handball players' right wing, left wing and defending. The findings of the current study make it abundantly evident that specialized handball training considerably improves the chosen bodily variables, such as right wing, left wing and defending.

CONCLUSIONS

Based on the results and within the study's limitations

1. It was discovered that doing particular handball skill training helped intercollegiate level handball players enhance certain skill performance factors.
2. After twelve weeks of a focused handball training program, it was also observed that the experimental group of male handball players at the college level showed incremental improvement in the chosen criterion variables. Additionally, it aids in enhancing a few physical characteristics including right wing, left wing and defending.

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EFFECT OF LOW AND HIGH ALTITUDE TRAINING ON SELECTED PERFORMANCE VARIABLES ON HOCKEY PLAYERS

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Abstract

The purpose of the study is to find out the effect of high and low altitude training On selected performance variables of Hockey players. Compare the selected Performance variables of high altitude and low altitude hockey players. High altitude hockey players means the people who live in medium height above from the sea level, so for this purpose Munnar. (nearly 1532 ft from sea level) boys from Govt. college munnar were selected as High altitude hockey players. And low altitude level hockey players mean the people who live near the sea, so for this purpose UC College thevara were selected as sea level Hockey players

Keyword: High altitude training

1. INTRODUCTION

In a developing country like India, it is very essential to build a nation of healthy men and women. It is also a great gain to utilize ones enormous manpower potential then only our country can successfully participate in the international sports competitions. Sports and games help to secure one's self esteem, self-discovery and self-realization. It develops and plays as a mean to build our social interaction where individual can learn to know and understand one another to live together in a healthy and whole some manner. The prime aim of education is the total and harmonious development of human beings, which includes the development of body, mind and spirit. Altitude training is the practice by some endurance athletes of training for several weeks at high altitude, preferably over 1532 meters above sea level, though more commonly at intermediate altitudes due to the shortage of suitable high-altitude locations. At intermediate altitudes, the air still contains approximately 20.9% oxygen, but the barometric pressure and thus the partial pressure of oxygen is reduced.(West, JB (October 1996)

1.1 Statement of the Problem

The purpose of the study is to find out the effect of high and low altitude training on selected performance variables of Hockey players. Compare the selected performance variables of high altitude and low altitude Hockey players. High altitude Hockey players means the people who live in medium height above from the sea level, so for this purpose Munnar (nearly 1532 ft from sea level) boys were selected as High altitude Hockey players. And low altitude level hockey players mean the people who live near the sea, so for this purpose U.C College students were selected as sea level football players.

1.2 Objectives of the study

Each person needs a certain level of strength. Without strength, of would be Impossible to carry out most of the simple tasks that are necessary each day. Strength is Ability of muscular or muscle groups to exert force against given resistance. Agility and Speed are more necessary for hockey players. there are several coaching and training Methods are being used by coaches to improve the agility and speed of Hockey players Few have compared the performance variables between high-altitude low level Altitude Hockey players. Hence, the investigator was interested to undertake this study.

2. MATERIALS AND METHODS

The purpose of the study was to compare the selected performance variables of high Altitude and low altitude Hockey players. To achieve this purpose, 50 hockey players Were selected, of which 25 were belonged at low altitude level and remaining 25 Hockey players were high altitude hockey players. The age of the subjects ranged Between 18 to 27 years.

2.1 Test Intervention

The present study was undertaken to find out the difference, between high Altitude and low altitude training on selected performance variables of hockey players. The performance variables selected for this study were agility, endurance, speed. The Investigator analyzed various literatures, has consulted the experts in physical education And selected test item, which were standardized and most suitable for the purpose of the
Study.

2.2 Statistical Techniques

The purpose of the study was to find out the significant differences if any, Among high altitude and low altitude Hockey players on selected criterion variables such as agility, endurance, and speed, of football players. The collected data were statistically Analyzed by using T tests to find out the significant differences, if any, among high Altitude and low altitude hockey players on selected criterion variables separately. In all Cases 0.05 level of confidence was fixed to test the significance, which was considered as appropriate.

3. RESULT AND DISCUSSIONS

The data collected on performance variable, speed of the hockey players were Analyzed and presented in Table I

Table II

Significance of Difference between the High Altitude and Low Altitude Training on Speed of Hockey players

Groups	Means	MD	SD	SDM	Obtained 't'
Low Altitude Players (N=25)	6.82	0.20	0.17	0.05	4.18*
High Altitude Players (N=25)	6.62		0.16		

Not Significant at 0.05 levels

't' Value Required at (0.05)(1,49) = 1.676

The mean value for low altitude players' speed was 6.82 and high altitude players were 6.62 with mean difference of 0.20. The obtained't' value was 4.18, which was greater than required't' table value of 1.676. Thus, it was proved that there was a significant difference between low altitude and high altitude training on performance variable speed among Hockey players .it was proved that high altitude Hockey players were significantly better than low altitude Hockey players on performance variable speed.

Figure I

BAR DIAGRAM ON MEAN VALUES OF SPEED BETWEEN LOW ALTITUTDE AND HIGH ALTITUTDE HOCKEY PLAYERS

The data collected on performance variable, agility of the Hockey players were analyzed and presented in Table III

Table III

Significance of Difference between the High Altitude and Low Altitude Training on Agility of Hockey players

Groups	Means	MD	SD	SDM	Obtained 't'
Low Altitude Players (N=25)	10.83	0.34	0.40	0.11	3.03*
High Altitude Players (N=25)	10.50		0.38		

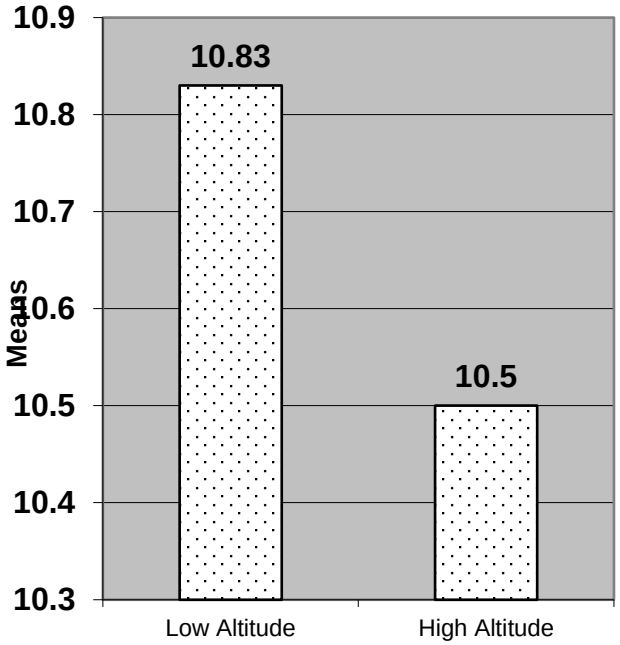
Not Significant at 0.05 levels

't' Value Required at (0.05)(1,49) = 1.676

The mean value for low altitude players' agility was 10.83 and high altitude players were 10.50 with mean difference of 0.34. The obtained't' value was 3.03, which was greater than required't' table value of 1.676. Thus, it was proved that there was a significant difference between low altitude and high altitude training on performance variable agility among Hockey players. It was proved that high altitude Hockey players were significantly better than low altitude Hockey players on performance variable agility.

Figure II

BAR DIAGRAM ON MEAN VALUES OF AGILITY BETWEEN LOW ALTITUTDE AND HIGH ALTITUTDE HOCKEY PLAYERS



The data collected on performance variable, cardiovascular endurance of the Hockey players were analyzed and presented in Table IV.

Table IV

Significance of Difference between the High Altitude and Low Altitude Training on Cardiovascular endurance of Hockey players

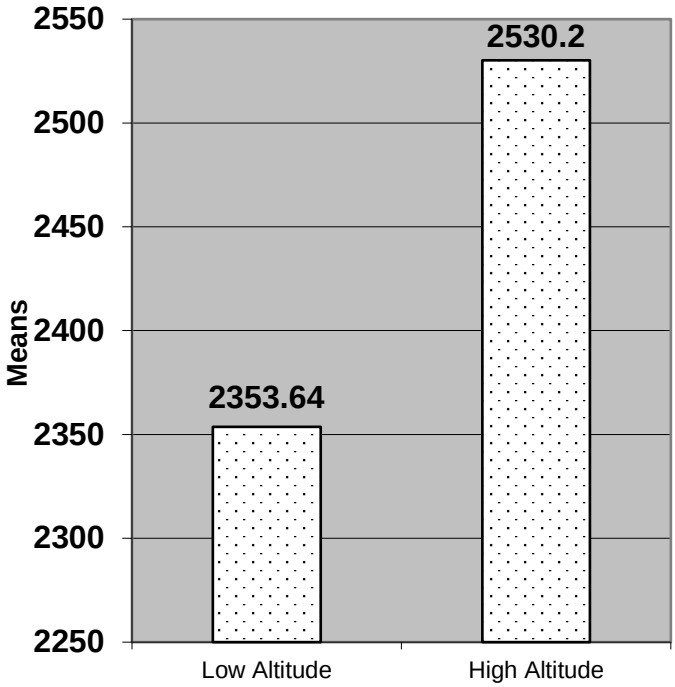
Groups	Means	MD	SD	SDM	Obtained 't'
Low Altitude Players (N=25)	2352.64	-177.56	233.56	60.57	-2.93*
High Altitude Players (N=25)	2530.20		192.81		

Not Significant at 0.05 levels

'T' Value Required at (0.05) (1,49) = 1.676

The mean value for low altitude players' cardiovascular endurance was 2352.64 and high altitude players were 2530.20 with mean difference of 0.177.56. The obtained 'T' value was 2.92, which was greater than required 'T' table value of 1.676. Thus, it was proved that there were significant differences between low altitude and high altitude training on performance variable cardiovascular endurance among Hockey players. It was proved that high altitude Hockey players were significantly better than low altitude Hockey players on performance variable cardiovascular endurance

Figure III



BAR DIAGRAM ON MEAN VALUES OF CARDIOVASCULAR ENDURANCE BETWEEN LOW ALTITUTDE AND HIGH ALTITUTDE HOCKEY PLAYERS

3.1 Discussion on Findings

According to the findings, The results of the study showed that there were significant differences between low altitude and high altitude Hockey players on speed, agility and cardiovascular endurance at 0.05 level of confidence. This may be due to their training on different altitudes. The formulated hypothesis, mentioned that there might be a significant differences between low altitude and high altitude hockey players on selected performance variables. The results of the study revealed that there was a significant difference between low altitude and high altitude hockey players on speed, agility and cardiovascular endurance at 0.05 levels and the formulated hypothesis was accepted

4. CONCLUSION

Within the limitations and delimitations of the study, the following conclusions were drawn.

1. It was concluded that hockey players trained in high altitude were found to be significantly better than players trained in low attitude on performance variable, speed
2. It was concluded that hockey players trained in high altitude were found to be significantly better than players trained in low attitude on performance variable, agility.
3. It was concluded that hockey players trained in high altitude were found to be significantly better than players trained in low attitude on performance variable, cardiovascular endurance.

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THE YOGIC SCIENCE AND SPORT SCIENCE – COMPLEMENTING EACH OTHER FOR HUMAN HEALTH

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Abstract

Yoga is both preventive and therapeutic and has proven to provide both physical and mental advantages to the body and mind. Yoga is uniquely different from other kinds of exercise as it generates motion without causing strain and imbalances in the physical body. Hence, the practice is synergy to other forms of exercise and an extreme advantage to any sport. Yoga has been practiced for around 10,000 years. Several schools and yogic organizations have emerged over time to time to meet the needs of the people. The essential element in yoga is breath control techniques popularly known as Pranayama. The attention to breath during yoga can be considered one of the most important benefits to athletes. Learning to stay focused and centred through uncomfortable poses by concentrating on even inhalations and exhalations sets up the athlete to stay focused during a race or challenging workout. The mind-body connection in yoga is essential to helping athletes develop mental acuity and concentration. In addition, yoga helps to relax not just tight muscles, but also anxious and overstressed minds. Yoga works not just in the sagittal plane, but in the frontal and transverse planes as well, ensuring well-rounded development. Being more relaxed will also aid in athletic performance. So, we can enhance our game performance and prevent injury by adding yoga to our training plan now.

1. Introduction:

Over the last century, there has been an upsurge in the prevalence of yoga. Eastern philosopher's visit to West has evoked interest to the whole world on Yoga. The movement Medical professionals and celebrities are also adopting and recommending the regular practice of yoga due its several benefits. While some may regard yoga as simply one more prevailing fashion and associate it with the new age mysticism, others vouch for how astonishing this form at of exercise feels. What they don't understand is that what they see as simply just another form of exercise will profit them in ways they never envisioned. Before we get into the benefits of Yoga, it is essential to understand what exactly Yoga really is. Yoga is not a religion, it's a way of living that aims towards a healthy mind in a healthy body. Man is a physical, mental and spiritual being; Yoga helps in developing the balance between all the three as stated in 'Siddha medical science' and 'Ayurveda medical science'. Other forms of exercise, like aerobics, only assure physical wellbeing. These exercises have very little to do with the improvement of spiritual or astral body. Yoga is not just about bending or twisting the body and holding the breath. It is a technique to bring you into a state where you see and experience reality simply the way it is. If you enable your energies to become exuberant and ecstatic, your sensory body expands. This enables you to experience the whole universe as a part of yourself, making everything one, this is the union that yoga creates (1).

2. Objectives

Now-a-days sports have become part of our life. It is not just fashion. It has direct and indirect impact on all our life. The purpose of this paper is to assess whether such impacts are constructive and positive in nature? Are there any other alternatives to fix if any negative consequences?

3. Evolution of Sports

Vethathiri Maharishi, the founder of 'World Community Service Center', has narrated how the sports have been evolved. (2) the initial days, human beings were roaming around the

world as nomads. To survive and protect themselves amongst the other species, they had to develop their strength and power. With the increase in population, they started to settle down in the plains for agriculture related activities. Then it became all the more critical to protect the crops from the animals and from other groups. Hence, amongst them, they selected certain individuals with good physique, asked them to act as guards, by rotating shifts. Their duty was to protect the crops from other living beings including animals. Over a period, to increase their physical strength, certain practices were taught to them systematically. Thus the physical exercises were evolved. To do those physical exercises, certain specialised foods were given to them. Experienced and powerful amongst them was made as their leader. Over a period, 'selection of leaders' became the sensitive issue leading to conflicts. To overcome that, a competitive match could have been set amongst them to select the strongest. Thus the matches or such events could have come into human life. Later, to prove the strength and make them ever competitive, periodical events were conducted regularly. To expand it further, the periodical matches amongst various groups of people were held. Then the rules were formed amongst them to have common methodology to assess the real winner. Then to promote their Sales, Merchants have sponsored such events as crowd pulling activities. Thus evolution of sports has taken different shapes along with the journey of mankind.

3.1. Current situation

Monetary Impact

Modern day sports have become more popular. Not just limited to physical strength, commercial aspects in these sporting events have made them mega events. To measure the magnitude of such expenditure, let us refer to the money spent by Qatar.

Several media accounts have confirmed that Qatar spent USD 220 billion (1 USD = 83 Indian Rupee, Source : Bloomberg FX) on the World Cup, a staggering 15 times more than Russia did in 2018. Qatar has a population of 3 million, the estimate of USD 220 billion, is approximately 100% of their GDP.

On the outlook for Qatari GDP growth, analysts at S&P Global commented: "We anticipate an acceleration in GDP growth this year as non-hydrocarbon sectors such as tourism, transport, and construction benefit from Qatar's hosting of the World Cup, which is expected to bring in about 1.2 million tourists. Economic growth thereafter is likely to be relatively soft through 2025. Government investment, much of which is outside the hydrocarbon sector, will gradually decline, with major infrastructure projects nearing completion."

Fitch Solutions said: "In Q4-22, the hosting of the tournament will have immediate positive effects on Qatar from the perspectives of real GDP growth and the balance of payments via higher consumption, government spending and services exports. On the other hand, the surge in Qatar's population during the months of the World Cup tournament will lead to substantial demand-side pressure, which will contribute to above-trend inflation and will require a significant increase in goods imports, including food and beverages, as well as a fall in the volumes of LNG available for export."

According to an analysis done by FIFA (Federation Internationale de Football Association ~ International Federation of Association Football) (4) alongside its service provider Sportradar, an estimated Euro 136 billion (1 Euro ~ 85.25 Indian Rupee (5) 1 billion = 100 Crores) was bet on the tournament worldwide. Construction of stadiums and preparation for 2018 World Cup has been estimated to be around USD 12 billion for Russia (1 USD ~ 76 Indian Rupee in 2018).

FIFA was estimated to profit around USD 6 billion revenue from the 2018 World Cup. These numbers represent to just only one mega sport event. Similarly several sports events at various levels, in various sports, all across the world.

Let us look at from the audience perspective. The most watched sporting events in the World are the Olympics and FIFA World Cup (6) As per the available data, London 2012 Olympic games have the highest ever number of 3.6 billion viewers among sporting events in the World. Similarly certain games have, selected target audience. For example, Cricket is viewed commonly at south Asian countries (India, Pakistan, Bangladesh, Srilanka & Afganistan), Australia & South Africa etc. Base ball is quite popular in Japan, South Africa & United Kingdom. Basket ball is the glorious sport in United States of America.

The time and energy spent on watching these sporting events are significantly higher. If these resources are spent on productive ways, that can be huge booster to mankind. 'History of Modern sport is the history of industrial capitalism' writes *Jayanta Sengupta* in *Globalizing Patriotism? (6)* It is widely believed that Olympic games were promoted to revive the international trade *Christopher R. Hill, Olympic Politics: Athens to Atlanta 1896–1996. (8)*

Emotional Impact

George Orwell famously quoted, "Sport is war minus the shooting" in '*The Sporting Spirit*'. The relevant extract is here below:

'On the village green, where you pick up sides and no feeling of local patriotism is involved, it is possible to play simply for the fun and exercise: but as soon as the question of prestige arises, as soon as you feel that you and some larger unit will be disgraced if you lose, the most savage combative instincts are aroused ... the significant thing is not the behaviour of the players but the attitude of the spectators: and, behind the spectators, of the nations who work themselves into furies over these absurd contests.' (9).

The World History suggests that the cult of sport for patriotic purpose was well exploited especially by Italy and later Germany. Mussolini used sport as a tool to make a new Roman Empire, developing a fierce competitiveness and collective masculinity in the service of the fascist state. Mussolini's message to Italy's World Cup squad was 'Win or Die'. Similarly, Hitler used Olympic Games as a symbol of racial supremacy and political cohesion in 1936. It is also believed that Cricket helped to bring down the apartheid system in South Africa. It is also widely believed that British promoted Cricket in its Empire with the motive of moulding the indigenous populations as supportive tools of industrial capitalism with the theme of working under one captain, area of coverage, following the laid out rules etc. (10*). It was not just used in colonial countries. Rather, it was propagated that wherever cricket was played, there would be lighter crime and fewer radical opinions and strikes (11).* It is not just past. Such political connections are continuing even now. For example, the Athletes *Tommy Smith* and *Jon Carlos*, the winners of the Gold & Bronze medals respectively in the 200 meters in 1968 Mexico City Olympics raised their fists in a Black Power Salute and were barred from representing in the Unities States Again. The phrase *'Nuclear Cricket'* was used for the Cricket test series between India and Pakistan by *Studies on the relationship between Sport and Politics* in *The changing politics of Sport (12).* Thus, it creates enmity amongst people. Instead of taking it as fun, instead of promoting unity amongst diversity, certain match creating rift and rivalry.

Vethathiri Maharishi's perspective on Sports

To attain World Peace (13), Vethathiri Maharishi has formulated the principles known as Vethathirium. Maharishi has developed the model in unique way. He believed, World peace can be achieved from 'Bottom up approach' not the 'Top down approach'. If leaders of top two nations come together, announce World Peace, Maharishi feels it would not be practically achievable. Clashes and rifts amongst public would continue to remain. Rather, first the steps needs to be taken for 'Individual Peace'; individual peace would blossom up as 'Family Peace' with all the members of family practising it; with more number of families, it may translate into 'social peace'; when the number of such societies increase, it would blossom up as 'World Peace'. To achieve that, Maharishi has devised scheme with fourteen point plans. One of

those plans is to ‘restrict sports only for children’. Maharishi mentions that sports should be limited to children, for the purpose of maintaining physical health. He also specifies that the qualities of morality, unity, discipline, magnanimity, efficiency and memory power would grow amongst the children on playing sports.

On sports being played by Adults, Maharishi’s philosophy goes as below:

- Good physical exercise is sufficient for the adults. Proper physical exercises help to maintain good physical health (14). In olden days, people were needed for War amongst each other. There the strong physique was needed. Training in the name of sports, helped to get such soldiers to fight for the rulers. In the current scenario of World, physical body fitness is not the primary reason to win the war. Hence, healthy physical body is sufficient.
- Sports by grown adults result in
    - Increase in Jealous and rivalry
    - Games turning into gambling
    - Wastage of time since several people are watching those events
    - Productivity gets reduced

Yoga for mankind

Yoga is a technology of lifestyles designed to increase the sixth feel to its fullest. It's going to enable and equip men to experience a non-violent and blissful life. It is essentially the artwork of information all about the soul, which is virtually the lifestyles force. It's miles the art of understanding the soul’s relationship with the body, the society, the sector and the universe, of retaining its concord with, and finally getting it merged with, ordinary soul. In different phrases, Yoga is systematic psychic practice to enhance consciousness, to develop will-power and to comprehend the self. It allows one to metamorphose one’s person in order that it can be in tune with the Self and society. It permits one to end the start-cycle via merging with the ALMIGHTY. Yoga is whole procedure of creating guy best. It develops his character so that he can also attain his remaining goal and fulfil the reason of his start.

Inside the evolutionary technique of nature, man is specific living being in that he by myself is talented with sixth experience. The sixth feel is a better level of mind, that is capable of apprehend its personal life and capabilities. It's miles a divine meter measuring all of the capabilities of the universe. It knows oneness amongst multiplicity and solidarity in diversity. The five senses paintings with Perceptions. “belief” way three mixed concepts of motion – cognition, experience and discrimination. The sixth experience is of a better level, for further to the sensory notion, it has the ability to comprehend the self, that is, to comprehend the full consciousness itself.

In the route of the improvement of the sixth experience guy involves experience that the embodiment of the soul and the dwelling technique are, in the remaining analysis, painful and depressing reviews with ever growing issues. Right here, let us bear in mind the definition of the soul. Soul is definitely life-force, that's life-energy, Spirit. The fractional attention is seated in the lifestyles-force particles (Soul). Therefore, every time the soul is mentioned, it should be saved inside the thoughts that it includes fractional recognition inside it. While a man understands the law of nature and the starting place, improvement and fluctuations of ache and pleasure sensations, the urge arise in him to seek liberation from the birth cycle. That is because a spread of things maintain guy tied to the earth. Having felt the want for liberation, he has to undertake and go through a nicely-planned and systematic exercise in his way of living with the intention to reach his purpose. The benefits of yoga does no longer end with the development of soul – awareness alone. While we are engaged in cultivating this esoteric attention, we need to now not adjust the properly-being of the bodily frame to a secondary area. For maintaining the bodily frame in proper nation, two situations ought to be fulfilled. They're:

1. Enjoyable the desires springing up from appetite, adjustments inside the atmospheric situations And excretory forces of the body.
2. Guarding against the malfunctioning of the human system, the enmity of other Living beings, and natural screw ups.

For the fulfilment of those situations, one has to apprehend the law of nature, the sample of the society in which one lives and the emotions of the individuals constituting the society.

Yoga will assist guy to carry out all of his responsibilities in harmony with the laws of nature and the

Sentiments and conventions of society. It's going to permit him to steer a successful existence, and acquire satisfaction and peace by way of sharping the intellect, cultivating the steady attention, strengthening

The need, streamlining the thoughts and basing the behaviour on moral values.

For the reason that characteristic of the mind and the frame are interdependent, it is vital that same attention paid to the each the spiritual and material components of guy. Yoga gives all of the advantages in each fields. Consequently, Yoga is a well-balanced and ideal system for achievement and peace in Life (15).

Health Benefits of Yoga

1. Stable autonomic nervous system equilibrium, with a tendency toward parasympathetic nervous system dominance rather than the usual stress –induced sympathetic nervous system dominance.
2. Pulse rate decreases.
3. Respiratory rate decreases
4. Blood pressure decreases (of special significance for hyporeactors)
5. Galvanic Skin Response (GSR) increases
6. EEG-alpha waves increase (theta, delta and beta waves also increase during various stages of meditation)
7. Cardiovascular efficiency increases
8. Respiratory efficiency increases (respiratory amplitude and smoothness increase, tidal volume increases, vital capacity increases, breath –holding time increases).
9. Gastrointestinal function normalizes.
10. Endocrine function normalizes.
11. Excretory functions improve.
12. Muscular-skeletal flexibility and joint range of motion increases.
13. Posture improves.
14. Strength and resiliency increase.
15. Endurance increases.
16. Energy level increases.
17. Weight normalizes
18. Sleep improves.
19. Immunity increases.
20. Pain decreases.

Conclusion

From the above, it is evident that sports are proving to be more harmful than beneficial to human being. Physical exercises, the subset of Yoga, is the ideal tool to replace for maintaining better health. Hence, sports may be promoted only for Children. Adults be better utilised in productive ways, for prosperity of the World.

We improves our performance by daily yoga practicing. in order to perform a sporting action efficiently and effectively, a person needs to have a high degree of concentration and focus with a mind that is calm and controlled Yoga can help a sportsperson to have evenness

of mind and control of their thoughts even during stress and/or adversity. Yoga can play a key role in cultivating mind control and concentration which helps a sportsperson to perform at their peak levels and yoga helps us a lot.

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THE IMPACT OF MAINTAINING STATISTICAL DATA ON TECHNO-TACTICAL PERFORMANCE OF BASKETBALL PLAYERS

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ABSTRACTS

A team that is properly assigned per position will have maximum efficiency because every player is in their best-matched position in terms of their ability to meet the positions' performance criteria (Trninic and Dizdar). But a team that is incorrectly assigned will be poorly coordinated with players not knowing how to play in their designated position.

The purpose of this STEM project is to develop the Sports Analytics concept for playing Basketball by forming a special Basketball Team. In order to maximize team performance, Guard will try to pass the ball to Forward. Centre should focus on Rebounding and Blocking, not steals. Each player's Statistics are recorded by two different individuals. Hypothesis tests are conducted (1) to verify whether players can fulfil their position within their team, and (2) to perform a position comparison between the two teams. Sample sizes are determined in order to conduct a 2-Proportions Test at 95% confidence. In the Analyse phase, the authors decided to add Steals (for all three players), Turn Over's (for Guard), and Offensive/Defensive Rebounds into the Project Scope.

Statistical analysis software (JMP and Minitab) was used to study the multi-correlation patterns. The winning team demonstrates better team communication among players by playing according to this unique Basketball Game player position model.

KEYWORDS

Stem, basketball, sports analytics, hypothesis testing (2-proportions- test), Statistic.

INTRODUCTION

In basketball, there are many positions and unique roles. While other authors have used many advanced analytic techniques to assess player performance (Oliver, Hollinger), these methods have not provided tangible insights which determine overall team performance (Gold berry). In fact, a review of performance by position using foundational statistical methods could not be readily found in the authors' review of published literature. By maintaining the statistical data report regularly on daily training period. The techno-tactical development and psychological performance is observed and the recorded is maintained for the future analysing of the trainee progression development.

Every training plan the statistical data is maintained and the performance development is noted. After giving training program to the trainee at an each quarterly period at the end of month again the techno-tactical and psychological improvement is checked. This maintaining of statistical data will shows the performance and development of trainees and all helps to train their week areas and strong area to achieve an optimal performance. And also used to find the best trainees and performance player for the long term goal tournaments and games. So the effect of maintaining statistical data on the psychological and techno-tactical progression of the trainees will plays an important study of the trainees training programming.

BASKETBALL STATISTICS AND ITS IMPORTANCE

The effect of Basketball Statistics data maintaining:-

A collection of data in a summarized manner which consists of field goals, assists, rebounds, fouls, turnovers, etc.

Importance of Basketball Statistics data maintaining:-

To Coaches:-

- *For the development of an Individual player/s.*
- *To analysis Team or Individual performance during the game.*
- *To design the game strategies.*

To Media:-

- *During Live broadcast.*
- *Highlighting the performance of the player or team.*
-

Federations / Team Owners in the professional leagues during the selection of the players.

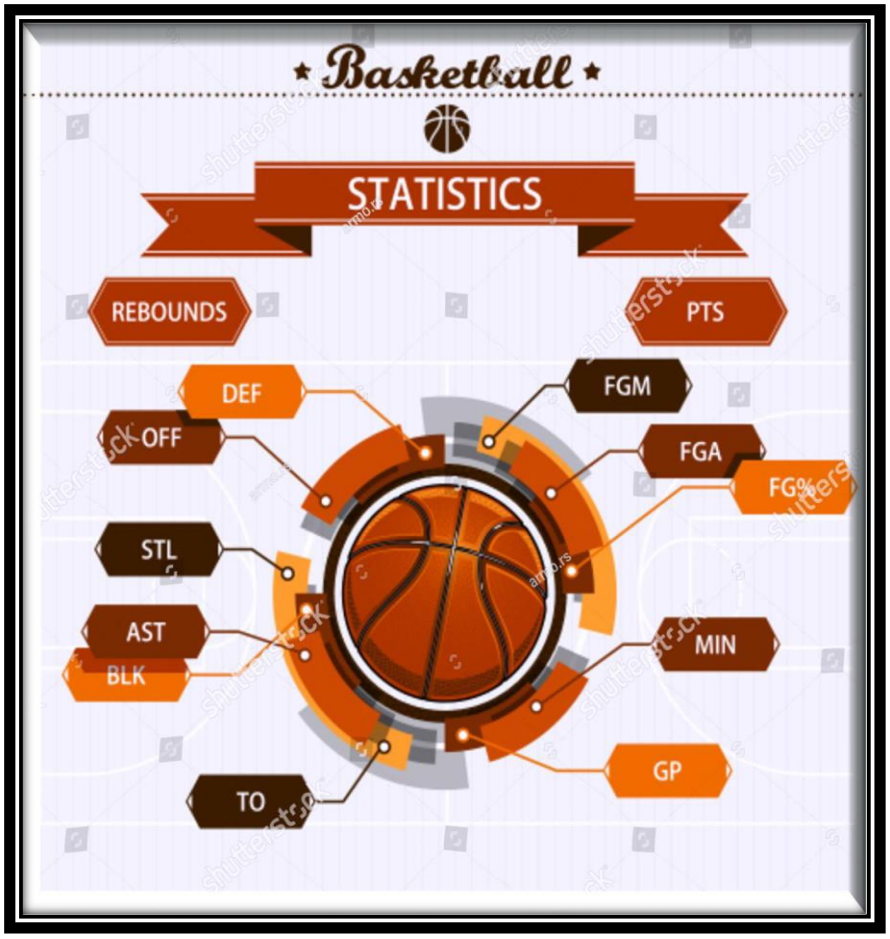


Fig: 1

The effect of maintaining statistical data on the psychological and techno-tactical progression of the basketball game shows the efficiency of the players and its relationship with the team performance and development of the trainees' improvement.

When using this kind of analysis, many aspects can be considered. As examples: -

- Individual and team performance.
- Performance according to specific positions. (Guards, Forwards, Centers)
- Performance according to the game locations. (Home and Visiting)
- Performance according to the results of the game. (Winning and losing)

BOX-SCORE

Field Goals (FG):-

The total number of field goals attempted, FGA = 2PtA + 3PtA

The total number of field goals made, FGM = 2PtM + 3PtM

Free Throws (FT):-

Total number of Free Throw Attempted (FTA)

Total number of Free Throw Made (FTM)

Rebounds:-

The total number of rebounds collected by the team / player (TOT)

The number of Offensive Rebound (OR)

The number of Defensive Rebound (DR)

Assists (AS):-

An assist is a pass that leads directly to a team-mate scoring.

Steals (ST):-

A steal is charged to a defensive player when his action causes a turnover by an opponent.

Intercepting or deflecting a pass

Taking the ball away from an opponent holding or dribbling the ball

Picking up a loose ball after a mistake of an offensive player

Block shots (BS):-

The number of blocks by a defensive player

Turnovers:-

A turnover is a mistake by an offensive player or team that results in the defensive team gaining possession of the ball, including:

A bad pass

Ball handling or fumbling

24 sec, 8 sec and 5 sec out of bound violation are team turnovers.

A turnover can only be committed by the team in control**.**

Personal Fouls (PF):-

A foul is called on a player following a decision by a referee. Personal, technical, unsportsmanlike and disqualifying fouls can be called on a player.

Fouls Drawn (FD):-

Any time a player is fouled, a foul drawn is charged to that player.

Points off Turnovers:-

The total number of points scored by a team during the possession following an opponent turnover.

Points in the Paint:-

The total number of points scored by a team from a FGM that originates inside the restricted area.

Second chance point:-

The total number of points scored by a team following an offensive rebound and before their opponents regains possession.

Biggest Lead:-

The largest lead each team had during the game, and when this occurred.

Biggest Scoring Run:-

The largest margin of consecutive points scored by a team without any points being scored by their opponent.

Efficiency Formula: -

Eff (In FIBA Box Score)

((4*s Three Pointers Made) + (3*s Two Pointers Made) + (2*s Free Throws Made)) (sThreePointersAttempted+sTwoPointersAttempted+sFreeThrowsAttempted) + sRebounds Offensive + sRebounds Defensive+ sBlocks + sAssists + sSteals - sTurnovers

METHODOLOGY

1. Define Project Scope and Baseline Analysis

In the following section, four main areas will be covered: (1) Project Challenges, (2) Project Hypotheses, (3) Data Collection Plan and Game Rules, and (4) Collect Baseline Data.

1.1 Project Challenges

The main challenge of conducting this STEM project is to facilitate the team communication. Each player needs to be familiar with each member's position and function. They need to split the work on both offense and defence. Guard needs to pass the ball to Forward. Forward needs to find all the opportunities to shoot. Centre needs to get rebounds. Altogether, the three players must synchronize their ball and body movement in order to maximize teamwork and to improve efficiency on both offense and defence. Specially designed game rules will help facilitate such team communication during real games.

1.2 Project Hypotheses

There are two main project hypotheses: (1) within the same team, is the position assignment appropriate and (2) between two teams: which team has the better player at each of the three positions?

The first hypothesis investigates whether or not the coach has assigned each player to the correct position in order to maximize his potential and contribution to the team. The second hypothesis determines, out of the three positions, which player is comparatively better than the one from the other team at the corresponding position.

1.3 Data Collection Plan and Game Rules

Based on the project objectives, the recorder will collect two main player statistics at each position. Guard will be judged by Assists and Goals; forward will be judged by Goals and Rebounds; Centre will be judged by Rebounds and Blocks. An assist is defined by when Guard passes the ball to forward and forward can score successfully. Centre will not be credited if they score. On the other hand, Guard will not earn any credit if they rebound the ball or block any shots. These special game rules will reinforce each player's fulfilment of their position, by emphasizing Better team collaboration during each ball movement. During their play on offense and defence, each player needs to understand their roles and position as well as that of their team members'. Also, during their play on defence, players need to remember the opponent teams' player positions and primary functions within them. For example, each team will try to minimize the chance that their opponent Guard can pass the ball to their Forward and score.

1.4 Collect Baseline Data

Two 3-player teams have been formed and trained on the game rules. The baseline data has been collected as shown in Table 1. The end of the game was determined by the first team to score 10 Goals.

TABLE 1. BASELINE DATA

	G-Goal	G-Assist	F-Goal	F-Rebound	C-Rebound	C-Block

Team A	1	2	7	7	11	1
Team B	4	2	6	2	9	3

RESULT AND DISCUSSION

2. Analysis and Results

After collecting the baseline data, authors conducted two hypothesis tests to verify the team and the players 'efficiency.

2.1 1st Hypothesis: Player Position Assignment

As shown in Table 2, the total row has combined the player statistics from both teams. The 2-Proportion hypothesis test has been used to check whether (1) Forwards score better than Guards and (2) Centres can rebound more than Forwards, with combined statistics taken across both teams.

Per Table 2 statistics, based on the results of a 2-Proportion Test, the calculated P-value comparing Guard and Forward is 0.003. The P-value of Forward and Centre is 0.002. Since both P-values are smaller than 0.05, we reject the null hypothesis at 95% confidence. As expected, Forward can score better than Guard and Centre can Rebound better than Forward.

TABLE 2. TEAM COMBINED STATISTICS.

	G-Goal	G-Assist	F-Goal	F-Rebound	C-Rebound	C-Block
Team A	1	2	7	7	11	1
Team B	4	2	6	2	9	3
Total	5	4	13	9	20	4

2.2 2nd Hypothesis: which player is better?

The objective was to compare the number of Goals, Rebounds, and Blocks of players of the same position across the two teams. A 2 proportion test was used to compare the total number of Goals, Rebounds, Assists and Blocks by position player position (Guard, Forward, Centre) across Team A and Team B . For each test, the resultant p-value is higher than 0.05. Therefore, we fail to reject the null hypothesis that the proportion difference is zero in the population, with 95% confidence. So, we can say that, based on the p-values, each player position produces equivalent output (Goals, Assists, Rebounds and Blocks) among teams in the population.

TABLE 3. 2-PROPORTION HYPOTHESIS TESTS

	G-Goal	G-Assist	F-Goal	F-Rebound	C-Rebound	C-Block
Team A	1	2	7	7	11	1
Team B	4	2	6	2	9	3
Team A	6%	50%	39%	24%	38%	25%
Team B	22%	50%	33%	7%	31%	75%
2-Proportions P-Value	0.136	1.000	0.728	0.062	0.783	0.102

CONCLUSION AND RECOMMENDATIONS

The project successfully designed a special Basketball Game position model which can facilitate team communication. The baseline analysis sample size was too small and was missing critical sample statistics for Steals and Turnovers. The improved analysis can facilitate team communication on both Offense and Defence. The use of statistical analysis to make inferences on position and team performance in the population at large can help each team study their performance pattern and to study each player's' strengths/ weaknesses relative to their position &across teams.

Future efforts will be focused on studying a larger sample size in improve decision accuracy. For example, a future study could compare three or more teams. This way, there will be a higher chance of inferring the correct conclusion of a true performance difference (or lack thereof) between players of the same position & across positions across teams.

This maintaining of statistical data of players will be useful in selection of player's in future junior & senior team of basketball national and international player's selection for our country.

It is used to develop the performance of the particular position of the players individual and team relationship in game coordination.

Analysis the player efficiency, positions areas strong and weak strategies in which we can develop it by training for the particular position development.

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EFFECT OF RESISTANCE TRAINING AND ENHANCING VOLLEYBALL SKILL AMONG TRIBAL ADOLESCENCE OF THIRUPATTUR DISTRICT

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Abstract

Tribal adolescents are brave enough to lead their lives with the support of sports, but their participation in sports is inadequate. Through this study, resistance training shall be implied among tribal adolescents for developing bio motor skills. The prime focus of the study is to develop bio motor skills to attain the goal through resistance training. The samples chosen for the study were from Tirupattur district, Tamil Nadu, India. The samples are tribal adolescents, and 30 samples were chosen for this study. A simple random sampling method was chosen for selecting samples, and the respective samples are age-grouped from 16 to 18 years. The selective samples were split into two groups, such as the experimental and control groups. 15 samples were chosen for each group. The Wilmore's Flexibility Test was used to examine bio motor flexibility. The outcome of the target group revealed that there is considerable enhancement in bio motor components such as flexibility among tribal adolescents in Tirupattur district.

Keywords*: flexibility, resistance tribal adolescence*.

Introduction

One of the significant things that must be concentrated on during the process of training the tribal adolescence is to enrich the level of their unique bio motor requirements, which is the prime through which the player can participate well during the match, and this process of enhancement can only be successful through resistance training, the most developed training for those unique bio motor requirements, and that process of determining the best training can support them to achieve those expected bio motor abilities in a positive way. resistance training support various bio motor components, such as flexibility. This study shows how the tribal adolescence adopted the respective skills and showed the effect of these skills on their performance in volleyball games.

Review of Literature

Nayak & Singh (2021) mentioned in their study that tribal volleyball players are very strong in speed, agility, cardio- raspatory endurance, and flexibility. There is a huge difference between tribal and non-tribal people in every aspect of life, i.e., rituals, customs of living, etc. Therefore, there is a great chance that there may be a huge variation in blood pleasure and body composition. There is a great belief among the common people of India that tribal and non-tribal people differ in their strength, speed, agility, and flexibility and that they should be availed of unique physical activities

Boichuk et al. (2020) highlighted that for the empowerment of technical and tactical performance of volleyball players, special physical fitness can be attained for the age group of 16 to 18 years with the condition of viable active participation.

According to Fleh (2021), resistance training improves ability and speed in basic physical requirements and aids in the development of accuracy and flexibility during the match. The resistance training the volleyball players to play actively and quickly during the match.

Research Objectives

1. Recognize the effect of resistance training in enhancing the flexibility speed of the experimental group.
2. Prepare exercises according to the style of resistance training to increase the agility speed of the experimental group.

Research Hypotheses

1. There is a positive effect of resistance training in enhancing the speed of flexibility of the Tribal adolescence.
2. There is a great effect of training accordingly to the module of resistance training of increasing the speed of flexibility among Tribal adolescence.

Research methods

The objective of the experimental research is to determine the impact of resistance training on the bio motor components of flexibility in tribal adolescence. 30 tribal adolescents from the Tirupattur district, Tamil Nadu, were randomly selected. The selected samples were split into two clusters, each consisting of 15 participants. The control group participants had regular training, but resistance training was given to the experimental group to enhance their bio motor level so that the tribal adolescents could be involved in volleyball.

Training sessions

There were twelve weeks of training sessions. There were 40 minutes of training per day given to the experimental group. Those 40 minutes consist of a 10-minute warm-up, 20 minutes of resistance training, and 10 minutes of warm-down. Each week, 10% of extra training was implemented, ranging from 30 % to 60 % of training.

Data collection

The samples were divided into two clusters, such as the experimental group and the control group, and were analysed on selected bio motor variables. Flexibility was analysed and tested before the interventions, and the scores were documented and saved with their respective units as pre-test scores. The experimental group underwent the respective explosive training programme for a period of twelve weeks. At the end of the twelve-week training period, the experimental group participants had undergone various treatments and training. The post-test was conducted after the treatment on selected bio motor variables. In the end, the collected data was statistically analysed to identify the effect of resistance training among tribal adolescents.

Means of collecting information and equipment used as research tools.

Sit and reach measurement box – Flexibility

Self-observation by the researcher

Research tools

Test and measurements

Statistical tools

Ms- Excel, SPSS - Paired sample T-Test and SPSS - Paired statistics.

Statistical Analysis

Table 1 Statistical Analysis of Pre-Test and Post Test Scores and Computation of the Mean on Resistance Training on the Bio-motor Component Flexibility.

Flexibility- **Paired Samples Statistics of Control and Experimental Group**					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Control Group Flexibility Pre- Test	33.9533	15	2.27404	.58715
	Control Group Flexibility Post- Test	33.5533	15	2.31821	.59856
Pair 2	Experimental Group Flexibility Pre-Test	33.9533	15	2.27404	.58715
	Experimental Group Flexibility Post-Test	35.8133	15	2.43365	.62837

Table 1 shows the Flexibility mean values of the control group and experimental group. Table 1 displays the control group's pre-test mean value is 33.95 and the post-test value of 33.55. The post-test score has to be increased, but without training, the control group value is nothing change, even the mean value is decreased. This value shows there is no improvement in the control group. As the experimental group's pre-test mean value is 33.95, and the post-test score is 35.81. This value shows that the mean value has increased. The Flexibility of bio-motor components, the value has increased through resistance training. This study strongly proved that there was a significant effect was done among the experiment group.

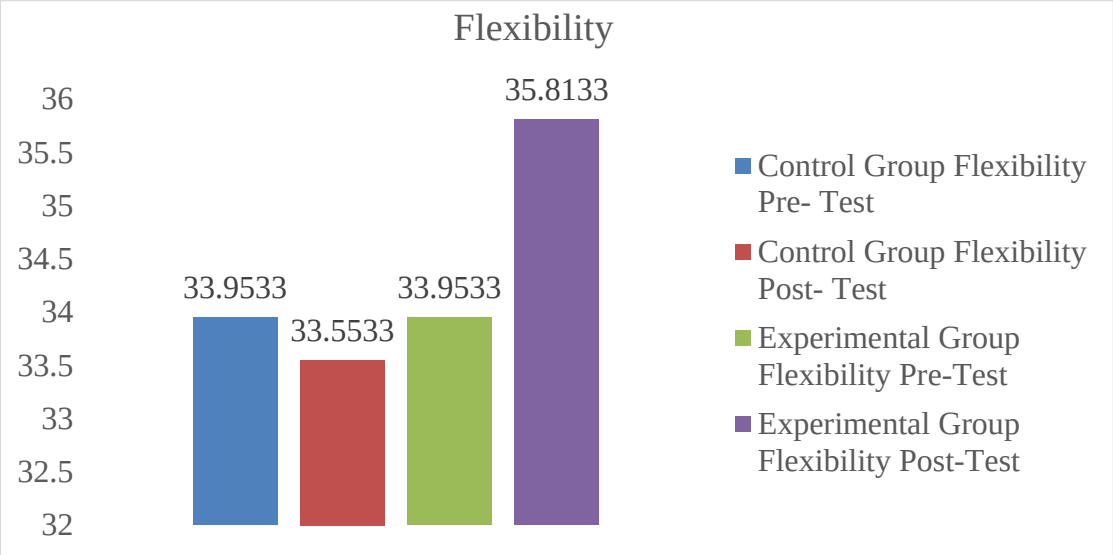


Table 2 Flexibility - Paired Samples Test

	Paired Differences					T	Df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Control Group Pre-Test and Post-Test	.40000	.63246	.16330	.04976	.75024	2.449	14	.028
Experimental Pre-Test and Post-Test	1.86000	.69775	.18016	2.24640	1.47360	10.324	14	.000

The frequency table is shown in table 1 and 2 the paired values clearly show that the experimental group performed well compared to the control group. Thus, resistance training is effective to enhance bio-motor components Flexibility.

Study Outcomes and Discussion

The outcomes of the study revealed that the experimental participants in resistance drill for a phase of 12 weeks were competent to enhance their skill in selected bio motor variables. Subsequently, analysing the two values, the investigator unearthed that there were considerable variances between the control group and the experimental group. There was a considerable difference in the harm and stretching abilities of the experiment group.

Conclusions

- The enhancement of bio-motor flexibility by using resistance training had a positive effect on the experimental group.
- The training has a positive effect on the enhancement of range flexibility and adapting nature.

- The ability enhancement of tribal Adolescence to play actively following resistance training.

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IMPACT OF SELECTED PHYSIOLOGICAL VARIABLES AMONG FOOTBALL PLAYERS

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Abstract

Low students' aerobic power, anaerobic power, vital capacity and resting heart rate may negatively affect their student's performance, such as student wellness, and academic achievement. The findings of the study will help students improve blood, oxygen and nutrient flow to working muscles and help with recovery between sets of resistance-training exercises. Improving the flow of blood to muscles can also help improve flexibility. The scale was aerobic power, anaerobic power; vital capacity and resting heart rate were measured using a specific questionnaire. The data were collected from 200 college students' football players in Chennai District in Tamilnadu. Simple random sampling technique was used for the present study. The findings of the study was there is significant difference in the aerobic power, anaerobic power, vital capacity and resting heart rate of football players.

Keywords: *aerobic power, anaerobic power, vital capacity and resting heart rate*

Introduction

Nowadays, sports competitions are very competitive and demanding. Humans are naturally competitive and strive for excellence in all sporting achievements. Every athlete or nation wants to show their superiority by challenging other nations by showing dominance and superiority in sporting achievements in international competitions. Thus, this challenge stimulates, inspires and motivates all nations to sweat and strive to run faster, jump higher, throw faster and demonstrate greater strength, endurance and skill in today's world of competitive sports. This can only be possible through scientific, systematic and planned sports training and its implementation in appropriate games and sports while recognizing its possibilities. In order to achieve high sporting achievements at an international level, all physical, psychological and physiological abilities and skills of the athlete must be developed to the utmost limits. Physiological factors such as aerobic power, anaerobic power, vital capacity and VO2 max play an important role when participating in competitions to achieve a higher level of performance. Therefore, this study was conducted to understand the relationship between the selected physiological variables, namely aerobic power, anaerobic power, vital capacity and resting heart rate, with the performance of the football players.

Need and Significance of the study

This study was conducted on college students' aerobic power, anaerobic power, and vital capacity and resting heart rate. Aerobic exercise significantly impact of college students. Fitness is the main objective of the educational process. College students are handling many problems at the age of 18 to 22, and they need them to decide on their future education and health. Physical and body composition play an important role in player selection. Cardiovascular status, indicated by heart rate recorded during training and recovery, plays a critical role in player identification and selection as well as training planning. Monitoring biochemical parameters such as urea, uric acid and lipid profiles is beneficial in regulating training load, nutrition and maintaining players' health status.

This study will provide insight into a college student's aerobic power, anaerobic power, vital capacity and resting heart rate. Low students' aerobic power, anaerobic power, vital capacity and resting heart rate may negatively affect their student's performance, such as student wellness, and academic achievement. The findings of the study will help students improve blood, oxygen and nutrient flow to working muscles and help with recovery between

sets of resistance-training exercises. Improving the flow of blood to muscles can also help improve flexibility.

This study will also benefit students by helping them to be physically well, functioning well in their personal lives, boost our mood, increasing strength and stamina, reducing health risk, manage chronic conditions and strengthen our heart. The findings will enable students to promote individual's ability to perform aerobic exercise, which is determined by physiological factors such as VO2max, lactate threshold, and exercise efficiency.

Operational definitions of the key terms

Physiological variable: The investigator means that the students of aerobic strength, anaerobic strength, vital capacity and resting heart rate are physically healthy and perform professionally.

College students: The investigator means football players aged between 18 and 22 years, male football players in Chennai District of Tamil Nadu.

Objectives of the study

The present study has the following objectives,

1. To find out the level of Aerobic Power, Anaerobic Power, Vital Capacity and Resting Pulse Rate of football players of football players.
2. To determine the Aerobic Power, Anaerobic Power, Vital Capacity and Resting Rate of football players of football players.

Hypotheses of the study

1. There is no significant difference in the Aerobic Power, Anaerobic Power, Vital Capacity and Resting Pulse Rate of football players.
2. There is no significant relationship in the Aerobic Power, Anaerobic Power, Vital Capacity and Resting Pulse Rate of football players.

Methodology

The present study was 200 football players randomly selected from the population in Chennai District in Tamilnadu. The age of players ranged from 18 to 22, with a mean age of 20 years. The selected players underwent Astrand Nomogram (lit./m), Sargent Jump-Lewis Nomogram (Kg. m/sec), and Dry Spirometer Test (lit.) for the aerobic power, anaerobic power and vital capacity respectively while the resting pulse rate was measured manually at the radial artery. The football performance of the selected players was evaluated by the panel of three experts on the basis of subjective observation of the player's performance during the series of matches during the competition and was recorded in points to a maximum of 50 points. The collected data were analyzed statistically, keeping the objectives. Mean standard deviation and analysis of variance and correlations were calculated in order to compare and describe results.

Analysis of the study

The investigator calculated the mean and standard deviation scores of Aerobic Power, Anaerobic Power, Vital Capacity and Resting Pulse Rate of 200 football players in the Chennai District in Tamil Nadu.

Table-1

Descriptive Statistics Aerobic Power, Anaerobic Power, Vital Capacity and Resting Pulse Rate

Physiological Variables	n	Mean	Std. Deviation
Aerobic Power	200	5.78	0.54
Anaerobic Power	200	147.65	19.34
Vital Capacity	200	3986.67	395.42
Resting Pulse Rate	200	76.82	5.68

The above table- 1 shows that the mean and standard of Aerobic Power, Anaerobic Power, Vital Capacity and Resting Pulse Rate of the football players which were found to be

5.78 ± 0.54 liters/min., 147.65 ± 19.34 Kgm./sec., 3986.67± 395.42 liter and 76.82 ± 5.68 beats/min. respectively.

Analysis of Variance among Aerobic Power, Anaerobic Power, Vital Capacity and Resting Pulse Rate were subjected to analysis of variance and are given below.

Table-2
Analysis of Variance among Aerobic Power, Anaerobic Power, Vital Capacity and Resting Pulse Rate

Variables	Source and Variance	Sum of Squares	Degrees of freedom	Mean Square	F	Sig.
Aerobic Power	Between	2448.216	2	366.34	3.960	0.43
	Within	214345.045	198	206.92		
	Total	216793.261	200			
Anaerobic Power	Between	2105.017	2	1242.91	3.577	0.31
	Within	233468.613	198	347.45		
	Total	235573.063	200			
Vital Capacity	Between	2428.256	2	346.86	3.460	0.28
	Within	206015.321	198	206.24		
	Total	208443.642	200			
Resting Pulse Rate	Between	2655.817	2	1386.23	3.523	0.44
	Within	287468.613	198	321.54		
	Total	290124.043	200			

(*Significance at 0.05 level)

The analysis of variance shows that there is significant difference in the Aerobic Power, Anaerobic Power, Vital Capacity and Resting Pulse Rate as the calculated value of 0.43, 0.31, 0.28 and 0.44 are higher than the table value 1.96 with degrees of freedom (2,198) at 0.05 level of significance. So, that the hypothesis stated here that there would be a significant difference exists in the four categories of football players on Aerobic Power, Anaerobic Power, Vital Capacity and Resting Pulse Rate is rejected.

Table-3
Relationship of Aerobic Power, Anaerobic Power, Vital Capacity and Resting Pulse Rate of football players

Variable	Pearson Product Moment Correlation			
	Aerobic Power	Anaerobic Power	Vital Capacity	Resting Pulse Rate
Football Players	0.354	0.423	0.236	- 0.347

The above table-3 reveals that the there is a significant positive correlation between aerobic power (0.354), anaerobic power (0.423), vital capacity (0.236) and a significant negative correlation between resting pulse rate (-0.347) at 0.01 level of significance with the performance of the football players in the Chennai District in Tamil Nadu.

Conclusion

In the present study, a sample of 200 college students participated in the survey method, when we look back to the mean scores, Aerobic Power, Anaerobic Power, Vital Capacity and Resting Pulse Rate as the calculated value of 0.43, 0.31, 0.28 and 0.44 are higher than the table

value 1.96 with degrees of freedom (2, 198) at 0.05 level of significance and there is a significant positive correlation between aerobic power (0.354), anaerobic power (0.423), vital capacity (0.236) and a significant negative correlation between resting pulse rate (-0.347) at 0.01 level of significance with the performance of the football players in the Chennai District in Tamil Nadu. So, the result of the present study supports the previous researches that the higher aerobic power, anaerobic power, vital capacity and a lower resting heart rate enhances athletes' performance in sport (AmusaLatheef , 1979; Castagna, 2007).

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IMPACT OF GAME-SPECIFIC TRAINING AND PLYOMETRIC EXERCISES ON SELECTED PHYSICAL FITNESS VARIABLES IN COLLEGE-LEVEL VOLLEYBALL PLAYERS

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Abstract

The purpose of this study was to investigate the impact of game-specific training and plyometric training on specific physical fitness variables in college-level volleyball players. To accomplish this objective, 30 subjects were randomly selected from Coimbatore Institute of Engineering and Technology, Coimbatore, with ages ranging from 18 to 21 years. These selected subjects were then randomly divided into two groups, each consisting of 15 participants: an experimental group and a control group. The experimental group underwent a regimen of game-specific training and plyometric exercises, while the control group did not participate in any experimental activities. The physical fitness variables under examination in this study were agility and leg explosive power. The research design followed a true random group design, encompassing both a pre-test and a post-test. All 30 subjects were evenly assigned to either the experimental group (comprising game-specific training and plyometric exercises) or the control group. Prior to the six-week experimental period, pre-tests were administered to assess the selected physiological variables in all 30 subjects. Subsequently, post-tests were conducted at the conclusion of the experimental period, and the scores were meticulously recorded. Statistical analysis was performed with a predetermined level of significance set at 0.05 confidence. The findings of this study revealed a significant improvement in agility and leg explosive power among participants in the game-specific training and plyometric training group.
Keywords: agility, leg explosive power, volleyball players.

Introduction

Volleyball

Volleyball is a team sport that features two teams, each consisting of six players, separated by a net. The primary objective for each team is to earn points by successfully landing the ball on the opposing team's court, all while adhering to well-structured rules. This sport has been a part of the official program of the Summer Olympic Games since 1964. The comprehensive rules governing volleyball are extensive, but in essence, the game unfolds as follows: To initiate a "rally," a player from one of the teams serves the ball, either by tossing it into the air and striking it with their hand or arm, from a position behind the rear boundary line of the court, sending it over the net and into the receiving team's court. It is imperative for the receiving team to prevent the ball from touching the ground within their court. While doing so, the team is allowed up to three touches of the ball, but individual players cannot make consecutive touches. Typically, the first two touches are utilized to set up for an "attack," an attempt to skillfully direct the ball back over the net in such a manner that the serving team cannot prevent it from landing in their court. The rally continues, with each team having the privilege of up to three consecutive touches, until one of two outcomes occurs: either a team successfully lands the ball on the opponent's court, thus winning the rally, or a team commits a fault, resulting in the loss of the rally. The victorious team in the rally earns a point and assumes the role of the serving team for the commencement of the subsequent rally.

Sport-specific training enhances and hones the essential skills required to excel in any sport. Your young athlete will gain increased confidence in their agility, speed, and hand-eye coordination. The Sport-Specific Skill Training offers a year-round, high-level, sport-specific

training experience. It places a strong emphasis on developing the physical, technical, tactical, and psychological aspects of the sport. This training program is an integral part of the Athletic Performance Ranch's mission to cultivate character, knowledge, and leadership. Sport-Specific Training introduces and sharpens the fundamental skills necessary for success in any sport. Your young athlete will experience heightened confidence in their agility, speed, and hand-eye coordination. Both group and individual training options are available. It's important to note that strength training is a crucial component of overall fitness for athletes.

Plyometric exercises do not lead to unnecessary bulk; instead, they play a vital role in enhancing athletes' ability to execute skills and perform at their best. Incorporating strength training and conditioning is essential for improving athletic performance, even in endurance Plyometric training, often referred to as "plyo" or "jump training," is a form of exercise that focuses on explosive, rapid movements to develop power, strength, agility, and speed. It involves quick and forceful contractions of muscles, typically preceded by a rapid stretching (eccentric) phase. The primary goal of plyometric training is to improve an individual's ability to generate maximum force in a short amount of time. Plyometric exercises typically involve jumping, hopping, and bounding movements, and they are commonly used in sports conditioning, rehabilitation, and general fitness programs. The training typically includes exercises such as: Box Jumps: Jumping onto and off of a platform or box to improve vertical leap and lower-body power. Depth Jumps: Dropping from an elevated surface and immediately jumping as high as possible upon landing to enhance reactive strength. Bounding: A series of powerful, exaggerated running steps that promote speed and explosiveness. Medicine Ball Throws: Explosive throws and catches of medicine balls to enhance upper body power. Jump Squats: Performing squats with an explosive jump at the top to increase lower body strength and power. Plyometric Push-Ups: Pushing off the ground with enough force to lift the hands off the ground during each repetition to improve upper body power. Plyometric training is often integrated into sports-specific training programs to enhance an athlete's performance, especially in sports that require rapid and explosive movements like basketball, volleyball, and sprinting. It can also be used for general fitness to improve strength, speed, and overall athleticism. However, it's important to note that plyometric training should be approached with caution and proper technique, as it can be high-impact and carries a risk of injury if not performed correctly. Individuals looking to incorporate plyometrics into their fitness routines should consult with a qualified trainer or coach to ensure safe and effective implementation. events.

Methodology

The researcher employed a randomized design, which included both pretests and post-tests. A total of 30 male volleyball players (N=30) were assigned randomly into two equal groups, each consisting of 15 participants. These groups were designated as the experimental group and the control group. Before the commencement of any training, a pre-test was administered to assess selected physical fitness variables, specifically agility and leg explosive power, for all 30 volleyball players. Subsequently, the experimental group underwent a six-week regimen involving game-specific training and plyometric exercises, while the control group did not partake in any training activities. After the completion of the six-week training period, post-tests were conducted to measure the same dependent variables. The data obtained from these tests were subjected to statistical analysis using the dependent t-test to determine if any statistically significant improvements were observed. It is noteworthy that a level of significance was set at 0.05, ensuring a 95% confidence level for all analyses.

Test I

Mean and Dependant 'T' – ratio for the Pre And Post Tests on specific Training and plyometric training Group and control Group on agility

Group	Test	Mean	Standard deviation	Standard error	t- ratio
Experimental group	**Pre test**	20.20	4.36	0.18	17.98*
	Post test	23.46	4.20		
Control group	**Pre test**	20.06	4.46	0.19	1.43
	Post test	20.40	4.22		

*Significant level 0.05 level degree of freedom (2.14, 1 and 14)

Table I displays the computation of the 't' ratio comparing the means of pre-test and post-test agility scores for college-level volleyball players. The mean agility values for the experimental group were 20.20 before training and 23.46 after, while the control group had means of 20.06 and 20.40 for the respective tests. The calculated 't' ratio of 17.98 exceeded the critical table value of 2.14, indicating statistical significance for 1 degree of freedom and 14 participants at a 0.05 level of confidence. This finding strongly suggests that the agility of the experimental group significantly improved due to the influence of in-and-outs game-specific strength training and plyometric exercises. Conversely, the computed 't' ratio of 1.43 fell short of the critical table value of 2.14, rendering it statistically non-significant for 1 degree of freedom and 14 participants at a 0.05 level of confidence. This result clearly demonstrates that the agility of the control group did not exhibit significant improvement following the intervention.

The bar diagram shows the mean values of pre test on agility of control group and experimental group.

Bar diagram



Test II

Mean and Dependant 'T' – ratio for the Pre And Post Tests on specific Training and plyometric training Group and control Group on leg explosive power

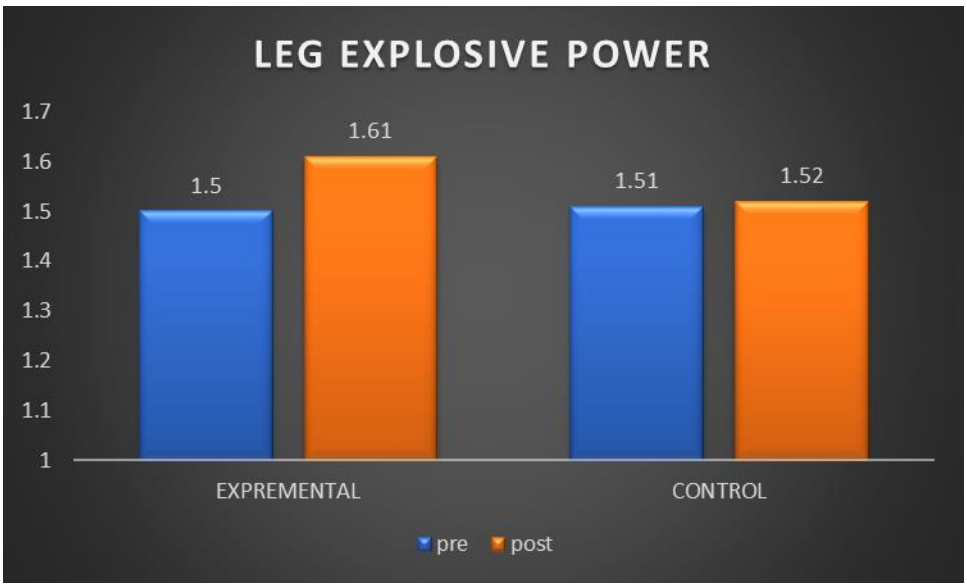
Group	Test	Mean	Standard deviation	Standard error mean	t- ratio
Experimental group	**Pre test**	1.50	0.03	0.45	26.00*
	Post test	1.61	0.04		
Control group	**Pre test**	1.51	0.04	0.06	1.37
	Post test	1.52	0.04		

*Significant level 0.05 level degree of freedom (2.14, 1 and 14)

Table II presents the computation of the 't' ratio comparing the means of pre-test and post-test leg explosive power scores among college-level volleyball players. The mean values for the experimental group were 1.50 before training and 1.61 after, while the control group had means of 1.51 and 1.52 for the respective tests. The calculated 't' ratio of 26.00 exceeded the critical table value of 2.14, indicating statistical significance for 1 degree of freedom and 14 participants at a 0.05 level of confidence. This outcome strongly suggests that the leg explosive power of the experimental group significantly improved due to the influence of in-and-outs game-specific training and plyometric exercises. Conversely, the computed 't' ratio of 1.37 fell short of the critical table value of 2.14, rendering it statistically non-significant for 1 degree of freedom and 14 participants at a 0.05 level of confidence. This result clearly demonstrates that the leg explosive power of the control group did not exhibit significant improvement following the intervention.

The bar diagram shows the mean values of pre test on leg explosive power of control group and experimental group.

Bar diagram



Discussion on Finding

The study's findings reveal a significant improvement in the selected variables, namely agility and leg explosive power, within the experimental group, which consisted of individuals undergoing game-specific training and plyometric exercises, in comparison to the control group. Furthermore, the study indicates that the enhancements achieved by the game-specific training and plyometric training group are notably superior to those observed in the control group. For further insights into this topic, one can refer to the research conducted by **Mala and Pushpa** in their study titled "Effect of Specific Skill Training with Yoga on Skill Performance Variables of School-Level Volleyball Players." In conclusion, the study's results underscore the positive impact of game-specific training and plyometric exercises on agility and leg explosive power, emphasizing their effectiveness in enhancing athletic performance.

Conclusions

From the analysis of the data the following conclusions are

1. The experimental group, comprised of individuals who underwent game-specific training and plyometric exercises, achieved a notably significant improvement in physical fitness variables, specifically agility and leg explosive power, among college-level volleyball players.
2. In contrast, the control group exhibited insignificant improvement in physical fitness variables, including agility and leg explosive power, among college-level volleyball players.

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9. **Jayapal, G., & Sivaraman, P. (2021).** International Journal of Physical Education, Sports and Health 2021; 8(6): 94-95 Effect of game specific drills program on service ability and strength endurance among male Volleyball players.

SYSTEMATIC ANALYSIS OF FAST BOWLING PERFORMANCE OF DISTRICT UNIVERSITY AND STATE LEVEL CRICKETERS

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Abstract:

This study aimed to systematically analyze fast bowling performance among district, university, and state-level represented Cricketers. At the beginning of this research, 150 male Cricketers (50 from each level) actively participated; finally, 60 cricketers (20 from each level) completed their two competitive training sessions. The following parameters are selected as performance variables: the number of wickets taken, the bowling average and the economy rate. The selected parameters were assessed by their previous match statistics. Collected data were analyzed by using descriptive statistics to calculate mean and standard deviation for each performance measure variables. The results suggest that state-level Cricketers have the highest level of performance while district-level Cricketers have the lowest. These findings can be used to identify talented cricketers and improve training programs for young Cricketers to enhance their performance.

Keywords: Cricket, Performance analysis, Fast bowling, wickets, bowling average, economy rate and strike rate.

Introduction

Background

Cricket is one of the most popular sports worldwide, with a huge fan base and millions of players. Fast bowling is a crucial aspect of cricket, and it requires a combination of skill, speed, strength, and accuracy. Fast bowlers play a vital role in cricket matches, as they are responsible for taking wickets, which is essential to winning matches. Coaches, selectors, and fans closely monitor the performance of fast bowlers, as it is a critical factor in a team's success. Therefore, analyzing fast bowlers' performance at different levels of competition, such as district, university, and state levels, can provide valuable insights into their strengths and weaknesses and help identify talented players. **Research problem:** Despite the importance of fast bowling in cricket, there needs to be more research on the performance of fast bowlers at different levels of competition. Therefore, this study aims to fill this gap by systematically analyzing fast bowling performance among district, university, and state-level cricketers. **Research question:** The research question for this study is: What are the differences in fast bowling performance among district, university, and state level cricketers?

Aim and objectives

This study systematically analyzes fast bowling performance among district, university, and state-level cricketers.

The objectives of the study are as follows:

1. To compare the number of wickets taken by fast bowlers at different levels of competition.
2. To compare the bowling average of fast bowlers at different levels of competition.
3. To compare the economy rate of fast bowlers at different levels of competition.
4. To identify the factors contributing to the success of fast bowlers at different levels of competition.
5. To provide recommendations for developing and improving fast bowlers at different levels of competition.

Significance of the study:

This study is significant as it comprehensively analyzes fast bowling performance among district, university, and state-level cricketers. The results of this study can be used to identify talented cricketers and improve training programs for young cricketers to enhance their performance. Coaches, selectors, and players can benefit from the findings of this study to improve their strategies and techniques and achieve better results in cricket matches.

Methodology:

Research design: The current study utilized a cross-sectional design to systematically analyze the fast bowling performance of district, university, and state-level cricketers. The research design involved collecting data on performance measures such as the number of wickets taken, bowling average, and economy rate. **Participants:** The male fast bowlers were selected from three competition levels: district, university, and state level. 150 male cricketers (50 from each level) are interested in participating in this research. 60 participants were randomly selected, with 20 participants from each level of competition. **Data collection:** Data on fast bowling performance were collected by reviewing previous match statistics only. Performance measures such as the number of wickets taken, bowling average, and economy rate were collected for each participant. **Data analysis:** Collected data were analyzed using descriptive statistics to calculate mean and standard deviation for each performance measure.

Table I

Descriptive statistics of fast bowling performance measures among district, university, and state level cricketers.

Performance Measure	District Level	University Level	State Level
Wickets Taken	14.5±3.6	19.3±4.9	28.7±6.3
Bowling Average	28.6±4.9	24.1±3.5	18.4±4.1
Economy Rate	5.1±0.8	4.6±0.7	4.2±0.9

Results

The results of the study showed that, the State level cricketers had the highest number of wickets taken (mean=28.7, SD=6.3), followed by University level cricketers (mean=19.3, SD=4.9) and district level cricketers (mean=14.5, SD=3.6). Similarly, state level cricketers had the lowest bowling average (mean=18.4, SD=4.1) and economy rate (mean=4.2, SD=0.9), indicating higher quality bowling when compared to District and University level Cricketers.

Discussion

The present study systematically analyzed the fast bowling performance of district, university, and state-level cricketers. The study used a quantitative research design and collected data on number of wickets taken, bowling average, and economy rate from 60 cricketers. The results showed that state-level cricketers had the highest mean scores in fast bowling performance, followed by university and district-level cricketers. Naturally, state-level cricketers participated in scientific training and higher competition levels than District and State Level Cricketers. The study highlights the importance of providing adequate training and competitive opportunities for cricketers to improve their fast bowling performance. The findings of the study can be used to identify talented cricketers and improve training programs for young cricketers to enhance their performance.

Conclusions

The present study comprehensively analyzes fast bowling performance among district, university, and state level cricketers.

1. The results of the study concluded that state-level cricketers had the highest number of wickets taken, bowling average, and economy rate.

2. Future research could focus on analyzing fast bowling performance among female cricketers to explore the technical and psychological factors that contribute to fast bowling performance.

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THE EFFECT OF COMBINED PACKAGE OF YOGASANA PRANAYAMA AND AEROBIC TRAINING ON PSYCHOLOGICAL PARAMETERS AMONG COLLEGE MEN STUDENTS

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Abstract

The purpose of the study is to find out the effect of combined package of yogasana pranayama and aerobic training on psychological parameters such as stress, competition anxiety and aggression among college men students. Sixty men students in the age group of 18 to 23 years from the Rajiv Gandhi Arts and Science College, Puducherry were randomly selected and served as the subjects for the purpose of this study. The study was formulated as a random group design consisting of combined package of yogasana pranayama and aerobic training groups. The subjects (N=60) were at random divided into four equal groups. Experimental group I-was administered yogasana with pranayama training group, Experimental group II- underwent yogasana with aerobic training group, Experimental group III- pranayama with aerobic training group and control group. All the groups were subjected to pre-test prior to the experimental treatment. The experimental groups participated in their respective duration of 12 weeks, six days in a week throughout the study. Analysis of co-variance (ANACOVA) was applied to determine the significance of mean difference between the four groups. When F-ratio was found to be significant, the Scheffe"s Post Hoc test was applied to test the significance of pairs of the adjusted final group means. Practice of the combined package of yogasana pranayama and aerobic training is significantly effective in promoting desirable changes in the dependent variables.

Keywords*:Aerobic Training, Aggression, Competition Anxiety,Pranayama, Stress& Yogasana.*

Introduction

Yoga is necessary to note that the nature of all yogic practices is psychological and physiological. Some exercises emphasizing the control of mental processes directly are more psychological. Other exercises are more physical and physiological. This unity comes after dissolving the duality of mind and matter into supreme reality. Yoga is a re-education of one's mental process, along with the physical. Roughly in chronological order are the vocals (Books of Scriptural Knowledge), the Upanishada (Philosophical Cosmologies) and their commentaries; then the Puranas (Ancient Cosmologies) and the two epics, the Ramayana and the Mahabharata. Yoga practices have a greater impact on the mind and control the senses. Yoga practices make possible not only physical and mental development but also intellectual and spiritual development. Yoga practices are called a "Non-violent Activity".

Pranayama

Pranayama is an exact science, it is the regulation of breath or control of prana which is the stoppage of inhalation and exhalation that follows after securing that steadiness of posture or seat. Asana as the bible states god breathed into man the breath of life, and he became a living soul".

Aerobic Training

The mechanics of aerobic exercise require that oxygen be brought in by lungs and transferred to the blood vessels. Oxygen rich blood is then pumped by heart to the muscles. The muscles utilize oxygen for muscle contraction. The two types of exercise differ by the duration and intensity of muscular contraction involved, as well as by how energy ids generated within the muscle. Aerobic exercise might be better termed "Solely Aerobic".

Significance of the Study

The purpose of the study is to find out the effect of combined package of yogasana pranayama and aerobic training on psychological parameters such as stress, competition anxiety and aggression among men students.

Selection of Subjects

Sixty men students from the Rajiv Gandhi Arts and Science College were randomly selected and served as the subjects for the purpose of this study. The selected subjects were in the age group of 18 to 25 years.

Experimental Design

The study was formulated as a random group design consisting of combined package of yogasana pranayama and aerobic training groups. The subjects (N=60) were at random divided into four equal groups. The groups were assigned the names as follows: Experimental group I - yogasana with pranayama training group, Experimental group II - yogasana with aerobic training group, Experimental group - III pranayama with aerobic training group and control group. All the groups were subjected to pre-test prior to the experimental treatment. The experimental groups participated in their respective duration of 12 weeks, six days in a week throughout the study. The various tests administered were: prior to training (pre-test) and 12 weeks (post-test) of the training schedule.

Selection of Variables

The selected psychological variables are stress, competition anxiety and aggression.

Criterion Measures

Level of job anxiety was measured by using standard questionnaire and recorded in points scored. Level of occupational stress was measured by using standard questionnaire and recorded in points scored.

Statistical technique

Analysis of co-variance (ANACOVA) was applied to determine the significance of mean difference between the four groups. When F-ratio was found to be significant, the scheffe's post hoc test was applied to test the significance of pairs of the adjusted final group means. The standardized sports competition anxiety test (SCAT) was used to measure the anxiety. The test considered of fifteen statements. It is based on Likerts method and each statement consisted of three responses. The standard psychological tool devised by Everly and Girdando was used to quantify the psychological stress of trained and trained men subjects. It contains 14 statements. It is a Likert method scale with four alternatives such as: Almost always true, usually true, seldom true and never true. A copy of the questionnaire. Standardized Smith's questionnaire for sporting aggression was used to scale the aggressiveness. The test consists of four questions with five levels of responses.

Table I

Analysis of Covariance of the Data on Stress of Pre and Post Test Scores of Yogasana with Pranayama Training Yogasana with Aerobic Training and Pranayama with Aerobic Training and Control Group

Test	YPTG	YATG	PATG	CG	Source of Variance	Sumof Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test									
Mean	21.93	21.95	21.83	22.27	Between	1.25	3	0.42	0.09
S.D.	2.21	2.20	0.89	1.98	Within	261.73	56	4.67	
Post Test									
Mean	17.93	19.33	20.47	22.13	Between	142.20	3	47.40	11.17*
S.D.	2.09	1.88	0.88	1.96	Within	237.73	56	4.25	
Adjusted Post Test									
Mean	18.00	19.40	20.54	21.92	Between	124.34	3	41.45	46.43*
					Within	49.10	55	0.89	

**** Significant at .05 level of confidence.***

(The table values required for significant at 0.05 level of confidence for 3 and 56 and 3 and 55 are 2.768 and 2.77 respectively)

The table I shows that the pre-test mean values on stress of yogasana with pranayama training group, yogasana with aerobic training group, pranayama with aerobic training group and control group are 21.93, 21.95, 21.83 and 22.27 respectively. The obtained "F" ratio of 0.09 for pre-test scores is less than the table value of 2.768 for 3 and 56 required for significance at 0.05 level of confidence on stress. The post-test mean values on stress of yogasana with pranayama training group, yogasana with aerobic training group, pranayama with aerobic training group and control group are 17.93, 19.33, 20.47 and 22.13 respectively. The obtained "F" ratio of 11.17 for post test scores is more than the table value of 2.768 for df 3 and 56 required for significance at 0.05 level of confidence on stress.

The adjusted post-test means of yogasana with pranayama training group, yogasana with aerobic training group, pranayama with aerobic training group and control group are 18.00, 19.40, 20.54, and 21.92 respectively on stress. The obtained "F" ratio of 46.43 for adjusted post-test means is more than the table value of 2.77 for df 3 and 55 required for significance at 0.05 level of confidence on stress.

The results of the study indicated that there was a significant difference between the adjusted posttest means of yogasana with pranayama training group, yogasana with aerobic training group, pranayama with aerobic training group and control group on stress.

Since, four groups were compared, whenever the obtained 'F' ratio for adjusted posttest was found to be significant, the scheffe's test to find out the paired mean differences and it was presented in table-II.

Table – II. **The Scheffe's Test for the Differences between Paired Means on Stress**

YPTG	YATG	PATG	CG	Mean Differences	Confidence Interval Value
18.00	19.40	-	-	1.40*	1.02
18.00	-	20.54	-	2.53*	1.02
18.00	-	-	21.92	3.92*	1.02
-	19.40	20.54	-	1.13*	1.02
-	19.40	-	21.92	2.52*	1.02
-	-	20.54	21.92	1.38*	1.02

**** Significant at 0.05 level of confidence.***

The table II shows that the mean difference values between yogasana with pranayama training and yogasana with aerobic training groups, yogasana with pranayama training and pranayama with aerobic training groups, yogasana with pranayama training and control groups, yogasana with aerobic training and pranayama with aerobic training groups, yogasana with aerobic training and control groups and pranayama with aerobic training and control groups on stress 1.40, 2.53, 3.92, 1.13, 2.52 and 1.38 which were greater than the confidence interval value 1.02 required for significance at 0.05 level of confidence.

The results of this study showed that there was a significant difference exist between yogasana with pranayama training and yogasana with aerobic training groups, yogasana with pranayama training and pranayama with aerobic training groups, yogasana with pranayama training and control groups, yogasana with aerobic training and pranayama with aerobic training groups, yogasana with aerobic training and control groups and pranayama with aerobic training and control groups on stress

The adjusted post-test mean values of yogasana with pranayama training group, yogasana with aerobic training group, pranayama with aerobic training group and control group on stress were graphically represented in figure-1.

Figure-1: **Stress between Pretest Posttest and Adjusted Posttest Means of Experimental and Control Groups**

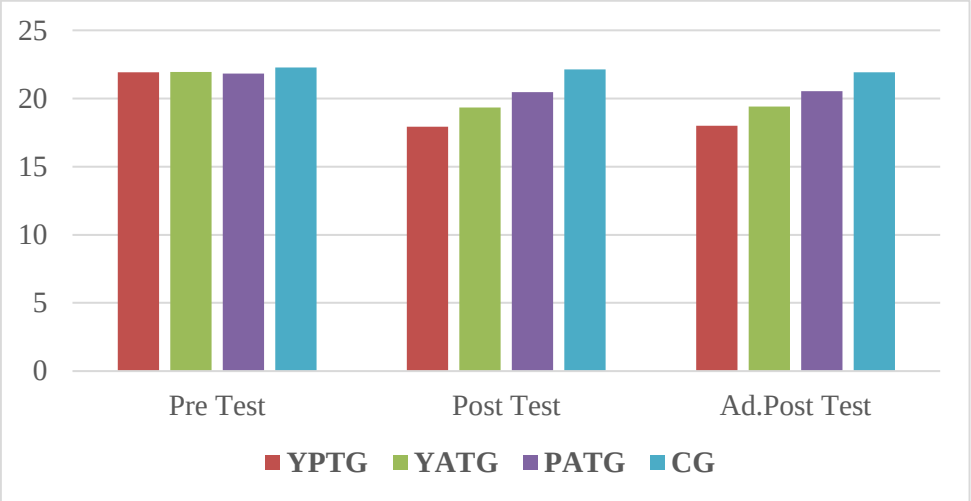


Table- III
Analysis of Covariance of the Data on Competition Anxiety of Pre and Post Test Scores of Yogasana with Pranayama Training Yogasana with Aerobic Training and Pranayama with Aerobic Training and Control Group

Test	YPTG	YATG	PATG	CG	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test									
Mean	23.27	23.47	23.93	23.67	Between	3.65	3	1.22	0.80
S.D.	1.16	1.41	1.28	1.05	Within	84.93	56	1.52	
Post Test									
Mean	15.60	19.47	22.07	23.33	Between	524.58	3	174.86	136.76*
S.D.	0.91	1.36	1.22	0.98	Within	71.60	56	1.28	
Adjusted Post Test									
Mean	15.83	19.55	21.82	23.27	Between	460.26	3	153.42	304.70*
					Within	27.69	55	0.50	

**** Significant at .05 level of confidence.***
(The table values required for significant at 0.05 level of confidence for 3 and 56 and 3 and 55 are 2.768 and 2.77 respectively)

The table III shows that the pre-test mean values on competition anxiety of yogasana with pranayama training group, yogasana with aerobic training group, pranayama with aerobic training group and control group are 23.27, 23.47, 23.93 and 23.67 respectively. The obtained "F" ratio of 0.80 for pre-test scores is less than the table value of 2.768 for 3 and 56 required for significance at 0.05 level of confidence on competition anxiety. The post-test mean values on competition anxiety of yogasana with pranayama training group, yogasana with aerobic training group, pranayama with aerobic training group and control group are 15.60, 19.47, 22.07 and 23.33 respectively. The obtained "F" ratio of 136.76 for post test scores is more than the table value of 2.768 for df 3 and 56 required for significance at 0.05 level of confidence on competition anxiety.

The adjusted post-test means of yogasana with pranayama training group, yogasana with aerobic training group, pranayama with aerobic training group and control group are 15.83, 19.55, 21.82, and 23.27 respectively on competition anxiety. The obtained "F" ratio of 304.70 for adjusted post-test means is more than the table value of 2.77 for df 3 and 55 required for significance at 0.05 level of confidence on competition anxiety.

The results of the study indicated that there was a significant difference between the adjusted posttest means of yogasana with pranayama training group, yogasana with aerobic training group, pranayama with aerobic training group and control group on competition anxiety.

Since, four groups were compared, whenever the obtained 'F' ratio for adjusted posttest was found to be significant, the scheffe's test to find out the paired mean differences and it was presented in table-IV.

Table – IV. **The Scheffe's Test for the Differences between Paired Means on Competition Anxiety**

YPTG	YATG	PATG	CG	Mean Differences	Confidence Interval Value
15.83	19.55	-	-	3.72*	0.92
15.83	-	21.82	-	5.99*	0.92
15.83	-	-	23.27	7.45*	0.92
-	19.55	21.82	-	2.26*	0.92
-	19.55	-	23.27	3.72*	0.92
-	-	21.82	23.27	1.46*	0.92

**** Significant at 0.05 level of confidence.***

The table IV shows that the mean difference values between yogasana with pranayama training and yogasana with aerobic training groups, yogasana with pranayama training and pranayama with aerobic training groups, yogasana with pranayama training and control groups, yogasana with aerobic training and pranayama with aerobic training groups, yogasana with aerobic training and control groups and pranayama with aerobic training and control groups on competition anxiety 3.72, 5.99, 7.45, 2.26, 3.72 and 1.46 which were greater than the confidence interval value 0.92 required for significance at 0.05 level of confidence.

The results of this study showed that there was a significant difference exist between yogasana with pranayama training and yogasana with aerobic training groups, yogasana with pranayama training and pranayama with aerobic training groups, yogasana with pranayama training and control groups, yogasana with aerobic training and pranayama with aerobic training groups, yogasana with aerobic training and control groups and pranayama with aerobic training and control groups on competition anxiety.

The adjusted post-test mean values of yogasana with pranayama training group, yogasana with aerobic training group, pranayama with aerobic training group and control group on competition anxiety were graphically represented in figure -2.

Figure-2: **Competition Anxiety between Pretest Posttest and Adjusted Posttest Means of Experimental and Control Groups**

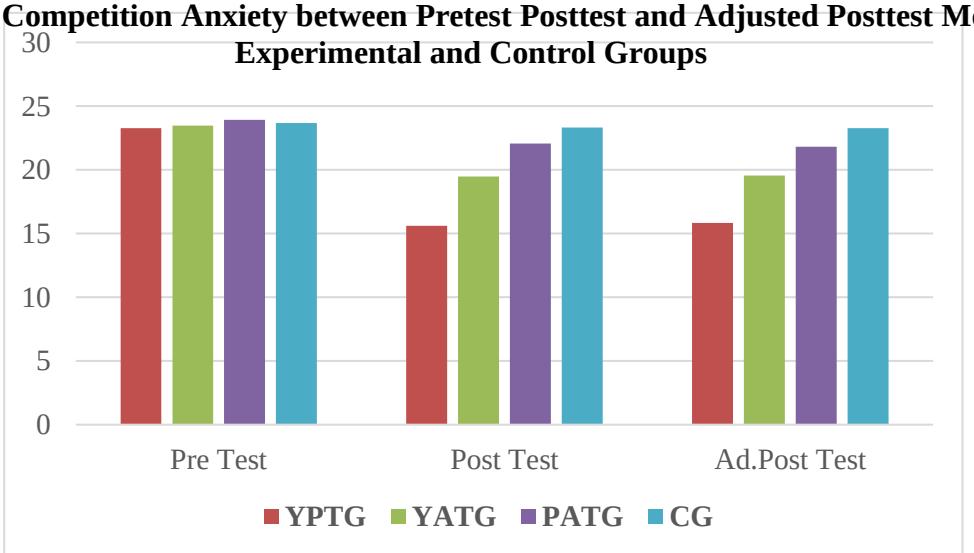


Table-V

Analysis of Covariance of the Data on Aggression of Pre and Post Test Scores of Yogasana with Pranayama Training, Yogasana with Aerobic Training and Pranayama with Aerobic Training and Control Group

Test	YPTG	YATG	PATG	CG	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test									
Mean	17.07	17.13	17.00	17.20	Between	0.33	3	0.11	0.09
S.D.	1.33	0.99	0.85	1.32	Within	73.07	56	1.30	
Post Test									
Mean	14.07	15.20	16.07	17.07	Between	73.20	3	24.40	25.68*
S.D.	0.96	0.94	0.70	1.22	Within	53.20	56	0.95	
Adjusted Post Test									
Mean	14.09	15.18	16.13	17.00	Between	70.51	3	23.50	64.99*
					Within	19.89	55	0.36	

**** Significant at .05 level of confidence.***

(The table values required for significant at 0.05 level of confidence for 3 and 56 and 3 and 55 are 2.768 and 2.77 respectively)

The table V shows that the pre-test mean values on aggression of yogasana with pranayama training group, yogasana with aerobic training group, pranayama with aerobic training group and control group are 17.07, 17.13, 17.00 and 17.20 respectively. The obtained "F" ratio of 0.09 for pre-test scores is less than the table value of 2.768 for 3 and 56 required for significance at 0.05 level of confidence on aggression. The post-test mean values on aggression of yogasana with pranayama training group, yogasana with aerobic training group, pranayama with aerobic training group and control group are 14.07, 15.20, 16.07 and 17.07 respectively. The obtained "F" ratio of 25.68 for post test scores is more than the table value of 2.768 for df 3 and 56 required for significance at 0.05 level of confidence on aggression.

The adjusted post-test means of yogasana with pranayama training group, yogasana with aerobic training group, pranayama with aerobic training group and control group are 14.09, 15.18, 16.13, and 17.00 respectively on aggression. The obtained "F" ratio of 64.99 for adjusted post-test means is more than the table value of 2.77 for df 3 and 55 required for significance at 0.05 level of confidence on aggression.

The results of the study indicated that there was a significant difference between the adjusted posttest means of yogasana with pranayama training group, yogasana with aerobic training group, pranayama with aerobic training group and control group on aggression.

Since, four groups were compared, whenever the obtained 'F' ratio for adjusted posttest was found to be significant, the Scheffe's test to find out the paired mean differences and it was presented in table- VI.

Table – VI. **The Scheffe's Test for the Differences between Paired Means on Aggression**

YPTG	YATG	PATG	CG	Mean Differences	Confidence Interval Value
14.09	15.18	-	-	1.09*	0.78
14.09	-	16.13	-	2.05*	0.78
14.09	-	-	17.00	2.91*	0.78
-	15.18	16.13	-	0.96*	0.78
-	15.18	-	17.00	1.82*	0.78
-	-	16.13	17.00	0.86*	0.78

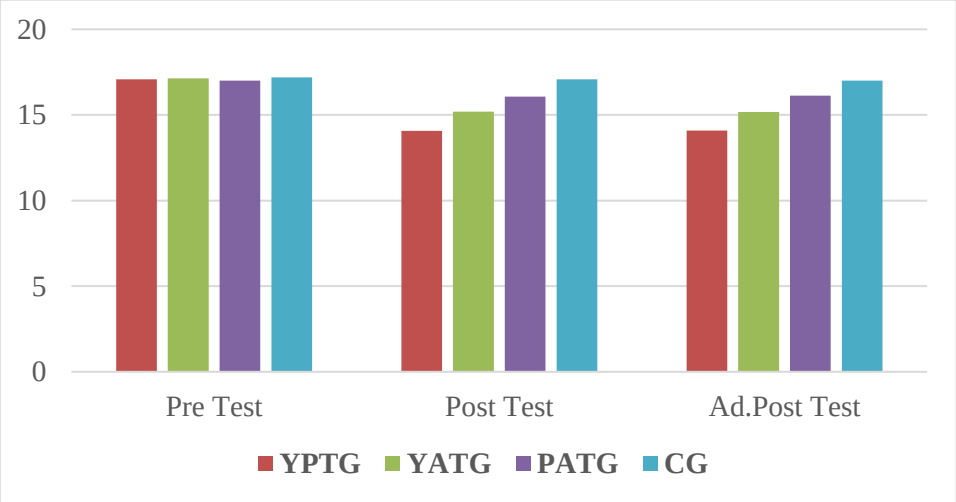
**** Significant at 0.05 level of confidence.***

The table VI shows that the mean difference values between yogasana with pranayama training and yogasana with aerobic training groups, yogasana with pranayama training and pranayama with aerobic training groups, yogasana with pranayama training and control groups, yogasana with aerobic training and pranayama with aerobic training groups, yogasana with aerobic training and control groups and pranayama with aerobic training and control groups on aggression 1.09, 2.05, 2.91, 0.96, 1.82 and 0.86 which were greater than the confidence interval value 0.78 required for significance at 0.05 level of confidence.

The results of this study showed that there was a significant difference exist between yogasana with pranayama training and yogasana with aerobic training groups, yogasana with pranayama training and pranayama with aerobic training groups, yogasana with pranayama training and control groups, yogasana with aerobic training and pranayama with aerobic training groups, yogasana with aerobic training and control groups and pranayama with aerobic training and control groups on aggression.

The adjusted post-test mean values of yogasana with pranayama training group, yogasana with aerobic training group, pranayama with aerobic training group and control group on aggression were graphically represented in figure -3.

Figure-3: **Aggression between Pretest Posttest and Adjusted Posttest Means of Experimental and Control Groups**



Discussion on Findings

Yogasana has become an extremely popular form of physical activity in the United States over the past decade and has even generated enough interest to support studios that focus on a particular form of yoga or a variety of activity- related disciplines. There is no questioning the many benefits of yoga which include reduced stress, reduced risk of lower back pain, and improvements in flexibility among both fit and unfit populations. In sedentary populations and untrained populations, studies have indicated some improvements in strength and mild improvements in cardiovascular conditioning. However it is important to note that although these benefits certainly can contribute to an improved quality of life, using yoga as one's only form of exercise may leave some physical deficiencies.

Conclusion

1. There was a significant difference among yogasana with pranayama training group, yogasana with aerobic training group and pranayama with aerobic training group and control group on selected psychological parameters namely stress, competition anxiety and aggression.
2. Significant changes were noticed on selected psychological parameters namely stress, competition anxiety and aggression due to yogasana with pranayama training group, yogasana with aerobic training group and pranayama with aerobic training group.

3. Yogasana with pranayama training group have dominated all the selected criterion variables when compared to yogasana with aerobic training group and pranayama with aerobic training group.
4. Yogasana with aerobic training group was better than pranayama with aerobic training group on selected criterion variables.
5. All the experimental groups namely yogasana with pranayama training group, yogasana with aerobic training group and pranayama with aerobic training group have been significantly differed when compared to control group.

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COMBINED EFFECTS OF COMPUTER-ASSISTED INSTRUCTION AND TRADITIONAL TEACHING ON SELECTED FLEXIBILITY YOGA TRAINING AMONG VOLLEYBALL PLAYERS

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Abstract

The purpose of the study was to find out the Combined Effects of Computer Assisted Instruction and Traditional Teaching on selected Flexibility Yoga Training among Volleyball Players. The passing skills such as underarm and overhead passing. To facilitate this study (60) sixty school student boys at Sri Sathya Sai Institution Educare, Tamil Nadu State were randomly selected as subjects whose ages ranged from 17 to 21 years. They were divided into three groups, group I (N=20) traditional teaching, group II (N=20) only CAI and group III (N=20) traditional and CAI Flexibility Yoga Training combined. The pre-test was conducted for all 60 subjects on selected underarm and overhead passing skills. The experimental groups participated in the respective training program six days per week for four weeks. After the experimental training, all sixty subjects were measured on the selected passing skills. The final test scores formed the post-test scores of the subjects. The pre-test and post-test scores were subjected to statistical analysis of Covariance (ANCOVA) to find out the significance of the mean differences. Whenever the `F' ratio for the adjusted test was found to be significant Scheffe's post hoc was used. In all cases, 0.05 level of significance was fixed to test hypotheses.
Keywords: *CAI, Traditional, Underarm pass, Overhead pass, Yoga, Flexibility, Volleyball.*

INTRODUCTION

Computer-assisted instruction teaching processing which a computer is used to enhance the education of students. Documents can be scanned or typed into electronic formats which can be handled in sophisticated ways, altering the layout, font styles sizes etc., with ease, these documents can include pictorial and graphic information. Pictures and graphics can be digitized and handled either as vector drawing, visual information is very flexible and if the time factor is taken into account moving images can be handled as well as still pictures**. (Peter, 2006)**

Volleyball is a sport played by two teams on a playing court divided by a net. There are different versions available for specific circumstances in order to offer the versatility of the game to everyone. The object of the game is to send the ball over the net in order to ground it on the opponent's court and to prevent the same effort by the opponent. The team has three hits for returning the ball (in addition to the block contact). The ball is put in play with a serving, hit by the serving over the net to the opponents. The rally continues until the ball is grounded on the playing court, and goes "Out" on a team that fails (Rally Point system). When the receiving team wins a rally, it gains a point and the right to serve and its players rotate one position clockwise. **Dr. Hubert Dhanaraj (1991)**

The skills in the game of Volleyball are Serving, Underarm pass, Overhead pass, Attacking, Setting, and Blocking.

The following are the importance of passing skills in volleyball

1. Passing skill is a fundamental skill in Volleyball.
2. The two main pass skills are the underarm and overhead pass.

3. Passing is the base for setting up the team offense.
4. It is used to receive service.
5. A player with good passing skills can handle the attacking situation and collect the ball with passing skills (underarm pass & overhead pass).

PURPOSE OF THE STUDY

The purpose of the present study was to find out the combined effects of computer-assisted instruction and traditional teaching on selected flexibility yoga training among Volleyball players.

HYPOTHESES

1. It was hypothesized that there would be a better significant improvement in selected underarm passing skills due to the combined CAI Flexibility Yoga Training and Traditional drills than the isolated CAI and Traditional drills among Volleyball players.
2. It was hypothesized that there would be a better significant improvement in selected overhead passing skills due to the combined CAI Flexibility Yoga Training and Traditional drills than the isolated CAI and Traditional drills among Volleyball players.

REVIEW OF RELATED LITERATURE

P.Alaguraj (2018) conducted a study on the isolated and combined effects of traditional and multimedia computer-assisted instructions on selected skill-related fitness and performance of long jump among college students. the selected skill-related fitness such as speed, strength, agility, horizontal explosive power, vertical explosive power, flexibility, balance, and performance of long jump among college students. The investigator randomly selected 100 students from, Kancheepuram District, Tamil Nadu state, India, and their ages ranged from 17 to 21 years. The selected subjects were assigned into four equal groups. Each group consisted of twenty-five (25) subjects such as Experimental Group I – Multimedia Computer Assisted Instruction Group (MCAIG), Experimental Group II - Traditional Instruction Group (TIG), and Experimental Group III - Combined Instruction Group (CIG), and Group IV - Control Group. The pre and post-test scores were subjected to statistical analysis of Covariance (ANCOVA) and Scheffe's post hoc was used. The selected skill-related fitness variable such as speed was not improved significantly by the three experimental groups namely the multimedia computer-assisted instruction, traditional instruction, and combined instruction among college students. The selected skill-related fitness variables such as strength, agility, horizontal explosive power, vertical explosive power, flexibility, balance, and performance of long jump were significantly improved by three experimental groups namely multimedia computer-assisted instruction, traditional instruction, and combined instruction among college students. The combined instruction (multimedia computer-assisted instruction with traditional instruction) was found to be better in improving strength, agility, horizontal explosive power, vertical explosive power, flexibility, balance, and performance of long jump than the multimedia computer-assisted instruction and traditional instruction.

METHODOLOGY

SELECTION OF SUBJECTS

For the purpose of the study, the investigator has selected (60) sixty boys school-level novice volleyball players from Sri Sathya Sai Education Trust, Tamil Nadu State by random method. The subjects' ages ranged from 17 to 21 years. They were divided into three groups, group I (N=20) traditional teaching, group II (N=20) only CAI, and group III (N=20) traditional and CAI Flexibility Yoga Training combined.

SELECTION OF VARIABLES

1. Underarm Pass
2. Overhead Pass

Experimental Training

The experimental groups participated in the drill practices through traditional teaching, CAI and traditional and CAI Flexibility Yoga Training combined. For six days per week for six weeks, 60 minutes (4.30 pm to 6.30 pm).

Traditional Training	CAI Training	CAI (FYT) & Traditional Training	Duration (60) Min
Warmup	Warmup	Warmup	10 min
Traditional Training	CAI Training	CAI Training (FYT)	40 min
	Drills	Drills	
		Traditional Training	
Cooldown	Cooldown	Cooldown	10 min

STATISTICAL TECHNIQUE

The pre-test and post-test scores were subjected to statistical Analysis of Covariance (ANCOVA) to find out the significance of the mean differences. Whenever the `F' ratio for the adjusted test was found to be significant Scheffe's post hoc was used. In all cases, a 0.05 level of significance was fixed to test hypotheses.

RESULT AND DISCUSSION

COMPUTATION OF ANALYSIS OF COVARIANCE FOR PRE AND POST-TESTS DATA ON UNDERARM PASS AND OVERHEAD PASS EXPERIMENTAL AND CONTROL GROUPS

		Traditional	CAI	CAI (FYT) &Traditional	SV	Sum of Squares	df	Mean Squares	Obtained f
UNDER ARM PASS	Pre-Test Mean	7.94	7.6	8.24	B	3.1	2	1.51	0.66
					W	127.8	57	2.25	
	Post-Test Mean	14.8	12.74	18.2	B	302.1	2	151.55	31.64*
					W	263.54	57	4.63	
	Adjusted Post Test Mean	14.80	12.85	18.17	B	271.63	2	136.32	30.38*
					W	242.15	56	4.33	
	Mean Gain	5.84	4.04	9.03					
OVER HEAD PASS	Pre-Test Mean	8.34	8.1	7	B	2.21	2	1.14	0.43
					W	143.66	57	2.51	
	Post-Test Mean	15.8	13.04	18.64	B	323.8	2	161.12	25.56*
					W	347.4	57	5.12	
	Adjusted Post Test Mean	15.58	13.11	18.80	B	333.81	2	166.4	35.40*
					W	256.36	56	3.58	
	Mean Gain	6.34	3.85	3.58					

* Significant the table F required for 2 and 57(df) and 2 and 56(df) = 3.15

The pre-test scores of experimental group I (CAI), experimental group II (traditional) and experimental group III (combined) group on Underarm pass were 7.94, 7.6 and 8.24 respectively. The post-test scores of experimental group I (CAI), experimental group II (traditional) and experimental group III (combined) group on Underarm pass were 14.8, 12.74 and 18.2 respectively. The ordered adjusted mean scores of experimental group I (CAI), experimental group II (traditional) and experimental group III (combined) group on Underarm pass were 14.80, 12.85 and 18.17 respectively. The mean gain in experimental group I (CAI), experimental group II (traditional) and experimental group III (combined) group were 5.84, 4.04 and 9.03 respectively. The obtained F value on pre-test scores 0.66 was less than the

required F value of 3.15 to be significant at 0.05 level. This proved that there was no significant difference between the three experimental and combined groups indicating that the process of randomization of the groups was perfect while assigning the subjects to groups. The post-test scores analysis proved that there were significant differences between the three experimental and combined groups, as the obtained F value of 31.64 was less than the required F value of 3.15. This proved that the differences between the post-test means of the subjects were not significant. Taking into consideration the pre and post-test scores among the groups, adjusted mean scores were calculated and subjected to statistical treatment. The obtained F value of 30.38 was less than the required F value of 3.15. This proved that there was no significant difference among the means due to the experimental training on the Underarm pass.

The pre-test scores of experimental group I (CAI), experimental group II (traditional) and experimental group III (combined) group on the Overhead pass were 8.1, 7 and 8.34 respectively. The post-test scores of experimental group I (CAI), experimental group II (traditional) and experimental group III (combined) group on Underarm pass were 13.04, 18.64 and 15.8 respectively. The ordered adjusted mean scores of experimental group I (CAI), experimental group II (traditional) and experimental group III (combined) group on Overhead pass 13.11, 18.80 and 15.58 respectively. The mean gain in experimental group I (CAI), experimental group II (traditional) and experimental group III (combined) group were 3.85, 9.64 and 6.34 respectively. The obtained F value on pre-test scores 0.43 was less than the required F value of 3.15 to be significant at 0.05 level. This proved that there was no significant difference between the three experimental and combined groups indicating that the process of randomization of the groups was perfect while assigning the subjects to groups. The post-test scores analysis proved that there were significant differences between the three experimental and combined groups, as the obtained F value of 25.56 was less than the required F value of 3.15. This proved that the differences between the post-test means of the subjects were not significant. Taking into consideration the pre and post-test scores among the groups, adjusted mean scores were calculated and subjected to statistical treatment. The obtained F value of 35.40 was less than the required F value of 3.15. This proved that there was no significant difference among the means due to the experimental training on an Overhead pass.

Figure 1

BAR DIAGRAM ON PRE, POST AND ORDERED ADJUSTED MEANS OF UNDERARM PASS

(Scores in Numbers)

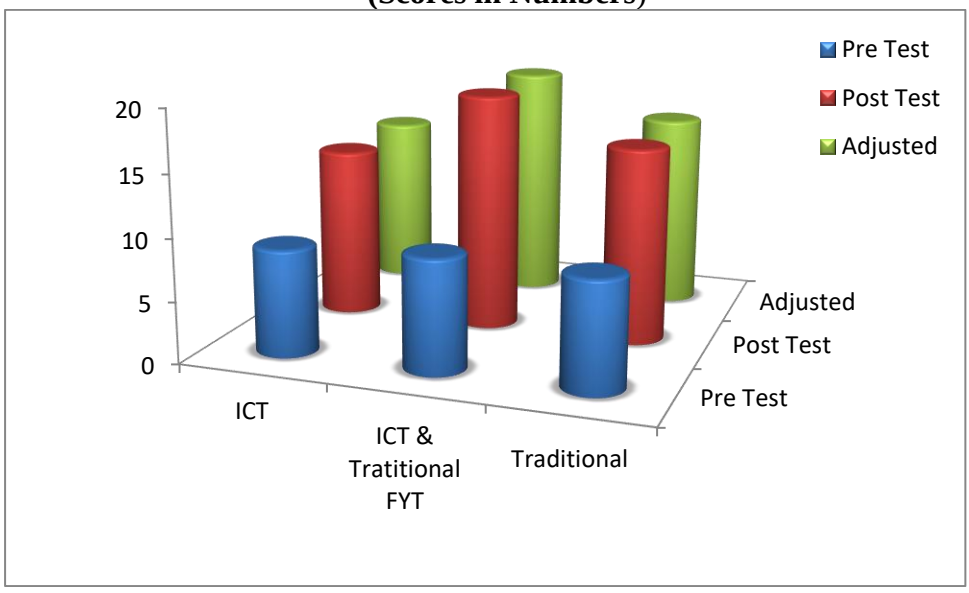


Figure 2

BAR DIAGRAM ON PRE, POST AND ORDERED ADJUSTED MEANS OF OVERHEAD PASS
(Scores in Numbers)

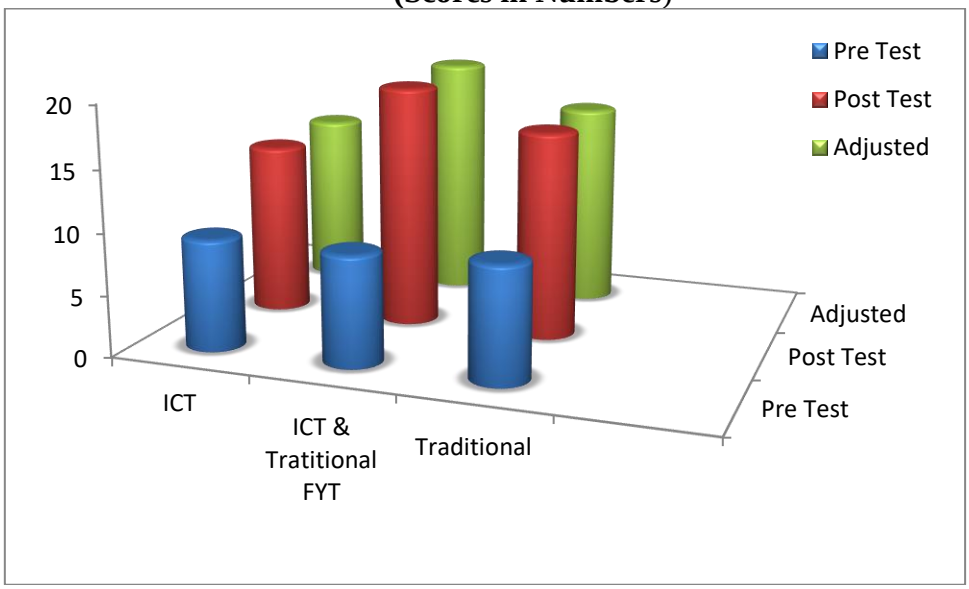


Table – II
SCHEEFF`S TEST FOR THE DIFFERENCE BETWEEN THE ADJUSTED POST–TEST PAIRED MEANS OF UNDERARM PASS AND OVERHEAD PASS

	Traditional	CAI	CAI (FYT)& Traditional	Mean Difference	Required C.I
UNDERARM PASS	-	12.95	18.17	4.24*	1.66
	14.92	12.95	-	1.84*	1.66
	14.92	-	18.17	2.27*	1.66
OVERHEAD PASS	-	13.11	18.89	4.67*	1.71
	15.68	13.11	-	2.45*	1.71
	15.68	-	18.89	2.21*	1.71

*Significant

The multiple mean comparisons shown in Table II proved that there were significant differences exist between the adjusted means of (CAI) and CAI and traditional group, traditional and (CAI) group, traditional and (CAI) traditional as the mean difference were greater than the obtained confidence interval 1.66. Comparing the means of the three groups, the experimental group – III (combined group) was found better at improving Underarm pass than the experimental groups – I (traditional) and experimental group – II (CAI).

The multiple mean comparisons shown in Table II proved that there were significant differences exist between the adjusted means of (CAI) and ICT and traditional group, traditional and (CAI) group, traditional and (ICT) traditional as the mean difference was greater than the obtained confidence interval 1.71. Comparing the means of the three groups, the experimental group – III (combined group) was found better at improving Overhead pass than the experimental groups – I (traditional) and experimental group – II (CAI).

CONCLUSIONS

Within the limitations and delimitations set for the present study and considering the results obtained, the following conclusions were drawn.

1. The selected skills such as underarm and overhead pass were significantly improved by three experimental pieces of training namely the traditional, Computer Assisted Instructions and combined (CAI Flexibility Yoga Training and traditional) among Volleyball players.
2. The combined training (CAI Flexibility Yoga Training with traditional) was found to be better in improving the underarm pass and overhead pass than the isolated Computer Assisted Instructions and traditional teaching.

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IMPACT OF PROPRIOCEPTIVE TRAINING AND YOGASANAS ON SPEED AND AGILITY AMONG SPORTS CLUB ELITE KABADDI PLAYERS

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Abstract

The purpose of the study was to find out the Impact of proprioceptive training and yogasanas on speed and agility among sports club elite Kabaddi players. In order to achieve the purpose of the study thirty men sports club elite Kabaddi players were randomly selected from Dindigul district, Tamilnadu sports clubs and they were equally divided in to three groups of ten each as experimental Group-I, experimental group-II and control group. The experimental groups and control group undergone normal routine Kabaddi practices and in addition the experimental Group-I underwent proprioceptive training and experimental group-II underwent yogasanas for one hour in the morning sessions. The control group was not given any special training. The period of training was eight weeks in a schedule of weekly three days for alternate days. The data were collected on the selected dependent variables before and after the training period. The collected the data were statistically analyzed by using Analysis of Covariance (ANCOVA) and Scheffe's post hoc test. To test the significance .05 level of confidence was fixed. Based on the results the study it was concluded that the proprioceptive training and yogasanas were significantly improved the speed and agility among sports club's elite Kabaddi players.

Key words*: Proprioceptive Training, Yogasanas, Speed and Agility*

Introduction

Now a days, more and more individuals particularly boys and girls are affected by sports activities and increasing the number that are representing in the sports area. As preventive and curative health measures, it has become more successful throughout the world and, millions of teenagers should have chance of enjoying sports. Sport is the way which we use our physical capacities to play. Sports is an important in other ways, when one's body works better his mind works better, his brain and his body are interrelated. Sports allows you to blow of tension, to forget your problems for a while and to go out and have a good time no matter what other pressures one may be under in his life (Uppal A.K et al., 1998)

Form thousands of years people are playing Indoor and outdoor games. Often indoor games are played in social or family situations, or when darkness or bad weather prevent people from moving outside. Kabaddi is one of the popular national sports in India. Kabaddi players are strong enough mentally & physically. The potential of player depend on its body structure & diet. Some authors list only the relatively basic elements, such as strength, muscular endurance and cardiovascular endurance. Other builds from this base and includes items of ability, flexibility, power, balance speed and neuromuscular coordination. Kabaddi requires tremendous physical stamina, agility, individual proficiency, neuromuscular coordination, lung capacity, quick reflexes, intelligence and presence of mind on the part of both attackers and defenders. Along with these physical parameters and growing popularity of different formats of kabaddi. (S.Kumari and N.Kumar, 2015)

Proprioceptive training was discovered in the late 1940s and was initially used in the rehabilitation of stroke victims, and over the years became a standard tool for all types of rehabilitation. In more recent times this approach had been adopted by physiotherapists, osteopaths and massage therapists, who call their application muscle energy technique and also in sports training to enhance the performance. Proprioceptive training is an advanced form of flexibility training, which involves both stretching and contraction of the muscle group. It

targets specific muscle groups and aids in enhancing the flexible nature of the body and of course, builds muscle strength. It is used to stimulate the neuromuscular system in an effort to excite proprioceptors (sensory organs in muscles, tendons, bones, and joints) in order to produce a desired movement. (Mark Damian Rossi, 2011)

Proprioception is an automatic sensitivity mechanism in the body that sends messages through the central nervous system (CNS). The CNS then relay information to rest of the body about how to react and with what amount of tension. Human beings "train" for proprioceptive training to enhance neuromuscular co-ordination, balance, strength endurance which is close relevant to speed parameters like speed, stride length and stride frequency. Proprioceptive is an automatically sensitivity mechanism in the body that sends messages through the central nervous system. (Brooks G.A. 1996)

The word yoga derived from the Sanskrit root 'yuj' meaning to bind; join; and yoke; to direct and concentrates one's attention on; to use; and apply. It is also means union or communication. It is the true union of our will with the will of god. Yoga is a practical aid, not a religion. Yoga is an ancient art based on a harmonizing system of development for the body, mind and spirit. The continued practice of yoga will lead you to a sense of peace and wellbeing and also a feeling of being at one with the environment the practice of yoga makes the body strong and flexible. It also improves the functioning of the respiratory, circulatory, digestive and hormonal systems. (Kurland.Zack, 2007)

Review of Literature

Samuel Deva Backiaraj (2008) investigated the effect of speed training and combined training of speed and proprioceptive neuromuscular facilitation on selected speed performance variables. To achieve the purpose sixty students were selected at randomly they were equally divided in to three groups consisting of 20 subjects' difference among the experimental and control group. ANCOVA was used for statistical analysis on basis of conclusions were drawn. There was significant improvement in speed, stride length and stride frequency due to the influence of speed training and combined training of speed and proprioceptive neuromuscular facilitation on selected speed performance variables.

Sosamma John et al., (2011) were examined that the Yoga practices Weight training and Iron Yoga on Strength, Endurance, Flexibility and Vital capacity among college Softball players. To achieve the purpose forty male students were selected randomly and divided into four groups namely experimental groups I, II & III and control group. Each group consists of ten subjects. The period of study was 24 weeks. ANCOVA was used for statistics. It was concluded that the yoga practices, weight training and iron yoga had significantly improved the strength, endurance and flexibility and vital capacity among college softball players.

Methodology

The purpose of the study was to find out the Impact of proprioceptive training and yogasanas on speed and agility among sports club elite Kabaddi players. In order to achieve the purpose of the study thirty men sports club elite Kabaddi players were randomly selected from Dindigul district, Tamilnadu sports clubs and they were equally divided in to three groups of ten each as experimental group-I, experimental group-II and control group. The experimental groups and control group undergone normal routine Kabaddi practices and in addition the experimental Group-I underwent proprioceptive training and experimental group-II underwent yogasanas for one hour in the morning sessions. The control group was not given any special training. The period of training was eight weeks in a schedule of weekly three days for alternate days. The data were collected on the variables of speed and agility before and after the training period. The collected the data were statistically analyzed by using Analysis of Covariance (ANCOVA) and Scheffe's post hoc test. To test the significance .05 level of confidence was fixed.

Criterion Measures

TABLE - I

Variables	Test	Measurers in Unit
Speed	50-yard	Seconds
Agility	4×10m Shuttle run	Seconds

Results and Discussion

The analysis of covariance and scheffe's post hoc test on the data obtained on Speed and Agility of Experimental and Control groups have been analyzed and tabulated in Table-II, Table-III, Table-IV and Table-V.

	Control Group	Proprioceptive Training	Yogasanas	Source of Variance	Sum of Squares	Df	Mean Squares	'F' Ratio
Pretest	7.93	7.82	7.99	Between	0.15	2	0.07	0.18
				Within	10.97	27	0.41	
Post test	8.23	7.38	7.36	Between	4.93	2	2.47	6.40*
				Within	10.40	27	0.39	
Adjusted Post test	8.21	7.47	7.29	Between	4.83	2	2.41	66.13*
				Within	0.94	26	0.04	

Table - II

ANALYSIS OF COVARIANCE FOR PRE AND POST TESTS DATA ON SPEED OF EXPERIMENTAL AND CONTROL GROUPS

*Significance at .05 level, df 2 and 27= 3.35, 2 and 26=3.37

Table - II shows that the pretest means on speed of control, proprioceptive training and yogasanas groups are 7.93, 7.82 and 7.99 respectively. The obtained 'F' ratio value of 0.18 for pretest mean is less than the required table value of 3.35 for not significance at .05 level. The post-test mean on speed of control, proprioceptive training and yogasanas groups are 8.23, 7.38 and 7.36 respectively. The obtained 'F' ratio value of 6.40 for post-test data is greater than the required table value of 3.35 for significance at .05 level. The adjusted post-test mean on speed of control, proprioceptive training and yogasanas groups are 8.21, 7.47 and 7.29 respectively. The obtained 'F' ratio value of 66.13 for adjusted post-test data is greater than the required table value of 3.37 for significance at .05 level. It reveals that there is significant difference among the groups on speed as a result of proprioceptive training and yogasanas. The scheffe's post-hoc test was applied to find out the significant paired mean difference.

Table - III

Ordered Scheffe's Post Hoc Test for Mean Difference between Groups on Speed

Mean values			Mean Difference	CI
Control	Proprioceptive Training	Yogasanas		
8.21	7.47	-	0.75	0.21
8.21	-	7.29	0.93	0.21
-	7.47	7.29	0.18	0.21

Table - III shows that the ordered weighted mean difference of scheffe's post-hoc test values on speed of the control group, proprioceptive training and yogasanas. The mean difference of speed is significant at .05 level of confidence. The difference in means between control group and proprioceptive training and control group and yogasanas group on speed of the paired means didn't differ significantly.

Table - IV
ANALYSIS OF COVARIANCE FOR PRE AND POST TESTS DATA ON AGILITY OF EXPERIMENTAL AND CONTROL GROUPS

	Control Group	Proprioceptive Training	Yogasanas	Source of Variance	Sum of Squares	df	Mean Squares	'F' Ratio
Pretest	12.09	11.73	12.01	Between	0.71	2	0.35	1.54
				Within	6.28	27	0.23	
Post test	12.47	11.32	11.83	Between	6.64	2	3.32	17.25*
				Within	5.20	27	0.19	
Adjusted Post test	12.35	11,50	11.77	Between	3.43	2	1.71	65.82*
				Within	0.67	26	0.03	

*Significance at .05 level, df 2 and 27= 3.35, 2 and 26=3.37

Table - IV shows that the pretest means on agility of control, proprioceptive training and yogasanas groups are 12.09, 11.73 and 12.01 respectively. The obtained 'F' ratio value of 1.54 for pretest mean is less than the required table value of 3.35 for not significance at .05 level. The post-test mean on agility of control, proprioceptive training and yogasanas groups are 12.47, 11.32 and 11.83 respectively. The obtained 'F' ratio value of 17.25 for post-test data is greater than the required table value of 3.35 for significance at .05 level.

The adjusted post-test mean on agility of control, proprioceptive training and yogasanas groups are 12.35, 11.50 and 11.77 respectively. The obtained 'F' ratio value of 65.82 for adjusted post-test data is greater than the required table value of 3.37 for significance at .05 level. It reveals that there is significant difference among the groups on agility as a result of proprioceptive training and yogasanas. The scheffe's post-hoc test was applied to find out the significant paired mean difference.

Table - V
Ordered Scheffe's Post Hoc Test for Mean Difference between Groups on Agility

Mean values			Mean Difference	CI
Control	Proprioceptive Training	Yogasanas		
12.35	11.50	-	0.84	0.18
12.35	-	11.77	0.57	0.18
-	11.50	11.77	-0.27	0.18

Table - V shows that the ordered weighted mean difference of scheffe's post-hoc test values on agility of the control group, proprioceptive training and yogasanas group. The mean difference of agility is significant at .05 level of confidence. The difference in means between control group and proprioceptive training and control group and yogasanas group on agility.

Discussion on Findings

In the resent times proprioceptive training and yogasanas is offered as a better method for developing speed and agility. The results and discussions of the present studies Samuel Deva Backiaraj (2008) investigated the effect of speed training and combined training of speed and proprioceptive neuromuscular facilitation on selected speed performance variables. There was significant improvement in speed, stride length and stride frequency due to the influence of speed training and combined training of speed and proprioceptive neuromuscular facilitation on selected speed performance variables. and another study was Sosamma John et al., (2011) were examined that the Yoga Practices Weight training and Iron Yoga on Strength, Endurance,

Flexibility and Vital capacity among college Softball players. Had significantly improved due to the yoga practices.

Conclusions

1. From the results of the study and discussion the following conclusions were drawn.
2. There is a significant difference on speed and agility between all the groups.
3. There is a significance improvement on speed and agility due to proprioceptive training and yogasanas practices.

Recommendations

1. Similar study may be conducted for various age groups.
3. The same study may be extended to further time period.
4. The present study is mainly focused on males only. The same study may be done on females

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INFLUENCE OF STRENGTH TRAINING PLYOMETRIC TRAINING AND THEIR COMBINATION ON SELECTED PHYSICAL FITNESS AMONG MALE PLAYERS OF DIFFERENT GAMES

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Abstract: *The purpose of the study was to find out the effect of strength training, plyometric training and combination training on selected physical fitness variables. Sixty male players of different games were divided into four equal groups (n = 15), in which group - I underwent strength training, group - II underwent plyometric training and group - III underwent the combination training for 3 d/w for 12 weeks, and group IV acted as control which did not participate any special training. The subjects were tested on selected criterion variables such as back strength, strength endurance and cardio-respiratory endurance at prior to and immediately after the training. For testing the back strength, the dynamometer was used, bent knee sit-up test was administered to test strength endurance and for cardio-respiratory endurance the Cooper's 12 minutes run/walk test was administered. The analysis of covariance (ANCOVA) was used as statistical tool and since four groups were involved in the present study, the Scheffé S test used as post-hoc test. The selected criterion variables were improved significantly for all the training groups when compared with the control group and the back and strength endurance were improved significantly for strength training group significantly.*

Key Words: *Strength training, plyometric training, combined training, physical fitness, back strength, strength endurance and cardio-respiratory endurance.*

INTRODUCTION

Training is for developing the physical ability which focuses on mechanistic goals. The complete muscle groups and some skill for specific games or sports will enhance within particular time of period through physical training. The fitness of physical or health related will be increased by most of the physical training programme.[1] Dale S. Beach[2] defines training as an 'planned procedure by which athlete learn knowledge and/or skill for a definite purpose'. It is a process of teaching the particular skill to some human or animal and the aim is to improve the capacity, performance capacity or productivity of an individual.[3]

The physical activity with low level of intensity in young adult have been linked to the improvement of cardiovascular disease, obesity and low level psychological health.[4] The CDC (Center for Disease Control and Prevention) of various countries have advised the young adults to participate in vigor physical activity at least 150 min of moderate of 75 min/week.[5] Various studies are proved that this level of physical activity can prevent obesity, a sum of chronic conditions, such as lower the risk of diabetes (type 2), cardiovascular diseases, colon and breast cancers, improvement in sleep quality and reduction in depression,[7] and an increase in cognitive capacity.[8,9,10] The physical activities aim is to improve the maximum level of physiological potential and physical fitness of an athlete.[6] The physical activity which adding the motor behavior such as leisure and daily routine activities also determined to consider the lifestyle for general health status.[11]

The training are given to the athlete on the basis of scientific principles and which, through systematic development of mental and physical efficiency, capacity and motivation, which help the athlete to produce outstanding and record breaking performances.[12] An organized training at the time of specific period, which includes an increase in the routine of training programme improves the performance is called as periodization,[13] and the competitor achieved the maximum adaptation prior an important competition. Month after month,

instead of practicing regular routine workouts, athlete should change his or her session with uniform periods or interval periods of work which is harder with sufficient rest.[14] A study was conducted at Human Performance Laboratory, Ball State University shown that there was a significant difference was found in favour of periodized strength training programme than the non-periodized program.[15]

Strength training also cites as a type of physical exercise, uses of strength/resistance which improves the muscular contraction which contributes the strength, increase the size of skeletal muscle and anaerobic plyometric. It helps to improve overall health and well-being of human being, including the size of muscle, tendon, strengthen and improves the toughness of ligament and joint function, reduced for injury,[16] increased the bone density, fitness, metabolism and cardiac function.[17,18]

Training with aerobic system is called as plyometric or aerobic training which is antonyms of anaerobic training, which is divided into two categories, general and specific plyometric.[19] Aerobic fitness which sustain the necessary activity level for a specific competitive sport, which includes both cardiovascular and muscular plyometric required for the sport.[20] In physiological aspect, it requires the circulatory and respiratory systems to supply energy to the working muscles to support sustained physical activity. Plyometric requires the circulatory and respiratory systems to supply energy to the working muscles in order to support sustained physical activity.[21] Indeed, high levels of muscular strength and aerobic plyometric are key determinants of success in many sports.[22,23]

MATERIAL AND METHODS

In this study it was aimed to find out the effect of strength training, plyometric training and their combination on back strength, muscular endurance and cardio-respiratory endurance. To achieve the purpose, sixty male players of different games (twelve players from basketball, volleyball, football, kho-kho and kabaddi game) from various faculties of Annamalai University, Annamalainagar, Tamilnadu were selected as subjects at random. They were divided into four equal groups of fifteen each and further divided as three experimental groups and one control group, in which the group - I underwent strength training (three players from each game), group - II underwent plyometric training (three players from each game) and group - III underwent the combination of strength and plyometric training (three players from each game) for three days (alternative days) per week for twelve weeks, and group - IV acted as control which did not participate in any special training apart from the regular sports activities.

The subjects those who are under medical treatment for various injuries were excluded from the present study after using a self-answered questionnaire. This study was approved by the Rajah Muthiah Medical College and Hospital, Annamalai University, Annamalainagar in which it was performed and compiled with the ethical committee. All participants provided their written informed consent to participate in this study prior to enrollment. The physical and anthropometric characteristics in Table – 1.

Table – 1

MEAN VALUES OF GENERAL CHARACTERS OF THE PARTICIPANTS

	Experimental Group - I	Experimental Group – II	Experimental Group – III	Control Group (n=15)
Age (year)	20.3±0.5	20.9±0.7	21.7±0.4	21.2±0.6
Height (cm)	153.1±1.80	152.5±1.40	153.5±1.10	151.3±1.30
Strength (kg)	51.4±1.50	52.4±1.10	53.1±1.30	50.3±1.20
Blood Pressure				
Systolic(mmHg)	123.26±10.20	123.45±9.40	124.30±10.5	122.15±9.3
Diastolic(mmHg)	81.8±1.60	82.50±1.50	81.3±1.90	82.20±2.05

For every training programme there would be a change in various structure and systems in human body. So, the researchers consulted with the experts and then selected the following variables as criterion variables: 1. Back strength, 2. Muscular endurance and 3. Cardio-respiratory endurjnace. The back strength was assessed by BID – 2000 dynamometer,[24] muscular endurance was assessed by simple sit-ups test (crunches),[25] and cardio-respiratory endurance was measured by administering Cooper's 12 minutes run/walk test.[26]

ANALYSIS OF THE DATA

Analysis of covariance was used to determine the differences, if any, among the adjusted post test means on selected criterion variables separately. Whenever the 'F' ratio for adjusted post test mean was found to be significant, the Scheffé *S* test was applied as post-hoc test. The level of significance was fixed at .05 level of confidence to test the 'F' ratio obtained by analysis of covariance.

Table – 2

Analysis of Covariance and 'F' ratio for Back strength, Muscular endurance and Cardio-respiratory endurance of Strength training Group, Plyometric Training Group, Combined Training Group and Control Group

Variable Names	Group Name	Strength Training Group	Plyometric Training Group	Combined Training Group	Control Group	'F' Ratio
Back strength (in Kgs.)	**Pre-test Mean ±S.D.**	49.52 ± 1.86	48.31 ± 1.50	49.11 ± 1.34	47.91 ± 1.49	0.45
	Post-test Mean±S.D.	53.86 ± 1.12	49.31 ± 1.09	53.22 ± 1.37	48.83 ± 1.27	18.37*
	Adj. Post-test Mean	64.20	60.11	63.96	58.28	48.39*
Muscular Endurance (in Nos/min)	**Pre-test Mean±S.D.**	22.27 ± 0.81	22.81 ± 0.13	23.34 ± 0.63	23.19 ± 0.59	0.863
	Post-test Mean±S.D.	26.86 ± 0.29	24.39 ± 0.72	25.63 ± 0.61	22.89 ± 0.29	14.96*
	Adj. Post-test Mean	27.11	24.63	26.33	22.65	85.39*
Cardio-respiratory Endurance (in Meters)	**Pre-test Mean±S.D.**	1086.31 ± 122	1067.51 ± 236	1079.86 ± 183	1081.36 ± 154	1.371
	Post-test Mean±S.D.	1209.73 ± 145	1408.33 ± 171	1413.45 ± 201	1033.51 ± 122	12.33*
	Adj. Post-test Mean	1210.22	1433.86	1406.87	1054.23	38.63*

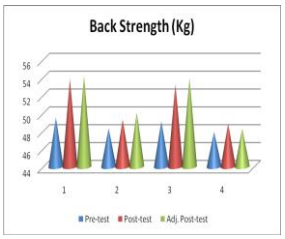
* Significant at .05 level of confidence. (The table value required for significance at .05 level of confidence with df 3 and 56 and 3 and 55were 2.77 and 2.78 respectively).

Table – 2 show that pre and post test means 'f' ratio of strength training group, plyometric training group, combined training group and control group on back strength was 0.45, which is insignificant at 0.05 level of confidence. The post and adjusted post test mean 'f' ratio value of experimental groups and control group was 18.37 and 48.39 which was significant at 0.05 level of confidence. The pre test means 'f' ratio of strength training group, plyometric training group, combined training group and control group on muscular endurance was 0.863, which is insignificant at 0.05 level of confidence. The post and adjusted post test mean 'f' ratio value of experimental groups and control group was 14.96 and 85.39, which was

significant at 0.05 level of confidence. The pre test means 'f' ratio of strength training group, plyometric training group, combined training group and control group on cardio-respiratory endurance were 1.371 which is insignificant at 0.05 level of confidence. The post test and adjusted post test mean 'f' ratio value of experimental groups and control group were 12.33 and 38.63, which was significant at 0.05 level of confidence. The overall study shows that there was a significant increase in back strength, muscular endurance and cardio-respiratory endurance. Further, to find out which of the paired mean significantly differ, the Scheffĕ *S* test was applied and presented below

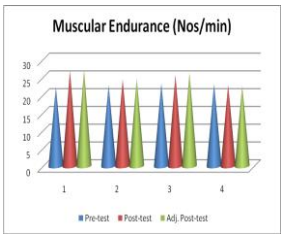
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Figure – 1



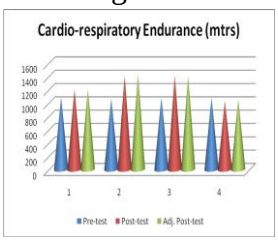
Mean values of experimental groups and control group on Back Strength

Figure – 2



Mean values of experimental groups and control group on Muscular Plyometric

Figure - 3



Mean values of experimental groups and control group on Cardio-respiratory Plyometric

Table - 3

Scheffĕ S Test for the Difference Between the Adjusted Post-Test Mean of Back strength Muscular plyometric and Cardio-respiratory Plyometric

Adjusted Post-test Mean for Back strength					
Strength Training Group	**Plyometric Training Group**	**Combined Training Group**	**Control Group**	**Mean Difference**	**Confidence Interval at 0.05 level**
64.20	60.11			4.09*	1.36
64.20		63.96		0.24	1.36
64.20			58.28	5.92*	1.36
	60.11	63.96		3.85*	1.36
	60.11		58.28	1.83*	1.36
		63.96	58.28	5.68*	1.36
Adjusted Post-test Mean for Muscular Endurance					
27.11	24.63			2.48*	1.13
27.11		26.33		0.78	1.13
27.11			22.65	4.46*	1.13
	24.63	26.33		1.70*	1.13
	24.63		22.65	1.98*	1.13
		26.33	22.65	3.68*	1.13
Adjusted Post-test Mean for Cardio-respiratory Endurance					
1210.22	1433.86			223.64*	28.18
1210.22		1406.87		196.65*	28.18
1210.22			1054.23	155.99*	28.18
	1433.86	1406.87		26.99	28.18
	1433.86		1054.23	379.63*	28.18
		1406.87	1054.23	352.64*	28.18

* Significant at 0.05 level of confidence.

Table – 3 shows that the Scheffĕ *S* Test for the difference between adjusted post-test mean of strength training group and plyometric training groups (4.09), strength training group and control group (5.92), plyometric training group and combined training group (3.85), plyometric training group and control group (1.83) and combined training group and control group (5.68), which were significant at 0.05 level of confidence. But there was no significant difference between plyometric training group and combined training group (0.24) on back strength after the training programme.

Table – 3 also shows that the Scheffĕ *S* Test for the difference between adjusted post-test mean difference in muscular endurance between strength training group and plyometric group (2.48), strength training group and control group (4.46), plyometric training group and combined training groups (1.70), plyometric training group and control group (1.98), combined training group and control group (3.68) were significant at 0.05 level of confidence. But there was no significant difference between strength training group and combined training group (0.78) on muscular endurance after the training programme.

Table – 3 shows that the Scheffĕ *S* Test for the difference between adjusted post-test mean difference in cardio-respiratory endurance between strength training group and plyometric group (223.64), strength training group and combined training group (196.65), strength training group and control group (155.99), plyometric training group and control group (379.63) combined training group and control group (352.64) were significant at 0.05 level of confidence. But there was no significant difference between plyometric training group and combined training group (26.99) on cardio-respiratory endurance after the respective training programme.

DISCUSSIONS

The maximum noticeable health benefits of strength training is improving the muscle size, strength, metabolic efficiency, body composition and bone density.[27,28,29,30,31,32] Moreover, it also increases the physiological, psychological and social health sphere and also positively correlate to regular strength training of male.[33,34,35,36] Moreover, high levels of muscular strength and endurance are key stimulant of success in many sporting events.[37,38] The concept of specificity in training,[39,40] the strength training increases the strength of the muscle and aerobic training enhances the cardiovascular endurance. The strength training and plyometric training are interact with one another[41] and it creates some less gain in muscular strength with strength training.[42,43] A meta-analysis study shown that plyometric training combined with strength training has improved a small amount of muscular strength, muscular hypertrophy and muscle power.[43]

CONCLUSIONS

The result of the present study shows that the back strength has improved all the training groups except, plyometric training group. Findings of Yiannis *et al*[44] and Bartholomew *et al*[45] supports the results of the present study. Roelants, *et al*[46] found that there was a significant improvement in back strength after 24 weeks whole body vibration and standard fitness training programme (strength and cardio-vascular training). Hong *et al*[47] reported that, an improvement was found in muscular endurance and strength after the strength training programme.

Leonardo Shigak *et al*[48] also found that there was a significant improvement in back strength after the combined strength and plyometric training. Combined training programme has improved the cardio-respiratory endurance when compared with the control group. Spurs *et al*[49] has found that combination of strength and plyometric training has better in 3 km running performance and running economy at running velocity above 12 km/h in 25 years of distance runners.

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YOGA AND ITS INFLUENCE ON INJURY PREVENTION IN SPORTS

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Abstract:

Yoga, an ancient practice rooted in mindfulness and physical wellness, has gained significant recognition in the world of sports and athletics. This abstract explores the profound influence of yoga on injury prevention in sports. Athletes across various disciplines are increasingly turning to yoga to enhance their performance and reduce the risk of injuries. This practice offers a holistic approach to physical conditioning, focusing on flexibility, strength, balance, and mental resilience. Through a combination of postures, breathing exercises, and meditation, yoga not only improves an athlete's physical prowess but also cultivates self-awareness and mental fortitude. This abstract reviews the scientific evidence supporting the positive effects of yoga on injury prevention, including the reduction of muscle imbalances, enhanced proprioception, improved body awareness, and decreased stress levels. Additionally, it discusses how yoga can be seamlessly integrated into training regimens for athletes of all levels. Understanding the role of yoga in injury prevention can revolutionize sports training programs and promote long-term athlete well-being. Finally, it concludes by emphasizing the potential of yoga as a valuable tool in reducing sports-related injuries and enhancing overall athletic performance.

Key Words: Yoga, Sports, Injury Prevention, Athletes, Mindfulness

Introduction

Yoga, an ancient practice rooted in mindfulness and physical wellness, dating back thousands of years to ancient India. While yoga is widely recognized for its capacity to foster mental tranquility and flexibility in the broader culture, its substantial impact on sports performance and injury prevention is garnering increasing attention and scientific investigation.

Sports injuries constitute a formidable adversary, capable of disrupting training regimens and even ending careers. These injuries can result from numerous factors, including overuse, biomechanical imbalances, and sheer misfortune. Regardless of the cause, the ramifications extend beyond the physical realm, affecting an athlete's psychological well-being and competitive trajectory. Sports injuries, ranging from minor strains to catastrophic trauma, can profoundly impact an athlete's career and quality of life. In this high-stakes environment, athletes and coaches relentlessly seek strategies to optimize performance while minimizing the inherent risks.

Yoga offers a promising avenue for athletes and sports enthusiasts alike to elevate their physical and mental prowess while concurrently reducing the risk of sports-related injuries. It employs a comprehensive approach that addresses key facets of an athlete's well-being.

Physically, yoga promotes flexibility, strength, and balance, all crucial elements of injury prevention. By enhancing these attributes, athletes can bolster their bodies against stressors, perform movements with greater efficiency, and mitigate the risk of overuse injuries. Yoga's postures and exercises are designed to rectify muscular imbalances and alignment issues, addressing potential sources of injury.

COMMON CAUSE OF INJURIES IN SPORTS:

Here are some of the most common factors contributing to sports-related injuries:

1. Lack of Proper Warm-Up: Insufficient warm-up before physical activity is a leading cause of injuries. Without adequate preparation, muscles, tendons, and ligaments are less flexible and more prone to strains, sprains, and tears. Warm-ups should include dynamic stretching, light cardiovascular exercise, and joint mobility exercises.

2. Poor Technique: Using incorrect techniques or form during sports activities can lead to injuries. Athletes who do not follow proper form when lifting weights, running, jumping, or performing specific movements are at risk of strains, sprains, and overuse injuries.
3. Overuse and Overtraining: Overuse injuries occur when athletes engage in repetitive motions without adequate rest and recovery. This can lead to conditions like stress fractures, tendinitis, and muscle imbalances. Balancing training with rest and listening to the body's signals is crucial.
4. Inadequate Conditioning: Athletes who are not properly conditioned for their sport are more susceptible to injuries. Weak muscles, lack of flexibility, and poor endurance can increase the risk of accidents and overuse injuries.
5. Inadequate Protective Gear: Not wearing or properly maintaining protective gear, such as helmets, pads, or braces, can lead to injuries, especially in contact sports. Properly fitting and maintained gear is essential to reduce injury risk.
6. Environmental Factors: Weather conditions, playing surfaces, and lighting can contribute to injuries. Slippery or uneven surfaces, extreme heat or cold, and poor visibility can all increase the likelihood of accidents.
7. Fatigue and Dehydration: Athletes who are fatigued or dehydrated are more prone to injuries. Fatigue can lead to lapses in concentration and coordination, while dehydration can affect muscle function and overall performance.
8. Poor Recovery Practices: Inadequate post-activity recovery, including stretching, hydration, and nutrition, can contribute to injuries. Muscles need time to recover and repair after strenuous exercise.
9. Inadequate Coaching: Athletes under the guidance of inexperienced or unqualified coaches may not receive proper instruction in technique, safety, and conditioning, increasing the risk of injuries.
10. Player-to-Player Contact: In contact sports, collisions between players can result in injuries such as concussions, sprains, and fractures. Proper training and adherence to rules and regulations can help mitigate these risks.
11. Psychological Factors: Athletes under excessive pressure or stress may be more prone to injuries due to reduced focus and coordination. Mental health and stress management are essential aspects of injury prevention.
12. Sudden Changes in Intensity: Abruptly increasing the intensity or duration of training or competition can strain the body and lead to injuries. Gradual progressions and periodization of training are safer approaches.

TYPES OF INJURIES IN SPORTS:

1. Acute Injuries:

Acute injuries are sudden and often result from a specific incident or trauma. These injuries typically occur during sports activities that involve quick movements, collisions, or high impact. Common types of acute injuries include:

a) **Sprains:** A sprain occurs when a ligament, which connects bone to bone, is stretched or torn. It often happens in joints like the ankle, knee, or wrist.
b) **Strains:** Strains involve the stretching or tearing of muscles or tendons, which connect muscles to bones. These can occur in various muscle groups and are often seen in activities like running or weightlifting.
c) **Fractures:** Fractures, or broken bones, can result from a fall, collision, or excessive force. They can vary in severity from hairline fractures to complete breaks.
d) **Dislocations:** A dislocation happens when the bones in a joint are forced out of their normal positions. Common dislocations occur in the shoulder and finger joints.

e) **Contusions:** Also known as bruises, contusions result from direct impact to the body's soft tissues, causing bleeding under the skin.
f) **Concussions:** Concussions are traumatic brain injuries caused by a blow to the head. They can result in various symptoms and require immediate medical attention.

2. Overuse Injuries:

Overuse injuries develop gradually over time and are typically associated with repetitive motions and inadequate rest. These injuries are common in sports that involve repetitive actions or long training sessions. Common overuse injuries include:

a) **Tendinitis:** Tendinitis is inflammation of a tendon, often caused by repetitive movements. It can affect various tendons, such as the Achilles tendon or the rotator cuff.
b) **Stress Fractures:** Stress fractures are tiny cracks in bones due to repetitive impact, often seen in runners and athletes in sports that involve repetitive jumping.
c) **Bursitis:** Bursitis occurs when the fluid-filled sacs (bursae) that cushion joints become inflamed due to overuse or repetitive motion.
d) **Shin Splints:** Shin splints are characterized by pain along the shinbone (tibia) and are common in activities like running and jumping.
e) **Tennis/Golfer's Elbow:** These conditions involve inflammation of the tendons around the elbow, resulting from repetitive wrist and forearm movements.
f) **Runner's Knee:** Also known as patellofemoral pain syndrome, this condition causes pain around the kneecap due to repetitive knee bending and impact.
g) **IT Band Syndrome:** The iliotibial (IT) band runs along the outside of the thigh and can become irritated and painful due to overuse, often seen in runners.

INFLUENCE OF YOGA IN PREVENTING SPORTS INJURIES:

1. **Enhanced Flexibility:** Yoga involves a wide range of stretches and poses that help improve flexibility in muscles and joints. Increased flexibility allows athletes to move more freely, reducing the risk of strains and muscle tears during sports activities.
2. **Strength and Stability:** Many yoga poses require the engagement of various muscle groups, leading to increased strength. A stronger body provides better support for joints and helps maintain proper alignment, reducing the risk of injuries related to muscle imbalances.
3. **Improved Balance and Coordination:** Yoga often incorporates balance exercises and poses, enhancing proprioception and coordination. This translates to better balance and stability during sports activities, reducing the likelihood of falls and related injuries.
4. **Body Awareness:** Yoga encourages athletes to become more attuned to their bodies. Practitioners learn to listen to their bodies, recognize areas of tension or discomfort, and adjust their movements accordingly. This heightened body awareness reduces the risk of overuse injuries and allows athletes to make informed decisions during training and competition.
5. **Stress Reduction:** Yoga incorporates relaxation techniques such as deep breathing and meditation. Reducing stress levels can lead to better focus, concentration, and mental clarity during sports, decreasing the risk of accidents due to lapses in attention.

PREVENTION OF SPORTS INJURIES THROUGH YOGA:

1) **Preventing Overuse Injuries:** Yoga's emphasis on balanced muscle development and flexibility helps prevent overuse injuries, which often result from repetitive motions in sports.
2) **Reducing Muscle Imbalances:** Yoga addresses muscle imbalances by strengthening and stretching opposing muscle groups. This can help athletes maintain proper alignment and reduce the risk of injuries caused by imbalances.

3) **Maintaining Joint Health:** Yoga promotes joint health by improving flexibility and reducing joint stiffness. Healthy joints are less prone to injuries and conditions like tendonitis.
4) **Enhancing Recovery:** For athletes recovering from injuries, yoga can aid in the rehabilitation process. It offers gentle exercises that maintain flexibility and prevent secondary injuries during recovery.
5) **Promoting Mindful Training:** Yoga encourages athletes to practice mindfulness and listen to their bodies. Athletes are more likely to notice early signs of fatigue or strain, enabling them to adjust their training and prevent injuries.
6) **Improving Posture:** Good posture is crucial for injury prevention. Yoga helps athletes develop proper body alignment and posture, reducing the risk of injuries related to poor alignment.
7) **Strengthening the Core:** Many yoga poses engage the core muscles, providing stability and balance. A strong core reduces the risk of injuries by providing a stable foundation for athletic movements.

REHABILITATION YOGASANAS:

1) **Balasana (Child's Pose):**
   - **Technique:** Kneel on the floor, sit back on your heels, and stretch your arms forward with your forehead resting on the ground. Keep your hips over your heels and extend your arms.
   - **Benefits:** Child's pose is a resting and gentle stretching pose that can help alleviate lower back pain, knee injuries, and ankle injuries. It promotes relaxation and relieves tension in the back and neck.
2) **Marjaryasana-Bitilasana (Cat-Cow Pose):**
   - **Technique:** Start on your hands and knees in a table top position. Inhale, arch your back, and look up (Cow Pose). Exhale, round your back, and tuck your chin (Cat Pose). Repeat these movements.
   - **Benefits:** Cat-Cow is a dynamic spinal flexion and extension exercise that can aid in improving spinal mobility. It can be beneficial for athletes with back injuries, especially those involving the intervertebral discs.
3) **Adho Mukha Svanasana (Downward-Facing Dog):**
   - **Technique:** Begin on your hands and knees, then lift your hips upward, forming an inverted V shape. Press your palms into the ground and keep your heels reaching toward the floor.
   - **Benefits:** Downward-Facing Dog is an excellent pose for stretching and strengthening the entire body. It can help prevent and rehabilitate shoulder and hamstring injuries, as well as improve overall flexibility and strength.
4) **Eka Pada Rajakapotasana (Pigeon Pose):**
   - **Technique:** From a tabletop position, bring one knee forward, angling it to the opposite wrist. Extend the opposite leg behind you and lower your hips toward the ground. Square your hips and fold forward.
   - **Benefits:** Pigeon pose is a deep hip opener that can be useful for athletes with hip and gluteal injuries. It helps increase hip flexibility, release tension, and alleviate sciatica pain.
5) **Setu Bandha Sarvangasana (Bridge Pose):**
   - **Technique:** Lie on your back with your knees bent and feet flat on the floor. Lift your hips upward while pressing your feet and arms into the ground. Keep your neck relaxed and breathe deeply.

- **Benefits:** Bridge pose is a gentle backbend that can be beneficial for athletes recovering from lower back injuries or looking to strengthen the back and gluteal muscles. It also stretches the chest and hip flexors.

Conclusion:

In conclusion, the integration of yoga and Incorporating yoga into sports training is supported by a growing body of research and a substantial body of anecdotal evidence. The multifaceted nature of yoga, encompassing physical, mental, and emotional aspects, equips athletes with a comprehensive toolkit to mitigate the risks of sports-related injuries. Yoga's influence in injury prevention is grounded in its ability to enhance flexibility, strength, balance, coordination, and body awareness. These physical attributes are vital in reducing the risk of injuries, as they promote proper biomechanics and muscular symmetry. Moreover, yoga's stress-reduction techniques, relaxation methods, and mental clarity exercises foster a positive mental state, improving focus and concentration during sports activities. The safety and effectiveness of yoga in injury prevention are contingent on proper technique, alignment, and personalized modifications. As athletes strive for peak performance while safeguarding their physical well-being, yoga offers a holistic approach that not only enhances athletic abilities but also cultivates resilience and reduces the risk of sports-related injuries. By recognizing the value of yoga as a complementary practice, athletes can elevate their performance, promote long-term health, and enjoy the many benefits that yoga brings to the world of sports.

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EFFECT OF YOGIC PRACTICES ON SELECTED PHYSICAL VARIABLES MONG WORKING WOMEN IN TEXTILE INDUSTRY

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Abstract

The purpose of the study was to investigate the effects of yogic practices on selected physical variables among working women in textile industry. To facilitate the study, forty working women were selected from a textile unit in Dindigul city at random and the age group was between 25 to 35 years. In this study yogic practices were given to experimental group for the period of twelve weeks. The pretest was taken from the workers on selected physical variables such as flexibility and balance before administering the training. The subjects were involved with their training for a period of twelve weeks. The subjects were monitored throughout the sessions. At the end of the twelve weeks training posttest with respect of flexibility and balance were measured by using the standardized tests and methods. The significant difference between the means of the experimental group and control group for the pretest and post test scores were determined by 't' test. The level of significance was fixed at 0.05 level of confidence. There was improvement in the variables selected when the scores were compared to the pretest also compared to control group.

Keywords: Balance, Flexibility, Yoga

INTRODUCTION

India is the sixth largest exporter of textiles and apparel in the world. The textile industry is one of the most important industries in India especially for its largest source of employment generation with more than 45 million people directly employed. Out of which more than 60% are women both skilled and unskilled mainly came from rural areas. It has different segments like spinning, dyeing, weaving, knitting and wet processing.

Working in the textile industry is physically demanding with continuous exposure to loud noise, improper lighting and stress. In addition, the working environment in the factories is often considered unhygienic and not worker friendly, which has an adverse effect on the workers' health such as headache, fatigue, eye problem, hearing problem, hypertension etc.,

Employees follow a strict routine and as a result, they admit they have little time to rest during working hours. This rigid working schedule means they are forced to work in a particular posture for long periods which lead to a number of physical problems especially joint pain and low back pain.

Along with physical issues female textile workers were invariably vulnerable to a number of psychological troubles, often more than one at the same time like stress, anxiety, depression and mood disorders. In this paper an attempt is made to highlight the physical health issues of textile industry women workers and find out the effect of yoga practices on them.

OBJECTIVES OF THE STUDY

1. To find out impact of yoga practices and Pranayama on physical physiological psychological variables among working women in textile industry.
2. To create awareness on yoga among working women.
3. To provide overall health management through yoga among working women.

SIGNIFICANCE OF THE STUDY

1. The study would promote awareness among working women about the importance of yoga in the day-to-day life.
2. The investigation will establish yogic exercises for maintaining overall health.

3. It is hoped that this research will propagate knowledge to the next generation.
4. This would add important information to the knowledge of physical education field.

HYPOTHESIS

On the basis of conclusion drawn through critical and allied literature related to the study, the hypothesis has been framed as follows,

It was hypothesized that there would be significant improvement on selected physical variables among working women in textile industry due to twelve weeks yogic practices group than control group.

METHODOLOGY

To achieve the present investigation, forty textile industry women workers were randomly selected from a textile unit, Dindigul and the subjects' age ranged between 25 years and 35 years. Subjects were divided into two equal groups with 20 subjects each, such as yoga (experimental) group and control group.

Experimental group underwent 12 weeks yoga training with loosening exercises and simple asanas. Meanwhile control group allowed to do their normal activities. The selected physical variables namely flexibility measured by sit and reach test and balance measured by one leg reach test with a stop watch. The data were collected from each subject before and after the training period and statistically analyzed by dependent 't' test which is used to find out the significant improvement on selected criterion variables. All the cases 0.05 level of confidence was fixed as a level of confidence to test the hypotheses.

ANALYSIS OF THE DATA

Table 1: Analysis of 't' ratio for Flexibility (in centimeters)

	Yoga Group				
Test	**Size**	**Mean**	**Mean Difference**	**Standard Deviation**	**'t' Ratio**
PRE	20	6.93	0.91	1.06	**3.45***
POST	20	7.84		1.13	
	Control Group				
PRE	20	6.82	0.09	0.96	2.1
POST	20	6.73		0.96	

***significant at 0.05 level * tabulated 't' value required at 0.05 = 2.15**

From Table 1, the obtained't' value 3.45 of the yoga group with respect to flexibility was significantly greater than the required 't' value (5.87>2.15) and it is proven that there is a significant difference in the flexibility of the yoga group than control group which was below the required value. The obtained mean value from the findings illustrated in figure I

FIGURE I
Analysis of Flexibility

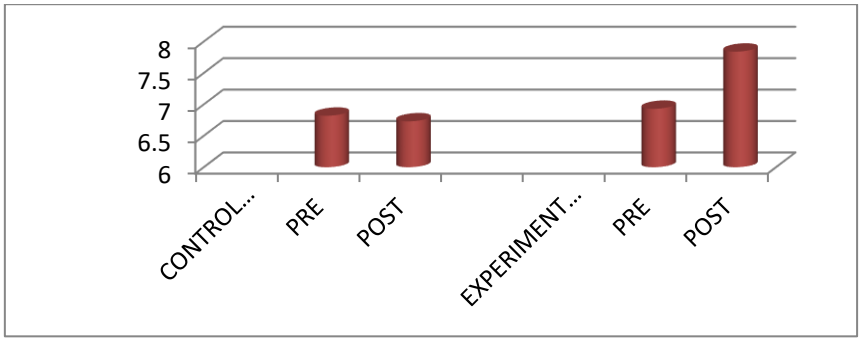


Table 1I: Analysis of 't' ratio for Balance (in sec)

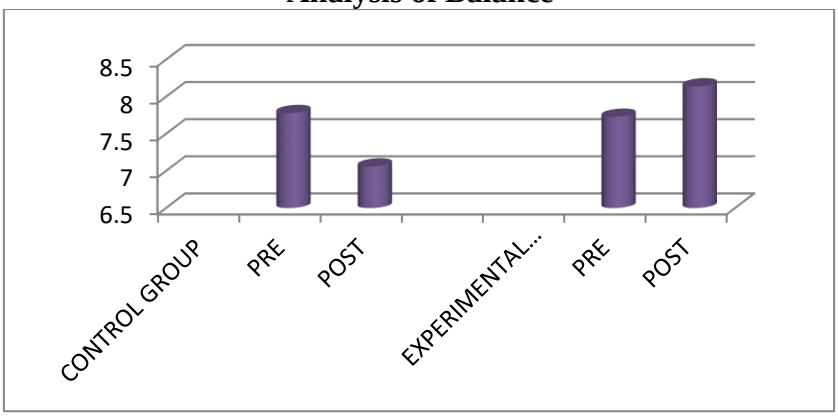
	Yoga Group				
Test	**Size**	**Mean**	**Mean Difference**	**Standard Deviation**	**'t' Ratio**
PRE	20	7.73	0.41	0.38	**4.11***
POST	20	8.14		0.16	
	Control Group				
PRE	20	7.78	0.72	0.07	1.9
POST	20	7.06		0.07	

***significant at 0.05 level * tabulated 't' value required at 0.05 = 2.15**

From Table II, the obtained't' value 4.11 of the yoga group with respect to balance was significantly greater than the required 't' value (4.11>2.15) and it is proven that there is a significant difference in the balance of the yoga group than control group which was below the required value. The obtained mean value from the findings illustrated in figure II

FIGURE II

Analysis of Balance



CONCLUSION

Within the limitation of the present study, the following conclusions were drawn:

1. It was concluded that, yoga group showed significant improvement on flexibility compared to control group.
2. It was concluded that, yoga group showed significant improvement on balance compared to control group.

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EFFECT OF LADDER TRAINING IMPACT OF AEROBIC DANCE ON ANXIETY OF COLLEGE WOMEN BASKETBALL PLAYERS

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Abstract:

The aim of the present study was to find out the Impact of Aerobic Dance on Anxiety of College Women Basketball Players. For this purpose, Thirty Basketball Players were randomly selected from affiliated colleges of Alagappa University and their age ranged between 18 to 21 years. Subjects included in the study were not controlled with regard to their lifestyle, diet and habits which may have influenced their performance. The subjects' body type and the economic status were not taken into consideration. They were divided in to two groups A and B with 15 Subjects in each group, group A was treated with Aerobic Dance and group B was kept under control group. The subjects of group A underwent training for eight weeks with the duration of 45 minutes. The training was started at 6.30 a.m and it was given for four days per week for eight weeks. The pre-test and post-test on Anxiety was measured. The data was statistically analyzed by using't' ratio to find out the significant difference between the two groups. The finding of the study revealed that there was a significant improvement on Anxiety for the experimental groups when compared to the control group.

Key words: *Aerobic Dance, Rhythm, Anxiety*

Introduction:

Basketball, extremely popular around the world, is a core game played by two teams of five Player each. The object is to put a ball through a hop, or basket and the score are points than the opposing team. Because of if continuous action and frequency scoring, Basketball is one of the most popular spectator as well as participant sports in the world. Ability of a Muscle group can contract over an extended time against Moderate Resistance. Aerobic dancing is a series of callisthenic exercise movements accompanied by music, the use of music is a technique of motivation that has been increased in recent years. Aerobic dance is essential to a healthy cardiovascular system. Briefly, aerobic dance is an activity that can be sustained for an extended period of time without building an oxygen dept in the muscles. It is a type of dance that overloads the heart and lungs and causes them to work harder than they do when a person is at rest. Aerobic literally means 'with air'. Aerobic dance is the type of activity in which the amount of oxygen taken in equal to the amount of oxygen required. Exercise records seen to be widely used in schools as a means of stimulating students to keep up with the pace and perhaps a maximum of activity with a minimum of conscious pain.

Methodology:

To achieve this purpose, Thirty College women Basketball players were randomly selected from affiliated colleges of Alagappa University. The subjects were ranged from 18 to 21 years. The subjects for this study were oriented and the purpose of the study explained. The testing procedures were explained to them in details, so that there was no ambiguity in their minds. The subjects were participated in this research with enthusiasm without any special motivational techniques. The subjects of the experimental groups received personalized attention and supervision of the trainer in relation to the Aerobic Dance like Warm-up, Step touch, Step out, Heel Back, V Step, Mambo. The training was carried out in the multipurpose hall. The training was given forty five minutes in the morning hours at 6.30 a.m of 4 days a week for eight weeks. The subjects living condition and life-style were not taken into consideration for this study.

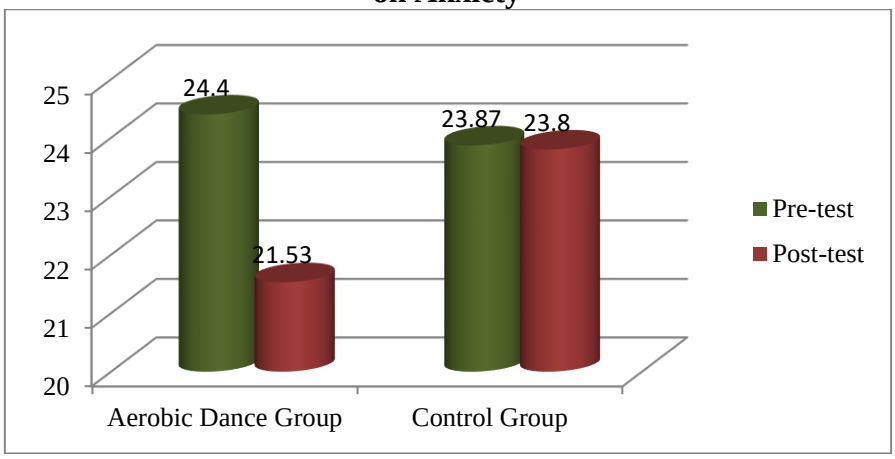
Table – 1't' ratio of Anxiety of Aerobic Dance group and Control group

Anxiety				
		Aerobic Dance Group	**Control Group**	**Mean Differences**
Pre-test	Mean	24.40	23.87	0.53
Post-test	Mean	21.53	23.80	2.27
't' ratio		**2.54***	0.06	

***Significance at 0.05 level of confidence (required table Value is 2.15)

The mean score of Anxiety between Aerobic Dance group and Control group are 21.53 and 23.80 respectively. As the obtained 't' ratio 2.54 is greater than required 't' value 2.15 at 0.05 level of confidence at 14 degrees of freedom, there is a significant improvement between Aerobic Dance group and Control group. The result shows that there was a significant difference between Aerobic Dance group and Control group on the changes in Anxiety after eight weeks of Training.

Fig – 1 The Pre and Post-test Mean Values of Aerobic Dance Group and Control Group on Anxiety



Conclusion:

It was observed from the pre-test results, that there is a significant difference among Aerobic Dance group and Control groups. While the post-test results of Aerobic Dance group and Control group revealed that, there is a significant difference in the Aerobic Dance group. The training program has influenced the Aerobic Dance group where as there is no effect in the control group. The results of this study show that, after 8 weeks of practicing Aerobic Dance, there was an improvement in Anxiety.

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EFFECT OF LADDER TRAINING ON SELECTED PHYSICAL AND PHYSIOLOGICAL VARIABLES AMONG COLLEGE MEN HANDBALL PLAYERS

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Abstract

The purpose of the study was to find out the effect of Ladder training on selected physical and physiological variables such as Cardio respiratory Endurance and Blood Pressure, of college men Handball Players studying various Arts & Science Colleges affiliated to Madurai Kamaraj University, Madurai District, Tamil Nadu, India were randomly selected as subjects. Thirty men students were selected as subject. The subject's age were ranged from 18 to 23 years. The selected subjects were divided into two equal groups of thirty subjects each at randomly, which were one experimental groups and a control group. Experimental Group underwent the Resistance Training programme. The training period of an experimental group was six weeks. Control group did not undergo any training programme rather than their routine work. The data were collected on physical fitness variables namely Cardio respiratory Endurance, physiological variables namely Blood Pressure for all the two groups before the experimental period (Pre-test), after six weeks of training period (Post -test) respectively. In order to test the effect of training, the collected data from all the two groups before, during and after experimentation on Physical, Physiological variables were statistically analyzed by using one-way factorial analysis of variance with last factor repeated measures. When the obtained 'T' ratio value in the simple effect is found significant, to determine which of the paired mean had significant differences. In all the cases the level of confidence is fixed at 0.05 to test the significance. The result of the study also revealed that there significantly improved in the Cardio respiratory Endurance and Blood Pressure were significantly reduced due to Ladder Training among college men Handball Players after effect of Ladder training on selected physical and physiological variables among College men Handball Players.

Key Words: *Ladder training, Cardio respiratory Endurance, Systolic Blood Pressure, Dystolic Blood Pressure and Handball*

Introduction

Ladder training, also known as weight training or strength training, is for everyone. It is an important tool for achieving a complete healthy life. Resistance training is not only for athletes, but also for those who want to build or tone muscle, or those who are using resistance training to achieve a better looking body. One may also hear the terms weight training (or weight lifting) and strength training used to describe working the muscles with resistance. Ladder training is the term used to describe using weights, machines, and even one's own bodyweight to effectively work one's muscles. It is an umbrella term used to accurately describe all forms of resistance training, whether working with weights or not. Although strength training accurately describes what resistance training does, many people do not use the term because they think it only applies to those trying to become bigger and stronger when, in fact, all Ladder training which is correctly done indeed increases strength, but does not necessary visibly increase size. Resistance training does improve the look and tone of the body but it is now known to be more than just a specialized exercise activity.

Methodology

The purpose of the study was to find out the effect of Ladder training on selected physical and physiological variables such as Cardio respiratory Endurance and Blood Pressure of college men Handball Players studying various Arts & Science Colleges affiliated to Madurai Kamaraj University, Madurai District, Tamil Nadu, India were randomly selected as subjects. Thirty men students were selected as subject. The subject's age were ranged from 18

to 23 years. The selected subjects were divided into two equal groups of thirty subjects each at randomly, which were one experimental groups and a control group. Experimental Group underwent the Ladder Training programme. The training period of an experimental group was six weeks. Control group did not undergo any training programme rather than their routine work. The data were collected on physical fitness variables namely Cardio respiratory Endurance, physiological variables namely Blood Pressure for all the two groups before the experimental period (Pre-test), after six weeks of training period (Post -test) respectively. In order to test the effect of training, the collected data from all the two groups before, during and after experimentation on Physical, Physiological variables were statistically analyzed by using one-way factorial analysis of variance with last factor repeated measures. When the obtained 'T' ratio value in the simple effect is found significant, to determine which of the paired mean had significant differences. In all the cases the level of confidence is fixed at 0.05 to test the significance.

Table 1
Analysis of 't'-ratio on pre and post-test for Control and Experimental Group on Cardio respiratory Endurance

Variables	Group Name	Mean		Sd		Sd Error	Df	't' ratio
		Pre	Post	Pre	Post			
Cardio respiratory Endurance	Control	2204	2102	171.45	171.45	63.33	14	1.58
	Experimental	2200	2412	429.29	331.78	82.26		**2.52***

***Significance at0.05 level of confidence*

The table 1 shows that the mean values of pre-test and post-test of control group on abdominal strength were 2204 and 2102 respectively. The obtained 't' ratio was 1.58 since the obtained 't' ratio was less than the required table value of 2.15 for the significant at 0.05 level with 14 degrees of freedom, it was found to be statistically insignificant. The mean values of pre-test and post-test of experimental group on abdominal strength were 2200 and 2412 respectively. The obtained 't' ratio was 2.55 since the obtained 't' ratio was greater than the required table value of 2.15 for significance at 0.05 level with 14 degrees of freedom it was found to be statistically significant. The result of the study showed that there was a significant difference between control group and experimental group in abdominal strength. It may be concluded from the result of the study that experimental group improved in abdominal strength due to six weeks of Ladder training.

Figure -1
Cylinder Diagram Shows the Mean Value between the Pre and Post-test and Experimental and Control Group on Cardio respiratory Endurance

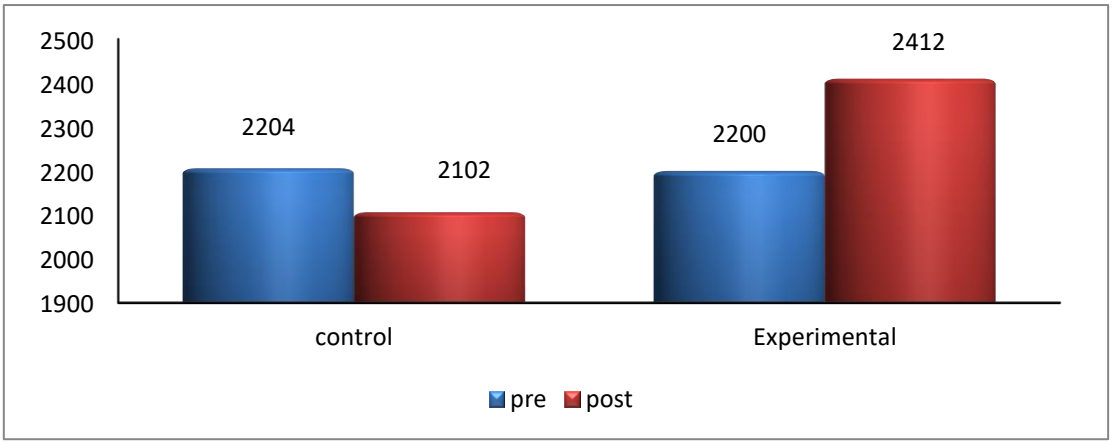


Table 2
Analysis of 't'-Ratio on Pre and Post-test for Control and Experimental Group on Systolic Blood Pressure

Variables	Group Name	Mean		SD		Sd Error	Df	't' ratio
		Pre	Post	Pre	Post			
Blood pressure	Control	124.2	124.90	8.5	6.58	1.34	14	0.39
	Experimental	125.04	120.65	9.72	4.28	1.68		**2.02***

***Significance at0.05 level of confidence*

The table 2 shows that the mean values of pre-test and post-test of control group on systolic blood pressure were 124.2 and 124.90 respectively. The obtained 't' ratio was 0.39 since the obtained 't' ratio was less than the required table value of 2.15 for the significant at 0.05 level with 14 degrees of freedom, it was found to be statistically insignificant. The mean values of pre-test and post-test of experimental group on systolic blood pressure were 125.04 and 120.65 respectively. The obtained 't' ratio was 2.02 since the obtained 't' ratio was greater than the required table value of 2.15 for significance at 0.05 level with 14 degrees of freedom it was found to be statistically significant. The result of the study showed that there was a significant difference between control group and experimental group in systolic blood pressure. It may be concluded from the result of the study that experimental group improved in systolic blood pressure due to six weeks of Ladder training.

Figure -2
Cylinder Diagram Shows the mean value between the Pre and Post-test and Experimental and Control Group on Systolic Blood Pressure

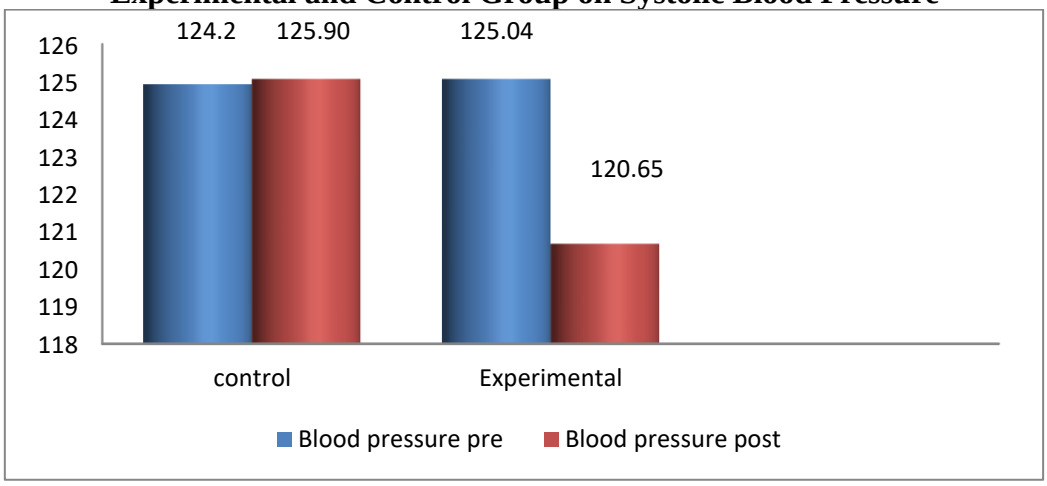


Table 3
Analysis of 't'-Ratio on Pre and Post-test for Control and Experimental Group on Dystolic Blood Pressure

Variables	Group Name	Mean		SD		Sd Error	Df	't' ratio
		Pre	Post	Pre	Post			
Blood pressure	Control	86.65	87.1	5.31	3.93	0.91	14	0.58
	Experimental	86.7	84.05	5.44	3.43	0.78		**3.45***

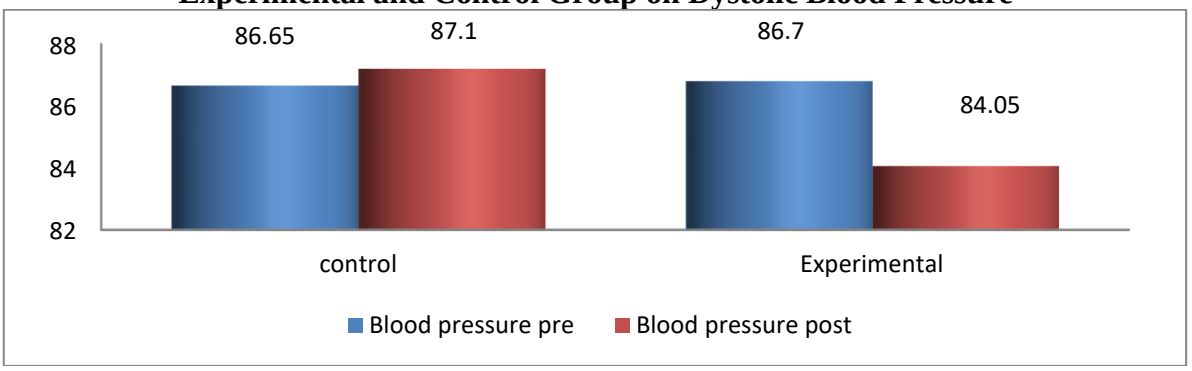
***Significance at0.05 level of confidence*

The table 3 shows that the mean values of pre-test and post-test of control group on dystolic blood pressure were 86.65 and 87.1 respectively. The obtained 't' ratio was 0.58 since the obtained 't' ratio was less than the required table value of 2.15 for the significant at 0.05 level with 14 degrees of freedom, it was found to be statistically insignificant. The mean values of pre-test and post-test of experimental group on dystolic blood pressure were 86.7 and 84.05 respectively. The obtained 't' ratio was 3.45 since the obtained 't' ratio was greater than the required table value of 2.15 for significance at 0.05 level with 14 degrees of freedom it was

found to be statistically significant. The result of the study showed that there was a significant difference between control group and experimental group in dystolic blood pressure. It may be concluded from the result of the study that experimental group improved in dystolic blood pressure due to six weeks of Ladder training.

Figure -3

Cylinder Diagram Shows the mean value between the Pre and Post-test and Experimental and Control Group on Dystolic Blood Pressure



Conclusions

Based on the results of the present study the following conclusions have been college men handball players.

1. Results on testing the differences on pre-test means between experimental and control groups, no difference was found on variables used in the study namely cardio respiratory endurance and Blood Pressure.
2. On testing the post-test means between experimental and control groups, significant mean difference was found on variables used in the study.
3. In the view of maximize the treatment variance, the collected data were tested by t-ratio used.

RECOMMENDATIONS

On the basis of the findings and conclusions of the present study, the following recommendations were made.

1. Similar study may be conducted for various age groups.
2. The same study may be extended to further time period.
3. The present study is mainly focused on male only. The same study could be done over females also.

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YOGA AND ITS INFLUENCE ON INJURY PREVENTION IN SPORTS

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Abstract:

Yoga, an ancient practice rooted in mindfulness and physical wellness, has gained significant recognition in the world of sports and athletics. This abstract explores the profound influence of yoga on injury prevention in sports. Athletes across various disciplines are increasingly turning to yoga to enhance their performance and reduce the risk of injuries. This practice offers a holistic approach to physical conditioning, focusing on flexibility, strength, balance, and mental resilience. Through a combination of postures, breathing exercises, and meditation, yoga not only improves an athlete's physical prowess but also cultivates self-awareness and mental fortitude. This abstract reviews the scientific evidence supporting the positive effects of yoga on injury prevention, including the reduction of muscle imbalances, enhanced proprioception, improved body awareness, and decreased stress levels. Additionally, it discusses how yoga can be seamlessly integrated into training regimens for athletes of all levels. Understanding the role of yoga in injury prevention can revolutionize sports training programs and promote long-term athlete well-being. Finally, it concludes by emphasizing the potential of yoga as a valuable tool in reducing sports-related injuries and enhancing overall athletic performance.

Key Words:*Yoga, Sports, Injury Prevention, Athletes, Mindfulness*

INTRODUCTION

Yoga, an ancient practice rooted in mindfulness and physical wellness, dating back thousands of years to ancient India. While yoga is widely recognized for its capacity to foster mental tranquility and flexibility in the broader culture, its substantial impact on sports performance and injury prevention is garnering increasing attention and scientific investigation.

Sports injuries constitute a formidable adversary, capable of disrupting training regimens and even ending careers. These injuries can result from numerous factors, including overuse, biomechanical imbalances, and sheer misfortune. Regardless of the cause, the ramifications extend beyond the physical realm, affecting an athlete's psychological well-being and competitive trajectory.Sports injuries, ranging from minor strains to catastrophic trauma, can profoundly impact an athlete's career and quality of life. In this high-stakes environment, athletes and coaches relentlessly seek strategies to optimize performance while minimizing the inherent risks.

Yoga offers a promising avenue for athletes and sports enthusiasts alike to elevate their physical and mental prowess while concurrently reducing the risk of sports-related injuries. It employs a comprehensive approach that addresses key facets of an athlete's well-being.

Physically, yoga promotes flexibility, strength, and balance, all crucial elements of injury prevention. By enhancing these attributes, athletes can bolster their bodies against stressors, perform movements with greater efficiency, and mitigate the risk of overuse injuries. Yoga's postures and exercises are designed to rectify muscular imbalances and alignment issues, addressing potential sources of injury.

COMMON CAUSE OF INJURIES IN SPORTS:

Here are some of the most common factors contributing to sports-related injuries:

1. **Lack of Proper Warm-Up**: Insufficient warm-up before physical activity is a leading cause of injuries. Without adequate preparation, muscles, tendons, and ligaments are less flexible and more prone to strains, sprains, and tears. Warm-ups should include dynamic stretching, light cardiovascular exercise, and joint mobility exercises.
2. **Poor Technique:** Using incorrect techniques or form during sports activities can lead to injuries. Athletes who do not follow proper form when lifting weights, running, jumping, or performing specific movements are at risk of strains, sprains, and overuse injuries.
3. **Overuse and Overtraining:** Overuse injuries occur when athletes engage in repetitive motions without adequate rest and recovery. This can lead to conditions like stress fractures, tendinitis, and muscle imbalances. Balancing training with rest and listening to the body's signals is crucial.
4. **Inadequate Conditioning**: Athletes who are not properly conditioned for their sport are more susceptible to injuries. Weak muscles, lack of flexibility, and poor endurance can increase the risk of accidents and overuse injuries.
5. **Inadequate Protective Gear:** Not wearing or properly maintaining protective gear, such as helmets, pads, or braces, can lead to injuries, especially in contact sports. Properly fitting and maintained gear is essential to reduce injury risk.
6. **Environmental Factors**: Weather conditions, playing surfaces, and lighting can contribute to injuries. Slippery or uneven surfaces, extreme heat or cold, and poor visibility can all increase the likelihood of accidents.
7. **Fatigue and Dehydration:** Athletes who are fatigued or dehydrated are more prone to injuries. Fatigue can lead to lapses in concentration and coordination, while dehydration can affect muscle function and overall performance.
8. **Poor Recovery Practices:** Inadequate post-activity recovery, including stretching, hydration, and nutrition, can contribute to injuries. Muscles need time to recover and repair after strenuous exercise.
9. **Inadequate Coaching:** Athletes under the guidance of inexperienced or unqualified coaches may not receive proper instruction in technique, safety, and conditioning, increasing the risk of injuries.
10. **Player-to-Player Contact:** In contact sports, collisions between players can result in injuries such as concussions, sprains, and fractures. Proper training and adherence to rules and regulations can help mitigate these risks.
11. **Psychological Factors:** Athletes under excessive pressure or stress may be more prone to injuries due to reduced focus and coordination. Mental health and stress management are essential aspects of injury prevention.
12. **Sudden Changes in Intensity:** Abruptly increasing the intensity or duration of training or competition can strain the body and lead to injuries. Gradual progressions and periodization of training are safer approaches.

TYPES OF INJURIES IN SPORTS:

1. Acute Injuries:

Acute injuries are sudden and often result from a specific incident or trauma. These injuries typically occur during sports activities that involve quick movements, collisions, or high impact. Common types of acute injuries include:

a) **Sprains:** A sprain occurs when a ligament, which connects bone to bone, is stretched or torn. It often happens in joints like the ankle, knee, or wrist.

b) **Strains:** Strains involve the stretching or tearing of muscles or tendons, which connect muscles to bones. These can occur in various muscle groups and are often seen in activities like running or weightlifting.
c) **Fractures:** Fractures, or broken bones, can result from a fall, collision, or excessive force. They can vary in severity from hairline fractures to complete breaks.
d) **Dislocations:** A dislocation happens when the bones in a joint are forced out of their normal positions. Common dislocations occur in the shoulder and finger joints.
e) **Contusions:** Also known as bruises, contusions result from direct impact to the body's soft tissues, causing bleeding under the skin.
f) **Concussions:** Concussions are traumatic brain injuries caused by a blow to the head. They can result in various symptoms and require immediate medical attention.

2. Overuse Injuries:

Overuse injuries develop gradually over time and are typically associated with repetitive motions and inadequate rest. These injuries are common in sports that involve repetitive actions or long training sessions. Common overuse injuries include:

a) **Tendinitis:** Tendinitis is inflammation of a tendon, often caused by repetitive movements. It can affect various tendons, such as the Achilles tendon or the rotator cuff.
b) **Stress Fractures:** Stress fractures are tiny cracks in bones due to repetitive impact, often seen in runners and athletes in sports that involve repetitive jumping.
c) **Bursitis:** Bursitis occurs when the fluid-filled sacs (bursae) that cushion joints become inflamed due to overuse or repetitive motion.
d) **Shin Splints:** Shin splints are characterized by pain along the shinbone (tibia) and are common in activities like running and jumping.
e) **Tennis/Golfer's Elbow:** These conditions involve inflammation of the tendons around the elbow, resulting from repetitive wrist and forearm movements.
f) **Runner's Knee:** Also known as patellofemoral pain syndrome, this condition causes pain around the kneecap due to repetitive knee bending and impact.
g) **IT Band Syndrome:** The iliotibial (IT) band runs along the outside of the thigh and can become irritated and painful due to overuse, often seen in runners.

INFLUENCE OF YOGA IN PREVENTING SPORTS INJURIES:

1. **Enhanced Flexibility:** Yoga involves a wide range of stretches and poses that help improve flexibility in muscles and joints. Increased flexibility allows athletes to move more freely, reducing the risk of strains and muscle tears during sports activities.
2. **Strength and Stability:** Many yoga poses require the engagement of various muscle groups, leading to increased strength. A stronger body provides better support for joints and helps maintain proper alignment, reducing the risk of injuries related to muscle imbalances.
3. **Improved Balance and Coordination**: Yoga often incorporates balance exercises and poses, enhancing proprioception and coordination. This translates to better balance and stability during sports activities, reducing the likelihood of falls and related injuries.
4. **Body Awareness:** Yoga encourages athletes to become more attuned to their bodies. Practitioners learn to listen to their bodies, recognize areas of tension or discomfort, and adjust their movements accordingly. This heightened body awareness reduces the risk of overuse injuries and allows athletes to make informed decisions during training and competition.
5. **Stress Reduction:** Yoga incorporates relaxation techniques such as deep breathing and meditation. Reducing stress levels can lead to better focus, concentration, and mental clarity during sports, decreasing the risk of accidents due to lapses in attention.

PREVENTION OF SPORTS INJURIES THROUGH YOGA:

1) **Preventing Overuse Injuries:** Yoga's emphasis on balanced muscle development and flexibility helps prevent overuse injuries, which often result from repetitive motions in sports.
2) **Reducing Muscle Imbalances:** Yoga addresses muscle imbalances by strengthening and stretching opposing muscle groups. This can help athletes maintain proper alignment and reduce the risk of injuries caused by imbalances.
3) **Maintaining Joint Health:** Yoga promotes joint health by improving flexibility and reducing joint stiffness. Healthy joints are less prone to injuries and conditions like tendonitis.
4) **Enhancing Recovery:** For athletes recovering from injuries, yoga can aid in the rehabilitation process. It offers gentle exercises that maintain flexibility and prevent secondary injuries during recovery.
5) **Promoting Mindful Training:** Yoga encourages athletes to practice mindfulness and listen to their bodies. Athletes are more likely to notice early signs of fatigue or strain, enabling them to adjust their training and prevent injuries.
6) **Improving Posture:** Good posture is crucial for injury prevention. Yoga helps athletes develop proper body alignment and posture, reducing the risk of injuries related to poor alignment.
7) **Strengthening the Core**: Many yoga poses engage the core muscles, providing stability and balance. A strong core reduces the risk of injuries by providing a stable foundation for athletic movements

REHABILITATION YOGASANAS:

1. **Balasana (Child's Pose):**
    - **Technique:** Kneel on the floor, sit back on your heels, and stretch your arms forward with your forehead resting on the ground. Keep your hips over your heels and extend your arms.
    - **Benefits:** Child's pose is a resting and gentle stretching pose that can help alleviate lower back pain, knee injuries, and ankle injuries. It promotes relaxation and relieves tension in the back and neck.
2. **Marjaryasana-Bitilasana(Cat-Cow Pose):**
    - **Technique:** Start on your hands and knees in a tabletop position. Inhale, arch your back, and look up (Cow Pose). Exhale, round your back, and tuck your chin (Cat Pose). Repeat these movements.
    - **Benefits:**Cat-Cow is a dynamic spinal flexion and extension exercise that can aid in improving spinal mobility. It can be beneficial for athletes with back injuries, especially those involving the intervertebral discs.
3. **AdhoMukhaSvanasana(Downward-Facing Dog):**
    - **Technique:**Begin on your hands and knees, then lift your hips upward, forming an inverted V shape. Press your palms into the ground and keep your heels reaching toward the floor.
    - **Benefits:**Downward-Facing Dog is an excellent pose for stretching and strengthening the entire body. It can help prevent and rehabilitate shoulder and hamstring injuries, as well as improve overall flexibility and strength.
4. **EkaPadaRajakapotasana(Pigeon Pose):**
    - **Technique:**From a tabletop position, bring one knee forward, angling it to the opposite wrist. Extend the opposite leg behind you and lower your hips toward the ground. Square your hips and fold forward.

- **Benefits:**Pigeon pose is a deep hip opener that can be useful for athletes with hip and gluteal injuries. It helps increase hip flexibility, release tension, and alleviate sciatica pain.

5. **SetuBandhaSarvangasana (Bridge Pose):**
    - **Technique:**Lie on your back with your knees bent and feet flat on the floor. Lift your hips upward while pressing your feet and arms into the ground. Keep your neck relaxed and breathe deeply.
    - **Benefits:**Bridge pose is a gentle backbend that can be beneficial for athletes recovering from lower back injuries or looking to strengthen the back and gluteal muscles. It also stretches the chest and hip flexors.

CONCLUSION:

In conclusion, the integration of yoga and Incorporating yoga into sports training is supported by a growing body of research and a substantial body of anecdotal evidence.The multifaceted nature of yoga, encompassing physical, mental, and emotional aspects, equips athletes with a comprehensive toolkit to mitigate the risks of sports-related injuries. Yoga's influence in injury prevention is grounded in its ability to enhance flexibility, strength, balance, coordination, and body awareness. These physical attributes are vital in reducing the risk of injuries, as they promote proper biomechanics and muscular symmetry. Moreover, yoga's stress-reduction techniques, relaxation methods, and mental clarity exercises foster a positive mental state, improving focus and concentration during sports activities.The safety and effectiveness of yoga in injury prevention are contingent on proper technique, alignment, and personalized modifications.As athletes strive for peak performance while safeguarding their physical well-being, yoga offers a holistic approach that not only enhances athletic abilities but also cultivates resilience and reduces the risk of sports-related injuries. By recognizing the value of yoga as a complementary practice, athletes can elevate their performance, promote long-term health, and enjoy the many benefits that yoga brings to the world of sports.

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EFFECT OF SELECTED YOGIC EXERCISES ON CARDIOVASCULAR ENDURANCE OF SCHOOL CHILDRENS

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Abstract

The purpose of the present investigation is to find out the effect of physical selected yogic exercises on cardiovascular endurance of secondary school children. To achieve the purpose 30 secondary school students were selected from of the present study, thirty school students fromGovernment High school, Karaikudi, Tamil nadu were selected as subjects at random and their ages ranged from 13 to 17 years. The subjects were divided into two equal groups of fifteen subjects each. The study was formulated as a true random group design, consisting of a pre-test and post-test. The subjects (N=30) were randomly assigned to two equal groups of fifteen subjects each. The group I underwent selected yogic exercises, group II acted as a control group. The data were collected from experimental and control groups before and immediately after the training period as pre and posttest. The collected data were analyzed by using 't' test and the level of confidence was fixed at 0.05. The result revealed that cardiovascular endurance of secondary school students.

Key words: *Cardiovascular Endurance, Yogic Exercises, Secondary School Students.*

INTRODUCTION

Yoga is a physical, mental, and spiritual discipline, originating in ancient India. The word "Yoga" came from the Sanskrit word "yuj'' which means "to unite or integrate. Hence means 'union' between the mind, body and spirit. As the name suggests, the ultimate aim of practicing Yoga is to create a balance between the body and the mind and to attain self-enlightenment. Thereby creating a union between a person's own consciousness and the universal consciousness. Yoga may mean : Union; combination; sublimation; merging; attainment of the eternal bliss become oneness. Yoga enhances the intelligence, empowers the mind and makes the life pleasant. Yoga is a part of Indian Culture and Religion. Yoga is essentially an art of understanding all about the soul and to realize the self. The inherent aim of human birth is to understand fully the self, the nature, the almighty and its order of function. Once the realization is achieved one should live respecting the order of function in peace and content.

METHODOLOGY

The achieve the purpose of the study 30 secondary school students were selected from Government High school, Karaikudi. Their age ranged from 13-17 years. They were divided into two groups of 30 subjects each and assigned to experimental group and control group. In a week the experimental group underwent selected yogic exercises, and control group was not given any specific training. All the subjects underwent Cardiovascular endurance. They assessed before and after the training period of six weeks. The analysis of 't' test was used to analyze the data. The study revealed that the above said criterion variables were significantly improved due to the influence of asana and suryanamaskar on selected physiological variables among secondary school children.

RESULTS AND DISCUSSIONS:

After the six weeks the yogic exercises there would be significant improved on cardiovascular endurance. The data on cardiovascular endurance before and after the yogic exercises of experimental and control groups are analyzed and presented in table.1.

Analysis of the Data

Table -1

Analysis of 't' ratio for the pre and post test of control and experimental group on Cardiovascular Endurance

Variable	Groups	Mean		SD		Df	't' ratio
		Control	Experimental	Control	Experimental		
Cardiovascular endurance	Pre test	66.52	68..42	9.73	6.74	14	0.876
	Post test	68.82	73.44	8.09	8.68		2.132*

*Significance at 0.05 level of confidence

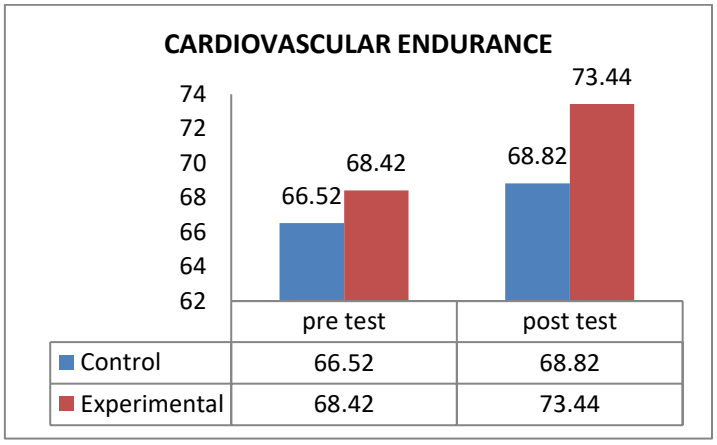
From the table it can be observed that the obtained 't' value 0.876 is less than table value 2.00 at 0.05 level of significance in the pre test scores. Hence it was not significant on cardiovascular endurance among control and experimental groups of pre test scores. It was assumed that the two groups started out with equivalent mean scores.

It can also observed from the above table that the obtained 't' value 2.132 is greater than table value 2.00 at 0.05 level of significance in the post test scores. Hence the started hypothesis is accepted that there was a significant effect of yogic exercises on cardiovascular endurance among control and experimental groups. Hence, the hypothesis it statistically proved and stated hypothesis accepted.

The comparison of cardiovascular endurance mean scores of pre and post tests among groups is shown in graphical representation in fig 1

Figure -1

Bar Diagram Shows the Pre and Post Test Mean values of control and experimental Group on Cardiovascular Endrance



CONCLUSION

1. There was a significant difference between control and experimental group on cardiovascular endurance.
2. There was significant improvement was noticed on selected cardiovascular endurance due to six weeks practices of yogic exercises among secondary school children.
   The result emphasizes the change of cardiovascular endurance. This may be attributed to the face selected yogic exercises enhance the lung capacity and cardiovascular endurance of children keeping them physiological fit.

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IMPACT OF AEROBIC DANCE ON ANXIETY OF COLLEGE WOMEN BASKETBALL PLAYERS

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Abstract:

The aim of the present study was to find out the Impact of Aerobic Dance on Anxiety of College Women Basketball Players. For this purpose, Thirty Basketball Players were randomly selected from affiliated colleges of Alagappa University and their age ranged between 18 to 21 years. Subjects included in the study were not controlled with regard to their lifestyle, diet and habits which may have influenced their performance. The subjects' body type and the economic status were not taken into consideration. They were divided in to two groups A and B with 15 Subjects in each group, group A was treated with Aerobic Dance and group B was kept under control group. The subjects of group A underwent training for eight weeks with the duration of 45 minutes. The training was started at 6.30 a.m and it was given for four days per week for eight weeks. The pre-test and post-test on Anxiety was measured. The data was statistically analyzed by using't' ratio to find out the significant difference between the two groups. The finding of the study revealed that there was a significant improvement on Anxiety for the experimental groups when compared to the control group.

Key words: *Aerobic Dance, Rhythm, Anxiety*

Introduction:

Basketball, extremely popular around the world, is a core game played by two teams of five Player each. The object is to put a ball through a hop, or basket and the score are points than the opposing team. Because of if continuous action and frequency scoring, Basketball is one of the most popular spectator as well as participant sports in the world. Ability of a Muscle group can contract over an extended time against Moderate Resistance. Aerobic dancing is a series of callisthenic exercise movements accompanied by music, the use of music is a technique of motivation that has been increased in recent years. Aerobic dance is essential to a healthy cardiovascular system. Briefly, aerobic dance is an activity that can be sustained for an extended period of time without building an oxygen dept in the muscles. It is a type of dance that overloads the heart and lungs and causes them to work harder than they do when a person is at rest. Aerobic literally means 'with air'. Aerobic dance is the type of activity in which the amount of oxygen taken in equal to the amount of oxygen required. Exercise records seen to be widely used in schools as a means of stimulating students to keep up with the pace and perhaps a maximum of activity with a minimum of conscious pain.

Methodology:

To achieve this purpose, Thirty College women Basketball players were randomly selected from affiliated colleges of Alagappa University. The subjects were ranged from 18 to 21 years. The subjects for this study were oriented and the purpose of the study explained. The testing procedures were explained to them in details, so that there was no ambiguity in their minds. The subjects were participated in this research with enthusiasm without any special motivational techniques. The subjects of the experimental groups received personalized attention and supervision of the trainer in relation to the Aerobic Dance like Warm-up, Step touch, Step out, Heel Back, V Step, Mambo. The training was carried out in the multipurpose hall. The training was given forty five minutes in the morning hours at 6.30 a.m of 4 days a week for eight weeks. The subjects living condition and life-style were not taken into consideration for this study.

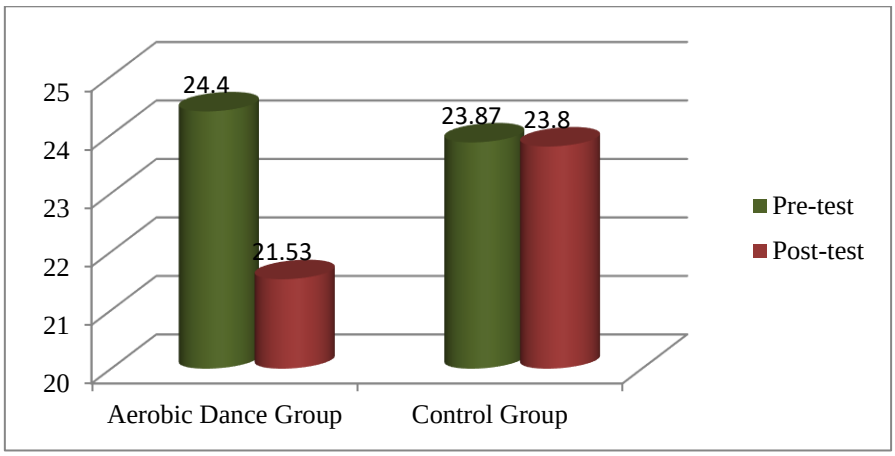
Table – 1‘t’ ratio of Anxiety of Aerobic Dance group and Control group

Anxiety				
		Aerobic Dance Group	**Control Group**	**Mean Differences**
Pre-test	Mean	24.40	23.87	0.53
Post-test	Mean	21.53	23.80	2.27
‘t’ ratio		**2.54***	0.06	

***Significance at 0.05 level of confidence (required table Value is 2.15)

The mean score of Anxiety between Aerobic Dance group and Control group are 21.53 and 23.80 respectively. As the obtained ‘t’ ratio 2.54 is greater than required ‘t’ value 2.15 at 0.05 level of confidence at 14 degrees of freedom, there is a significant improvement between Aerobic Dance group and Control group. The result shows that there was a significant difference between Aerobic Dance group and Control group on the changes in Anxiety after eight weeks of Training.

Fig – 1 The Pre and Post-test Mean Values of Aerobic Dance Group and Control Group on Anxiety



Conclusion:

It was observed from the pre-test results, that there is a significant difference among Aerobic Dance group and Control groups. While the post-test results of Aerobic Dance group and Control group revealed that, there is a significant difference in the Aerobic Dance group. The training program has influenced the Aerobic Dance group where as there is no effect in the control group. The results of this study show that, after 8 weeks of practicing Aerobic Dance, there was an improvement in Anxiety.

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EFFECT OF YOGASANAS ON SELECTED PHYSIOLOGICAL VARIABLES OF UNIVERSITY WOMEN STUDENTS

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Abstract

The aim of the present study was to find out the effect of yogasanas on selected physiological variables of University women students. For this purpose, thirty female students were randomly selected from Alagappa University and their age ranged between 17 to 21 years. Subjects included in the study were not controlled with regard to their lifestyle, diet and habits which may have influenced their performance. The subjects body type and the economic status were not taken into consideration. They were divided into two groups, A and B with 15 subjects in each group. Group A was treated with yogasanas and group B was kept under control group. The subjects of group A underwent training for eight weeks with the duration of 45 minutes. The subjects of group A underwent training for eight weeks with the duration of 45 minutes. The training was started at 6.30 a.m and it was given for four days per week for eight weeks. The pre-test and post-test on physiological variables such as blood pressure and pulse rate was measured. The data was statistically analyzed by using't' ratio to find out the significant difference between the two groups. The finding of the study revealed that there was a slight significant reduction on blood pressure and pulse rate for the experimental groups when compared to the control group.

Key Words: *Yoga, Asana, Blood Pressure, Systolic Pressure, Diastolic Pressure, Pulse Rate*

INTRODUCTION

Yoga deals with the adequate functioning of all the systems of our body and appropriate co-ordination between them along with the healthy functioning of our mind. It not only keeps the body healthy and fit but also prevents physical, mental and emotional imbalances.

Yogic practices are to be tried out in sports setting with the hope that they might affect the circulatory responses such as blood pressure and heart beat. Hence it is essential to maintain the required level of fitness or to develop the level of fitness.

Yogasanas do not design muscles, but it isw rather used to bring the whole body to the peak of physical performance and top efficiency by a series of carefully designed positions. All the asanas, which have an effect on the diaphragm, help to keep the body in proper share and to increase the power of resistance. The have curative, recuperative and preventive effects because they are based on deep breathing which can work wonders.

METHODOLOGY

Selection of Subjects

To achieve this purpose, thirty female students were randomly selected from the subject's age ranged from 17 to 21 years.The subjects for this study were oriented and the purpsoe of the study was explained. The testing procedures were explained to tehm in details, so that tehre was no ambiguity in their minds. The subjects were participated in this research with enthusiasm without any special motivational techniques. The subjects of the experimental groups received personlized attention and superivision of the trainer in relation to the yogasanas. The training was carried out in the multipurpose hall. The training was given for forty five minutes in the morning hours at 6.30 am 4 days a week for eight weeks. The subjects living condition and life style were not taken into consideration for this study.

Table –I : Mean Standard Deviation and 't' Ration of Selectd Physiological variables of Yogasan Group and Control Group.

Variable Name	Group Name	Yogasana	Control	Mean Difference	't' Ratio
Pulse	Pre-test				
	Mean	76.93	76.86	0.066	0.08
	S.D	2.46	1.96		
	Posttest				
	Mean	**76.13**	**77.93**	**1.80**	**2.21***
	S.D	2.39	1.61		
Systolic pressure	Pre-test				
	Mean	119.80	118.20	1.40	1.98
	S.D	1.49	2.07		
	Post-test				
	Mean	**119.60**	**118.40**	**1.40**	**2.61***
	S.D	0.54	1.74		
Diastolic Pressure	Pre-test				
	Mean	80.87	82.00	1.13	1.29
	S.D	2.73	1.83		
	Post-test				
	Mean	**80.47**	**82.33**	**1.87**	**2.87***
	S.D	1.45	1.58		

*Significant at 0.05 level of confidence
Required table value 2.042

RESULTS

The mean socre of pulse rate between experimental group and control group are 76.13 and 77.93 respectively. As the obtained 't' ratio 2.21 is greater than required 't' value 2.04 at 0.05 level of confidence at 28. degree of freedom, there is slight signficiant reduction between experimental group and control group. The mean score of systolic pressure between experimental group and control group are 119.60 and 118.40 respectively. As the obtained't' ratio 2.61 is greater than required 't' value 2.04 at 0.05 level of confidence at 25 degree of freedom, there is slight significant reduction between experimental group and control group are 80.47 and 82.33 respectively. As the obtained 't' ratio 2.87 is greater than required 't' value 2.04 at 0.05 level of confidence at 28 degrees of freedom. There is slight significant reduction between experimental group and control group. The above result shows that there was a significant difference between Yogasana and control group on the changes in pulse rate and blood pressure after eight weeks of training.

DISCUSSION

The study was framed to analyze the effect of yogasanas on blood pressure and pulse rate of university female students (aged 17 to 21 years). The subjects were given training on yogasanas for a period of 8 weeks for 4 days per week.The result of the study is in consonance with the findings of the following studies by Selvamurthy W91983), Anand BK (1991)

CONCLUSION

It was observed from the pre test results, that there is no significant difference among control and experimental groups. While the post test results of control and experimental groups revealed that, there is a significant difference in the experimental group. The training program has influenced the experimental groups where as there is no effect in the experimental group. The results of this study show that, after 8 weeks of practicing Yogasana, there was a slight significant improvement in physiological variables such as blood pressure and pule rate.

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EFFECT OF SURYA NAMASKAR WITH MANTRA CHANTING ON RESTING PULSE RATE AMONG SPORTS MEN

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Abstract

The present random group experimental study was designed to find out the effect of surya namaskar with manthra chanting on selected resting pulse rate among sports men on resting pluse rate . It is hypothesized that there would be significant difference in resting pulse rate among sports men due to the influences of surya namaskar with manthra chanting. The purpose of study 40 sports men from the Alagappa university of Karaikudi aged between 20 to25 years were selected randomly. The subjects divide in to two groups, one experimental group and control group each 15 subjects. Experimental group underwent surya namaskar with manthra chanting practice for eight weeks 5 days a week for a maximum of one hour in the morning .The control group were kept in active rest .The pre test and post test were conducted before and after training. Resting pulse rate assess by stop watch and stethescope. The data collected from the groups before and after training period were statistically analyzed by 'F'ratio .The hypothesis was tested at 0.05 level of confidence. It was concluded that yogic practices helped to decreased resting pulse rate.

Key Words : Suryanamaskar, Manthra chanting, Resting pulse rate.

INTRODUCTION

Health requires the promotion of healthy lifestyles. In the last 20 years, a considerable body of evidence has accumulated which indicates that there is an association between health and lifestyle of individuals. The term lifestyle means,

"The Way of People Live"

Lifestyle is composed of cultural and behavioral patterns and life-long personal habits (e.g., smoking, alcoholism and sedentary life style) that have developed through process of socialization.

Many current - day health problems especially in the developed countries (e.g., coronary heart disease, diabetes, obesity, lung cancer, drug addiction) are associated with lifestyle changes. In developing countries such as India where traditional lifestyles still persists, risks of illness and death are connected with lack of sanitation, poor nutrition, and personal hygiene, elementary human habits, customs and cultural patterns.

Suryanamaskar is well known and vital technique within the yogic repertoire. Its versatility and application make it one of the most useful methods to introduce a healthy vigorous and active life and at the same time prepare the spiritual awakening and resultant expansion of awareness..

The six mantras are repeated consecutively there are six mantras starting each with OmHraam,OmHreem,OmHroom,OmHraim,OmHraum,OmHrah.order to deepen the practice.

STATEMENT OF THE PROBLEM

The purpose of this study was to determine the effect of Surya namaskar and mantra chanting on Resting pulse rate among sports men.

HYPOTHESIS

It was hypothesized that there would be a significance improvement in resting pulse rate due to surya namaskar with manthra chanting group than the control group.

METHODOLOGY

The purpose of the study was to find out the effect of surya namaskar with mantra chanting on selected resting pulse rate among sports men. The study were randomly selected fourty sport male from Alagappa University, Karaikudi. The age ranged from 20 to 25 years. The selected subjects were randomly assigned into two groups of fifteen each namely experimental group underwent based surya namskar and control group. The experimental groups underwent the respective training programme for five days in a week for eight weeks

DISSCUSSION ON FINDINGS

Generally the results indicated significant decreases in efficiency of selected variables during eight weeks of surya namaskar with manthra chanting. Hence the hypothesis was accepted at 0.05 level of confidence. Resting pulse rate were decreased through surya namaskar with manthra chanting for experimental group when paired with control group.

TABLE – I. Summary of analysis of variance for resting pulse rate of control and experimental groups

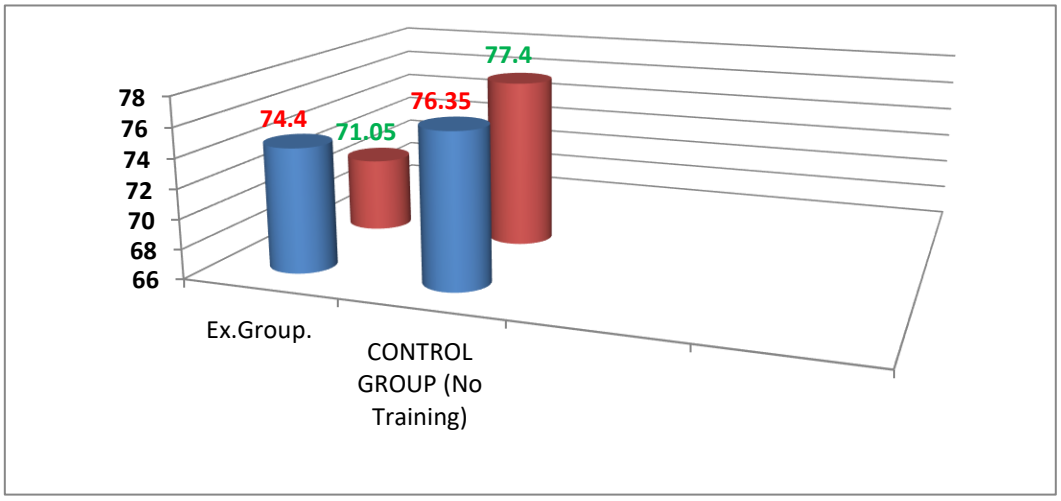
Test	Experimental group	Control group	Source of variance	df	Sum of square	Mean square	F
Pre-test mean	74.40	76.35	Between	1	38.02	38.02	3.08
			Within	38	469.35	12.35	
Post-test mean	71.05	77.40	Between	1	403.23	403.23	50.78*
			Within	38	301.75	7.94	
Adjusted mean	71.10	77.35	Between	1	361.00	361.00	44.46*
			Within	37	300.44	8.12	

*significant.

Table value for df 1 and 38 was 3.21 Table value for df 1and 37 was 3.22.

Table - 1 shows the ‘F’ test on resting pulse rate variable. The computed ‘F’ - ratio was 7.69. Since the obtains F - Ratio was greater than the required table value of 4.20 at 0.05 level of confidence with 1 and 37 degrees of freedom. The result of the investigation revealed that there was significant development in resting pulse rate through surya namaskar with bija manthra chanting. The means of pre-test and post-test scores of the two groups in resting pulse rate have been presented graphically in Fig.1.

FIGURE -1



CONCLUSION

Within the limitations of the present study, the following conclusions were drawn. Physiological variable of resting pulse rate were significantly decreased by surya namaskar with mantra chanting for the experimental group when compared to the control group.

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VALUE AND NECESSITY OF YOGA IN PHYSICAL EDUCATION AND SPORTS.

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Dr.R.Senthil Kumaran, Director, Directorate of Physical Education, Alagappa University, Karaikudi.

Abstract

Yoga is a practice with a long history that aims to improve a person's physical, mental, emotional, and spiritual well-being. Yoga has been incorporated into the school curriculum under physical education and sports, keeping in mind the health advantages of the practice. It's also important to keep in mind that physical education encompasses sports and gymnastics. The word "physical education" has diverse meanings in our contemporary society. In actuality, "education through the body" is what the term "physical education" originally meant. The highest objectives of education are being attained by employing work with the body as a strategy: autonomy and ethics in our interactions with one another and the environment. Physical education and yoga both have their In their original forms, yoga and physical education both used the body as a tool to cultivate attitudes and skills necessary for achieving physical and mental health. These days, they could be viewed as complimentary subjects. While the East sought the same objectives through concentration and relaxation, the West created aerobic fitness and sports training and concentrated on its relationship with good health. This essay aims to investigate the relevance and necessity of some yoga practices in physical education and sports.

***Key Words**: Physica*l Education, Exercise, Yoga, Yoga Practice and Sports.

INTRODUCTION

Yoga was created in India thousands of years ago as a method to aid in spiritual awakening. Yoga is defined as "to join or yoke together." It unites the body and mind to create a peaceful experience. Man is a triune being—physical, mental, and spiritual—and yoga aids in the harmonious growth of all three. Yoga is a type of education that focuses on achieving "Mind, Body, and Spirit" balance. Yoga generates motion without stressing the body or creating imbalances, setting it apart from other forms of exercise. Other types of exercise, such as aerobics, only guarantee physical health. They are mostly unrelated to the astral or spiritual body's growth. Yoga exercises revitalize the body and encourage divine energy. Yoga poses provide the body a cosmic energy boost and are advantageous for physical education. Therefore, there is a popular misconception that yoga is a system of physical education with a spiritual component. In reality, yoga is a system of spirituality with a physical component. In order to stretch and strengthen various body parts, we hold "postures"—physical alignments that synchronize movement and breathing. All the major muscular groups are methodically worked, including the deep abdominals, hip and buttock muscles, as well as the ankles, foot, wrists, and hands. Yoga will help the body perform more effectively and also assist to correct any imbalances in muscle development. Because the joints will be maintained lubricated, a flexible and supple body may be lesser susceptible to sports injuries. To generate joint mobility and an anti-aging posture, yoga also helps strong connective tissues and broke down adhesions from past injuries & excessive exercise that have constricted with age.

PLANS AND GOALS

The goal of this study is to evaluate the conclusions of particular papers on the value of yoga in sports and physical education and to offer a thorough analysis of the advantages of yoga practice.

METHODOLOGY

Research studies and treatments that looked at yoga's therapeutic effects were found by searching databases on the internet and in renowned yoga periodicals.

YOGA'S FUNCTION IN PHYSICAL EDUCATION

Yoga is a healthy way of living that originated in India. Currently, it is regarded as a branch of science that is recognized on every continent. As a form of physical education, yoga's main objective is to promote the healthy development of kids and teenagers. Yoga is viewed as a method where no directions are employed in physical education. Yoga practices should be largely focused on asana practice in both academic and curricular physical education lessons, with components of concentration and breathing control added. Various types of yoga were developed over time. Jnana yoga, Bhakti yoga, Karma yoga, and Raja yoga are the four main schools of yoga. These yoga schools provide a particular approach that combines a variety of systematized yoga practices according to their own methodology. For the average person, yoga consists of the asana, pranayama, pratyahara, kriya, mudra, bandha, and contemplation exercises that are beneficial for maintaining physical fitness, mental alertness, and real adjustment. This finally prepares the way for a person's significant improvement. The emphasis of the current yoga educational materials for school-age children is on developing their physical well-being, psychological development, and passionate dependability rather than the otherworldly aspect of yoga. yoga's role in education from a variety of perspectives, including the sort of education being delivered to children worldwide and the varying amounts of stress that kids experience in the classroom. Additionally taken into account were the challenges, issues, disputes, diversion, & wasting of their energies. In an effort to improve the kids' ability to learn, we began using some yoga concepts and techniques. Additionally, we used these techniques to encourage teachers to approach their lessons in a bit of a different way. Our conviction that we are instructing our children without taking into account or caring for the development of their full personality hasn't changed. Without providing them with a support system outside of the classroom where kids may continue to absorb instruction, we are packing their heads and minds with information. We must consider what science has to say about a child's development, what psychoanalysis has to say about a child's psychology, and how a child's hormones and glands affect their logic, emotional makeup, and creative output.

YOGA'S VALUE IN PHYSICAL EDUCATION

Each person has the right to excellent health. Nevertheless, this privilege is dependent on personal, societal, and environmental factors. We can develop a superior defense mechanism and a superior self-perception in addition to significant social or ecological factors so that various conditions don't negatively affect us and we can achieve tremendous wellbeing. Being well is a good notion. Positive health includes more than just the ability to avoid infection; it also includes a joyful and upbeat sense of prosperity, some general resistance, and the capacity to create efficient immunity against specifically responsible professionals. There are a variety of cutting-edge and traditional methods and regimens that can encourage us to effectively combat diseases. Yoga, natural healthcare, ayurveda, unani, homeopathic remedies, and Siddha are examples of indigenous frameworks, while the allopathic structure is referred to as the most modern and well-known form of restorative medicine. One of the most popular drug-free therapeutic modalities is yoga. It has a concept of wellbeing that many people have demonstrated and understood deductively. Yoga can be embraced as an aspect of living to improve our emotional and physical health. When yoga was taught in schools, it helped students develop healthy habits and an environmentally friendly way of life that led to overall wonderful wellbeing. When yoga was taught in schools, it helped students develop healthy habits and a sound method of life that led to overall wonderful wellbeing. The purpose of yoga in this context, at the school level, is to support young people in developing a healthy, robust

way of life for their physical, psychological, and emotional well-being. Yoga aids in the development of unity, tenacity, persistence, and great vitality on a physical level. Additionally, it provides one with increased focus, peace, harmony, and contentment on the psychological level, encouraging both internal and external amicability.

THE VALUE OF YOGA FOR ATHLETES

Yoga makes a man meek, gentle, and balanced while sports make someone outgoing, self-assured, and competitive. Yoga methods and asanas allow athletes to improve their athletic abilities and strength, decrease injuries, and detach their minds from multiple issues despite the fact that yoga and athletic activities are two distinct disciplines. It is a beneficial supplementary workout for sportsmen. Players also need improved energy levels, focus, concentration, self-confidence, and self-discipline, regardless of the game. These can all be attained through different yoga approaches. To put it another way, techniques from yoga can be used to improve athletic performance. Yoga is good for physical health, yet sports require intense movement, whereas yoga techniques call for gentle, safe muscle action. Pulls and strains to the muscles are common sports injuries, but asanas can help prevent many different types of injuries. Thus, yoga as a form of treatment aids in the recovery of both physical and mental pain. Yoga's significance in athletics cannot ever be understated. But because every game is performed in a unique way and with unique tools, it is important to know what kinds of yoga asanas are required for improved performance. Each game has specific skill criteria that must be met. But regardless of the shape that skills take, players need to exercise their bodies so that their abilities are honed and refined to perform better. The skills must be mastered, and that takes effort, time, as well as dedication. A player must also maintain their attention, concentration, and Despite numerous types of interruptions like cheering or slogan yelling, and assured. Yoga thereby improves physical health in addition to relieving stress and mental anguish. The following factors can be used to explain yoga's significance:

MEDIATION AND ATTENTION:

Every person, in general, is unable to focus their minds on a single thing for an extended period of time. Playing poorly results from a player's inability to concentrate throughout practice; nevertheless, concentration can be increased via yoga practice. An act of achieving a concentrated mind is just concentration; a method to create an uncultured mind is meditation. The benefits of meditation include the addition of positive energy and the elimination of all bad energy from the body's cells. Deeper inner exploration is facilitated by meditation. Padmasana or Siddhasana are advised for meditation and focus. Siddhasana is regarded as the most advantageous pose.

YOGA AND INHALING:

The act of breathing has a direct impact on the performance. Deep breathing can help a player calm down and focus more easily. Meditation teaches the mind to ignore all game-related concerns and aids in maintaining present-moment awareness. Yoga sees sinus issues as trivial because they can be treated with breathing exercises. Stress and anxiety are common among athletes, especially when competitions are taking place. Breathing exercises can help reduce the stress and anxiety of certain situations.

NERVOUS SYSTEMS AND YOGA:

The glands produce plenty of chemicals under high-pressure thanks to the nervous system's efficient control of the body's powerful, self-sustaining chemical factory and massive power station.

ANXIETY AND YOGA:

While some level of stress is necessary during a game, excessive stress frequently has a negative impact on performance. Players who are under stress may have headaches and stomachaches. Yoga poses help to keep your body and mind healthy while reducing stress.

POWER AND YOGA:

Yoga helps athletes get stronger. In order for one muscle group's strengthening to be connected to another muscle groups, strengthening in yoga necessitates the complete body operating as a cohesive one. Yoga strengthens the muscle groups that support the spine, increasing the body's flexibility. When the human body is in incorrect alignment, yoga improves alignment and balances posture. A strong body feels wonderful because of consistent exercise.

YOGA COMBINES ATHLETICISM AND EXERCISE:

Yoga enhances equilibrium, which is crucial for playing any sport. Yoga balance exercises can help players discover where their center of gravitation or balancing is so that they can adapt their actions as necessary.

KINESTHETIC:

Yoga learns about and investigates kinesthetic awareness. Every team sport benefits from it since it makes it easier to be more conscious of your teammates and your opponents.

MECHANISM FOR CORE STRENGTH:

Building core strength is the main goal of yoga postures. Exercises for core strength help the body's core muscles, including the diaphragm, hip adductors, hip flexors, and back muscles. It is simpler to perform a variety of physical activities when your core muscles are strong. Exercises for the core develop the coordination of the muscle groups in the pelvic region, backside, hips, and abdomen. Better stability and balance are the result, which benefits both athletic performance and daily activities. The majority of physical activity, including sports, rely on strong core muscles.

ENDOCRINE GLANDS AND YOGA:

Every human being has an endocrine system thanks to nature. This system is made up of a system of glands that create the hormones that aid in cell communication. Every action or operation carried out by all the organs in the body is their responsibility. The entire body will experience a variety of problems if its endocrine system experiences problems. This system of hormones is an amazing superchemical system that boosts performance and growth. All of the endocrine glands were stimulated by yoga postures and other workouts thousands of years ago.

FLEXIBILITY AND YOGA:

A person's agility is their capacity to change their body position rapidly and readily in response to their environment. Agility can be improved with yoga. The goal of improving overall power, mobility, spinal alignment, and balance is to increase the body's capacity for fluid, fast, pain-free movement.

CONCLUSION

According to the research presented above, yoga is crucial for physical education classes and sports since it benefits us in a variety of ways and at many stages of our lives. Systematic yogic techniques keep the mind perfect, clear, and calm in addition to curing and controlling a number of ailments. In other words, yoga practice leads to both bodily and mental perfection. Yoga aids in developing disciplined throughout games and sports in physical education. Physical education improves all the crucial characteristics needed for personality development and increases mental awareness. Yoga gives both kids and adults the chance to succeed at sports, which can help lay the groundwork for a solid life. Yoga is what enables

athletes to remain cool under pressure. Yoga aids in the development of participants of other types of games, despite the fact that it is a sport in and of itself. If yoga was referred to as the foundation for all other games, it wouldn't be an exaggeration.

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AFFLUENCE OF YOGA KRIYA PRACTICE OF HAND EYE COORDINATION ON HIGH SCHOOL BOYS

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INTRODUCTION

Kriya yoga is all about spiritual growth. It helps to create awareness and self-consciousness through meditation. Continuous practice of Kriya yoga can accelerate a person's pace to meet his/her higher self. The phrase Kriya yoga means 'yoga of action'. Discipline comes first and foremost in this practice.There are six purification techniques that pertain to Hatha Yoga, called Shat Karma Kriyas or Shat Karmas: Neti, Dhauti, Nauli, Basti and Shanka Prakshalana, Kapala Bhati Pranayama, Trataka.Trataka is one of the six cleansing practices of Hath yoga. It consists of a steady gazing, without blinking the eyes, at any small object at one meter distance eg., the flame of a candle or oil lamp, a small point or the distant objects like rising Sun, planets, Moon etc. until tears start rolling down (Gharote, 1984). It is practiced for purifying the subtler channels (nadis) of the body and the nervous system, before learning pranayam and to achieve deeper concentration (Gharote, 1984). In one of the scientific investigations on Trataka, performed on the candle flame, It was observed that the degree of psycho- physiological relaxation emotional balance and a feeling of pleasantness as well as the parasympathetic preponderance was increased after Trataka (Gharott: 1990) there was no scientific investigation reported so far on Surya Trataka. It was, therefore, thought to investigate, scientifically, the clan of one yogi, who was claiming to perform Trataka on the Sun at any time of the day for a considerable period of time and to stop his heart for some time, with the following objectives. The first step on the path of spirituality is to control the mind and make it useful. The Trataka will help you a great deal in understanding the mind and making its unseen powers active, so as to prepare you for self-realization. The practice of Trataka is independent in its own way and is meant for aspirants of higher categories. Trataka is a very powerful sadhana. Trataka shows us that the eyes are the instruments by which the mind and the soul are reached. Trataka is of two kinds internal and external. Internal Trataka is called dharana or concentration because in this practice the eyes are closed and the mind concentrated upon some subtle element within, External Trataka means fixing the eyes on some object outside. Trataka on any object can be performed during the day or night. In this practice one has to take into account the object, the place and the time. The word Trataka means to gaze steadily. Trataka is gazing without blinking at an object placed directly in front of the eyes. At the time of practicing Trataka, the eyeballs should remain steady and the eyelids should not flicker. No object except the one on which Trataka is to be performed should be seen, and the mind should not wander hither and thither but be merged in observation of the object. The impression of the object falls on the optic nerves. The shadow of the object falls on the eyes and then on the retina. The optic nerves of the retina are connected by the sensory nerves with the brain. The brain has several centers which are connected with the optic nerves. These centers receive information through the optic nerves and send out commands. Many of these centers are asleep or active. Trataka does not merely increase the function of perception (Swami Satyananda Saraswati1962). The practice time should gradually build. In the initial stages, look at the flame only for about 10-15 seconds. Slowly increase this time, so that after about one year you can look at the flame for 1 minute and then concentrate on the inner image with closed eyes for about 4 minutes. Under no circumstances should this recommended length of time be exceeded. One may also practice Trataka while looking at a white point on black

paper, or at a black point on white paper. When one concentrates on a white point, one sees this as a black image when the eyes are closed and vice versa with a black point. Purifies the eyes, strengthens the eye muscles and improves vision and memory. Strengthens the ability to concentrate and is therefore recommended for school children. Develops intuition the ability to visualize and willpower. The younger you start the better you will be with the trataka sadhna. We hope by now you have got a clear idea of what trataka is and what are its numerous benefits. understand this meditation technique better and you will be able to get the best results.

Hypothesis

It was hypothesized that effects of Trataka practice on hand eye coordination on high school boys may have a significant improvement from base line to post treatment after six weeks of Trataka training.

Training Procedure

The trataka group received training in physical postures (meditations 10 minutes), cleansing practices (trataka, 10 minutes), Omkara mantra sitting in front of flame (10) minutes), devotional sessions (10 minutes) and lectures on the theory of trataka (20 minutes).

TABLE

Computation of mean between pre and post test of trataka practice group and control group on hand eye coordination

Groups	Pre test Mean +SD	Post test Mean+SD	M.D	SEM	't' ratio
Experimental Group	24.94+-1.58	26.88+-1.81	1.94	0.24	7.81*
Control Group	25.00+-2.19	25.05+-2.09	0.05	0.22	0.25

* Significance at 0.05 level (degrees of fredom1, 192.08)

Table indicates that the obtained 't' ratio were 7.81 (hand eye coordination) on trataka practice group and 0.25 on control group. The obtained 't' ratios on trataka practice group were greater than the critical value of 2.08 for degrees of freedom 1, 19. It was observed that the mean made from pre-test and post-test were statistically significant resulting that six weeks practice of trataka practice produced significant improvement in hand eye coordination (7.81 $p<0.05$) control group (0.25 p-0.05) from the performance of baseline to post test.

CONCLUSION

Based on the result the study Trataka practice group shows significant improvement on hand eye coordination due to six weeks training on Trataka, and control group was insignificant. The trataka group showed an increase in the number of circles traversed in a minute suggesting an improvement in speed. The other change following trataka was a decrease in the number of circles left out during the one-minute traverse. This reduction suggests an improvement in accuracy. In summary, the present results suggest that a month of trataka training brings about an improvement in a mirror tracing task the motivation to learn yoga may have also influenced the results. However further studies using a randomized controlled design could substantiate these preliminary findings.

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EFFECT OF YOGA PRACTICES ON SELECTED AGILITY FOR COLLEGE WOMEN KABADDI PLAYERS

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Abstract

Yoga is systematic practice for the realizations of higher perceptions. It is the science of life and ideal way of living, providing rhythm to the body, melody to the mind, harmony to the soul and there by symphony to the life. In short, Yoga is way to achieve total health, Peace , bliss and wisdom.

The purpose of this study was to find out effect of yogic practices on agility for college women Kabaddi Players. The subjects were selected from Kakatiya University College of Physical education, Hanamkonda. As per their college records, their age group was 18 yrs to 24 yrs .On random sampling,30 players were selected. The subjects were equally divided into two group's namely experimental group and control group. The subject were formed a random group design consisting of yogic practices given to Experimental group and Control group, of 15 subject each, The control group not given any kind of yogic practices. After the experimental period of six weeks in progression, post test scores were obtained from the two groups .The differences between the initial and final scores on agility considered as the effect of yogic practices on subjects . The mean differences were tested for significance using `t` ratio.

Key Words : *Yoga , Agility and Kabaddi*

INTRODUCTION

Yoga is a systematic practice for the realizations of higher perceptions. It is the science of life and an ideal way of living, providing rhythm of body, melody to the mind , harmony to the soul and there by symphony to life . In short, Yoga is way to achieve total health , peace, bliss and wisdom. Physical, mental and spiritual aspects of yoga help to make one`s life purposeful, useful and noble. Thus Yoga is an art , science and philosophy , which influence the life of women at each level. Therefore, the effect of yoga must be felt in every movement of our day-to-day lives.

Yoga is an ancient Indian science which teaches women how to live in unity within herself and with those around her. It is recognized as one of the most important and valuable heritages of India. More than 2000 years ago our ancestors developed it to bind the body , mind and spirit, as a harmonious whole. It has been growing in popularity with unbelievable rapidity over the years. Today the whole world is looking towards yoga for answers to the various problems the modern women is facing.

METHODOLOGY

The purpose of this study was to find out the effect of yogic practices on agility for college women Kabaddi Players. The subjects were selected from Kakatiya University College Of Physical Education, Hanamkonda. As per their college records, their age group was 18 yrs to 24 yrs .On random sampling, 30 players were selected . The selected subjects were equally divided into two group`s namely experimental group an control group.

EXPERIMENTAL DESIGN

The subject were formed a random group design consisting of yogic practices given to the experimental group and control group, of 15 subject each, the control group not given any kind of yogic practices. After the experimental period of six weeks in progression, post test

scores were obtained from the two groups. The differences between initial and final scores on agility considered as the effect of yogic practices on Subjects. The mean differences were tested for significance using `t` ratio.

SHOWING CRITERION MEASURE

PHYSICAL VARIABLE	TEST ITEMS	UNIT OF MEASUREMENT
Agility	T-test	Seconds

HYPOTHESIS

It was hypothesized that there will be a significant difference of the effect of yogic practices on agility for college women Kabaddi players.

SIGNIFICANCE OF THE STUDY

The study has the specific significant contributions.

13.This study could be helpful for the students ,coaches, Teachers and researchers of yoga.

14.This study gives additional knowledge in the area of the research.

15.This study helps the scholar to assess which type of yogic practices is more effective .the study may be helpful for students who are facing a routine schedule.

STATISTICAL TECHNIQUE

The collected data o physical variables were statistically examined to test the various hypothesis formulated by researcher for comparison `t` ratio was used.

Table Analysis of `t` ratio for the pre and post –tests of Control and Experimental Group on Agility

Variables	Group	Mean		SD		Sd Error	df	`t` ratio
		Pre	post	pre	post			
Agility	Control	11.45	11.47	.68	0.64	0.08	14	0.17
	experimental	11.48	11.00	0.67	0.60	0.60		**6.19***

***Significance at .05 level of confidence*

The table -4.3 shows that the mean values of pre-test and post test of control group on agility were 11.45 and 11.47 respectively. The obtained `t` ratio was 0.17 since the obtained `t` ratio was less than the required table value of 2.15 for the significant at 0.05 level with 14 degrees of freedom it was found to be statistically insignificant. The mean values of pre-test and post –test of experimental group on agility were 11.48 and 11.00 respectively. The obtained `t` ratio was 6.19 since the obtained `t` ratio was greater than the required table value of 2.15 for significance at .5 level with 14 degree of freedom it was found to be statistically significant. The result of the study showed that there was a significant difference between control group and experimental group in agility. It may be concluded from the result of the study that experimental group improved in agility due to six weeks of yogic practices.

CONCLUSIONS

1. It was concluded that there was a significant improvement in agility due to yogic practices among college women Kabaddi players.
2. The result of the study reveals that yogic practices would improve college women kabaddi Player's physical variable significantly.

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EFFECT OF LADDER TRAINING ON SELECTED PHYSICAL AND PHYSIOLOGICAL VARIABLES AMONG COLLEGE MEN HANDBALL PLAYERS

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Abstract

The purpose of the study was to find out the effect of Ladder training on selected physical and physiological variables such as Cardio respiratory Endurance and Blood Pressure, of college men Handball Players studying various Arts & Science Colleges affiliated to Madurai Kamaraj University, Madurai District, Tamil Nadu, India were randomly selected as subjects. Thirty men students were selected as subject. The subject's age were ranged from 18 to 23 years. The selected subjects were divided into two equal groups of thirty subjects each at randomly, which were one experimental groups and a control group. Experimental Group underwent the Resistance Training programme. The training period of an experimental group was six weeks. Control group did not undergo any training programme rather than their routine work. The data were collected on physical fitness variables namely Cardio respiratory Endurance, physiological variables namely Blood Pressure for all the two groups before the experimental period (Pre-test), after six weeks of training period (Post -test) respectively. In order to test the effect of training, the collected data from all the two groups before, during and after experimentation on Physical, Physiological variables were statistically analyzed by using one-way factorial analysis of variance with last factor repeated measures. When the obtained 'T' ratio value in the simple effect is found significant, to determine which of the paired mean had significant differences. In all the cases the level of confidence is fixed at 0.05 to test the significance. The result of the study also revealed that there significantly improved in the Cardio respiratory Endurance and Blood Pressure were significantly reduced due to Ladder Training among college men Handball Players after effect of Ladder training on selected physical and physiological variables among College men Handball Players.

Key Words: *Ladder training, Cardio respiratory Endurance, Systolic Blood Pressure, Dystolic Blood Pressure and Handball*

INTRODUCTION

Ladder training, also known as weight training or strength training, is for everyone. It is an important tool for achieving a complete healthy life. Resistance training is not only for athletes, but also for those who want to build or tone muscle, or those who are using resistance training to achieve a better looking body. One may also hear the terms weight training (or weight lifting) and strength training used to describe working the muscles with resistance. Ladder training is the term used to describe using weights, machines, and even one's own bodyweight to effectively work one's muscles. It is an umbrella term used to accurately describe all forms of resistance training, whether working with weights or not. Although strength training accurately describes what resistance training does, many people do not use the term because they think it only applies to those trying to become bigger and stronger when, in fact, all Ladder training which is correctly done indeed increases strength, but does not necessary visibly increase size. Resistance training does improve the look and tone of the body but it is now known to be more than just a specialized exercise activity.

METHODOLOGY

The purpose of the study was to find out the effect of Ladder training on selected physical and physiological variables such as Cardio respiratory Endurance and Blood Pressure of college men Handball Players studying various Arts & Science Colleges affiliated to Madurai Kamaraj University, Madurai District, Tamil Nadu, India were randomly selected as subjects. Thirty men students were selected as subject. The subject's age were ranged from 18

to 23 years. The selected subjects were divided into two equal groups of thirty subjects each at randomly, which were one experimental groups and a control group. Experimental Group underwent the Ladder Training programme. The training period of an experimental group was six weeks. Control group did not undergo any training programme rather than their routine work. The data were collected on physical fitness variables namely Cardio respiratory Endurance, physiological variables namely Blood Pressure for all the two groups before the experimental period (Pre-test), after six weeks of training period (Post -test) respectively. In order to test the effect of training, the collected data from all the two groups before, during and after experimentation on Physical, Physiological variables were statistically analyzed by using one-way factorial analysis of variance with last factor repeated measures. When the obtained 'T' ratio value in the simple effect is found significant, to determine which of the paired mean had significant differences. In all the cases the level of confidence is fixed at 0.05 to test the significance.

Table 1
Analysis of 't'-ratio on pre and post-test for Control and Experimental Group on Cardio respiratory Endurance

Variables	Group Name	Mean		Sd		Sd Error	Df	't' ratio
		Pre	Post	Pre	Post			
Cardio respiratory Endurance	Control	2204	2102	171.45	171.45	63.33	14	1.58
	Experimental	2200	2412	429.29	331.78	82.26		**2.52***

Significance at0.05 level of confidence

The table 1 shows that the mean values of pre-test and post-test of control group on abdominal strength were 2204 and 2102 respectively. The obtained 't' ratio was 1.58 since the obtained 't' ratio was less than the required table value of 2.15 for the significant at 0.05 level with 14 degrees of freedom, it was found to be statistically insignificant. The mean values of pre-test and post-test of experimental group on abdominal strength were 2200 and 2412 respectively. The obtained 't' ratio was 2.55 since the obtained 't' ratio was greater than the required table value of 2.15 for significance at 0.05 level with 14 degrees of freedom it was found to be statistically significant. The result of the study showed that there was a significant difference between control group and experimental group in abdominal strength. It may be concluded from the result of the study that experimental group improved in abdominal strength due to six weeks of Ladder training.

Figure -1
Cylinder Diagram Shows the Mean Value between the Pre and Post-test and Experimental and Control Group on Cardio respiratory Endurance

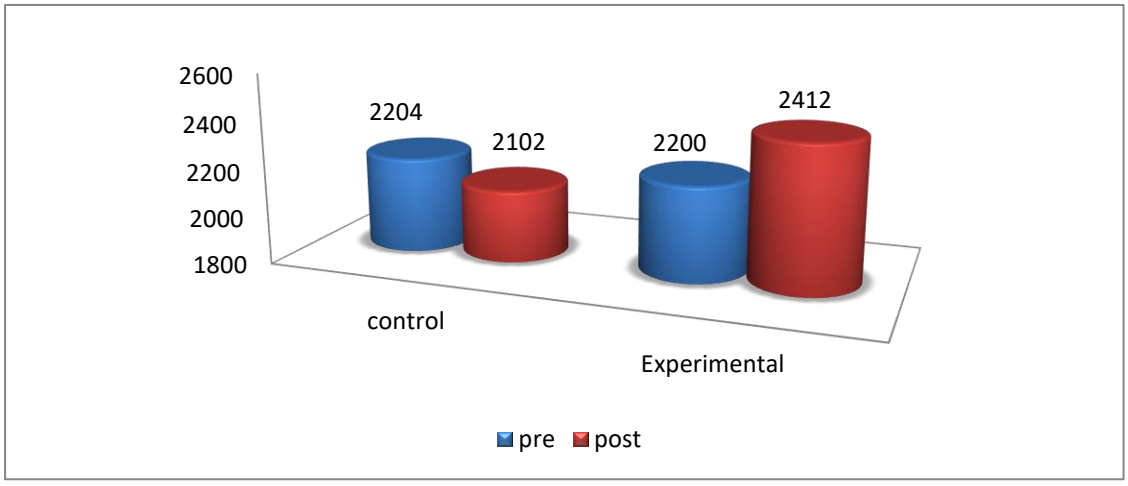


Table 2
Analysis of 't'-Ratio on Pre and Post-test for Control and Experimental Group on Systolic Blood Pressure

Variables	Group Name	Mean		SD		Sd Error	Df	't' ratio
		Pre	Post	Pre	Post			
Blood pressure	Control	124.2	124.90	8.5	6.58	1.34	14	0.39
	Experimental	125.04	120.65	9.72	4.28	1.68		**2.02***

***Significance at0.05 level of confidence*

The table 2 shows that the mean values of pre-test and post-test of control group on systolic blood pressure were 124.2 and 124.90 respectively. The obtained 't' ratio was 0.39 since the obtained 't' ratio was less than the required table value of 2.15 for the significant at 0.05 level with 14 degrees of freedom, it was found to be statistically insignificant. The mean values of pre-test and post-test of experimental group on systolic blood pressure were 125.04 and 120.65 respectively. The obtained 't' ratio was 2.02 since the obtained 't' ratio was greater than the required table value of 2.15 for significance at 0.05 level with 14 degrees of freedom it was found to be statistically significant. The result of the study showed that there was a significant difference between control group and experimental group in systolic blood pressure. It may be concluded from the result of the study that experimental group improved in systolic blood pressure due to six weeks of Ladder training.

Figure -2
Cylinder Diagram Shows the mean value between the Pre and Post-test and Experimental and Control Group on Systolic Blood Pressure

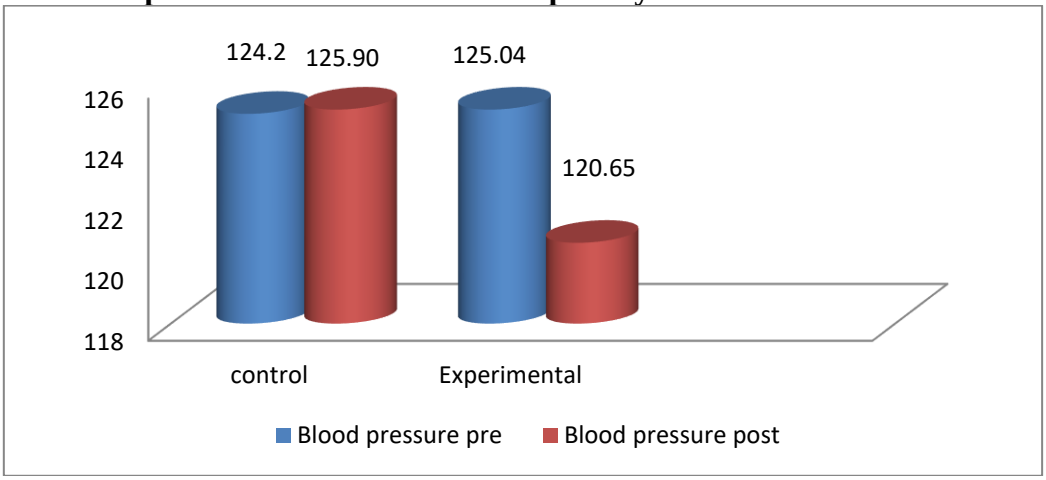


Table 3
Analysis of 't'-Ratio on Pre and Post-test for Control and Experimental Group on Dystolic Blood Pressure

Variables	Group Name	Mean		SD		Sd Error	Df	't' ratio
		Pre	Post	Pre	Post			
Blood pressure	Control	86.65	87.1	5.31	3.93	0.91	14	0.58
	Experimental	86.7	84.05	5.44	3.43	0.78		**3.45***

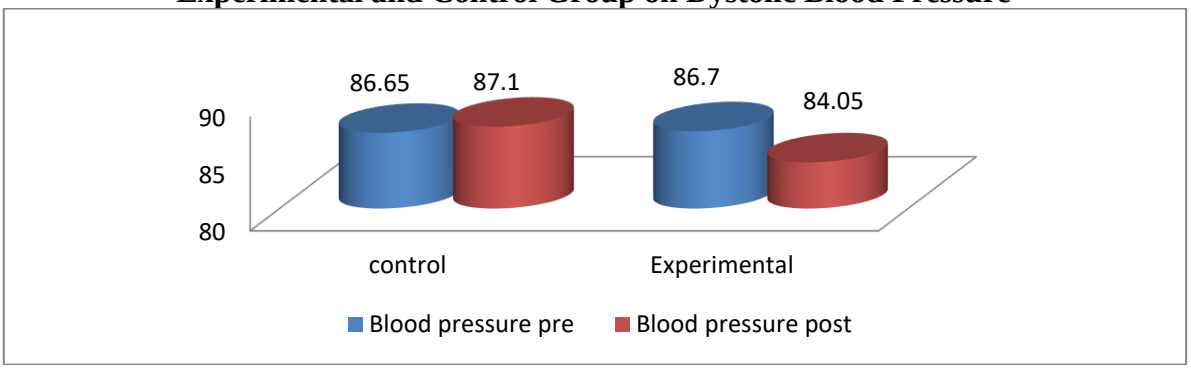
***Significance at0.05 level of confidence*

The table 3 shows that the mean values of pre-test and post-test of control group on dystolic blood pressure were 86.65 and 87.1 respectively. The obtained 't' ratio was 0.58 since the obtained 't' ratio was less than the required table value of 2.15 for the significant at 0.05 level with 14 degrees of freedom, it was found to be statistically insignificant. The mean values of pre-test and post-test of experimental group on dystolic blood pressure were 86.7 and 84.05 respectively. The obtained 't' ratio was 3.45 since the obtained 't' ratio was greater than the

required table value of 2.15 for significance at 0.05 level with 14 degrees of freedom it was found to be statistically significant. The result of the study showed that there was a significant difference between control group and experimental group in dystolic blood pressure. It may be concluded from the result of the study that experimental group improved in dystolic blood pressure due to six weeks of Ladder training.

Figure -3

Cylinder Diagram Shows the mean value between the Pre and Post-test and Experimental and Control Group on Dystolic Blood Pressure



Conclusions

Based on the results of the present study the following conclusions have been college men handball players.

1. Results on testing the differences on pre-test means between experimental and control groups, no difference was found on variables used in the study namely cardio respiratory endurance and Blood Pressure.
2. On testing the post-test means between experimental and control groups, significant mean difference was found on variables used in the study.
3. In the view of maximize the treatment variance, the collected data were tested by t-ratio used.

RECOMMENDATIONS

On the basis of the findings and conclusions of the present study, the following recommendations were made.

1. Similar study may be conducted for various age groups.
2. The same study may be extended to further time period.
3. The present study is mainly focused on male only. The same study could be done over females also.

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YOGA AND MEDITATION- HARMONY OF MIND AND BODY

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Abstract:

Yoga goes far beyond the medical system. It not only prevents disease but covers all aspects of life. The integration of yoga and modern medicine would help the world shift from disease management to health promotion. When an individual grows in the understanding of his true self and develops compassion, it will lead to more harmony within families and groups, in society and finally in the community of nations. It takes practice to meditate. When I entered rehab and participated in meditation, I felt like my head was going to pop off my body. The silence and sitting still almost drove me crazy. However, after a couple of days of practice, I actually felt better and more comfortable. When our minds are not at peace, finding happiness is almost impossible. If we train our minds to meditate, we can learn how to quiet our heads, and eventually know peace even in the most challenging times. Many times it is hard to control our minds. Our mind is like a sheet blowing in the wind, blowing everywhere from external situations. If things go as planned for us, we are happy. If a wrench is thrown into our plans, we are instantly unhappy. Our mood fluctuates because many of us are tied to external situations.

Keywords: Yoga, Meditation, Harmony, Breathing, Self-realisation

INTRODUCTION:

YOGA is a science of life that was developed to help us know ourselves, to realise the peace and joy that can be found within. It is amazing to see how, in modern times, we keep ourselves busy chasing the many objects of our desires in the ephemeral world. It is almost as if at the end of the rainbow there will be a mobile phone, a computer or a television set that will give us lasting happiness. We forget that these pleasures are only momentary and that lasting joy can be found only in the endless peace that is within. The only achievement that is finally meaningful, whose victories do not fade in a trice, is the conquest of the mind. Yoga takes us back to who we really are, to a state of stillness in which we have gained mastery over ourselves.

Yoga goes far beyond the medical system. It not only prevents disease but covers all aspects of life. The integration of yoga and modern medicine would help the world shift from disease management to health promotion. When an individual grows in the understanding of his true self and develops compassion, it will lead to more harmony within families and groups, in society and finally in the community of nations.

The stress and tension that we experience every day can be attributed to the wrong understanding of the purpose of life, says Swami Sitaramananda. "We are all caught in the idea that our life is temporary and everything we do will come to an end. This creates existential anxiety. We have tension, we have stress, we have disease…. However, when we expand our consciousness and search within, the answers come to us and we become more detached towards the happenings in our life. We develop a large vision of ourselves as one among others. We do not have conflict with others. Instead, we would embrace them. We would identify with the self in others."

Meditation:

Meditation is one of the most important tools in recovery, but many people skip this step, or feel they don't have time for it. When we meditate, we can relieve some of the stresses in our lives. Stress negatively affects our health, bodies, and minds. We become frustrated, unhappy, and impatient. Stress is also one of the main reasons people turn back to drugs or alcohol. Taking time to meditate can save us from making a disastrous mistake. Meditation can give us balance and calm our minds. We can transform our thinking from negative to positive,

disturbed to serene. It takes practice to meditate. When I entered rehab and participated in meditation, I felt like my head was going to pop off my body. The silence and sitting still almost drove me crazy. However, after a couple of days of practice, I actually felt better and more comfortable.

When our minds are not at peace, finding happiness is almost impossible. If we train our minds to meditate, we can learn how to quiet our heads, and eventually know peace even in the most challenging times. Many times it is hard to control our minds. Our mind is like a sheet blowing in the wind, blowing everywhere from external situations. If things go as planned for us, we are happy. If a wrench is thrown into our plans, we are instantly unhappy. Our mood fluctuates because many of us are tied to external situations.

Prepare the Mind to Become Still

A turbulent mind filled with such uncontrolled thoughts drains out the energy called prana (life force energy), leaving us completely tired, exhausted and frustrated. So how do we move from this turbulence to tranquility? How can we respond to such situations with a peaceful mind? Explains Shriram Sarvotham, senior Art of Living Yoga teacher, "We cannot directly force or demand the peace of mind but we can prepare the mind to become still." Meditation prepares the mind to calm down effortlessly.

Act with Complete Awareness

Meditation releases the stresses that are accumulated in our mind and leaves it fresh and clear. It brings the mind to the present moment which is the field of action. See, can we smile yesterday? Can we smile two hours later? We can only plan for it. But, we can smile NOW. That is in our hands. Any action is possible only in the present moment. When we act with complete awareness of our action, when the mind is totally attentive to the moment, the action is perfect and mistakes do not happen.

Spread the Waves Of Peace

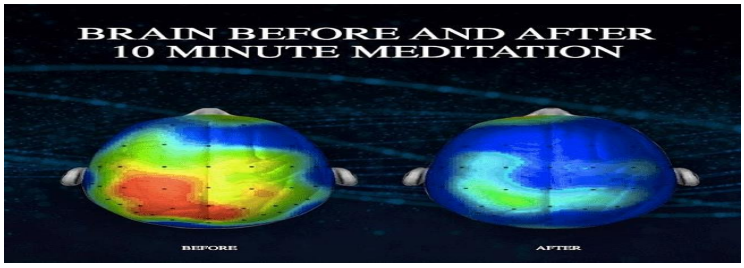
An interesting aspect is that we have the ability to influence our surroundings - When we enter a room where a fight has happened, we feel a little uneasy; whereas when we enter a room where a baby is playing, the enthusiasm and joy catches on to us even if we are tired. Similarly, even in a tumultuous situation if we have inner peace, we can spread the vibrations of peace around us which can help reduce the turbulence. A few minutes of meditation daily helps remain calm during any situation.

Meditation makes us

- It makes us mentally strong so we can face any situation with a smile.
- It makes you peaceful. Inner peace
- It reflects in outer situations also.
- It increases emotional resilience.
- It reduces the tendency to react and
- It increases the tendency to respond.
- It is an effective way to de-stress your mind.

A Few Minutes Just For You- Your Meditation Time

Wondering how to break the knots of daily work along with other responsibilities, to find just a few minutes of meditation time? A good time to meditate is in the morning, as it will help you remain peaceful during the day. You could meditate when you wish to take a break from your work, for instance, before your evening coffee. This is the time you can just be with yourself, shutting down the doors of daily chatter in your mind and just relax completely. You can make the most of this time and enhance your experience of meditation with a few quick tips.



Meditation Made Easy : Follow These Tips

- ·**Comfortable surrounding** - It is advisable to meditate in a quiet place. This saves you from distraction and helps you go deeper in your experience.
- ·**Be regular with the practice** - It is a good idea to meditate at least twice a day and be regular with the practice. Only then will you be able to observe its positive effects with each passing day.
- ·**Meditate with your buddies** - You could get together with some of your close buddies and meditate in a group. This will enhance your experience; it will also help you to be regular with your practice.
- ·**Try some stretches before meditating** –This helps release the stress and tension in various parts of your body and helps you relax to have a more enjoyable meditation.
- ·**Observe your thoughts** - Do not make an effort to resist your thoughts. Let them flow. Meditation is effortless.
- ·**Take it easy** - Make sure you meditate for at least 10-15 minutes. Do not be in a hurry to open your eyes.
- ·**Make sure your stomach is not full** – This will prevent you from falling asleep!

CONCLUSION

Have you observed your mind when turbulent situations arise? These situations trigger powerful emotions in us. When emotions are on a high, the tendency is to react and be impulsive. Further, we can get very easily carried away by our emotions and our awareness of the present moment is lost. We start thinking, why did this happen to me? What have I done? and so on, instead of focusing on the action to be taken. We also worry and are anxious about the future - of how things can return to normal again. This continuous bombardment of thoughts reduces our ability to think clearly, and we often end up reacting to the situation, instead of responding. When we train to meditate, we create inner peace, so we can eventually control our minds no matter how bad the external situation becomes. Eventually, we will become balanced, instead of constantly being pulled from happiness to sadness.

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EFFECT OF TWELVE WEEK TABATA TRAINING ON SELECTED BODY COMPOSITION AEROBIC CAPACITY AND ANAEROBIC PERFORMANCE OF UNDER NORMAL AND OVERWEIGHT COLLEGE WOMEN STUDENTS

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Abstract

Obesity, overweight and malnourished have become a global pandemic now. According to world health organization (WHO) there will be 2.3 billion overweight people aged 15 years and above and over 700 million obese people worldwide in 2015. The aim of the study examines the effect of Tabata Protocol on body composition measurements, aerobic capacity and motor performance in underweight and overweight (the experimental group), versus normal weight college women students (here regarded as the control group). The sample including sixty (60), women college students (age= 17±21years) who completed the high intensity interval training and the following set of measurements pre and post intervention: height, weight, body fat percentage (PBF), waist to hip ratio (WHR), physical efficiency index (based on Harvard step test), agility (in 4 x 10 shuttle run test), lower –limb muscle power in vertical jump and explosive power in standing board jump. The findings were evaluated at a 95% of confidence interval of 5% significance (0.05).

The results before and after the intervention revealed highly significant effects of HIIT on body weight ($F = 30.876$, $p < 0.001$) ,BMI ($F = 101.350$, $p < 0.001$) , WHR ($F = 30.338$, $p < 0.001$) , BF% ($F = 76.451$, $p < 0.001$), PEI ($F = 102.066$, $p < 0.001$) , agility ($F = 10.677$, $p < 0.001$) , vertical jump ($F = 5.962$, $p < 0.001$) and standing broad jump ($F = 5.046$, $p < 0.001$).

Further study should focus on the exercises which can be done effectively with less time consumption and their adaption to girls and assess the sustainability of the changes induced.

***Keywords**: High intensity interval training; body mass index; health related fitness; women students.*

1.1 INTRODUCTION

The primary issue leading to the decrease in world health is malnutrition, which can take many different forms, including overweight, obesity, and underweight. Currently, overeating and under eating are widespread worldwide and impact people in every nation and region (particularly in third world countries of the planet [1]. Healthcare costs are affected by both overweight and underweight nutritional issues. According to scientific data, children and young people are increasingly being affected by the global trend of a gradually rising percentage of both overweight and underweight people [2, 3].

Obesity is characterized as a state of abnormal or excessive body fat that could compromise one's health [4]. Children and adolescents who are overweight, obese, or underweight may experience a variety of negative effects as adults, including health issues. Infectious infections are more likely when a person is underweight [5]. It frequently disrupts a girl's menstrual cycle, increases her risk of miscarriage, premature birth, and hastens the maturation of her reproductive system by the time she reaches adulthood [6].Obesity raises the risk of numerous expensive diseases, including type 2 diabetes mellitus, cardiovascular disease, metabolic disorders, and malignancies, which eventually raises the risk of premature death [7][8].

Body mass index (BMI) and body weight have a linear relationship. Because of this, BMI is a crucial biological indicator of a population's biological state and associated social issues [9]. BMI is a predictor of affluent diseases because of its close association with physiological indicators. MI classification enables the identification of population segments more likely to experience various health problems. Issues with one's health.

Finding the best strategies to fight obesity and overweight has been a major study focus. Physical activity is one of the most crucial and efficient ways to combat obesity and overweight, according to the results [10].Concerning physical condition numerous studies have established the advantages of youth physical fitness for health [11]. One of the most significant health indicators is physical fitness, which is widely recognized as a predictor of cardiovascular disease i.e. Morbidity and mortality [12].

Studies on the positive effects of these kinds of programs, however, are conflicting. Depending on the exercise method, the class format, and the range of factors examined, varying degrees of effectiveness have been seen. The most frequent outcomes in obese and overweight people are those relating to a decrease in BMI, a reduction in body fat, and occasionally an improvement in physical fitness [13].Studies haven't, however, looked at underweight people, for whom a loss of body weight or body fat would be undesirable. Health monitoring systems should incorporate physical fitness assessments, particularly those that measure the effectiveness of the cardio-respiratory system, the base for muscle fitness, speed-agility, and physical efficiency; base for motor performance [14].

Furthermore, it's still not obvious what kind of training, what kind of exercise, how much, and for how long constitutes the best preparation for causing the desired changes in adolescents. A few studies' findings have suggested that high-intensity interval training (HIIT) might be helpful [15].Numerous authors have presented the results of this procedure [16] .Such assessments, however, were conducted on groups of young people without taking into account the diversity in their BMIs. A fundamental goal of research based on the individualization principle should be to determine the impact and effect size of HIIT in children and adolescents with various BMIs, including grouping young people into normal-weight, overweight, and obese as well as underweight categories [17]. The research aimed to evaluate effect of HIIT program based on the Tabata procedure on body composition, aerobic capacity and motor performance in underweight normal weight and overweight adolescence.

HYPOTHESIS

H1 that the HIIT training intervention would significantly affect the body composition, aerobic capacity and motor performance of Under, Normal and Overweight college women's.

MATERIALS AND METHODS

Participants

To achieve the purpose of study investigator randomly selected a total of 60 women college students from Kerala. The age of these subjects ranges between 17 to 21years. The individuals were randomly assigned to overweight (BMI <25.0 to 29.9), underweight (BMI <18.5kg/m^2) are (experimental groups) and normal weight (18.5-24.95 kg/$m^{2)}$ (control group). The subjects were excluded from the study was had following diseases such as asthma, metabolic disorders etc.

Procedures

The morphological and motor measurements were performed before and after 12- week intervention .the pretest was conducted on one day in standard condition for each group. High intensity interval training (HIIT) is a generally formed interval training and its short period of training with high intensive aerobic exercises with less recovery period. Each participants was wearing a T- shirt, shorts, and shoes. Only anthropometric measurements were conducted without shoes. The measurements were performed in the following order. Height, weight, body fat percentage (PBF), waist to hip ratio (WHR) based on (Body composition analyzer) ,

physical efficiency index (based on Harvard step test), agility (in 4 x 10 shuttle run test), lower –limb muscle power in vertical jump and explosive power in standing board jump. The protocol used for each measurements was based on recommendation for the assessments of heath and skill related physical fitness.

ANTHROPOMETRIC MEASUREMENTS

Morphological measurements including body weight, body fat percentage (PBF), waist to hip ratio (WHR) based on to measure Acuna B C 380 model body composition analyzer and height of the subjects were assessed through steadio meter. The tools has very high reliability. Before measurements participants were asked to excrete and refine normal drinking amount of water and not change in breakfast pattern. BMI was calculated based on body height and weight.

Anaerobic capacity

The physical efficiency index (PEI) was calculated through Harvard step test. It is a kind of cardiovascular endurance test. The test computes the capability to exercise continuously for extended intervals of time without tiring. The person who is taking the test step up and down on a platform in a cycle of one step per two seconds. The rate of 30 steps per minute must be held up for 5 minutes or until exhausted. After the subjects sit down on completion of the test and the heartbeats are counted for 1 to 1.5,2 to 2.5, and 3 to 3.5 minutes. The scoring of fitness index calculated by formula Fitness index= duration exercise period in seconds x 100/2x sum of 3 pulse counts in after exercise.

Motor performance

The following test were used to determine the motor components. The 4 x 10 M shuttle run test to measure agility and vertical jump to measure power of lower limbs. The standing board jump test were used to measure explosive power.

The 4 x 10 m shuttle run test (agility) was performed according to the test norms. Two parallel line were drown on the floor 10 m apart. The participants run as fast as possible from the starting line to the other line and return to starting line , crossing each line with both feet every time. The researcher was situated at the starting line and stopped the stopwatch when the participants crossed the line with one foot. The time was recorded.

The power of lower limbs was assessed using vertical jump test. The jump test in static position with knee flexion angle of 90^0 was maintained for 2 s before a jump attempt without any preparatory movements. All the jump were executed with the hands on the hips. Three jump was performed and best jump was recorded.

The standing board jump test was used to measure the explosive power of the leg. The participants stand behind a line marked on the ground with feet slightly apart. A two foot take –off and landing is used, with swinging of the arms and bending of the knees to provide forward drive. The participants attempts to jump as far possible landing on both feet without falling backwards. Three jump was performed and best jump was recorded.

TRAINING INTERVENTION

The training one lesson per week, participants followed the HIIT exercise regimen based on the tabata protocol. The training schedule activity started with systematic training protocol. A standardized 10 min warm–up consisting of 5 min slow jogging followed by 5 min (dynamic and static) stretching of major muscles group was performed . The main part of the program was HIIT training based tabata protocol, the training session was divided into three sessions, and each session lasting up to 4minutes and based on tabata training method (20sec work/10 sec rest) consisted of eight cycles of two exercises. The cycle of exercise started with a maximum intensity exercise lasting for 20 sec in which the participants was perform as many repetitions as possible of given exercises (sprints, burpees, squat jump, stance squat, lunges, jumping jacks) followed by 10 sec active rest. The cycles were repeated without any

rests between them. Total duration of each session was 4 minutes. There was a 1-min passive rest between each session during which no exercises were performed. After the Tabata training, the final part of the training, including flexibility and relaxation exercises, was performed for several minutes. All the exercises were prepared by the authors (for the purpose of the experiment), recorded and ensure that the times of exercise and rest were implemented accurately.

STATISTICS

The Shapiro–Wilk test was used to evaluate the normality of the distribution of data, and all variables showed a normal distribution. Descriptive data were presented as means and standard deviations. A two-way analysis of variance (ANOVA) was used to evaluate pre-training differences between groups (BMI status: underweight, normal-weight, overweight). Next three-way analysis of variance (ANOVA) with repeated measures was performed (pre/post ×BMI status) to determine if there were any between-group changes as a result of the training. When significant differences were observed (significant F-ratio), detailed comparisons of post-hoc tests (Tukey's HSD test) were used to determine pairwise differences.

RESULTS

Descriptive statistics of the parameters for girls from the different BMI groups are presented in Table 1

The table describe that pre to post comparison of each variable (Height, weight, body fat percentage (PBF), waist to hip ratio (WHR), physical efficiency index, agility, muscle power, explosive power) in respective group (under weight , normal weight , over weight) on the basis of BMI status .

Variable	Group	Pre test		Post test		Cohen's d	p
		Mean	SD	Mean	SD		
BH(Cm)	U	158.90	7.64	158.900	7.64	0.00	ns
	N	156.05	5.15	156.050	5.15	0.00	ns
	O	156.40	7.37	156.400	7.37	0.00	ns
BW(Kg)	U	42.125	5.07	40.290	5.02	0.36	<.001
	N	49.340	4.54	49.255	4.63	0.01	ns
	O	63.540	10.83	58.495	10.69	0.46	<.001
BMI(Kg/m)	U	16.655	1.36	15.905	1.34	0.553	<.001
	N	20.315	1.63	20.315	1.63	0	ns
	O	26.040	3.38	23.920	3.29	0.6345	<.001
WHR	U	.6895	.037	.6630	.048	0.61	<.001
	N	.7510	.045	.7515	.056	0.00	ns
	O	.8615	.121	.8245	.085	0.35	.003
BF (%)	U	18.750	3.52	17.2690	3.34	0.43	<.001
	N	25.245	3.13	25.185	3.15	0.01	ns
	O	33.290	3.67	29.975	3.34	0.94	<.001
PEI (n)	U	59.900	3.07	62.500	3.05	0.84	<.001
	N	61.000	3.02	60.900	3.02	0.03	ns
	O	46.150	3.03	50.300	2.71	1.44	<.001
AG (S)	U	14.166	1.118	13.028	1.21	0.97	<.001
	N	13.889	1.16	13.858	1.17	0.02	ns
	O	14.109	.954	12.217	.969	1.96	<.001
VJ(cm)	U	19.600	1.93	21.900	1.77	1.24	<.001

	N	19.900	1.51	20.300	2.00	0.22	ns
	O	19.400	1.50	22.000	1.41	1.78	<.001
SJ(cm)	U	1.3810	.068	1.415	.066	0.50	<.001
	N	1.3310	.097	1.332	.102	0.01	ns
	O	1.3085	.095	1.426	.12746	1.04	<.001

Note: SD: standard deviation, Cohen's d: effect size pre and post intervention, ns: not significant; U: underweight, N: normal-weight, O: overweight; BH: body height, BW: body weight, BMI: body mass index, WHR: waist-to-hip ratio, BF%: body fat percentage, PEI: aerobic capacity, Ag: agility, VJ: vertical jump SJ: standing broad jump**.**

Analysis of variance showed statistically significant interaction between factors (girls x BMI group) was statistically significant. The two- way ANOVA found significant difference before training according to BMI status .BMI group different in body weight ($F = 30.876$, $p < 0.001$) ,BMI ($F = 101.350$, $p < 0.001$) , WHR ($F = 30.338$, $p < 0.001$) , BF% ($F = 76.451$, $p < 0.001$), PEI ($F = 102.066$, $p < 0.001$) , agility ($F = 10.677$, $p < 0.001$) , vertical jump ($F = 5.962$, $p < 0.001$) and standing broad jump ($F = 5.046$, $p < 0.001$). Furthermore different in height result ($F = 1.039$, $p>000$).

Body Weight , BMI ,WHR ,BF ,PEI ,Agility , Vertical Jump ,Standing Broad Jump variable have observed significant difference .and no other significant difference between group were observed for the other variable .

Table 2. P-values from Tukey's test for differences between different BMI status groups in pre- and post-tests (only statistically significant results)

Variable	Test	L-N	L-O	N-O
Height	Pre test	ns	ns	ns
	Post test	ns	ns	ns
Weight	Pre test	.009	<.001	<.001
	Post test	.001	<.001	.001
PBF	Pre test	<.001	<.001	<.001
	Post test	<.001	<.001	<.001
WHR	Pre test	.042	<.001	<.001
	Post test	<.001	<.001	.002
Phy effici	Pre test	ns	<.001	<.001
	Post test	ns	<.001	<.001
Agility	Pre test	ns	ns	ns
	Post test	ns	ns	<.001
Low-power	Pre test	ns	ns	ns
	Post test	.015	ns	.009
Ex-power	Pre test	ns	.031	ns
	Post test	.034	ns	.014
BMI	Pre test	<.001	<.001	<.001
	Post test	<.001	<.001	<.001

Note: SD: standard deviation, Cohen's d: effect size pre and post intervention, ns: not significant; U: underweight, N: normal-weight, O: overweight; BH: body height, BW: body weight, BMI: body mass index, WHR: waist-to-hip ratio, BF%: body fat percentage, PEI: aerobic capacity, Ag: agility, VJ: vertical jump SJ: standing broad jump.

Using ANOVA with repeated measures, the comparison of the results before and after the intervention revealed highly significant effects of HIIT on body weight ($F = 30.876$, $p < 0.001$) ,BMI ($F = 101.350$, $p < 0.001$) , WHR ($F = 30.338$, $p < 0.001$) , BF% ($F = 76.451$, $p <$

0.001), PEI ($F = 102.066$, $p < 0.001$) , agility ($F = 10.677$, $p < 0.001$) , vertical jump ($F = 5.962$, $p < 0.001$) and standing broad jump ($F = 5.046$, $p < 0.001$). The results of detailed comparisons using Tukey's HSD test before and after the intervention are presented in Table 1.

HIIT induced the most noticeable changes in anthropometric parameters (body weight, BMI, WHR, BF%, PEI, AG,), which almost exclusively concerned overweight girls group (Table 1). When compared to the other two groups, agility shows a substantial difference. When compared to the other two groups (body weight, BMI, WHR, BF%), there is an improvement, however motor performance variables (standing brought jump and vertical jump) do not indicate any changes among the three groups mentioned above.

DISCUSSION

The HIIT program based on the Tabata protocol produced partial effects that can be considered from two standpoints. First, the changes concerned mainly overweight groups (girls). Second, the changes involved morphological rather than Functional features. The effects included significant reductions in body weight, BMI, WHR, and body fat, PEI, SG, in overweight adolescents. However, additional improvements in aerobic performance were observed in underweight and overweight girls.

HIIT intervention has a significant impact on both physical fitness and body composition [18]. In response to the implementation of HIIT in physical education lessons, the main body weight and BFP values significantly decreased in our prior study. Only in subjects who were overweight was this effect seen. Additionally, an improvement in aerobic capacity was noted [19].

Our results are partially consistent with the findings of other researchers who also documented positive effects of HIIT among overweight and obese people [20, 21]. In our study, we did not discover any alterations in body composition in young people who were underweight, which can be seen as a favorable tendency. As a result, the suggested HIIT program appears to be suitable for teenagers. That is In this regard, our findings are in line with earlier research [22] that reported no reduction in BMI or BF% in underweight adolescents [23].

All analyzed morphological parameters constitute a morphological health-related fitness component. In this sense, the HIIT regimen can be considered to support the health of young people. In this study, its efficacy and usefulness in natural conditions. The implementation of such training programs and scientific verification of their effects in the collage environment are not easy, with difficulties including the organization of collage work, organization of lessons, and health condition of girls which may explain the small number of studies that have addressed this topic [24].

Our research has certain limitations. First, the number of participants was small. Second, there was no dietary control for the participants. It remains unclear whether the participants maintained their dietary preferences and what the energy supply was during the implementation of the 10-week HIIT (Tabata) training program. Third—there was a lack of a control group. One of the inclusion criteria was performing no other structured exercise during participants' leisure time. However, it cannot be guaranteed that participants did not undertake any additional physical activity during the study period. In the future, participants should use accelerometers to monitor their daily physical activity

CONCLUSIONS

The division of participants into underweight, normal-weight, and overweight (obese) groups allows researchers to capture the actual directions of changes and effects of the programs used. Our study documented a significant reduction in body weight and BMI as well as redistribution and reduction of body fat. At the same time PEI and agility has improved only in groups of overweight girls. Furthermore, underweight and overweight Girls improved their

aerobic performance. In conclusion, the Tabata program represents a useful tool for combating the problem of being overweight while avoiding adverse effects (in terms of weight and body fat reduction) among underweight and normal-weight individuals, further research should be oriented toward the definition of rules for HIIT protocols addressed to genders and groups with different BMI to induce a general improvement in aerobic performance.

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INFLUENCE OF YOGA ON SELECTED PHYSIOLOGICAL VARIABLES AMONG COLLEGE MEN ATHLETES

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Abstract

The purpose of this study was to find out the influence of yoga in modifying certain physiological functions in College men Athletes. The study was conducted on thirty Athletes from Alagappa Government Arts and Science College, Karaikudi, Sivagangai, Tamilnadu. The Subjects were randomly assigned equally into two groups, Group –I underwent yogic practices group (n=15) and group II (n=15) acted as control group. Resting pulse rate, Breath holding time and Cardio respiratory endurance were selected as creation variables. The training programme was restricted to 8 weeks Resting pulse rate was assessed by Radial pulse method, Breath holding time was assessed by Manuel method and Cardio Respiratory Endurance was assessed by Cooper's 12 minutes run/walk test. The data was collected from the experimental and Control Groups before and after the 8 weeks of training programme were statically examined with Analysis of covariance (ANCOVA). Resting Pulse Rate, Breath Holding Time and Cardio Respiratory Endurance showed significant difference between the groups.

Key words: *Athletes, Physiological variable, Resting Pulse Rate, Breath Holding Time and Cardio Respiratory Endurance*

INTRODUCTION

In this present age our attitudes towards life are fragmented and we are constantly running after objects of luxury in order to find happiness and peace of mind. We have forgotten that happiness and peace are very much a part of our essential nature and are within us. The experience of these inherent qualities is lost because we have lost contact with the core of our existence, the spiritual dimension, which is the source of boundless energy, happiness and unfathomable peace. To actualize our inner potential we need to establish integration between our head (thinking), heart (feeling) and hands (behavior), which means discarding discrepancies in our thinking, feeling and behavior. To achieve this, yoga psychology recommends leading a disciplined lifestyle and developing a positive attitude towards the events of life **(Telles, 2004).**

METHODOLOGY

The study was conducted on thirty College men Athletes from Alagappa Arts and Science College , Karaikudi, Sivagangai, Tamilnadu. The Subjects were randomly assigned equally into two groups, Group –I underwent Yogic Practice Group (n = 15) and Group II (n=15) acted as Control. The training period was limited to 8 weeks. The duration of training session in all the days were between forty five minutes to one hour approximately which included warming up and limbering down. Yogic training programmes includes Padmasana, Vajrasana, Halasana, Dhaurasana, Bhujanganasana, Vibareeetha karani, Matsyasana, Uththitha padmasana, Kurmasana, Tolasana, Utkatasana, Vrksasana, Pawan muktasana, Sarangasana, Nadisudhi, Ujjayi and Sarvangasana. Resting pulse rate, Breath holding time and Cardio respiratory endurance were selected as creation variables. All the two groups were tested on selected criterion variables prior to and immediately after the 8 weeks of yogic training programme. Resting Pulse Rate was assessed by Radial pulse method, Breath holding time was assessed by Stop watch manual method, and Cardio respiratory endurance was assessed by Cooper's 12 Minutes Run/walk Test.

RESULTS AND DISCUSSION

The data collected from the Experimental group and Control group prior and after experimentation on selected variables were statistically examined by analysis of covariance

(ANCOVA) was used to determine differences, if any among the adjusted post test means on selected criterion variables separately. The level of significance was fixed at 0.05 level of confidence to test the 'f' ratio obtained by analysis of covariance.

Table – 1

THE SUMMARY OF PRE AND POST TEST MEAN ON SELECTED PHYSIOLOGICAL VARIABLES OF YOGIC PRACTICE AND CONTROL GROUPS

Criterion variables	Mean	Yogic Practice Group	Control Group
Resting Pulse Rate	Pre test mean	81.07	74.6
	Post test mean	74.53	74.53
Breath Holding Time	Pre test mean	22.77	22.04
	Post test mean	26.48	21.99
Cardio Respiratory Endurance	Pre test mean	1780	1787.33
	Post test mean	2040.67	1774

Table – 1 show that pre and post test mean of Resting pulse rate, Breath holding time and Cardio respiratory endurance between Yogic practices group and Control group. It was concluded that Yogic practices group had significant improvement in the performance of Resting pulse rate, Breath holding time and Cardio respiratory endurance. However control group had no significant improvement in the performance of selected variables. The analysis of covariance on of Resting pulse rate, Breath holding time and Cardio respiratory endurance of Yogic practices group and Control group have been analyzed and presented in Table – 2.

Table – 2

ANALYSIS OF COVARIANCE ON CRITERION VARIABLES OF YOGIC PRACTICES GROUP AND CONTROL GROUP

Criterion Variable	Adjusted Post Test Means		Source of variance	Sum of Square	df	Mean Squares	'f' - ratio
	Yogic Practices Group	Control Group					
Resting Pulse Rate	74.6	81.07	B	313.63	1	313.63	95.43*
			W	88.74	27	3.29	
Breath Holding Time	26.18	23.30	B	107.78	1	107.78	114.76*
			W	25.36	27	0.94	
Cardio Respiratory Endurance	2042.44	1772.22	B	546026.25	1	546026.25	63.10*
			W	233631.31	27	8653.03	

**** Significant at .05 level of confident.***

Table value required for significance at .05 level with df 1 and 27 is 4.21

From table –2, the obtained value of 'f' - ratio for Resting pulse rate, Breath holding time and Cardio respiratory endurance, for adjusted post test means were 95.43, 114.76 and 63.10. These values are more than the table value of 4.21for df 1 and 27 required for significant at 0.05 level of confidence. The results of the study indicated that significant differences exist among the adjusted post test means of experimental and control groups on the development of Resting Pulse Rate, Breath Holding Time and Cardio Respiratory Endurance.

The mean values of Yogic practices group and control group on Resting pulse rate, Breath holding time and Cardio respiratory rate were graphically represented in the Figure 1, Figure-2 and Figure-3 respectively.

FIGURE-1:
MEAN VALUES OF YOGIC PRACTICES GROUP AND CONTROL GROUP ON RESTING PULSE RATE

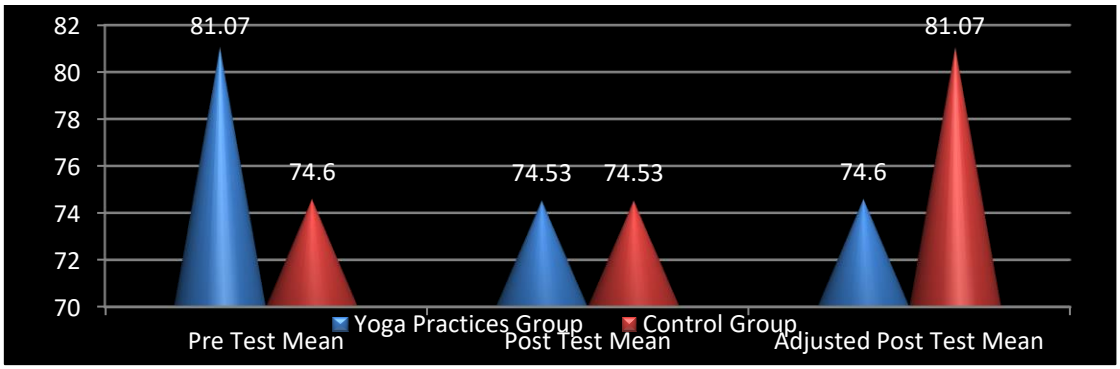


FIGURE-2: MEAN VALUES OF YOGIC PRACTICES GROUP AND CONTROL GROUP ON BREATH HOLDING TIME

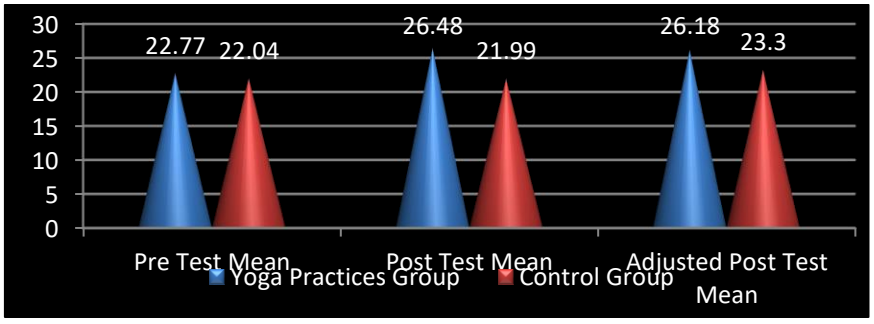
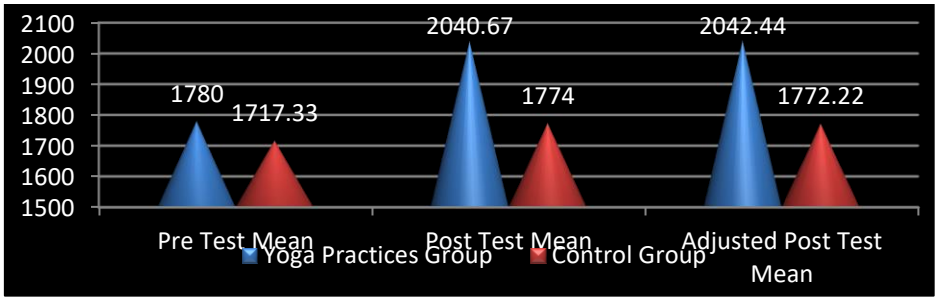


FIGURE-3: MEAN VALUES OF YOGIC PRACTICES GROUP AND CONTROL GROUP ON CARDIO RESPIRATORY RATE



CONCLUSION

From the analysis of the data, the following conclusions were drawn.

1. The results of the study showed there was a significant difference between Yogic practices group and Control group on selected Physiological variables among Alagappa arts and Science college men Athletes participants.
2. The Yogic practices group was found to be better than the Control group in developing physiological related variables such as Resting pulse rate, Breath holding time and Cardio respiratory endurance.

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IMPACT OF ISOLATED MIXED INTERVAL AND CONTINUED TRAINING ON SPEED COMPONENTS AMONG COLLEGE LEVEL KABADDI PLAYERS

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Abstract

Sports reflect the changes in societies and cultural activities that range from individual values such as regulations and simplicity to collectives like equality, general ones like belief in effort. That is capitalistic belief of the survival of the fittest. Sports couldn't see the discretely in human being. Sports develop unity and diversity. It can even play a helpful role in integrating image building for individuals, groups or humanities. Kabaddi game is developing the physical and mental of the human being. The word of kabaddi says withhold breath due to increasing the body aerobic and mental concentration power. The present explored impact of isolated mixed interval and continued training on speed components among college level kabaddi women players. The study was conducted among 60 women college kabaddi player aged 18 to 25 years. The speed performance was evaluated to speed variables as speed stride length variables of kabaddi before the training and after 8 weeks of training. The subjects were randomly assigned into four groups, namely interval exercise group, continuous exercise group, combined interval and continuous group and control group. Statistically significant improvements in baseline scores in speed stride length variables kabaddi were comparable between the four groups of college kabaddi players. Speed stride length improved by 1.63 in continued group, 1.65 in the interval group 1.68 combined interval and continued group 1.52in the control group. Additional research on long-duration intervention in elite players may help to establish the role of combined interval and continued training in conventional kabaddi skills for training.

Key words: *Interval training, continued training, speed, kabaddi, stride length*

Introduction

National and International level, sports and games have increased an important place for celebrities and become enormously popular. Sports reflect the changes in societies that range from individual values such as self-control and simplicity to collectives like equality, general ones like belief in effort. Sports couldn't see the discretely in social being. Sports develop unity and diversity. It can even play a constructive role in integrating image building for individuals, groups or cultures. In the most recent years, awareness has been focused on different methods of fitness programmes for improving performance. The professor and coach looking for the best emerging essential physical fitness qualities must consider various kinds of sports training. This has made the investigator grow a keen interest in that area to discover a form of exercise (interval exercise and continuous training) that develops both speeds and endurance parameters among Kabaddi players.

The Game of kabaddi has various aerobic, anaerobic, explosive, cognitive and muscular strength factors **(Dev 2012)**. Kabaddi game learns how to breathe; simply obtain flexibility and agility and speed (10 -12 m on the court). Because of flexibility, the player's eyes and body move fast. We can kick, spin and grapple with ankle legs. Strong muscle leg uses to kick by quickness acceleration. Kabaddi games have many more movement involving forward running,

backward, side, jumping, grappling, touching, pushing and dogging. This movement is doing the short time with the strategic of skills. The players are intent every second during the game period. Kabaddi is a team game of physical components.

Methodology

The Methodology for the present investigation is on the impact of isolated mixed interval and continued training on speed components among college level women kabaddi players**.** The purpose of study 60 women students selected from various colleges in Periyar University Inter collegiate women players, Salem, Tamil Nadu. Their age ranges between 18 to 25 years. The subjects were randomly assigned into four groups, namely experimental group I (interval training), Experimental group II (continued training), experimental group III (combined interval and continued training) and control group. In order to ensure the full cooperation from the subjects, the scholar had a meeting with them and explained the purpose of the study. It was made clear by explanation in order to ascertain that there was no abstruseness among the players regarding the effort, which they had to put in for the impactive completion of this study. Experimental group I participated for a period of 8 weeks interval training. Experimental group II participated for a period of 8 weeks continued training. Experimental group III for a period of 8 weeks combined interval and continued training and Control group no training. The subjects were verified on selected criterion variables speed variables as stride length kabaddi players before the training and after 8 weeks of training.

Training Procedure

Experimental Group-I undertook interval training, experimental Group-II undertook continued training and experimental Group-III undertook combined training respectively. The control group was not exposed to any specific training / conditioning programme. The experimental treatments namely interval training, continued training and combined training was administrated for duration of 8 weeks and the number of session per week was confined to three alternative days and each session continued 60 minutes.

Statistical Technique

The collected data from the three groups prior to and after the experimental treatments on selected speed components variable was statistically analyzed by using the statistical technique of analysis of covariance (ANCOVA). Whenever the 'F' ratio for adjusted post-test means was found to be significant, Scheffe's test was followed as a post hoc test to determine which of the paired means difference was significant. In all the cases 0.05 level of confidence was fixed as a level of confidence to test the hypotheses.

Results and Analysis

The influence of independent variables on each of the criterion variables is analyzed and presented below.

The training period was limited to eight weeks. The dependent variables selected for this study was speed components stride length. All the subjects were tested prior to and immediately after the experimental period on the selected dependent variables.

The data obtained from the experimental groups before and after the experimental period were statistically analyzed with dependent 't'-test and Analysis of covariance (ANCOVA). Whenever the 'F' ratio for adjusted post-test means was found to be significant, the Scheffe's Posthoc test was applied to determine the paired mean differences.The level of confidence was fixed at 0.05 level for all the cases.

Table – 1

Computation of Analysis of Covariance of pre test, post test and adjusted post test on Stride Length of Experimental groups and Control group

Test	Interval Exercise group	Continued exercise group	Combined group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	F-ratio
Pre-Test Mean	1.53	1.53	1.53	1.52	Between groups	0.001	3	.000	0.21
					Within groups	0.060	56	0.001	
Post-Test Mean	1.63	1.65	1.69	1.54	Between groups	0.180	3	0.060	50.28*
					Within groups	0.067	56	0.01	
Adjusted Post-Test Mean	1.63	1.65	1.68	1.54	Between sets	0.170	3	0.057	58.64*
					Within Sets	0.053	55	0.001	

**** Significant at 0.05 level of confidence***

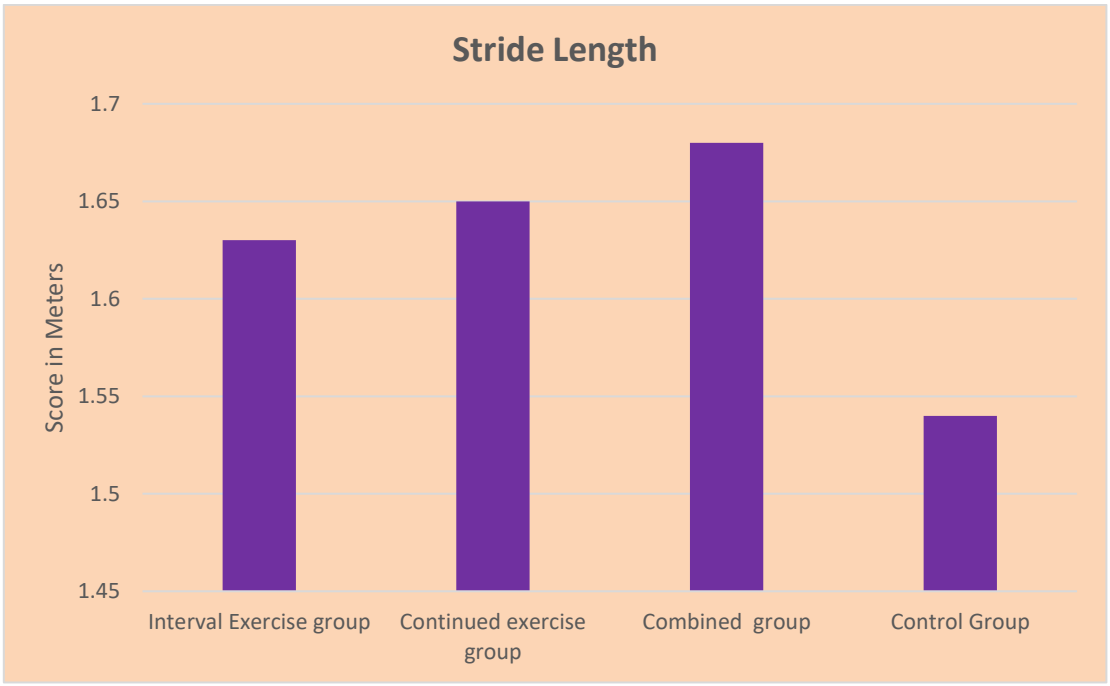


Figure - 1

The Pre and Post test Mean Values of interval Training group, Continued Training group, combined training and Control group on Stride Length

Conclusion

The findings of the study showed that there was a statistically significant improvement in the speed components stride length variables kabaddi players as compared to control group.

1. The results of the study show that the experimental group-I that had undergone interval training group, improved speed components namely stride length kabaddi players.

2. The results of the study show that the experimental group-II that had undergone continued training group, improved speed components namely stride length kabaddi players.
3. The results of the study show that the experimental group-III that had undergone combined training group, improved speed components namely stride length kabaddi players.

RECOMMENDATIONS

It is recommended that coaches and physical educators in the game of kabaddi should give due to include interval training group, continued training group and combined training group in their training schedules.

In the physical exercise, while designing the training programme the impact of varied training modalities is explained on positively on physical fitness parameters and skill performance variables of kabaddi players, the physical education teachers and coaches can prefer this type of training so as to achieve aim in time.

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EXAMINING THE EVOLUTION OF AUTISM SPECTRUM DISORDER RESEARCH THROUGH YEAR-WISE BIBLIOMETRIC ANALYSIS

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Abstract:

This bibliometric study delves into the evolving landscape of Autism Spectrum Disorder research through a meticulous year-wise analysis. Using the Web of Science Core Collection database, we initially retrieved a substantial corpus of 34,884 documents related to Autism Spectrum Disorder. To focus on research articles, we sequentially applied inclusion criteria, resulting in a dataset of 80 documents closely aligned with specific research areas. Our analysis, conducted within R Studio using the Biblioshiny package, encompassed various objectives, including tracking publication trends, identifying influential countries, assessing international collaboration, detecting emerging research themes, and scrutinizing citation patterns. The findings reveal a dynamic autism spectrum disorder research landscape, characterized by periods of steady growth and notable spikes in research activity. This evolution reflects the increasing recognition of autism spectrum disorder as a critical area of study. Furthermore, the global distribution of articles underscores the collaborative and interdisciplinary nature of Autism Spectrum Disorder research, with diverse contributions from nations worldwide. In conclusion, this comprehensive bibliometric analysis provides valuable insights into the growth, impact, and collaborative nature of autism spectrum disorder research. These findings contribute to advancing knowledge, improving interventions, and enhancing the lives of individuals affected by autism spectrum disorder. Continued research and collaboration remain paramount in addressing the challenges posed by this complex neurodevelopmental condition.

Keywords*: Autism Spectrum Disorder, bibliometric analysis.*

Introduction

Autism Spectrum Disorder (ASD) is a complex neurodevelopmental condition that has captured the attention of researchers, clinicians, educators, and policymakers worldwide (Lord, et al., 2018). This pervasive and lifelong disorder manifests across a broad spectrum, encompassing a range of symptoms and behaviors that impact social interaction, communication, and patterns of thought and behavior (American Psychiatric Association. 2013). The significance of ASD as a subject of study lies not only in its prevalence, affecting an estimated 1 in 54 children in the United States alone, but also in its profound and often lifelong implications for individuals and their families (Baio, 2018). Understanding the intricate factors that contribute to ASD's development, its diagnosis, and the development of effective interventions is a priority in the fields of psychology, neuroscience, and education (Dawson, & Bernier, 2013). Over time, the field of ASD research has evolved substantially, both in terms of its depth and breadth. Researchers have made remarkable strides in uncovering the genetic, environmental, and neurological underpinnings of ASD (Geschwind, & State, 2015).

In recent years, the field of bibliometrics has become an invaluable tool for assessing the growth and impact of research in various disciplines (Bornmann, & Mutz, 2015). By applying bibliometric analysis to the study of ASD research, we can gain a nuanced understanding of the field's development over time. Specifically, a year-wise bibliometric analysis allows us to explore how research on ASD has evolved in terms of publication output, international collaboration, and the emergence of new research themes.

This study endeavors to conduct a thorough examination of the trajectory of ASD research through the lens of bibliometrics. By scrutinizing the publication trends, identifying influential researchers, highlighting key journals, and tracing the flow of citations over different years, we aim to provide a comprehensive overview of the field's dynamics. Such an analysis not only provides retrospective insights but also serves as a valuable resource for shaping the future direction of ASD research, policy formulation, and resource allocation.

Purpose of the study

The purpose of this study is to conduct a rigorous year-wise bibliometric analysis of research on ASD.

Objectives of the Study

1. To track the growth of research output related to ASD over the years.
2. To identifying periods of accelerated publication and areas of increased interest.
3. To identify influential countries actively contributing to ASD research, recognizing their impact on the field.

Methodology

In conducting our bibliometric analysis of ASD research, we commenced by utilizing the Web of Science Core Collection database, renowned for its scholarly publications. Our initial search employed the keyword "autism spectrum disorder," yielding a substantial corpus of 34,884 documents pertaining to ASD.

To refine our dataset to encompass relevant research articles, we employed two inclusion criteria sequentially. Firstly, we restricted our dataset to "Article type documents," which reduced the corpus to 26,589 documents. Subsequently, we applied a second inclusion criterion based on "Web of Science categories as Sports Science," further narrowing our dataset to a targeted subset of 80 documents closely aligned with specific research areas. To facilitate the subsequent analysis, we exported these 80 selected documents in plain text format, ensuring ease of data manipulation and examination.

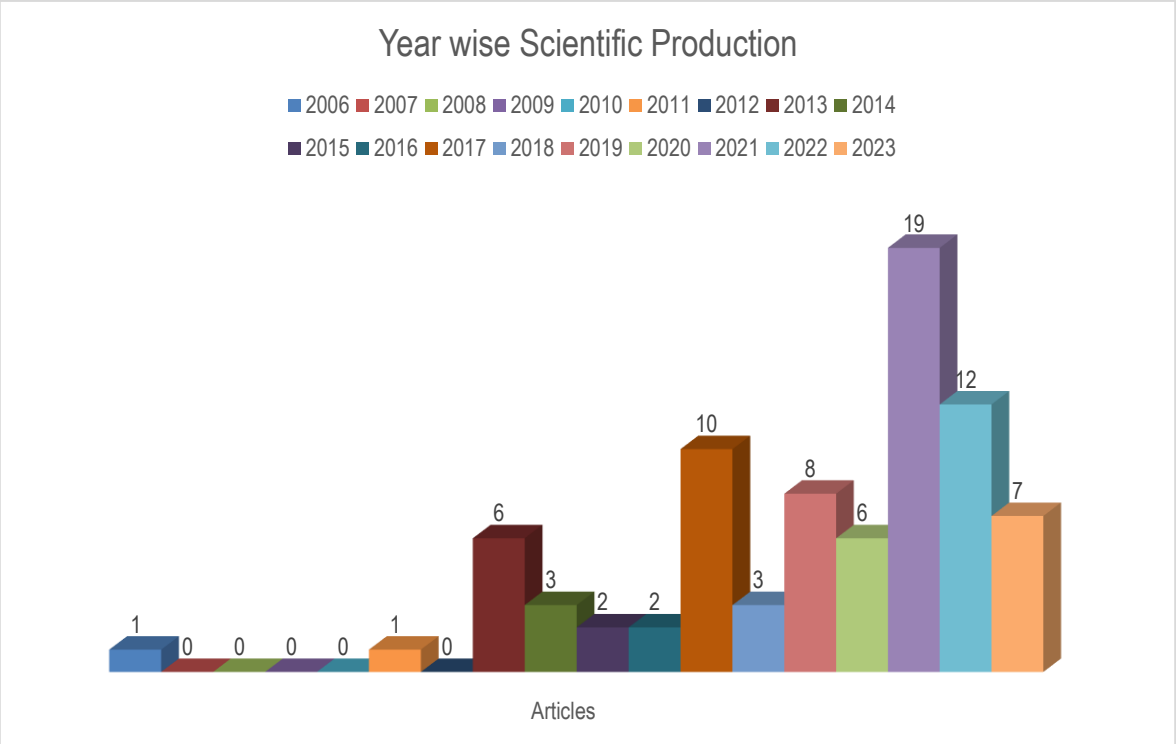
For our bibliometric analysis, we harnessed the analytical capabilities of R Studio, a robust data analysis environment, and specifically utilized the Biblioshiny package. Biblioshiny offers an array of functions tailored for bibliometric analysis, enabling a comprehensive exploration of the ASD research landscape. Within R Studio using Biblioshiny, our analysis encompassed a multitude of objectives. We sought to uncover publication trends over time, identify influential countries contributing to ASD research, assess international collaboration patterns, detect emerging research themes, and scrutinize citation patterns to pinpoint pivotal works in the field.

Analysis of the data

Figure 1 shows the main information about the gathered data



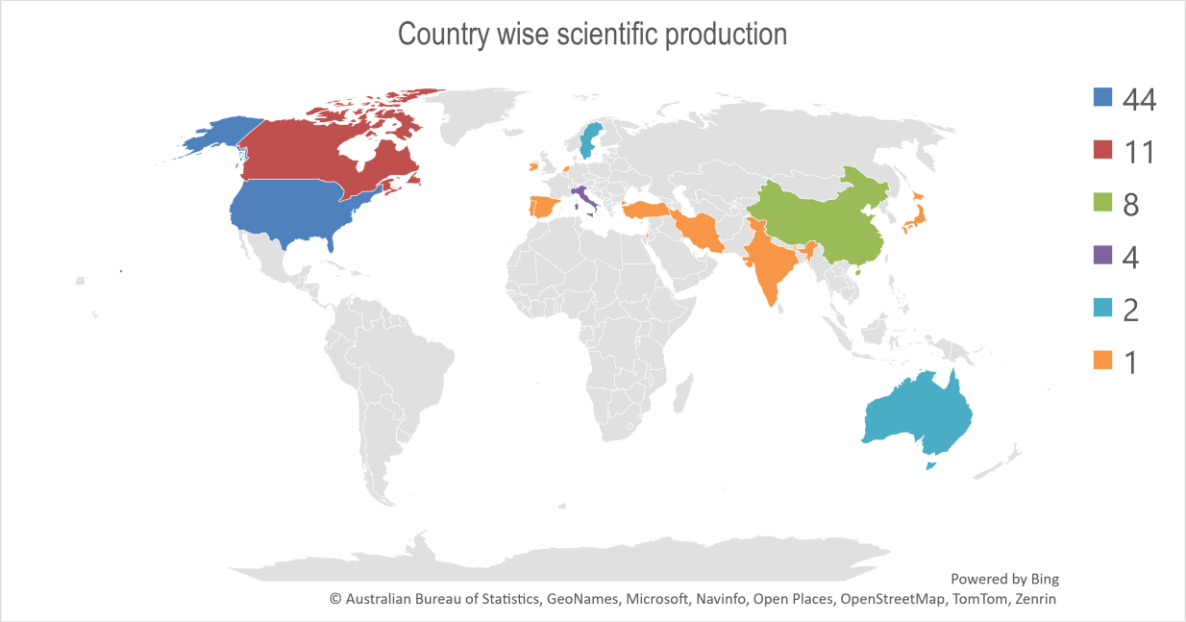
Collected data timespan from 2006 to 2023 reflects a commitment to scrutinizing recent advancements in ASD research. With data drawn from 23 diverse sources, including journals and other scholarly materials, the analysis benefits from a rich and varied pool of references. The dataset, comprising 80 documents, provides a substantial foundation for an in-depth bibliometric examination of ASD research trends. The calculated annual growth rate of 12.13% signals a significant upsurge in publications related to ASD, underscoring the growing importance and research activity in this domain. The relatively low document average age of approximately 4.01 years aligns with the focus on contemporary research within the specified timespan. Moreover, the robust average of 15.25 citations per document suggests that the selected ASD research has made a notable impact and is influential within the scholarly community. With a total of 2777 references, the analysis is deeply embedded in the existing literature, providing a comprehensive context for understanding ASD research trends. The inclusion of 282 Keywords Plus (ID) and 232 Author's Keywords (DE) underscores the diversity of terminology used in ASD research. Involving 271 authors signifies the broad spectrum of contributors, highlighting the interdisciplinary and collaborative nature of ASD research. Notably, while most documents result from collaborative efforts, the presence of 2 single-authored documents underscores the significance of individual contributions. The average of 4.09 co-authors per document and the 20% international co-authorships underscore the collaborative ethos of ASD research, both at the national and international levels. Finally, the predominance of "article" types (77, and 3 from early access out of 80) signifies that research articles serve as the primary medium for disseminating ASD research findings.
Figure 2 presents a year-by-year representation of scientific production



The year-wise scientific production, as depicted in the data, provides a valuable snapshot of the evolution of ASD in sports science research over the years. This analysis is an integral part of "Examining the Evolution of Autism Spectrum Disorder Research through Year-wise Bibliometric Analysis." The year 2006 marked the beginning of this examined period, with one research article related to ASD. The following few years witnessed a relatively lower output, with no publications in 2007, 2008, and 2009. However, it's important to note that the research landscape began to gain momentum from 2010 onwards. A significant uptick in ASD research output occurred in 2013, with six articles published. This uptrend continued

into the subsequent years, with noticeable contributions in 2014 (3 articles), 2015 (2 articles), and 2016 (2 articles). The year 2017 marked a notable milestone, with a substantial increase in scientific production, presenting ten articles. This uptrend continued into 2018 (3 articles) and 2019 (8 articles), reflecting a sustained interest in ASD research. From 2020 onwards, the scientific production related to ASD exhibited a robust trajectory, with 6 articles in 2020, 19 articles in 2021, 12 articles in 2022, and 7 articles in 2023. This period seems to represent a significant surge in research activity and publication output, suggesting that ASD has become a focal point of scholarly attention, with a growing body of literature emerging.

Figure 3 shows the year wise scientific production



The distribution of research articles by country in the context of Autism Spectrum Disorder (ASD) research provides valuable insights into the global landscape of scholarly contributions to this critical field of study, as part of the "Examining the Evolution of Autism Spectrum Disorder Research through Year-wise Bibliometric Analysis." The United States leads the way with a substantial contribution of 44 articles, indicative of its prominent role in ASD research and its robust research infrastructure. Following closely, Canada offers 11 articles, underlining its active engagement and commitment to advancing our understanding of the disorder. China, with 8 articles, is a noteworthy participant in the global ASD research landscape, reflecting its growing investment in neurodevelopmental research. Italy, contributing 4 articles, plays a significant role, emphasizing its presence in the international scientific community. Australia's 2 articles and Sweden's 2 articles signify their involvement and dedication to ASD research, showcasing their contributions to the global body of knowledge. Meanwhile, India, Iran, Ireland, Israel, Japan, the Netherlands, Portugal, Spain, and Turkey, each with 1 article, contribute to the worldwide discourse on ASD.

Conclusion

The bibliometric metrics analyzed in this study offer a comprehensive and multifaceted view of the ASD research landscape. These metrics shed light on key aspects of the field, including growth, collaboration, and the impact of selected research documents, providing valuable insights into the evolution of ASD research over the specified timespan.

The analysis of year-wise scientific production data reveals the dynamic nature of ASD research, characterized by periods of steady growth and significant spikes in research activity. This evolution mirrors the increasing recognition of ASD as a critical area of study. Researchers and the scholarly community have demonstrated a commitment to exploring and contributing to our understanding of this complex neurodevelopmental condition.

Moreover, the country-wise distribution of articles underscores the global nature of ASD research, with diverse contributions from various nations. This international collaboration and interdisciplinary approach highlight the collective effort of researchers from around the world. They work together to deepen our understanding of ASD and its multifaceted aspects.

In summary, this comprehensive analysis provides valuable insights into the evolving landscape of ASD research. It demonstrates the field's growth, impact, and collaborative nature. These findings contribute to the ongoing efforts to advance knowledge, improve interventions, and enhance the lives of individuals affected by ASD. The study reinforces the importance of continued research and collaboration in addressing the challenges posed by ASD.

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THE EFFECT OF SELECTED AEROBIC EXERCISES AND YOGIC PRACTICES ON PHYSICAL AND PHYSIOLOGICAL VARIABLES OF COLLEGE MEN STUDENTS

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Abstract

The purpose of the study was to find The Effect of Selected Aerobic Exercises and Yogic Practices on Physical and Physiological Variables of College Men Students. For this study totally 45 collegiate men puducherry college students. On a random purposive sampling, age ranged from 18 to 23 years. The subjects were dived into three groups group I (N-15) served as a yogic training in selected asanas and pranayama., group II (N-15) is assigned to aerobic dance with music's programme. group III (N-15) is assigned to control group for a 12 weeks, 5 days in a week. the experimental group of the yogic training are tested the following selected criterion measures such as physiological and aerobic performance is selected as variables to find out the collegiate men. The results of pre, post, adjust post the data collected were statistically examined by applying analysis of covariance(ANCOVA) to find out the difference. Whenever, the obtained t ratio for inter action effect was found to be significant.

INTRODUCTION

Yoga is one of the most ancient arts which helps us to bring a kind of harmony among our mind, body and spirit. It belongs to all human beings not an individual religion. The continued practice of yoga will make our whole environment as a beautiful garden and leads our mind to peace and our body to fit.The Kundalini moves by way of six psychics to skull, called Sahasrara, which is described as a lotus with a thousand petals. A true yogi should raise his Kundalini power through the vein Sukshumana from one chakra to another until it reached the Sahasrara, So that his life attaining. The complete salvation. To reach the position one must learn to control his body, mind and bring them under his control. He can control everything even the rhythm of his heart beat and he can live without food, water and even the air for breathing. Yogis have achieved super human control over their bodies. Thus many Indians and some foreigners perform yogic exercises only for their spiritual and physical development not for any special religious purpose.

Yoga plies an important role by bringing the therapeutic effect in asthma, diabetes, hypertension and respiratory troubles. Some yoga has both preventive as well as curative value. Positive changes in the life style of the people can be brought through yoga. During the period of education, Yoga can make them aware of their bodies and further make them realize the need of physical and emotional well being. Yoga controls one of sense resulting in an integrated personality and behavior can be molded properly leading to balanced personalities.

AEROBIC EXERCISE

A non-technical term for forms of exercise regimes based on improving health and fitness by causing cardio-respiratory adaptations as a result of stressing the various physiological systems associated with aerobic energy production. Aerobics came to prominence in the late 1960s to early 1970s from the work of Kenneth Cooper (author of *Aerobics*, 1968) in the USA at a time when the role of regular exercise in the prevention and treatment of heart disease was becoming recognized. Cooper developed the first exercise scheme to have mass impact on the general population. Cooper's aerobics awarded exercise points according to the intensity and duration of activities such as walking, jogging, and cycling. The points derived from the aerobic energy demands of these activities. Cooper's scheme was well founded in experimental science. Since that time, the boom in popular exercise schemes has led to the term being used more and more loosely. The original close

connection to aerobic energy pathways has been lost. The term is now used, meaninglessly, in association with virtually all forms of exercise from t'ai chi to weightlifting.

TYPES OF AEROBIC EXERCISE

Aerobic exercise is various types used in physical activities develop for good health that is aerobic dance, bicycling, cross country, skiing in-line, skating fitness walking ,jumping ,rope running, stair climbing and swimming.

OBJECTIVES OF THE STUDY

The following are the specific objectives:

1. To identify the physical and physiological related variables on performance of yoga and aerobic training.
2. To find out the effects of yogic practices and aerobic training on physical variable: Muscular Strength, Cardio respiratory endurance of sedentary men students.
   To establish the role of yogic practices and aerobic training on physiological related Resting Pulse Rate, Breath Holding Time variables of college men students.

STATEMENT OF THE PROBLEM

The purpose of the study is to investigate the effect of selected aerobic exercises and yogic practices on physical and physiological variables of college men students.

METHODOLOGY

Methodology is a branch of logic concerned with the principles of reasoning. It is concerned with scientific and philosophical enquiry, through a particular science the system of method. This helps a person involved in a process to set a definite procedure in investigating through and orderliness in action, through and handling of ideas. The procedure adopted for selection of subject, selection of variables, selection of test, experimental design, instrument reliability, reliability of the data, pilot study, orientation of the subjects, training programme, test administration and statistical techniques.

SELECTION OF SUBJECTS

The purpose of the study was mainly to assess the effects of yogic practice and aerobic training on selected physical and physiological variables of college men students**.** To achieve this purpose, forty-five male students studying at Pondicherry university community college students were randomly selected as subjects. The age of the subjects ranged from 18 to 23 years.

SELECTION OF VAERIBLES

The basis of the available literature, personal experience, discussion done with research supervisor and consulting with sports experts, the following physical and Physiological variables were selected.

Physical fitness variables

- Muscular strength
- Cardio-respiratory Endurance

Physiological Variables

- Resting Pulse Rate
- Breath Holding Time

SELECTION OF TESTS

Table I

VARIABLES SELECTED FOR THE STUDY	TESTS USED TO MEASURE
PHYSICAL VARIABLE	
Muscular Strength	Push Ups
Cardio-respiratory Endurance	12 min Run or Walk
PHYSIOLOGICAL VARIABLE	
Resting Pulse Rate	Count
Breath Holding Time	Time (stopwatch)

Table II
RELIABILITY CORRELATION CO-EFFICIENT VALUES ON SELECTED VARIABLES

Tests	r value
Muscular Strength	0.944*
Cardio-respiratory Endurance	0.895*
Resting Pulse Rate	0.935*
Breath Holding Time	0.986*

**Significant at 0.05 level of confidence.*

(The table value required for significant at .0.05 level of confidence is 0.632)

Training Programme

During the training period both the yoga group and the aerobic group underwent training weekly five classes for twelve weeks on their respective program. Specific asanas and pranayama was given to the yogic group. The aerobic group was given training on aerobic dance with music's programme for 30 minutes with an intensity that elicited heart rates of 140-160 beats per minute. The progressive load method was used for twelve weeks on the respective groups. The training schedule is enclosed in appendices.

Table - III
ANALYSIS OF COVARIANCE FOR PRE TEST AND POST TEST DATA ON MUSCULAR STRENGTH OF CONTROL GROUP AND EXPERIMENTAL GROUPS

	Control group	Yogic training	Aerobic training	SOV	Sum of squares	df	Mean square	'F' ratio
Pre-test Mean	9.33	9.53	9.33	B:	0.40	2	0.20	0.04
S.D.	2.31	2.19	1.95	W:	196.40	42	4.68	
Post-test Mean	9.40	11.27	13.27	B:	112.18	2	56.09	16.42*
S.D.	1.84	2.05	1.62	W:	143.47	42	3.42	
Adjusted Post-test Mean	9.45	11.17	13.31	B:	112.59	2	56.30	64.79*
				W:	35.62	41	0.87	

** Significant at 0.05 level.*

Required table value at 0.05 level of significance for 2 & 42 degrees of freedom = 3.22

Table III shows that the pre-test means of control Group, experimental group I (Yogic Training) and experimental group II (Aerobic Training) are 9.33, 9.53 and 9.33 respectively. Since the obtained 'F' ratio 0.04 is lesser than the table value 3.22 there is no significant difference among the pre-test means at 0.05 level of confidence with 2 and 42 degrees of freedom. It is evident that there is no significant difference between the control and the experimental groups on muscular strength initially before the commencement of the training program.

The post-test means of, experimental control Group, experimental group I (Yogic Training) and experimental group II (Aerobic Training) are 9.40, 11.27 and 13.27 respectively. The obtained 'F' ratio 16.42 is higher than the table value 3.22 which reveals that there is significant difference among the groups on the post test means at 0.05 level of confidence with 2 and 42 degrees of freedom.

The adjusted post-test means of, control Group, experimental group I (Yogic Training) and experimental group II (Aerobic Training) are 9.45, 11.17 and 13.31 respectively. Since obtained 'F' ratio 64.79 is much higher than the table value of 3.22 it indicates that there is

difference among the groups on adjusted post test means at 0.05 level of confidence with 2 and 41 degrees of freedom.

The above results indicates that significant difference exists among the adjusted post test means of control Group, experimental group I (Yogic Training) and experimental group II (Aerobic Training). Further to determine which of the paired means had a significant difference Scheffe's post-hoc test is applied.

Table - IV

COMPARISONS OF PAIRED MEANS SHOWING SCHEFFE'S POST HOC ANALYSIS ON MUSCULAR STRENGTH

CONTROL GROUP	YOGIC TRAINING GROUP	AEROBIC TRAINING GR OUP	MEAN DIFFERENCES	CI
9.45	11.17	-	1.72*	**0.87**
9.45	-	13.31	3.86*	
-	11.17	13.31	2.14*	

Table IV shows that the Scheffe's post-hoc method of testing the significance for the differences between the paired means following a significant analysis of co variance for control groups, yoga training and aerobic training. The adjusted muscular strength efficiency means in order of magnitude and the difference between the means for the control and two experimental groups are given in the table. The mean differences between the control and yoga training group is 1.72, which is significant at 0.05 level of confidence interval. In the comparison between control group and aerobic training the difference is 3.86, which is significant at 0.05 level of confidence interval. The ordered adjusted muscular strength means and differences between yoga training and aerobic training group is 2.14, which is significant at 0.05 level of confidence interval. This indicates that the yoga training group had a better improvement when compared to the aerobic training group and control group. The differences in means of control groups, yoga training and aerobic training is presented in fig. 1.

GRAPHICAL REPRESENTATION ON PRE-TEST, POST-TEST AND ADJUSTED POST-TEST MEANS ON MUSCULAR STRENGTH OF CONTROL GROUP AND EXPERIMENTAL GROUP

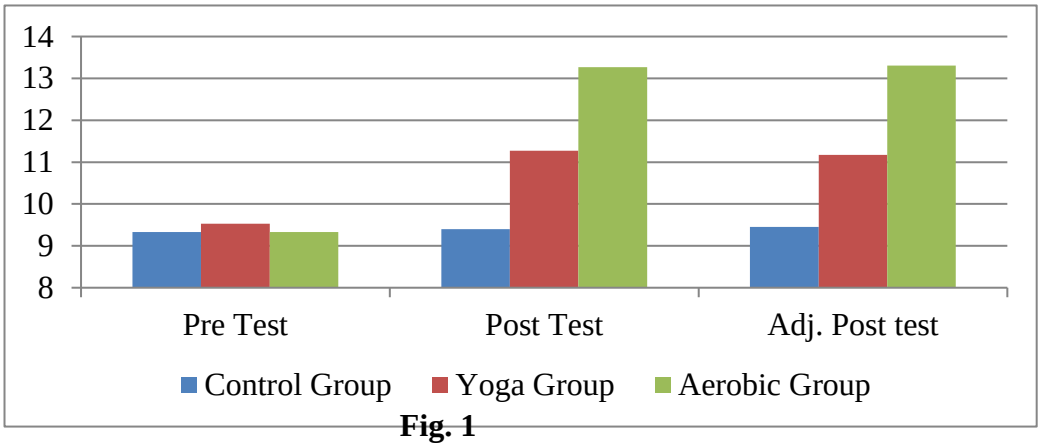


Fig. 1

Table - V

ANALYSIS OF COVARIANCE FOR PRE TEST AND POST TEST DATA ON CARDIO VASCULAR ENDURANCE OF CONTROL GROUP AND EXPERIMENTAL GROUPS

	Control group	Yogic training	Aerobic training	SOV	Sum of squares	df	Mean square	'F' ratio
Pre-test Mean	2098.7	2101.30	2108.00	B:	693.33	2	346.67	0.02
S.D.	152.26	89.91	71.13	W:	508586.67	42	12109.21	
Post-test Mean	2095.3	2198.7	2258.0	B:	203293.33	2	101646.67	10.06*
S.D.	138.14	89.51	56.59	W:	424186.67	42	10099.68	
Adjusted Post-test Mean	2099.00	2200.00	2253.00	B:	184893.99	2	92446.99	71.02*
				W:	53368.20	41	1301.66	

** Significant at 0.05 level.*

Required table value at 0.05 level of significance for 2 & 42 degrees of freedom = 3.22

Table V shows that the pre-test means of control Group, experimental group I (Yogic Training) and experimental group II (Aerobic Training) are 2098.70, 2101.30 and 2108.00 respectively. Since the obtained 'F' ratio 0.02 is lesser than the table value 3.22 there is no significant difference among the pre-test means at 0.05 level of confidence with 2 and 42 degrees of freedom. It is evident that there is no significant difference between the control and the experimental groups on cardio vascular endurance initially before the commencement of the training program.

The post-test means of, experimental control Group, experimental group I (Yogic Training) and experimental group II (Aerobic Training) are 2095.30, 2198.7 and 2258.00 respectively. The obtained 'F' ratio 10.06 is higher than the table value 3.22 which reveals that there is significant difference among the groups on the post test means at 0.05 level of confidence with 2 and 42 degrees of freedom.

The adjusted post-test means of, control Group, experimental group I (Yogic Training) and experimental group II (Aerobic Training) are 2099.00, 2200.00 and 2253.00 respectively. Since obtained 'F' ratio 71.02 is much higher than the table value of 3.22 it indicates that there is difference among the groups on adjusted post test means at 0.05 level of confidence with 2 and 41 degrees of freedom.

The above results indicates that significant difference exists among the adjusted post test means of control Group, experimental group I (Yogic Training) and experimental group II (Aerobic Training). Further to determine which of the paired means had a significant difference Scheffe's post-hoc test is applied.

Table- VI

COMPARISONS OF PAIRED MEANS SHOWING SCHEFFE'S POST HOC ANALYSIS ON CARDIO VASCULAR ENDURANCE

CONTROL GROUP	YOGIC TRAINING GROUP	AEROBIC TRAINING GROUP	MEAN DIFFERENCES	CI
2099.00	2200.00	-	101*	**33.46**
2099.00	-	2253.00	154*	
-	2200.00	2253.00	53*	

Table VI shows that the Scheffe's post-hoc method of testing the significance for the differences between the paired means following a significant analysis of co variance for control groups, yoga training and aerobic training. The adjusted cardio vascular endurance efficiency means in order of magnitude and the difference between the means for the control and two experimental groups are given in the table. The mean differences between the control and yoga training group is 101, which is significant at 0.05 level of confidence interval. In the comparison between control group and aerobic training the difference is 154, which is significant at 0.05 level of confidence interval. The ordered adjusted cardio vascular endurance means and differences between yoga training and aerobic training group is 53, which is significant at 0.05 level of confidence interval. This indicates that the yoga training group had a better improvement when compared to the aerobic training group and control group. The differences in means of control groups, yoga training and aerobic training is presented in fig.2.

GRAPHICAL REPRESENTATION ON PRE-TEST, POST-TEST AND ADJUSTED POST-TEST MEANS ON CARDIO VASCULAR ENDURANCE OF CONTROL GROUP ANDEXPERIMENTAL GROUP

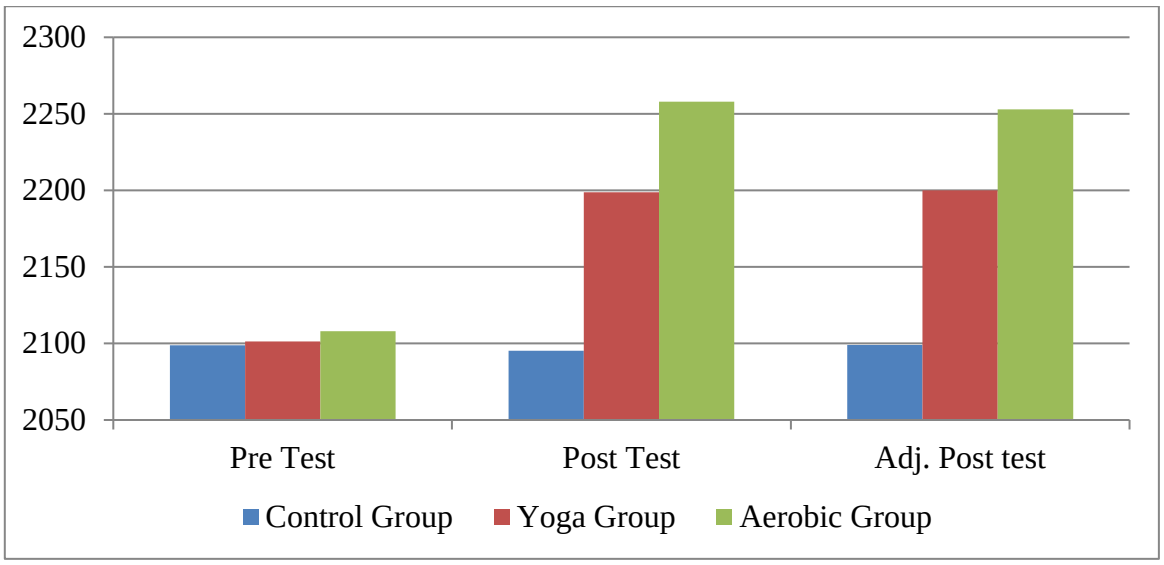


Fig. 2

Table - VII

ANALYSIS OF COVARIANCE FOR PRE TEST AND POST TEST DATA ON RESTING PULSE RATE OF CONTROL GROUP AND EXPERIMENTAL GROUPS

	Control group	Yogic training	Aerobic training	SOV	Sum of squares	df	Mean square	'F' ratio
Pre-test Mean	71.73	71.33	71.27	B:	1.91	2	0.96	0.73
S.D.	1.03	1.16	1.22	W:	55.20	42	1.31	
Post-test Mean	70.07	67.53	67.47	B:	65.91	2	32.95	20.85*
S.D.	1.03	1.77	0.74	W:	66.40	42	1.58	
Adjusted Post-test Mean	69.90	67.60	67.57	B: W:	51.60 46.99	2 41	25.80 1.15	33.51*

** Significant at 0.05 level.*

Required table value at 0.05 level of significance for 2 & 42 degrees of freedom = 3.22

Table VII shows that the pre-test means of control Group, experimental group I (Yogic Training) and experimental group II (Aerobic Training) are 71.73, 71.33 and 71.27 respectively. Since the obtained 'F' ratio 0.73 is lesser than the table value 3.22 there is no significant difference among the pre-test means at 0.05 level of confidence with 2 and 42 degrees of freedom. It is evident that there is no significant difference between the control and the experimental groups on resting pulse rate initially before the commencement of the training program.

The post-test means of, experimental control Group, experimental group I (Yogic Training) and experimental group II (Aerobic Training) are 70.07, 67.53 and 67.47 respectively. The obtained 'F' ratio 20.85 is higher than the table value 3.22 which reveals that there is significant difference among the groups on the post-test means at 0.05 level of confidence with 2 and 42 degrees of freedom.

The adjusted post-test means of, control Group, experimental group I (Yogic Training) and experimental group II (Aerobic Training) are 69.90, 67.60 and 67.57 respectively. Since obtained 'F' ratio 33.51 is much higher than the table value of 3.22 it indicates that there is difference among the groups on adjusted post-test means at 0.05 level of confidence with 2 and 41 degrees of freedom.

The above results indicates that significant difference exists among the adjusted post-test means of control Group, experimental group I (Yogic Training) and experimental group II (Aerobic Training). Further to determine which of the paired means had a significant difference Scheffe's post-hoc test is applied.

Table - VIII

COMPARISONS OF PAIRED MEANS SHOWING SCHEFFE'S POST HOC ANALYSIS ON RESTING PULSE RATE

CONTROL GROUP	YOGIC TRAINING GROUP	AEROBIC TRAINING GROUP	MEAN DIFFERENCES	CI
69.90	67.60	-	2.3*	**1.00**
69.90	-	67.57	2.33*	
-	67.60	67.57	0.03	

Table VIII shows that the Scheffe's post-hoc method of testing the significance for the differences between the paired means following a significant analysis of co variance for control groups, yoga training and aerobic training. The adjusted resting pulse rate efficiency means in order of magnitude and the difference between the means for the control and two experimental groups are given in the table. The mean differences between the control and yoga training group is 2.3, which is significant at 0.05 level of confidence interval. In the comparison between control group and aerobic training the difference is 2.33, which is significant at 0.05 level of confidence interval. The ordered adjusted resting pulse rate means and a difference between yoga training and aerobic training group is 0.03, which is not significant at 0.05 level of confidence interval. This indicates that the yoga training group had a better improvement when compared to the aerobic training group and control group. The differences in means of control groups, yoga training and aerobic training is presented in fig. 3.

GRAPHICAL REPRESENTATION ON PRE-TEST, POST-TEST AND ADJUSTED POST-TEST MEANS ON RESTING PULSE RATE OF CONTROL GROUP AND EXPERIMENTAL GROUP

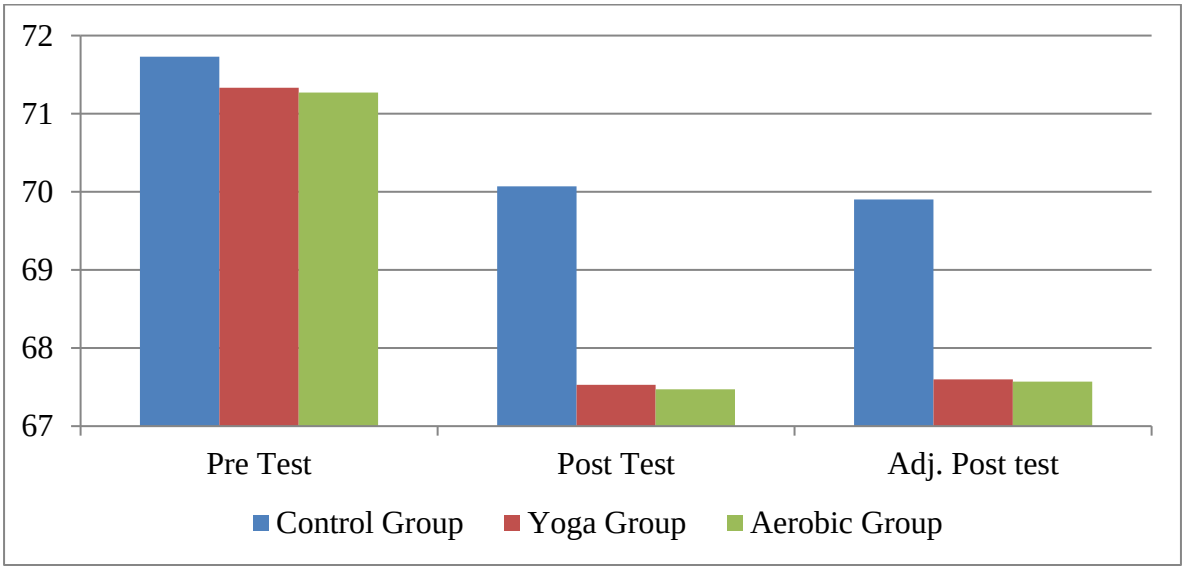


Fig. 3

Table - IX
ANALYSIS OF COVARIANCE FOR PRE TEST AND POST TEST DATA ON BREATH HOLDING TIME OF CONTROL GROUP AND EXPERIMENTAL GROUPS

	Control group	Yogic training	Aerobic training	SOV	Sum of squares	df	Mean square	'F' ratio
Pre-test Mean	45.08	43.19	47.07	B:	113.32	2	56.66	0.96
S.D.	5.59	9.01	8.01	W:	2473.65	42	58.90	
Post-test Mean	44.23	54.22	54.55	B:	831.23	2	415.61	12.62*
S.D.	7.52	5.31	3.74	W:	1383.02	42	32.93	
Adjusted Post-test Mean	44.25	53.38	52.37	B:	749.93	2	374.97	31.52*
				W:	487.75	41	11.90	

** Significant at 0.05 level.*

Required table value at 0.05 level of significance for 2 & 42 degrees of freedom = 3.22

Table IX shows that the pre-test means of control Group, experimental group I (Yogic Training) and experimental group II (Aerobic Training) are 45.08, 43.19 and 47.07 respectively. Since the obtained 'F' ratio 0.96 is lesser than the table value 3.22 there is no significant difference among the pre-test means at 0.05 level of confidence with 2 and 42 degrees of freedom. It is evident that there is no significant difference between the control and the experimental groups on breath holding time initially before the commencement of the training program.

The post-test means of, experimental control Group, experimental group I (Yogic Training) and experimental group II (Aerobic Training) are 44.23, 54.22 and 54.55 respectively. The obtained 'F' ratio 12. 62 is higher than the table value 3.22 which reveals that there is significant difference

among the groups on the post test means at 0.05 level of confidence with 2 and 42 degrees of freedom.

The adjusted post-test means of, control Group, experimental group I (Yogic Training) and experimental group II (Aerobic Training) are 44.25, 53.38 and 53.37 respectively. Since obtained 'F' ratio 31.52 is much higher than the table value of 3.22 it indicates that there is difference among the groups on adjusted post test means at 0.05 level of confidence with 2 and 41 degrees of freedom.

The above results indicates that significant difference exists among the adjusted post test means of control Group, experimental group I (Yogic Training) and experimental group II (Aerobic Training). Further to determine which of the paired means had a significant difference Scheffe's post-hoc test is applied.

Table - X

COMPARISONS OF PAIRED MEANS SHOWING SCHEFFE'S POST HOC ANALYSIS ON BREATH HOLDING TIME

CONTROL GROUP	YOGIC TRAINING GROUP	AEROBIC TRAINING GROUP	MEAN DIFFERENCES	CI
44.25	53.38	-	9.13*	3.20
44.25	-	52.37	8.12*	
-	53.38	52.37	1.01	

Table X shows that the Scheffe's post-hoc method of testing the significance for the differences between the paired means following a significant analysis of co variance for control groups, yoga training and aerobic training. The adjusted breath holding time efficiency means in order of magnitude and the difference between the means for the control and two experimental groups are given in the table. The mean differences between the control and yoga training group is 9.13, which is significant at 0.05 level of confidence interval. In the comparison between control group and aerobic training the difference is 8.12, which is significant at 0.05 level of confidence interval. The ordered adjusted breath holding time means and a difference between yoga training and aerobic training group is 1.01, which is not significant at 0.05 level of confidence interval. This indicates that the yoga training group had a better improvement when compared to the aerobic training group and control group. The differences in means of control groups, yoga training and aerobic training is presented in fig.4.

GRAPHICAL REPRESENTATION ON PRE-TEST, POST-TEST AND ADJUSTEDPOST-TEST MEANS ON BREATH HOLDING TIME OF CONTROL GROUP AND EXPERIMENTAL GROUP

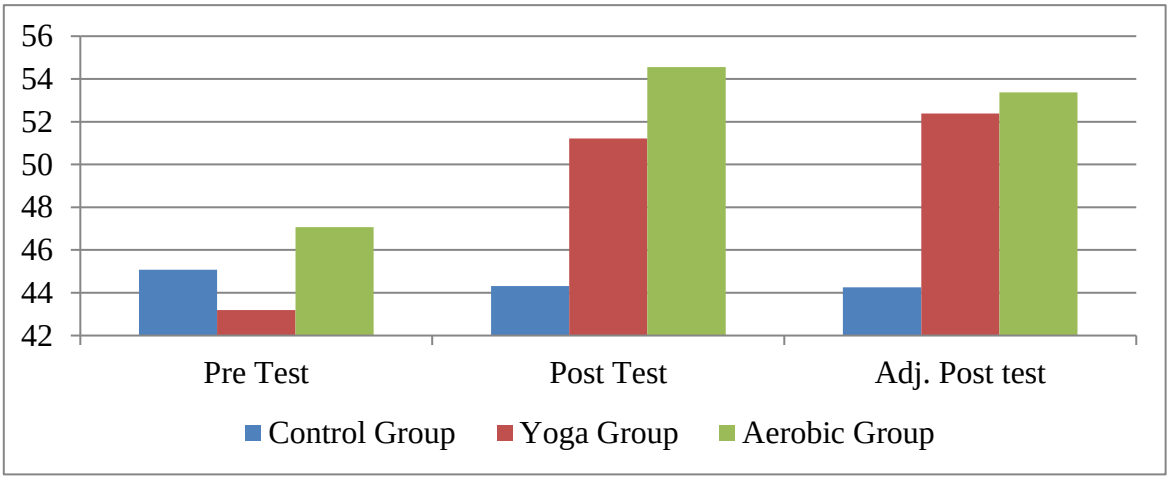


Fig. 4

DISCUSSION ON FINDINGS - PHYSICAL VARIABLES

The finding on the study has shown that there is significant changes in physical variables i.e., muscular strength, cardio vascular endurance due to influence of yoga and aerobics training when compared to the control group. It reveals that the yoga training has increased the flexibility of the subject significantly better than the aerobic training. It also reveals that aerobic training has shown significant changes on muscular strength, cardiovascular endurance than yoga training.The results of this study are in consonance with the findings of the studies of the following sports scientists **Oken, et.al., (2006), Baldwin,(1999), Govindarajalu et.al., (2004), Johnson PremKumar and Mariayyah,(2006), Mishra, et.al., (2003)** and **Bera and Rajapurkar (1993)**.

PHYSIOLOGICAL VARIABLE

The finding on the study has shown that there is significant changes on physiological variables i.e., resting pulse rate and breath holding time due to influence of yoga and aerobics training when compared to the control group. It reveals that the yoga training has increased the capacity of breath holding and of the subject significantly better than the aerobic training. It also reveals that aerobic training has shown significant changes on resting pulse rate than yoga training. The results of this study are in consonance with the findings of the studies of the following sports scientists **Schell, et.al. (1994), Telles, et.al., (2004), Pete Arambula, et.al., (2004), Gore,et.al., (2003), Shenbagavalli and Rajkumar, (2007)** and **Gore, (2005)**

Conclusion

1. It was concluded from the results that the selected physical variable Muscular Strength of college men students had significantly improved after 12 weeks of yoga practice and aerobic training group when compare to control group.
2. It was concluded from the results that the selected physical variable cardio respiratory endurance of college men students had significantly improved after 12 weeks of yoga practice and aerobic training group when compare to control group.
3. It was concluded from the results that the selected physiological variable resting pulse rate of college men students had significantly improved after 12 weeks of yoga practice and aerobic training group when compare to control group.
4. It was concluded from the results that the selected physiological variable breath holding time of college men students had significantly improved after 12 weeks of yoga practice and aerobic training group when compare to control group.

Recommendation

For the further research in this area following recommendations were drawn-

1. The present study is carried out with sample drawn from college level women volleyball players only. Players of different games, levels, and gender may be used for the future study.
2. Only limited physical and physiological variables are used in this study. So the study may be extended to analyse the students other physical, physiological, variables.
3. To enumerate all the benefits of yogic practices and aerobic training the period of Adequate personal space should be provided, so that participants can do self analysis isolation.
4. A longer observation/ follow up study is recommended for permanent effect.
5. Better tools may be developed to asses the effect of yogic practices more objectively and reliably.
6. A similar study may be conducted on prisoners with women and school students.
7. A similar study may be conducted on different age group of school going students, college students, elite athletes, aged persons etc.
8. A similar study may be conducted on different dependent variables other than taken in this study.
9. A similar study may be conducted with the combination of yoga and other exercises

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COMPARISON OF SELECTED PERSONALITY DIMENSION BETWEEN URBAN AND RURAL UNEMPLOYED YOUTH

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Abstract

The reason of the study was to find out Comparison of Selected Personality Dimension between Urban and Rural Unemployed Youth. To achieve this purpose of the study the investigator randomly selected 100 Men unemployed youth (i.e. 50 Rural Unemployed Youth and 50 Urban Unemployed Youth) from Thiruvallur District and Chennai District. The following selected personality dimension variables namely Social Concern, Leadership, Assertiveness, Self-awareness, Self-confidence, and Stress Management was selected as criterion variables. The data were collected from the unemployed youth using questionnaire (PDI) Kaliappan (1993) test. The independent 't' ratio was used to analyze the significant difference between groups. The 0.05 level of confidence was fixed as the level of significance to test the 't' ratio obtained which was considered as an appropriate. The results of the study showed that there was a significant difference between urban unemployed youth and rural unemployed youth on selected personality dimension.

Key words: *Unemployed Youth, Rural, Urban, Social Concern, Leadership, Assertiveness, Self-awareness, Self-confidence, and Stress Management.*

Introduction

Unemployment: A term referring to individuals who are employable and seeking a job but are unable to find a job by Andrew Loo. The term unemployment refers to a person's ability to do work but is unable to get a job or seeker job. It is having different type's cyclical unemployment, frictional unemployment, structural unemployment, natural unemployment, long-term unemployment, seasonal unemployment, classical unemployment, and underemployment.

Personality

As a multidimensional concept, personality is the unique or distinctive characteristics of an individual, the combination of qualities that set a person apart from others. It also includes one's social habits and those aspects of a person's nature that have developed in social elation with other people.

Problem-related to unemployment

Individual

- Increase laziness mentally and physically
- Decrease attitude of educated young men
- Personality level going poor
- Leads to drug addiction
- Lack of self-esteem
- Unwanted fight without any reason
- Lack of physical fitness and health concentration
- It leads to negative thoughts, unwanted bad thinking

Family

- Misunderstanding of each other within the family
- The question mark of family economy
- Affect relationship

Social

- Increase in crime level
- Absence of employment opportunities
- The inefficiency of the public sector
- Less infrastructural facilities
- Leads to reducing economy-level

Rural/Urban youth: The social profile of rural youth the ministry of human resource development (1985) considers youth groups in India as persons in the age group 15 to 35 years. Youth forms nearly one-third of the total population of India. Rural youth constitute over two-and-half times the size of urban youth**.**

STATEMENT OF THE PROBLEM

The purpose of the present study was to find out Comparison of Selected Personality Dimension between Urban and Rural Unemployed Youth.

HYPOTHESES

1. It was hypothesized that there would be significant differences on selected personality dimension between urban and rural unemployed youth.

LIMITATION

The following uncontrollable factors associated with the study are considered as limitations of the research study.

1. The subject's body type will not be taken into consideration.
2. The homogeneous characters of the subjects, hereditary, will not be considered.
3. Certain factors like daily routine, diet and climate conditions will not consider for this study.

DELIMITATION

The following delimitations will be taken into consideration during this study.

1. The present study restricted only youth from Thiruvallur district rural areas and Chennai district urban areas.
2. The age of the subjects selected for the study is between 15 to 35 years.
3. The following personality dimension namely Social Concern, Leadership, Assertiveness, Self-awareness, Self-confidence, and Stress Management we're only selected.
4. The data were collected from the unemployed youth using personality development index developed by Kaliappan (1993).

OBJECTIVES OF THE STUDY

a. To compare the selected personality dimension between urban and rural unemployed youth.

SIGNIFICANCE OF THE STUDY

a. This study will help to identify selected personality dimension differences between the urban and rural unemployed youth.
b. The results of the study will help the unemployed youth to understand their personality dimension level.
c. This study will help to awareness of the urban and rural unemployed youth to improve their personality level.

DEFINITION OF TERMS

Social Concern

Social concern refers to issues or problems related to society or the community that are considered important and require **(Donna F Hammett).**

Leadership

"Leadership is the process of influencing people so that they will stive willingly towards the achievement of group goals". **(Knoontz and O'Donnell)**

Assertiveness

Assertiveness is defined as interpersonal behavior that allows the direct expression of one's feelings, without cognitive distortion or anxiety, combin-ing verbal and non-verbal components, and the defense of ones right, while respecting those of other. **(Tunner,1992)**

Self-awareness

"Self-awareness is the ability to focus on yourself and how your actions, thoughts, or emotions do or don't align with your internal standards". **(Shelley Duval and Robert Wickund)**

Self-confidence

"People's sense of competence and skill, their perceived capability to deal effectively with various situations". **(Shrauger & Schohn, 1995)**

Stress management

"Stress is the tension and pressure that result when an individual views a situation as presenting a demand that threatens to exceed his capabilities and resources". **(Stoner and Wankel)**

REVIEW OF RELATED LITERATURE

The review summarizes and analysis previous research and shows how the present study is related to this research.

Dr. Uday Kumar Sah (2019) A comparative study of Eysenk personality among boys and girls of college student. This paper is an attempt to study the personality profiles of college boys and girls of Darbhanga District of Bihar. A total of 200 adolescent respondents, comprising of 100 male and 100 female students were obtained through random sampling technique. To assess the personality of the respondents Eysenk Personality Questionnaire (EPQ) test was administered on the selected 200 respondents. In order to study the mean differences between boys and girls with respect to various dimensions of personality, t-test was used and the obtained results are interpreted and discussed. There is a significant gender difference in the personality of college students. Boys are found better personality than girls. so it can be concluded that girls do not always exhibit better personality as compared to boys. Therefore, it is imperative for educators and researchers to understand the trends in college students adjustment and the factors contributing to their good mental health.

METHODOLOGY

SELECTION OF THE SUBJECT

To achieve the purpose of the study 100 men unemployed youth from the urban and rural area will be selected in Thiruvallur district and Chennai district at random.

SELECTION OF VARIABLES

Dependent variables

1. Social Concern
2. Leadership
3. Assertiveness
4. Self-awareness
5. Self-confidence
6. Stress management

Independent variables

1. 50 Urban Men Unemployed youth
2. 50 Rural Men Unemployed youth
3. Total Sample 100

CRITERION MEASURES

The questionnaire used in this study such as Personality Development Index (Kaliappan, 1996).

STICAL TECHNIQUE

To test the significance of mean difference selected personality dimension between the urban and rural unemployed youth 't' test was applied.

RESULT AND DISCUSSION

TABLE-I

STATISTICAL DIFFERENCE ON SELECTED PERSONALITY DIMENSION BETWEEN URBAN AND RURAL UNEMPLOYED YOUTH

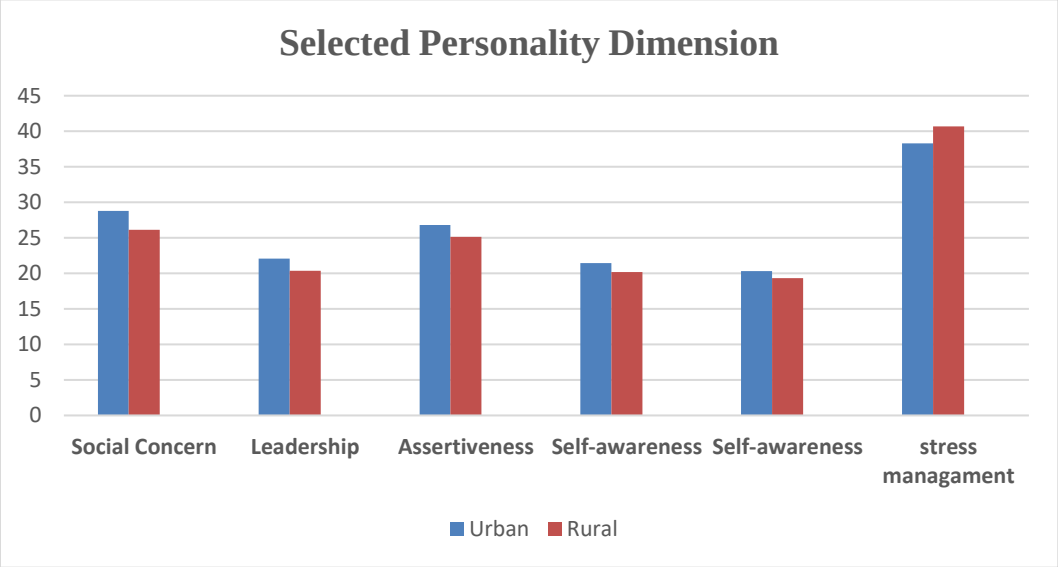
S.No	Personality Dimension	Urban Unemployed Youth		Rural Unemployed Youth		MD	't' value
		Mean	SD	Mean	SD		
1	Social Concern	28.78	4.07	26.12	4.40	2.66	3.14
2	Leadership	22.08	2.19	20.34	2.03	1.74	4.12
3	Assertiveness	26.82	3.55	25.16	3.51	1.66	2.35
4	Self-awareness	21.44	2.12	20.18	2.33	1.26	2.83
5	Self-confidence	20.32	2.04	19.32	1.71	1.00	2.65
6	Stress Management	38.30	6.11	40.70	6.77	2.40	1.86

***Significance of (28) t=2.05 at 0.05 level of confidence**

The table I shows that the mean values of selected Personality Dimension for Urban Unemployed Youth was Social Concern 28.78, Leadership22.08, Assertiveness 26.82, Self-awareness 21.44, Self-confidence 20.32, Stress management 38.30 with the standard deviation of Social Concern 4.07, Leadership 2.19, Assertiveness 3.55, Self-awareness 2.12, Self-confidence 2.04, Stress management 6.11, and the mean values of selected personality dimension for Rural Unemployed Youth was Social Concern 26.12, Leadership 20.34, Assertiveness 20.16, Self-awareness 20.18, Self-confidence 19.32, Stress management 40.70 with the standard deviation of Social Concern 4.40, Leadership 4.40, Assertiveness 3.51, Self-awareness 2.33, Self-confidence 1.71, Stress management 6.77, The obtained 't' value Urban and Rural Unemployed Youth Social Concern 3.14, Leadership 4.12, Assertiveness 2.35, Self-awareness 2.83, Self-confidence 2.65, Stress management 1.86 was found to be higher than the required table value 2.05 at 0.05 level of confidence. This indicates that there was significant difference on Selected Personality Dimension between Urban and Rural Unemployed Youth. Mean value of selected Personality Dimension for Urban Unemployed Youth of Stress Management was 38.30 and the mean value of selected Personality Dimension for Rural Unemployed Youth of Stress Management was 40.70 with the MD of Stress Management 2.40 was found to Urban Unemployed Youth higher than the Rural Unemployed youth.

FIGURE-1

THE BAR DIAGRAM SHOWING THE MEAN VALUES OF URBAN AND RURAL UNEMPLOYED YOUTH ON SELECTED PERSONALITY DIMENSION



CONCLUSIONS

1. The result of the study reveals that, there was significant difference found on Selected Personality Dimension between Urban and Rural Unemployed Youth.
2. Comparing the mean values Selected Personality Dimension of Social Concern, Leadership, Assertiveness, Self-awareness, Self-confidence for Urban and Rural Unemployed Youth the Urban Unemployed Youth were better than Rural Unemployed Youth.
3. Comparing the mean values Selected Personality Dimension of Stress Management for Urban and Rural Unemployed Youth the Rural Unemployed Youth better than Urban Unemployed Youth.

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EFFECT OF YOGIC ASANAS AND PRANAYAMA ON SELECTED PHYSIOLOGICAL VARIABLES OF OBESE COLLEGE WOMEN

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Introduction

Unhealthy life style is the principle cause of modern day illness such as heart disease, cancer, obesity; diabetes etc. obesity has a significant associate with early mortality, as obesity increases the risk of development some disease or may aggravate disease caused by other factors. Disease of the heart and circulatory system are frequently associated with obesity. High blood and capillaries, there is an increased burned on the heart to pump blood to that tissue.

Obesity can contribute to the development of cardiovascular disease and it decrease the chance of recovering from heart attack. The presence of excess fatty tissues aggravates many types of bone and join disorders as, extra weight of muscles, excess blood pressure would be more than what the bones, and joint can easily bear. Obesity Sometime turn out to be fatal when it increase the risk of death from diabetes and cerebral hemorrhage.

Yoga is an ancient technique practiced by sages it yogis as desirable and healthy way of life. The very meaning of yoga it's to archive a balance within the internal and external environment, there by seeking to attain mental, spiritual and physical well-being. This is made possible through the practice of "pranayama" or breathing exercise, "asana" or specific posture.

Pranav means breath, respiration, life vitality, energy or strength, Ayana means extension expending length breadth regulation prolongation restraint. Pranayama is an art and as technique to make the respiratory organs to move and expend intentionally, rethamically and intensively. It consist of long sustained subtle flow of inhalation, exhalation rechaka and retention of broth. Puraka or inhalation stimulate the system. Rechaka or exhalation throughout vitiated air and toxins, kumbaka or retention distubutes the energy throughout the body. The movement include horizontal expansion, vertical ascension and circumferential extension of the lungs and the ribs cage.

Statement of the problem

The propose of the study was to determine of the effect of yogic asana and pranayama an selected physiological variable of obese collage women

Hypothesis

Based on this research finding it's hypothesized that there would be significant different in the selected physiological variable do to the participation selected yogic asana and pranayama training programme

Material and Methods

The subject were 30 obese collage women who were having an BMI of 30 or more as pre obesity norms were select with the age group of 80 to 25 years. Random group design was used in this study. 15 subjects were assigned to an experimental group and 15 subject's to control group. The experimental group underwent pranayama practice 5 days a week for a period of 12 weeks during the morning hours from 6.30 am to 7.30 am. The yoga group practice a mixed set of yoga technique daily, in the form of asana, pranayama and deep relaxation technique for 12 weeks. The asana posture started with stretching technique followed by standing, supine, prom and sitting posture

Procedure

The posture were trikonasana, padahastasana, ardha chakrasana ardhakati chakrasana, sarvangasana, bhujangasana dhanurasana posture. Shasankarasana, vajarasana, ardha matsyendra posture, the asana followed by a develop relaxation technique, which was

performed for 6minutes with closed eyes with specific exercise relating to awareness and relaxation of different part of the body.

Pranayama was were practiced in three stage puraka (inhalation) , Rechaka (exhalation) and kumbaka (retention) during the morning hours five days a week practice of exhalation Ana inhalation was done for 3seconds by the beginners and slowly the time length of exhalation inhalation was increased. The progressive ratio of inhalation , retention and exhalation was 1:1, 1:2, 1:2:1, 1:2:2, 1:4:2 At the end of pranayama, the practitioner assumed the supine posture in a totally relaxed state with closed eyes(also called the corpse posture or savasana) for 10 minutes.

WEEK	INHALATION (In sec)	RETENTION (In sec)	EXHALATION (In sec)
I	4		4
II	4		8
III	4	8	4
IV	4	8	8

Statistical analysis

The statistical package for social sciences spas (software) was used for statistical analysis. The mean difference between initial and final scores of experimental and control group was tested using ‘test ‘with each of the selected physiological variables.

Results

The statistical analysis of data collected on selected physiological and psychological variables has been presented. The drat pertaining to blood pressure was measured in mm of keg using a sphynomanometer. The body mass index was measured by dividing the weight of the subject to the height square and expressed in meter square. The body weight measured using a weighing scale. The data pertaining to both experimental and control group were tested by “t test.

The level of significant chosen was 0.05 level. The required table value with 14 degrees of freedom w43 2.145 for .05 level and 2.977 for, 01%level. In the case of blood pressure and body mass index significant changes were noticed in the experimental group. The control group was not having significant change in any of the selected.

Discussion of findings

All the subjects of the experimental groups involved in this study were undergoing regular selected yogic asana and pranayama practice five days a week for a period of 12 week. In the case of blood pressure there was significant reduction in systolic and diastolic blood pressure. The body mass index and the body weight of the experimental group has significantly reduced. No significant changes were noticed in any of the selected variables of the control group. The daily practice of yogic asana and pranayama helped for efficient functioning of the systems of the body. Findings are supported with the findings of k.jlee (2005) j.o.pedersen (2006) and timothy r. Wessel (2004)

Conclusions & Recommendations

Participation in 12 week of selected yogic asana and pranayama practice had a significant change in blood pressure body mass index and body weight of experimental group. Similar study may be conducted on other physical, physical, physiological and psychological variables. It is recommended that yoga shall be introduced as one of the components of preventive medicines. This study may be an indicator to improve upon the people the “yoga is meant for all”. Similar studies can be conducted with the same variables by selecting subject from other environmental aspects. The similar type of studies can be done on different age groups.

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EFFECT OF SPECIFIC SPORTS TRAINING IN COMBINATION OF RESISTANCE TRAINING ON SELECTED MOTOR FITNESS COMPONENTS OF BHARATH UNIVERSITY CRICKET PLAYERS

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Abstract

The aim of sports training is to achieve maximum individual or team efficiency in any sports which is limited by rules. Reaching this maximum efficiency in any activity is not possible over a day or in short duration. Sports training focuses on reaching maximum efficiency in motor abilities connected to a certain sports discipline. Motor abilities can be described as stable sets of inner genetic presuppositions required to carry out locomotive activities through bodily movements. Such presuppositions are gained through motor learning. The study was framed as a pre and post test random group design. A total number of sixty University Cricket players were selected and whose representation minimum at Inter-Collegiate level. They were assigned into three groups namely The selected subjects were divided into three groups namely Group-I Specific Sports Training (SSTG), Group-II Combination of Resistance training(CRTG) and Group-III Control Group(CG).Each group consists of twenty subjects. No attempt was made to equate the group. All the selected subjects were initially tested on criterion variables that was considered as pre-test of this study. After this, the subjects belonging to Experimental Group-I under went Specific Sports Training (SSTG), Specific Sports Training in combination of Resistance training (CRTG) for a period of twelve weeks. Group-III the Control Group (CG) subjects were not engaged in any type of training program except their regular work. Though the subjects were allowed to with draw if they feel any discomfort during the course of training program, no drop-outs were found. After twelve weeks of training program, the subjects were tested again on the same criterion variables as such in the pre-test and considered this as the post-test.

Key Words: *Training, Learning, Resistance, Design, Experimental*

INTRODUCTION

Recreation is a bodily activity which tend to test our athletic competencies. It's the type of bodily workout wherein we compete with the opponents completely for entertainment. Basketball, football, cricket, volleyball, hockey are a number of the most well-known sports activities. Sports have many physical, physiological, and mental advantages on the contributors as well as the visitors. They result in higher bodily stamina and progressed reflexes alongside in different benefits. Sports also develop social skills as we interact along with our combatants as well as team mates. It improves one's potential to work in a team giving him/her publicity to the team culture, which is beneficial in professional existence as well. Even the mere spectators of a recreation engage with each other and support their respective teams through shouting and cheering; resulting in ultimate happiness and good social behavior. Sports activities play a significant role in each person's busy lifestyle, especially the students who are studying in colleges. Sports and games are important as it brings physical and intellectual health to all who involved in this on everyday basis. As we all know that is lead a comfortable life one should have a sound mind in a sound body. Within the identical manner, getting a valid mind and frame, everybody has to take part few forms of physical activities in our life. Sports are excellent bodily exercise that offer freedom from pressure and stress. It has great scope and

professional career for the players. It can help a sportsman to acquire name, fame and financial stability.

THE HISTORY OF CRICKET

Cricket history is particularly hazy and ambiguous when it comes to the game's specific roots; it is thought to have originated in England during the late Middle Ages. In 1369, Edward III banned a sport similar to cricket called 'pilabaculorea' or 'club ball,' because he considered it as a diversion from his war effort. In, 'A sociological History of English cricket,' Derek Birley claims that the game came to England with the French during the Norman invasion, that their word 'criquet' was the dialect for a variety of club ball, that Edward the III tried to ban the game. In cricket, there are numerous skills are required. The various types of movements convey us the significance of acquiring skills and required to manage the situation. Some of the very important skills are batting, bowling, fielding, catching, wicket keeping, running especially between wickets and so on. Apart from this, captaining a team is one of the skills to lead the team to attain success and very much needed to motivate the team to move ahead towards its goal. Captaining, coaching, training, and teaching the skills of the game cricket are essential for a team to win. Umpiring is an art which requires knowledge of laws and rules and regulation of the game. Even for the scorer, quite a few expertise and talents to apply that expertise are needed. Hand Grip Strength Grip strength, also known as hand strength, is an anthropometric measurement that indicates muscle health in the hands and forearms. The measurement is often included in longitudinal studies because it's an indicator of the overall well-being of an individual. Agility It is a skill-related component of physical fitness. Agility relates to the ability of a person to rapidly change the position or directions of the entire body in space with speed and accuracy.

ASSESSMENT:

Agility is typically measured using a shuttle zigzag run. Tests of agility are common as screening tests among sports teams.

STATEMENT OF THE PROBLEM

The purpose of the study was to find out the “Effects of specific sports training in combination of resistance training on selected motor fitness components of university cricket players”.

OBJECTIVES OF THE STUDY

The present study is formulated with following objectives. The main objective of the present study is to find out the effect of specific sports training in combination of resistance training on selected motor fitness components such as hand grip, agility of university cricket players.

DELIMITATIONS

The study were delimited in the following aspects.

1. The study was delimited to sixty university cricket players only.
2. In this study, the subjects were selected from Bharath University Chennai, Tamil Nadu.
4. A total number of 200 players out of represented University were randomly selected for the purpose of the study out of 200, 60 players were selected based on regularity fitness level and enthusiastic to participate in the training program throughout this study.
5. In distribution of samples to experimental group used in the study, the present study was confined to equal number of samples. Thus, each group consisted of 20 subjects.
1. The age of the subject was confined to the range from 18 to 25 years.
6. The duration of training programme for the present study was confined to 6 days a week with about 12 weeks a total period.
7. The variables were delimited on motor fitness variables namely handgrip, agility.

LIMITATIONS

The present study was limited into the following aspects

1. Certain factors such as life style, rest period, day to day activities, family factors and food habits will not be taken into consideration.
2. Socio-economic background was not taken into consideration.
3. No attempts were made to control the factors such as heredity and environmental factors during the training period.
4. The subjects previous experience in physical activities and yogic exercises were not taken into consideration.
5. No attempts were made to control their previous medication.

Specific Sports Training Group (SSTG)
Combination of Resistance Training Group (CRTG)
Controlled group (CG)

SELECTION OF TEST ITEMS

Having the expert's consultation in the field of physical education and adequate scanning of various literatures related to specific training and resistance training programme, the investigator has selected the following test items as criterion measures. The chosen tests are highly standardized, appropriate and ideal for the selected variables. The following criterion measures were chosen for this study. Table Intraclass Correlation Co-Efficient Values on Selected Criterion Variables

Table Intraclass Correlation Co-Efficient Values on Selected Criterion Variables

Sl.No	Tests	Co-efficient of reliability
1.	Hand Grip	0.91*
2.	Agility	0.96*

*Significance at 0.05 level of confidence

PILOT STUDY

A pilot study was conducted to assess the initial capacity of the subjects in order to fix the load and to make sure that the duration of exercise included in the programme was within the limits of the subjects to ensure the satisfactory effect. For this, sixty subjects were selected from a total strength of 200 university level cricket players randomly and divided into three groups of twenty each, in which Group I specific sports training (SSTG), Group II underwent Combination of Resistance training (CRTG) and Group III acted as control group (CG). Based on the response of the subjects in the pilot study the training programme for the experimental groups to the main study, for the period of twelve weeks was designed. After completion of the pilot study the present study was conducted on sixty subjects.

Handgrip Strength Test

The purpose of this test is to measure the maximum isometric strength of the hand and forearm muscles. Handgrip strength is important for any sport in which the hands are used for catching, throwing or lifting. Also, as a general rule people with strong hands tend to be strong elsewhere, So this test is often used as a general test for strength.

Equipment required: Handgrip Dynamometer

Procedure: The subject holds the dynamometer in the hand to be tested, with the arm at right angles and the elbow by the side of the body. The handle of the dynamometer is adjusted if required the base should rest on the first metacarpal (heel of palm), while the handle should rest on middle of the four fingers. When ready the subject squeezes the dynamometer with maximum isometric effort, which is maintained for about 5 seconds. No other body movement is allowed. The subject should be strongly encouraged to give a maximum effort.

Scoring: The best result from several trials for each hand is recorded, with at least 15 seconds recovery between each effort. The values listed below (in kg and lbs) give a guide to expected scores for adults. These values are the average of the best scores of each hand. Other protocols will just use the score from the dominant hand, or compare the left and right hand results.

Agility

Agility is the ability to move quickly and change directions while maintaining control and balance. Good agility requires a combination of speed, acceleration, balance, power and coordination, plus good reflexes. Start by lying face down on the ground at the start point. On the command, jump to your feet and negotiate around the cones to the finish. The assistant records the total time taken.

Taking the test at regular intervals will allow you to assess the effectiveness of your agility training.

Training Programme for Experimental Groups

Sl.No	Name of the group	Duration	Frequency	Sessions
1	Experimental group-I Specific Sports Training Group (SSTG)	12 weeks	Six days per week	One
2	Experimental group-II Combination of Resistance Training Group (CRTG)			

STATISTICAL ANALYSIS OF DATA

The data obtained from the experimental groups and control group were statistically analysed with dependent t-test and Analysis of Covariance (ANCOVA).Whenever the F- ratio for adjusted post-test means was found to be significant, the Scheffe's post hoc test was administered to find out the paired mean differences. The level of confidence was fixed at 0.05 level. Further, the group mean gains pre and post-test recorded by three groups during the experimental period of twelve weeks to the criterion measures were tested for significance by applying students 't' –test. Pre Test and Post Test Mean Values of Specific Sports Training Group on Selected Motor Fitness Components and Skill Variables of University Cricket Players

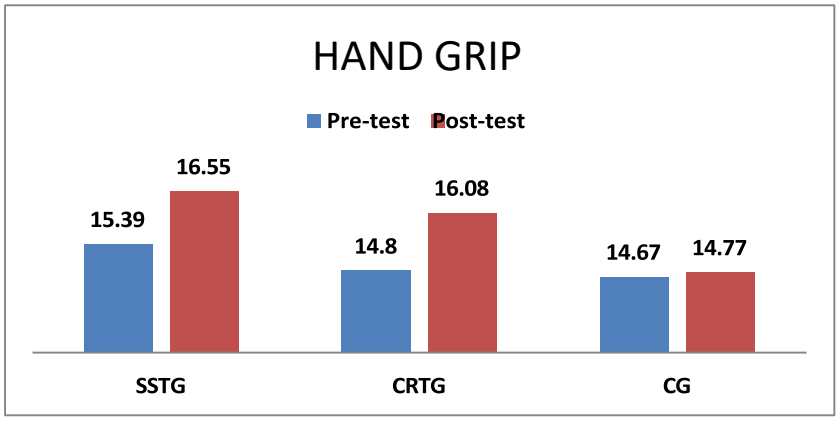
S.No	Variables	Pre-test mean±SD	Post-test mean±SD	Diff	SE	't' – ratio
1.	Hand Grip	15.39±2.45	16.55±2.63	1.17	.19	6.18*
2.	Agility	8.69 ±2.14	7.72±2.09	.97	.15	6.53*

*Significant at 0.05 level of confidence (2.09)

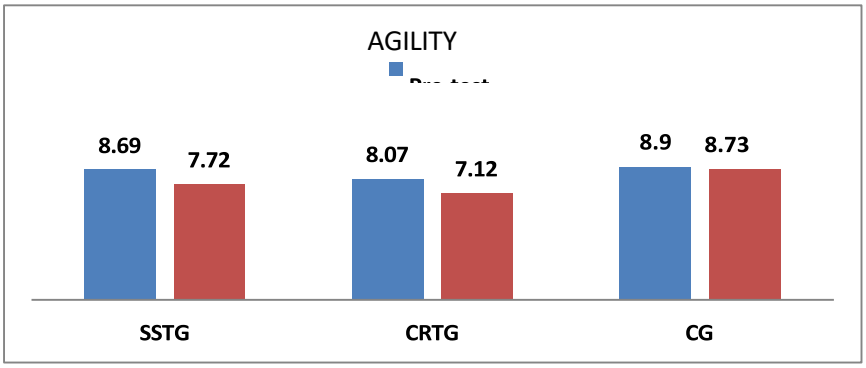
Pre Test and Post Test Mean Values Combination of Resistance Training Group on Selected motor Fitness Components and Skill Performance Variables of University Cricket Players

S.No	Variables	Pre-test mean±SD	Post-test mean±SD	Diff	SE	't' – ratio
1.	Hand Grip	14.80±2.59	16.08±2.91	1.28	.14	9.07*
2.	Agility	8.07±1.04	7.12±1.12	.95	.05	19.0*

***Significant at 0.05 level of confidence (2.09)**



Graphical Representation showing the Pre Test and Post Test Mean Values of Experimental Groups and Control Group on Handgrip



Graphical Representation showing the Pre Test and Post Test Mean Values of Experimental Groups and Control Group on Agility

Analysis of Co Variance between Specific Training, Resistance Training Groups and Control Group on Handgrip

Test	Specific Sports Training (SSTG)	Combination of Resistance Training (CRTG)	Control Group (CG)	Source of variance	df	Sum of Square	Mean Square	F-ratio
Pre-test Mean	12.24	12.16	12.16	B / S	2	0.11	0.05	0.02
				W / S	57	242.09	2.78	
Post-test Mean	14.23	13.50	12.81	B / S	2	30.62	15.31	4.51
				W / S	57	295.07	3.39	
Adjusted Post-test Mean	14.19	13.52	12.83	B / S	2	27.75	13.87	13.61
				W / S	57	87.67	1.02	

*Significant at 0.05 level of confidence (2.71)

Scheffee's Post Hoc Values of Paired Mean Differences among Experimental Groups and Control Group on Handgrip

Specific Sports Training (SSTG)	Combination of Resistance Training (CRTG)	Control Group (CG)	Mean difference	Confidence Interval
14.19	13.52		0.66*	0.61
14.19		12.83	1.36*	
	13.52	12.83	0.70*	

*Significant at 0.05 level of confidence

Analysis of Co Variance between Specific Sports Training, Combination of Resistance Training Groups and Control Group on Agility

Test	Specific Sports Training (SSTG)	Combination of Resistance Training (CRT G)	Control Group (CG)	Source of variance	df	Sum of Square	Mean Square	F-ratio
Pre-test Mean	5.07	5.00	5.4	B / S	2	80.17	40.09	2.79
				W / S	57	396.78	4.56	
Post-test Mean	5.37	5.86	5.1	B / S	2	7.52	3.76	14.58
				W / S	57	22.44	0.26	
Adjusted Post-test Mean	5.32	5.89	4.66	B / S	2	7.95	3.97	15.59
				W / S	57	21.91	0.25	

*Significant at 0.05 level of confidence (2.71)

Scheffee's Post Hoc Values of Paired Mean Differences among Experimental Groups and Control Group on Agility

Specific Sports Training (SSTG)	Combination of Resistance Training (CRTG)	Control Group (CG)	Mean difference	Confidence Interval
5.32	5.89		0.57*	0.31
	5.89	4.66	0.69*	
5.32		4.66	0.12	

*Significant at 0.05 level of confidence

RESULTS

i. In testing the individualized effects of three groups namely Specific sports training group (SSTG-Experimental group-I), Combination of Resistance training group (CRTG-Experimental group-II), it was observed that Specific sports training group (SSTG-Experimental group-I), Combination of Resistance training group (CRTG-Experimental group-II) produced significant development effect on variables used in the study whereas in the case of Control group (CG) it was found to be insignificant.

In testing the significance of mean difference on pre-test among the three groups namely Specific sports training group (SSTG-Experimental group-I), Combination of Resistance Training Group (CRTG- Experimental group-II) and Control group (CG-Group III).The result indicates that the mean differences on selected motor fitness components namely Handgrip, Agility of Barath university cricket players used in the study before the respective treatment was insignificant. Thus, this analyses confirms that the random assignment of subjects into three groups were successful.

i. In testing the significance of mean difference on post-test among the three groups namely Specific sports training group (SSTG-Experimental group-I),Combination of Resistance Training Group (CRTG- Experimental group-II) and Control group (CG-Group III).The result indicates that the mean differences on criterion variables used in the study at the end of the treatment was found to be statistically significant. Thus it was found that there was a significant mean difference among the three groups in the variables used in the study.
ii. In testing the significance of mean difference on adjusted pre-test among the three groups namely Specific sports training group (SSTG-Experimental group-I), Combination of Resistance Training Group (CRTG- Experimental group-II) and Control group (CG- Group III).The result indicates that the mean differences on criterion variables used in the study at the end of the treatment was found to be statistically significant. Thus it was found that there was a significant mean difference among the three groups in the variables used in the study.
iii. From the results on comparing the adjusted post-test mean differences between the groups of Specific sports training group (SSTG-Experimental group-I), Combination of Resistance training group (CRTG-Experimental group-II), it was found that Specific sports training group (SSTG-Experimental group-I), produced a significant development than that of the Combination of Resistance training group (CRTG-Experimental group- II), on selected motor fitness components namely Handgrip, Agility. Further it was found that the Specific sports training group (SSTG-Experimental group-I), produced a significant development than the Specific sports training group (SSTG-Experimental group-I) on selected variables namely

CONCLUSIONS

In light of the above findings of the present study the following conclusions have been made

i. It was concluded that the Specific sports training group (SSTG) has produced a significant improvement on selected motor fitness components namely Handgrip, Agility of Barath university cricket players.
ii. It was concluded that the Combination of Resistance training group (CRTG) has produced a significant improvement on selected motor fitness components namely Handgrip, Agility of Barath university cricket players.
iii. Further it comparative effect of that the Specific Sports training group (SSTG) had better improvement on the selected motor fitness components namely Handgrip, Agility of Barath university cricket players.
iv. Further it comparative effect of that the Combination of Resistance training group (CRTG) had better improvement on the selected motor fitness components namely Handgrip, Agility of Barath university cricket players.

RECOMMENDATIONS

Based on the results of the study, the following recommendations have been made.

i. The result of the study have proved that both Specific sports training and Combination of Resistance training builds motor fitness and improves the skill performance variables when done in the target zone. The computer based employees who suffer from various motor fitness and skill performance problems can undergo this Specific sports training which is easy and an outdoor activity.
ii. Practicing of combination of Resistance training repeatedly it will improve our motor fitness and skill performance than separately doing resistance training.

iii. The specific sports training schedule if done at relatively higher intensity with the alternating resting periods, it can be beneficial in preparing for other professional students.
iv. Thus based on the findings of the investigation, it is recommended that combining specific sports training and combination of resistance training produces the greatest alteration for the information technology students, professionals and who for office working professionals.

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ASSESSMENT OF THE CHANGES ON MEAN ARTERIAL PRESSURE IN RESPONSE TO YOGA PRACTICES AND PHYSICAL CONDITIONING AMONG MIDDLE AGED MEN

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Abstract

Aim*: The purpose of the study was to find out the effect of yoga practice and physical conditioning on Mean arterial pressure of middle aged men.* ***Method****: To achieve the purpose of the study the investigator selected thirty middle aged men as subject in the age group of 40 years to 45 years. They were divided into four equal groups of fifteen each (n=15) at random. Group-I performed yoga practice, group-II performed physical conditioning and group-III acted as control. The data collected from the experimental and control groups on selected dependent variables was statistically analyzed by paired 't' test to find out the significant differences if any between the pre and post test. Further, percentage of changes was calculated to find out the chances in selected dependent variables due to the impact of experimental treatment. ANCOVA was used to find out the adjusted mean difference between the groups.* ***Result****: Due to the effect of yogic practices and physical conditioning and combined training the mean arterial pressure of the middle aged men was significantly reduced.*

Key Words*: Yoga practice and Physical Conditioning, Mean arterial pressure, Middle aged men.*

INTRODUCTION

Fitness is fundamental importance to all human beings. A man cannot move even an inch without proper amount of physical fitness. Many prominent people in the field of medicine and in other fields have spoken and written about the need for exercise to maintain an organically sound body from birth to old age. Functioning of the body requires energy, which depends on the ability of the heart, lungs and blood vessels to process oxygen and deliver it to the muscles, where it becomes the fuel for energy.

Fitness is very much needed to improve the capacity of the heart, blood vessels, lungs, and muscles to function at optimal efficiency. It gives a basis for living a full and satisfying life style. To be physically fit requires effort, but exercise does not have to be punishing to help to develop and maintain physical fitness. Regular and vigorous exercise of the total body is an essential ingredient of muscular and circulatory fitness - the key to good health and well being. Lack of exercise is starts to show its consequence. An increase of body fatness, a loss of muscle tone, and a poor breathing capacity are some of the evident signs of physiological deterioration.

Good health only meant the absence of any disease. Today, however, the whole concept has changed and the importance of total fitness is considered a key component of good health. It is good that people have become health conscious and are trying to incorporate a fitness regimen into their lives. It is an important phenomenon for any human being to lead a life of easy and comfort. Physical fitness develops the organic fitness. It means the efficient of organic system of the human body circulatory, respiratory systems etc. The physical fitness is necessary to do any task, but at the very time, the mind also should have to be co-operative by means of psychosomatic adjustments to fulfil the particular task in an easy and efficient ways. Exercise is a type of physical activity, but there is the intent and purpose of improving certain aspects of health. Exercise is planned physical activity that leads to visible improvement in health and general well being.

It is a common misconception that yogic exercises are physical exercises. But the basic differences of yoga and exercises are words that are often confused as one and the same. There are lots of differences between the two words. Yoga is a School of philosophy whereas exercise pertains to the development muscles of the human body by training them properly. Yoga aims

at the attainment of mental purity. It is all about the regulation of breathing technique called Pranayama and asnas postures. Exercise aims at building up stamina on the other hand yoga needs regular practice to attain perfection. Physical conditioning are repetitive movements whereas yoga exercise involves very little movement and only postures maintained for a period of time. Physical exercises lay emphasis on strong movements of muscles whereas yoga opposes violent movements.

Physiological functions of the body may be improved by exercise. In order to assess the training impact on mean arterial pressure among middle aged men, the investigator selected yoga practice and physical exercises as the independent variable. Information related to the impact of yoga practice and physical exercises among middle aged men is scanty. So the present study is planned.

METHODOLOGY

Selection of Subject

To achieve the purpose of the study the investigator proposed to select sixty middle aged men from the inhabitants of Mannargudi, a small town in the southern state of Tamil Nadu, India as subject in the age group of 40 years to 45 years. They were divided into four equal groups of fifteen each (n=15) at random. Group-I performed yoga practice, group-II performed physical conditioning and group-III acted as control. All the subjects selected for the experimental treatment was subjected to medical evaluation and certification from a doctor ensuring their health capacities to undergo the training program.

Training Programme

The training program was scheduled for one session a day each session lasted between forty five minutes to one hour approximately. Training programme was administered to the physically untrained men for twelve weeks with six training units per week. The experimental group-I performed yoga practice and group-II performed physical conditioning. During the training period, the experimental groups underwent yogic and practices six days a week for twelve weeks. The yogasana exercise included in this training programme were Sugasana, Vajrasana, Viparitakarani, Sarvangasana, Bhujangasana, Matsyasana, Ardha matsyendrasana, Trikonasana, Vrksasana, and Savasana respectively. The pranayama practices such as Surya-Bhedana, Kapalabhati and Bhastrika were also included. The training programme was conducted in the morning sessions from 6 `O`clock onwards. The experimental group-II performed physical conditioning six days per week for twelve weeks. In the present study, the physical exercise protocol consisted of three set of twelve exercises, starting with slow followed by fast repetitions. Repeated exercises were performed, alternating left and right sides. To fix the training load for the experimental groups the subjects were examined for their exercise heart rate in response to different work bouts, for proposed repetitions and sets, alternating with active recovery based on work-rest ratio. The subject's training zone was computed using Karvonen formula and it was fixed at 50%HRmax to 80%HRmax. The work rest ratio of 1:1 between exercises and 1:3 between sets was given.

Collection of the Data

The pretest data was collected prior to the training programme and posttest data was collected immediately after the twelve weeks of yoga practice and physical conditioning, from the experimental groups and a control group.

Experimental Design and Statistical Technique

The data collected from the experimental and control groups on selected MAP was statistically analyzed by paired 't' test to find out the significant differences if any between the pre and post test. Further, percentage of changes was calculated to find out the chances in selected dependent variable due to the impact of experimental treatment. The data collected from the three groups prior to and post experimentation on selected MAP was statistically analyzed to find out the significant difference if any, by applying the analysis of covariance

(ANCOVA). Since four groups are involved, whenever the obtained 'F' ratio value was found to be significant for adjusted post test means, the Scheffe's test was applied as post hoc test to determine the paired mean differences, if any. In all the cases the level of confidence was fixed at 0.05 for significance.

RESULT

The descriptive analysis of the data showing mean and standard deviation, mean differences, 't' ratio and percentage of changes on mean arterial pressure of experimental and control groups are presented in table-I

Table – I: Descriptive Analysis of the Data on Mean Arterial Pressure of Experimental and Control Groups

Group	Test	Mean	Standard Deviation	Mean Differences	't' ratio	Percentage of Changes
Yogic Practices	Pre test	97.26	2.48	3.57	5.08	3.67%
	Posttest	93.69	1.90			
Physical Exercises	Pre test	98.19	2.60	2.14	16.63	2.18%
	Posttest	96.06	2.70			
Combined Training	Pre test	97.15	2.72	3.01	5.24	3.10%
	Posttest	94.14	2.38			
Control Group	Pre test	98.46	1.86	0.27	0.49	0.27%
	Posttest	98.73	2.54			

Table t-ratio at 0.05 level of confidence for 14 (df) =2.15

Table- I shows that the mean, standard deviation, range and mean difference values of the pre and post test data collected from the experimental and control groups on mean arterial pressure. Further, the collected data was statistically analyzed by paired 't' test to find out the significant differences if any between the pre and post data. The obtained 't' values of yogic practices, physical exercises and combined training groups are 5.08, 16.63 and 5.24 respectively which are greater than the required table value of 2.15 for significance at 0.05 level for 14 degrees of freedom. It revealed that significant differences exist between the pre and post test means of experimental groups on mean arterial pressure.

The result of the study also produced 3.67% percentage of changes in mean arterial pressure due to yogic practices, 2.18% of changes due to physical exercises, 3.10% of changes due to combined training and 0.27% of changes in control group.

The pre and post test data collected from the experimental and control groups on mean arterial pressure was statistically analyzed by using analysis of covariance and the results are presented in table–II.

Table – II: Analysis of Covariance on Mean Arterial Pressure of Experimental and Control Groups

	Yogic Practices Group	Physical Conditioning Group	Combined Training Group	Control Group	S o V	SS	df	MS	'F' ratio
Adjusted Post test Mean	94.01	95.79	94.53	98.30	B	157.23	3	52.41	15.00*
					W	192.20	55	3.50	

(*Table value required for significance with degrees of freedom 3 & 55 is 2.77)*

**Significant at 0.05 level of confidence*

The adjusted post-test means on mean arterial pressure of yogic practices, physical exercises, combined training and control groups are 94.01, 95.79, 94.53 and 98.30 respectively. The obtained 'F' value of 15.00 on mean arterial pressure was greater than the required table value of 2.77 of 3, 55 df at 0.05 level of confidence. It reveals that significant differences exist between the adjusted post test means of experimental and control groups on mean arterial pressure.

Since, the obtained 'F' value in the adjusted post test means is found to be significant, the Scheffe's test is applied, and it is presented in table-III.

Table –III: Scheffe's Post Hoc Test for the Differences among Paired Means of Experimental and Control Groups on Mean Arterial Pressure

Yogic Practices Group	Physical Conditioning Group	Combined Training Group	Control Group	Mean Difference	Confidence Interval
94.01	95.79			1.78	1.97
94.01		94.53		0.52	1.97
94.01			98.30	4.29*	1.97
	95.79	94.53		1.26	1.97
	95.79		98.30	2.51*	1.97
		94.53	98.30	3.77*	1.97

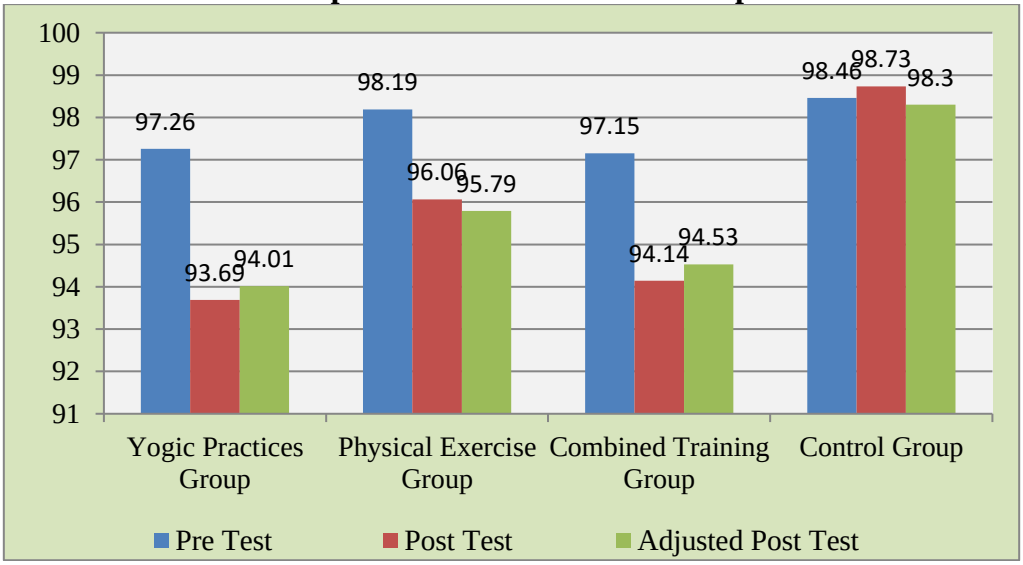
**Significant at 0 .05 level*

The Scheffe's post hoc analysis proved that significant mean differences existed between yogic practices and control groups; physical conditioning and control groups; combined training and control groups on mean arterial pressure. Since, the mean differences 4.29 2.51 and 3.77 are higher than the confident interval value (1.97). When comparing the yogic practices and physical conditioning groups (1.78); yogic practices and combined training groups (0.52); physical conditioning and combined training groups (1.26) insignificant differences were found among them.

Due to the effect of yogic practices and physical conditioning and combined training the mean arterial pressure of the middle aged men was significantly reduced. However, insignificant differences were found when comparing the experimental groups.

The pre, post and adjusted post test mean values of experimental and control groups on mean arterial pressure is graphically represented in figure- I.

Figure – I: Diagram Showing the Mean Values on Mean Arterial Pressure of Experimental and Control Groups



DISCUSSION

It is observed from the above literatures and also from the results of the present study that systematically designed physical conditioning as well as yogic practices enhances the MAP of the middle-aged men. Chaya *et al.*, (2008) reported that long-term practice of yogic asanas along with pranayama and meditation causes reduced sympathetic activity resulting in reduced metabolic rate and greater metabolic efficiency in yoga practitioners. Hagins *et al., (2007)* suggested that yoga is a mind-body practice where practice of physical postures is combined with control of breathing, meditation along with stretching exercise, isometric exercise, and dynamic exercises of skeletal muscles. Raub (2002) find that Practice of hatha yoga may help control such physiological variables as blood pressure, respiration, HR and metabolic rate to improve overall exercise capacity.

Pramanik et al., (2009) found that both the SBP and DBP decreased significantly with a slight fall in heart rate after slow bhastrika pranayamic breathing for 5 minutes. Gillett and Elsenman (1987) in their study determined the effect of 16 weeks aerobic dance programme and was concluded significant improvement in the physiological variables such as breath holding time and heart rate. Wool May et al., (1998) conclude that 18 week walking programme appeared to improve aerobic fitness, there was no evidence of improvements in the blood lipids or associated apolioproteins of the walking groups. Dengel et al., (1998) observed that six month programme of aerobic exercise training plus weight loss intervention substantially lower BP and improves glucose and lipid metabolism in obese, sedentary, hypertensive men.

CONCLUSION

Due to the effect of yogic practices and physical conditioning and combined training the mean arterial pressure of the middle aged men was significantly reduced. However, insignificant differences were found when comparing the experimental groups. Hence it is suggested that systematically and scientifically designed physical conditioning and yogic practices may be given due recognition and be implemented properly in order to improve the health conditions of the middle aged men.

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OUTCOMES OF PLYOMETRIC GROSS AND MUD TRAINING ON SELECTED KINANTHROPOMETRIC VARIABLES AMONG COLLEGE MEN FOOTBALL PLAYERS

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Abstract

The purposes of this study find out effect of plyometric gross and mud training on selected kinanthropometric variables among college men football players. The selected subjects were the participants of inter – collegiate football tournament, studying in MASS Collegeof Physical Education, Villupuram. Their age group between 18 to 23 years. The selected subjects (N=45) were divided into three groups. Experimental group I (N=15) Plyometric mud training group, Plyometric gross training group and group II (N=15) acted as control group.

Plyometric Training

Plyometrics, also known as jump training or plyos, are exercises in which muscles exert maximum force in short intervals of time, with the goal of increasing power (speed-strength). This training focuses on learning to move from a muscle extension to a contraction in a rapid or "explosive" manner, such as in specialized repeated jumping. Plyometrics are primarily used by athletes, especially martial artists, sprinters and high jumpers to improve performance, and are used in the fitness field to a much lesser degree.

METHODOLOGY

The purposes of this study find out an effect of plyometric gross and mud training on selected kinanthropometric variables among college women football players. The selected subjects were the participants of inter – collegiate football tournament, studying in MASS College of Physical Education, Villupuram. Their age group between 18 to 23 years. The selected subjects (N=45) were divided into three groups. Experimental group I (N=15) Plyometric mud training group, Plyometric gross training group and group II (N=15) acted as control group.

The experimental groups were treated with their respective training for one and half hour per day for three days a week for a period of eight weeks. Thigh Girth measured by in Centimetersmeters and Calf Girth measured by in Centimeters meters,

Table - I

Selection of variables and criterion measures

S.No	Criterion Variables	Test Items	Units of Measurement
1.	**Thigh Girth**	**Flexible Metal Tape**	**In Centimeters**
2.	**Calf Girth**		

STATISTICAL TECHNIQUE

The data will be collected before and after the experimental treatment. The data obtained from the experimental period will be statistically analyzed with paried ‘t’ test at 0.05 level of significant improvement on Thigh Girthand Calf Girthfrom base line to post treatment.

Table - II

THE SUMMARY OF MEAN AND DEPENDEN ‘t’ TEST FOR THE PRE AND POST TESTS ON THIGH GIRTH OF PLYOMETRIC GROSS, PLYOMETRIC MUD TRAINING AND CONTROL GROUPS

S.No	Groups	Pre Test Mean	Post Test Mean	‘ t ’ ratio	Table Value
1.	Plyometric Gross Group	45.20	50.00	**44.90***	2.15
	Plyometric Mud Group	45.80	48.93	**23.50***	2.15
2.	Control Group	46.40	46.20	0.90	2.15

***Significant at 0.05 level.**

The table II shows that the obtained dependent 't' ratio values between the pre and post test means plyometric mud training group, plyometric gross training group and control groups are **44.90*, 23.50***and 0.90respectively. The table value required for significant differences with df 14 at 0.05 level is 2.15 Since the obtained 't' ratio value of experimental groups are greater the table value, it is understood that plyometric gross training group and plyometric mud training group had significantly improved the thigh girth.

PRE AND POST TESTS ON THIGH GIRTH OFPLYOMETRIC GROSS TRAINING AND PLYOMETRIC MUD TRAINING GROUP AND CONTROL GROUPS

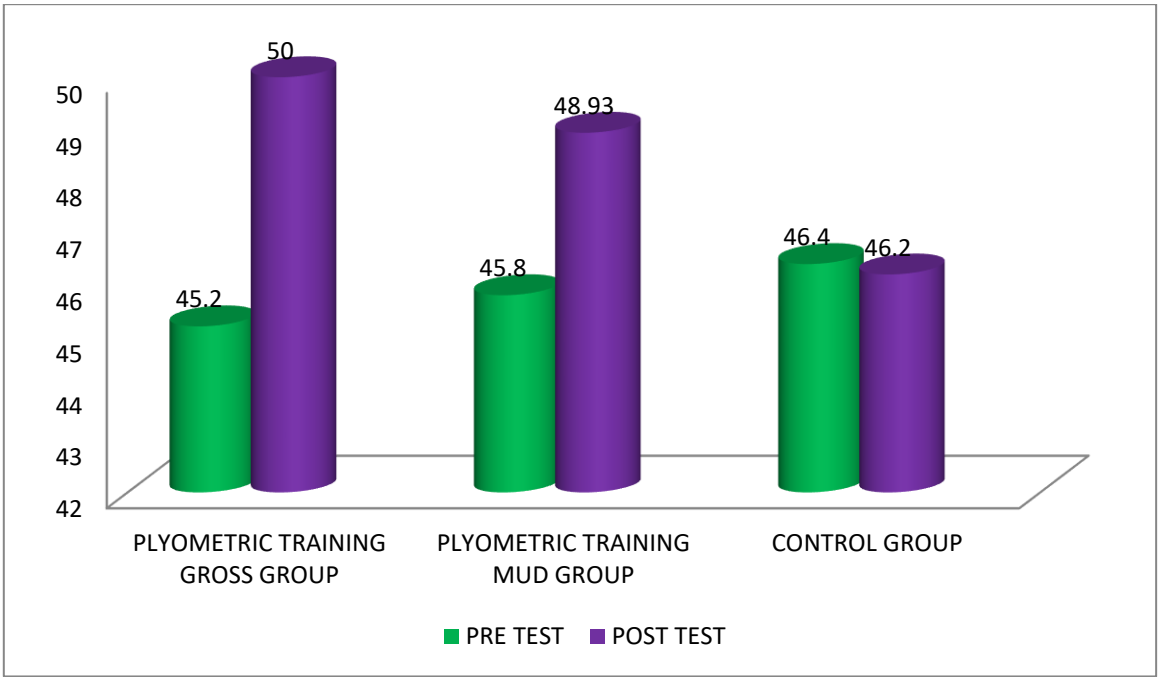


Table - III

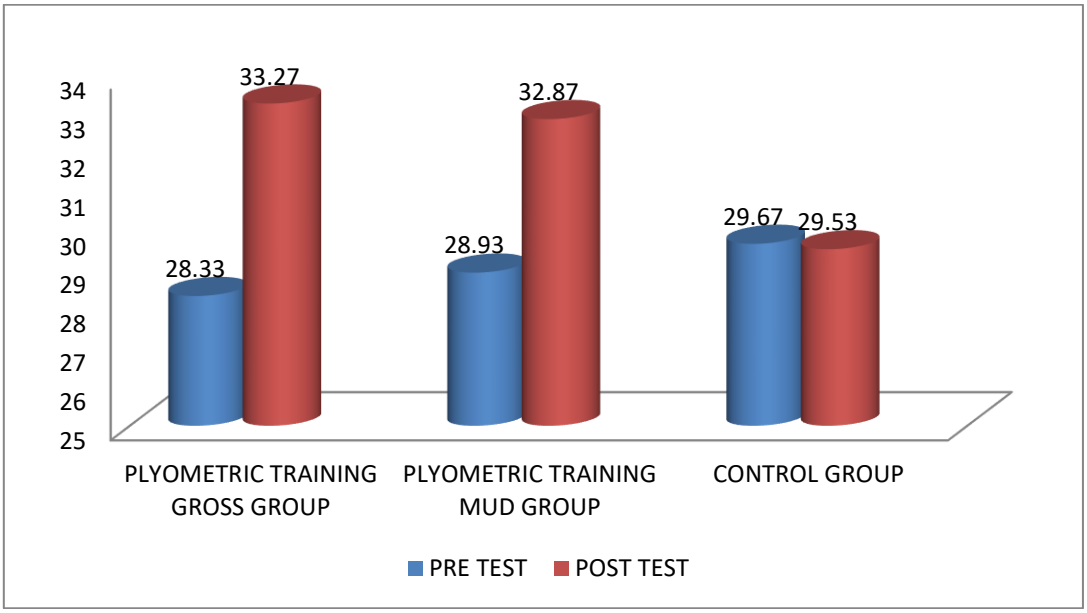
THE SUMMARY OF MEAN AND DEPENDEN 't' TEST FOR THE PRE AND POST TESTS ON CALF GIRTH OF PLYOMETRIC GROSS,PLYOMETRIC MUD TRAINING AND CONTROL GROUPS

S.No	Groups	Pre Test Mean	Post Test Mean	' t ' ratio	Table Value
1.	**Plyometric Gross Group**	28.33	33.27	**74.00***	2.15
	Plyometric Mud Group	28.93	32.87	**25.66***	2.15
2.	**Control Group**	29.67	29.53	0.62	2.15

***Significant at 0.05 level.**

The table II shows that the obtained dependent 't' ratio values between the pre and post test means plyometric mud training group, plyometric gross training group and control groups are **74.00*, 25.66***and 0.62respectively. The table value required for significant differences with df 14 at 0.05 level is 2.15 Since the obtained 't' ratio value of experimental groups are greater the table value, it is understood that plyometric gross training group and plyometric mud training group had significantly improved the calf girth.

PRE AND POST TESTS ON CALF GIRTH OFPLYOMETRIC GROSS TRAINING AND PLYOMETRIC MUD TRAINING GROUP AND CONTROL GROUPS



Conclusion

1. There was a significant improvement on selected dependent variable such as Thigh Girth and calf Girth on impact of different surface plyometric training on college women football players.

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EFFECTS OF SAMA VRITTI PRANAYAMA ON DEPRESSION, ANXIETY AND STRESS AMONG COLLEGE STUDENTS

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Abstract

Introduction: *The psychological wellbeing of college students is fundamental to their overall well- being. This study was conducted to research on sama vritti pranayama on depression, anxiety and stress among college students.*

Sample size: *Sixty two college studying students were participated in this study in two groups as experimental group (n=31) and control group (n=31).*

Methodology: *Three month sama vritti pranayama with one mental resolution was given to experimental group and control group didn't practice any pranayama intervention and followed their routine life. Data were collected with DASS 42 questionnaire at base line and after three month pranayama intervention for both groups. Paired t test and independent t test were used for statistical analysis.*

Results: *Results shows sama vritti pranayama intervention significantly reduced depression, anxiety and stress than the control group.*

Conclusion: *The sama vritti pranayama practice can be used as a tool for positive youth development.*

Key words: *Pranayama, Sama vritti pranayama, Depression, Anxiety and Stress.*

Introduction

Health is an essential requirement of every person to live a happy and prosperous life. The WHO constitution states: "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." An important implication of this definition is mental health comprises more than just the absence of mental disorders or disabilities. A person is in a mentally healthy state when they are aware of their own abilities, able to handle life's typical challenges, able to work efficiently, and able to contribute to their community. *(WHO).* The psychological wellbeing of college students is fundamental to their overall well- being. As the college students move from higher secondary school to college, they must cope with a variety of stressors. This transition involves many new experiences, including making new friends, and making adaptations to various ways of thinking, life styles, encounters to new cultures and their future hope for job. Students who are unable to handle these demands may feel inadequate and become more stressed, depressed, or anxious.

Stress is frequently mentioned by college students as their greatest health obstacle to academic achievement. *(American College Health Association, 2008)*. Previous study shows that yoga is used as an intervention for college students, is successful in enhancing psychological factors like sense of wellbeing and relaxation. *(Malathi, A., & Damodaran, A., 1999).* A study shows that yoga and relaxation training enhanced mental toughness in tennis players and decreased stress and competition anxiety. *(Gopinathan P, 2013).* A study states that mindfulness and yoga significantly reduce stress, depression and anxiety in college students. *(Falsafi, N., 2011).* For the decades, studies show that yogic practices reduce the psychological disorders like stress, depression and anxiety. But there are few studies only which worked on pranayama for psychological wellbeing. Pranayama is a part of yogic practices that includes many pranayama like, nadi suddhi, sama vritti pranayama, sitali, sitkari and so on. Among those studies, a study with three pranayama namely Box breathing (Sama vritti Pranayama), Alternative nostril breathing and victorious breathing states that they

improve students mental wellbeing. Though students reveal stress is decreased it is not in significant for them. *(Rajkumar, L.et.al, 2021).* Another study states that Eight weeks of combined MBSR and sama vritti pranayama meditation successfully reduced lower hypertension and uneasiness scores and improved the quality of rest in elderly hypertension people. *(Noventi, I.et.al, 2022)*. But there is no study which works only on sama vritti pranayama for psychological wellbeing of college students. So present study works on finding the effects of sama vritti pranayama on psychological variables among college students.

Aim

The aim of this research is to examine the effects of sama vritti pranayama along with one mental resolution, on depression, anxiety and stress among college students.

Hypothesis

The hypothesis for all the three dependent variables namely depression, anxiety and stress were fixed as below.

Hypothesis for within Groups

HA0 – There is no significant difference between experimental pre and post data of depression due to pranayama intervention.

HA1 - There are some significant differences between experimental pre and post data of depression due to pranayama intervention.

HB0 – There is no significant difference between experimental pre and post data of anxiety due to pranayama intervention.

HB1 – There are some significant differences between experimental pre and post data of anxiety due to pranayama intervention.

HC0 – There is no significant difference between experimental pre and post data of stress due to pranayama intervention.

HC1 – There are some significant differences between experimental pre and post data of stress due to pranayama intervention.

Hypothesis for between Groups

HL0 – There is no significant difference between post-test depression values of experimental and control group due to pranayama intervention.

HL1 - There are some significant differences between post-test depression values of experimental and control group due to pranayama intervention.

HM0 – There is no significant difference between post-test anxiety values of experimental and control group due to pranayama intervention.

HM1 – There are some significant differences between post-test anxiety values of experimental and control group due to pranayama intervention.

HN0 – There is no significant difference between post-test stress values of experimental and control group due to pranayama intervention.

HN1 – There are some significant differences between post-test stress values of experimental and control group due to pranayama intervention.

Background of sama vritti pranayama

Pranayama is a part of yogic practices which utilize breathing exercises to expansion of prana, the vital life force energy. *(Saraswati, S. S, 1996)*. Among the groups of pranayama practices, Sama vritti pranayama is a type of pranayama mentioned in the book of 'Light of Pranayama' by B.K.S. Iyengar. This pranayama is also called by various names as box breathing, square breathing and equal proportional breathing. Vritti means action, movement, a course of conduct or method. *(Iyengar, B. K. S., 1983)*. The word Sama implies equal, identical or in the same manner. Our breath has four parts as inhalation (Purace), Inner Retention (Antara Kumbaka), Exhalation (Rechaka) and Outer Retention (Bahya Kumbaka). In sama vritti pranayama we made an attempt to achieve uniformity in the duration of all the four stages. The equal duration of each phase can be started from three and up to the

practitioner's levels. The equal ratio 1:1:1:1 is to be observed in any preferred duration as three or four or others.

Materials and Methods

Study Design

Simple randomized Control design was used in this study.

Participants and Sample size

In this current study 62 college students were participated aged between 17 and 20 who were studying in SRM Institute of Science and Technology, Chengalpattu district, Tamil Nadu. Among them 49 are girls and 13 are boys. The students were randomly assigned to either Experimental Group (n=31) or Control group (n=31). The experimental group received pranayama intervention and control group didn't receive any pranayama intervention and they followed their daily life style.

Inclusion Criteria

- College studying students only included.
- Age limit should be from 17 to 22 only.

Exclusion Criteria

- Students without formal education were excluded.
- Students beyond the age limit were excluded.

Assessment Method

DASS-42 (Depression Anxiety Stress Scale) was used to measure depression, stress, and anxiety, a standardized questionnaire which is freely available in public domain. For this study, we used a 42-item DASS questionnaire that is divided into three subscales: depression, anxiety, and stress. Each of these subscales has 14 questions and totally it contains42 questions. The participants answer each DASS question on a 4-point Likert scale. (0 = Did not apply to me at all, 1 = Applied to me to some degree or some of the time, 2 = Applied to me to a considerable degree or a good part of time and 3 = Applied to me very much or most of the time). Higher scores on the DASS-42 showed higher levels of stress, anxiety, and depression. The total score is determined by adding the results for each subscale. The validity and reliability was tested by Antony M.M. et.al and the results shows that it has good internal consistency reliability determined by Cronbach's alphas for depression, anxiety and stress as 0.97, 0.92, and 0.95 respectively. Also the study reveals it has acceptable validity for research purposes. *(Antony. M.M. et.al, 1998).*

Procedure

Before starting the pranayama intervention, a pre-test was conducted through the DASS 42 questionnaire for both experimental and control groups. After that, the experimental group was taught about sama vritti pranayama, followed by mental resolution to keep peace. In Sama Vritti Pranayama, they followed a 1:1:1:1 ratio with 3-count duration for all four phases of breathing. The time taken to complete one breath is 12 seconds. Thus, they practiced 5 rounds per minute for 3 minutes. The mental resolution consists of the following sentences: "I am a peace keeper; I am a family peace keeper; I am a national peace keeper; and I am a global peace keeper." The group members are advised to take this resolution in mentally in their mother tongue language without uttering the word after sama vritti pranayama. So that the resolution will be fixed strongly in the participants minds. This Pranayama intervention was given for three months. After that intervention, again, a post-test was taken for both groups with the same questionnaire. All the data were collected and processed for data analysis.

Data Analysis

Collected data were analyses using t test in SPSS. To compare means difference within an experimental group paired t test was used. After confirming the correlation between pre and post values of all three dependent variables in experimental group, paired t test was run.

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Data Analysis

Collected data were analyses using t test in SPSS. To compare means difference within an experimental group paired t test was used. After confirming the correlation between pre and post values of all three dependent variables in experimental group, paired t test was run.

Table 1: Paired samples statistics for experimental group.

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Exp_Dep_Pre	13.55	31	5.966	1.071
	Exp_Dep_Post	7.58	31	5.602	1.006
Pair 2	Exp_Anx_Pre	16.77	31	7.112	1.277
	Exp_Anx_Post	10.65	31	5.419	.973
Pair 3	Exp_Str_Pre	16.61	31	6.561	1.178
	Exp_Str_Post	10.42	31	5.130	.921

Table 2: Paired Samples Correlations for experimental groups

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	Exp_Dep_Pre & Exp_Dep_Post	31	.599	.000
Pair 2	Exp_Anx_Pre & Exp_Anx_Post	31	.722	.000
Pair 3	Exp_Str_Pre & Exp_Str_Post	31	.346	.057

Table 3: Paired sample t test

Paired Samples t Test									
		Paired Differences					t	df	Sig. (2 tailed) P value
		Mean dif	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Exp_Dep_Pre - Exp_Dep_Post	5.968	5.193	.933	4.063	7.872	6.399	30	.000
Pair 2	Exp_Anx_Pre - Exp_Anx_Post	6.129	4.931	.886	4.320	7.938	6.920	30	.000
Pair 3	Exp_Str_Pre - Exp_Str_Post	6.194	6.789	1.219	3.703	8.684	5.079	30	.000

Independent t test was used to find mean differences between experimental and control groups for all the dependent variables.

Table 4: Group statistics

Group Statistics					
	Group	N	Mean	Std. Deviation	Std. Error Mean
Depression	Exp_post	31	7.58	5.602	1.006
	Cont_post	31	16.35	8.060	1.448
Anxiety	Exp_post	31	10.65	5.419	.973
	Cont_post	31	17.84	6.430	1.155
Stress	Exp_post	31	10.42	5.130	.921
	Cont_post	31	20.58	6.541	1.175

Table 5: Independent t test for between groups

Independent Samples t Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	Df	Sig. (2-tailed) P value	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Depression	Equal variances assumed	6.902	.011	-4.977	60	.000	-8.774	1.763	-12.301	-5.248
	Equal variances not assumed			-4.977	53.500	.000	-8.774	1.763	-12.310	-5.239

Anxiety	Equal variances assumed	1.824	.182	-4.763	60	.000	-7.194	1.510	-10.215	-4.173
	Equal variances not assumed			-4.763	58.329	.000	-7.194	1.510	-10.216	-4.171
Stress	Equal variances assumed	1.237	.270	-6.806	60	.000	-10.161	1.493	-13.148	-7.175
	Equal variances not assumed			-6.806	56.776	.000	-10.161	1.493	-13.151	-7.171

HL0 is rejected and alternative hypothesis HL1 is accepted. That is, there are some significant differences between post-test depression values of experimental and control group due to pranayama intervention. Comparison of mean post depression values of experimental and control groups from table 4 results that experimental group is lesser than control group. So it is concluded that sama vritti pranayama with mental resolution significantly reduces depression in experimental group than the control group.

Results for Anxiety

Among the table 3 values, P value for anxiety < α. So Null hypothesis HB0 is rejected and alternative hypothesis HB1 is accepted. That is there are some significant differences between experimental pre and post data of anxiety due to pranayama intervention. Comparison of mean values of pre and post-anxiety from table 1 results that post value is lesser than pre value and hence it is concluded that sama vritti pranayama with mental resolution significantly reduces anxiety in experimental group.

Among the table 5 values, P value for anxiety < α. So Null hypothesis HM0 is rejected and alternative hypothesis HM1 is accepted. That is, there are some significant differences between post-test anxiety values of experimental and control group due to pranayama intervention. Comparison of mean post anxiety values of experimental and control groups from table 4 results that experimental group is lesser than control group. So it is concluded that sama vritti pranayama with mental resolution significantly reduces anxiety in experimental group than the control group.

Results for Stress

Among the table 3 values, P value for stress < α. So Null hypothesis HC0 is rejected and alternative hypothesis HC1 is accepted. That is there are some significant differences between experimental pre and post data of stress due to pranayama intervention. Comparison of mean values of pre and post-stress from table 1 results that post value is lesser than pre value and hence it is concluded that sama vritti pranayama with mental resolution significantly reduces stress in experimental group.

Among the table 5 values, P value for stress < α. So Null hypothesis HN0 is rejected and alternative hypothesis HN1 is accepted. That is, there are some significant differences between post-test stress values of experimental and control group due to pranayama intervention. Comparison of mean post stress values of experimental and control groups from table 4 results that experimental group is lesser than control group. So it is concluded that sama vritti pranayama with mental resolution significantly reduces stress in experimental group than the control group.

Thus the present study reveals that three month sama vritti pranayama with mental resolution significantly reduces depression, anxiety and stress in experimental groups. Also it shows that sama vritti pranayama with mental resolution reduces all these depression, anxiety and stress in experimental group than the control group.

Conclusion

The findings of this study reveal that the students who practiced sama vritti pranayama with mental resolution showed a significant reduction in their depression, anxiety and stress levels. Psychological well-being is a greatest assert for college students. This sama vritti pranayama, when performed with mental resolution, produces tremendous changes in one's psychological state. So this sama vritti pranayama practice can be used as a tool for positive youth development.

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EFFECT OF PRANAYAMA PRACTICES ON SELECTED PHYSIOLOGICAL VARIABLES AMONG WOMEN PLAYERS

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Introduction

Yogic technique and practice aim at selective as well wholesome shaping of human body and mind. In this study only pranayama practice is taken into account as a treatment variable. Breath is a life force for the human being. It is believed that the lungs functions play a vital role in most of the sports activities. Pranayama is a sub-set of the yogic practice. Pranayama is a yogic exercise in respiration. When posture is perfected, regulation of breath is to be activated and this impossible regulation of the follow of inspiratory and expiratory movement of breath. Pranayama beings about serval physiological changes in the body. A physiological value of exercise depends upon its capacity to confer health upon the person practicing it. Practicing of pranayama yoga has been reported to be benefit in treating a range of stress related disorders , improving automatic functions, relieving systems of asthma, stuttering and reducing sing of oxidative stress. Pranayama technique are also effective for depression cure. Practice of pranayama develops a steady mind, strong will-power and sound judgment. In addition regular pranayama helps extended life and enhance perception. In old age, the respiratory function decrease due to the contraction of the air cells of the lungs, which there takes in less oxygen

Methodology

To achieve the purpose of the study, 30 university women players from various discipline were selected from TNPESU. The age of the subject ranged from 18 to 25 years. The selected subjects were randomly assigned into two groups of 15each namely experimental group and control group. Breath holding time and vital capacity were selected as dependent variables. They were assessed by using stop watch and spirometer respectively. During the training period the experimental group underwent their pranayama training programme, five days per week for eight weeks in addition to their regular programme. The subject performed the selected pranayama namely nadi, suddhi, ujjai, suhka, sitali, sitkari, anuloma, savitri pranayama's. The pranayama practice have been practice only in the morning session. The control group did not practice in any specialized training during the period of study.

Experimental design and analysis of data

The experimental design used for the present investigation was random group design involving 30 subjects for training effect. Analysis of Covariance (ANCOVA) was used as a statistical technique to determine the significant difference ify, existing between pretest and posttest data on dependent variable separately and presented in table -1

TABLE-I

Variable	Test		Pranayama practicing group	Control Group	Source of Variance	SS	Df	Mean square	"F" Ratio
Breath Holding Time	Pre test	Mean	40.13		Between		1		0.742
		S.D	4.191		Within		28		
	Post test	Mean	44.65		Between		1		22.049
		S.D	2.65		Within		28		
	Adjusted post test	Mean	44.68		Between		1		27.64*
					Within		27		
Vital Capacity	Pre test	Mean			Between		1		1.33
		S.D			Within		28		
	Post test	Mean			Between		1		177.15
		S.D			Within		28		
	Adjusted post test	Mean	2858		Between		1		179.4*
					Within		27		

Results

The pretest mean of pranayama prating group and control group on breath holding time(40.13+4.191 vs 4.96+ 2.95) resulted in a 'F" Ratio of 0.742. the posttest mean of pranayama practicing group and control on breath holding time (44.65+2.95) resulted in a 'F' ratio of 22.049. the adjusted posttest mean of pranayama practicing group and control group on breath holding time (44.68 vs 40.96) resulted in a 'F' ratio of 27.64*. The results of the study indicate that there was a significant difference between pranayama practicing group and control group on breath holding time.

The pretest mean of Pranayama practicing group and control group on vital capacity (2408+ 307.68 vs 2428+302.1) resulted in an 'F' ratio of 1.33. The posttest mean of pranayama practicing group and control group on vital capacity (2854+260.90 vs 2434+305.54) resulted in a 'F' ratio of 177.15. the adjusted posttest mean of pranayama practicing group and control group on vital capacity (2858 vs 2432) resulted in a 'F' ratio of 179.4*. The results of the study indicate that there was a significant difference between pranayama practicing group and control group on vital capacity. **Discussion**

The result of the study indicates that the; pranayama practicing group had significantly improved the selected dependent variables namely breath holding time and vital capacity. However control group did not show any improvement on the selected variables of it was not involved in any of the specific training means. The result of the study in consonance with the findings of the results of the study reveal that there is a significant change after the pranayama training in vital capacity (k. apathy dunged et al, 2008). The other findings are in line with the findings of (d.v.de godov et al, (2006), d. a barrel and l.edgen, (2000) Dhahran, (1974) and tells et al (1993).

Conclusion

Based on the results of the study, it was concluded that

- There was a significance difference among pranayama training group and control group.
- The results of the study revealed that there was a significant improvement on selected physiological variables such as breath holding time and vital capacity due to elight weeks of pranayama practices.

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DIGITAL GAME CHANGER: TRANSFORMING SPORTS PERFORMANCE THROUGH INFORMATION TECHNOLOGY IN THE DIGITAL ERA

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Abstract

The field of physical education and sports can make a significant contribution to the role that technologies play in our lives by carefully considering the benefits and liabilities of new information technologies on the whole person, body as well as mind. Information technology play vital role in the human being in particularly in field of sports and games. It helps to avoid mistake in organization and administration of various sports and games at world level. Information Technology in Sports has established scientific discipline, Research activities, improve Learning and coaching, Bio-mechanical analysis and field research have evolved. In future very soon the way computer with be applicable in sports with good quality and best results.

Keywords: Information technology, sports technology, sports bio-mechanism.

INTRODUCTION

The value of sports is very high and it is having very much influence worldwide to bring peace and friendship with each country. Because of the value of sports publicity has increased more it has spread very much fast to all over the world. Information Technology has become an important inter-disciplinary partner for sports, this way physical education has its branches of Sports psychology, Sports Statistics, Biochemistry, Sports Medicine, Kinesiology and Bio-mechanics etc. Taking into consideration its association with other disciplines and its various aspects, computer can be used and are being sued in physical education and sports. Human play, as embodied in sports, is one of most important in expressions of human culture. The games in which people in the society it's reflects their society and culture as a whole. It is said that communication is one dominant contribution to the human being on the planets. The Olympic movement is one of the social movements on human society. The countries from all over the world gathering in one place during summer Olympic games for peaceful is the epitome of intersection of sports and communication. This fact underscores the importance of the media and the Olympics. The presentation will briefly explain the relationship between information technology and sports.

INFORMATION TECHNOLOGY IN SPORTS

The information age was 1970's. The change was brought to the society with the creation of world web (the web). As change in technology, changes channels of communication and message content. The early 1960's, the computer technology establish protocols which become as the internet in 1969. And later development of Hypertext Mark-up Language (HTML) in 1989 that became the basic for the development of web in 1993. The web was introduced to the public at large. During the formative days of the web lot of things was include such as email, blog, face book, twitter, lot of website, journals, you tube etc.,. Another important fact of information technologies being used in sports is seen in the trend analysis done by administrators in sports, franchises and leagues while the most basic functions are storing data used to determine statistics, disclosing the score of a game or uploading pictures for fans to view thorough out a game. In the past, task such as developing rosters (name list)

of athletes, managers, officials, timekeepers, drivers and medical staff was took much time to done the work with hand.

The institution of IT in sports, team administration was now able to not only create detailed roasters of these individuals but can schedule them for work. Also, most profession sports venues have very modern scoreboards that are programmed to update statistics and information directly to a computer system. So with the use of such modern technology, almost every area of sports has become dependent of automation due to relevance that it implies to the lives of spectators all over the world. Through the help of the internet and other web services, live feeds of sports events have become so accessible anywhere in the planet. Most of the professional sports in the world have long used instant reply and other high tech aid to help the referees to make a right call. Video replay systems to check referees call for many years. Basketball referees use replay system to make sure players is shooting within the time allotted by the shot clock. In international cricket, the third umpire has been used for certain situation. The umpires who are out of field can communicate via wireless technology. The third umpire is asked to adjudicate on run out decision. In Football/Soccer the replays could be used to decide off-side decisions, whether a ball passes over the goal line or not.

APPLICATION IN SPORTS

The field of physical education and sports can make a significant contribution to the role that technologies play in our lives by carefully considering the benefits and liabilities of new information technologies on the whole person, body as well as mind. Nowadays in schools, colleges and other institutions, students are given more organized and disciplined education through I.T. and computers, because it is more authentic innovation and convincing. A variety of programmes are available which help in track-grading, conducting health assessment, monitoring research projects, and analyzing sports performances.

BENEFITS OF INFORMATION TECHNOLOGY

Here are some of the ways technology can provide or facilitate most of the types of support that someone trying to become or stay physically active needs. Now a day's computer is widely used as a teaching aid. In this era of globalization black board is quit away. Power point presentations, Video clips, Animation, Graphics, and Sound have become much more effective and needful, CD, DVD, MP3, are more useful in teaching. IN some way computer is applied in sports sciences, scoring systems, computerized test all evaluation can be largely followed. A coach keeps monitoring on the players. A computers helps us if any deficiency is found. Records of the player can be maintained for future plan Selection of players for various game and sports is an important for this multiple regression helps in many ways. Hence computer plays a significant role in storing research data and its analysis. Treatments in sports medicine involve Cardio-Vascular, Flexibility and strength building programme. Sports Medicine is the study, prevention and treatments of sports and fitness related injuries.

PRACTICAL SUPPORT

Technologies like iPods, Dance Revolution, and Nintendo Wiki Sports make physical activity fun. Step counters and accelerometers allow us to gauge our activity level at any time and set goals that can be easily tracked. Home and gym fitness equipment make it possible to stay active when weather's back.

Through using Information technology to improve the standard of Sports in the following process :

- To update the health status of players.
- Preparing training schedule
- Video Feed back for players practices.
- To assessment of physical activity by using Information Technology
- Storing the results

- To analysis the team performance at the time of competition
- Online registrations and profile verifications.
- The Coach can have the self-appraisal through the Information technology.
- Storing the personal data's of athletes.
- Search engine for the latest training in sports.

CONCLUSION

Information technology play vital role in the human being in particularly in field of sports and games. It helps to avoid mistake in organization and administration of various sports and games at world level. Information Technology in Sports has established scientific discipline, Research activities, improve Learning and coaching, Bio-mechanical analysis and field research have evolved. In future very soon the way computer with be applicable in sports with good quality and best results.

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THE ART OF WELLNESS: SCULPTING OUR BODY THROUGH PHYSICAL ACTIVITY

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Abstract

Regular physical activity has historically been known as a protective factor in the prevention and treatment of dominant non-communicable diseases (NCDs), including heart disease, stroke, diabetes, and breast and colon cancer. And furthermore, it prevents other critical NCD risk factors including hypertension, obesity, and being overweight, and it's intertwined with better mental health, a delay in the outset of dementia, as well as an overall improved quality of life. During this modern lifestyle, food habits, work timings, and irregular sleep kept people away from regular physical activities. Physical inactivity is a national issue, according to The Surgeor General's Report (1996), which emphasizes how it causes unnecessary sickness and early mortality. It was discovered that optimal health is more than freedom from diseases. Therefore, inactive people have greater opportunities to enhance their health by engaging in physical activities that they love, find personally fulfilling, and can easily fit into their daily schedules when they engage in moderate physical activity and integrate it into their lifestyle. Therefore, those who engage in regular, moderate-intensity physical exercise and fitness are more likely to live longer and in better health. Additionally, physical activity and fitness not only aid in the prevention of illness and disease but also enhance the quality of life. This study looked at the key ways that regular physical activity enhances well-being and quality of life and also in the domains of illness prevention and control.

Keyword: Physical Activity, Physical well being, Optimum health, Quality of life.

Introduction

Our health and well-being rely on regular physical exercise. One of the key aspects of a healthy lifestyle is regular physical exercise and sports for everyone, combined with a nutritious diet, a smoke-free lifestyle, and avoiding other health-harming drugs. Experience and empirical data indicate that participating regularly in sports and other suitable physical exercises benefits individuals of all ages and circumstances, including those with disabilities, in terms of their physical, social, and mental health. It works well with tactics to boost nutrition, discourage drug, alcohol, and cigarette use, lessen aggression, increase functional ability, and encourage social integration and contact. For an individual, physical exercise is a powerful tool for illness prevention, and for nations, it is one of the most economical ways to raise population health.

The typical populace gives health and wellness relatively little thought. Within a healthy and sustainable campus environment, health and wellness promotes an individual's physical, mental, and spiritual welfare. Physical fitness and healthy life go hand in hand. People who are physically active not only have healthier lives, but they also benefit from exercise throughout their lifetimes by making it a regular part of their routines while they are younger or less frequently as they get older. The goal of the Health & Wellness Team is to provide students with the healthiest and most fulfilling educational experience. All students are welcomed by the staffs, which also strives to promote health and wellbeing and ward off disease and mishaps. The Health Clinic, Campus Health, and Counselling make up the Team. "A person with health has hopes, and a person with hopes may achieve goals."

Physical Activity

The term "physical activity" refers to any skeletal muscle-produced motion that involves the use of energy. It may be done in a variety of ways, including walking, cycling, participating in sports, and other active leisure activities (such as dance, yoga, and tai chi). Additionally, physical exercise can be done while working (lifting, transporting, or performing other physically demanding jobs), as well as when performing paid or unpaid household chores (cleaning, carrying, and care duties). While certain activities can be enjoyable and done of one's own volition, others that are required for job or household maintenance may not be as beneficial to one's mental or social health as, say, active recreation. However, if done frequently and for a long enough time and intensity, all forms of physical activity can be beneficial to your health. For the best health advantages for children, adults, and older persons, the WHO developed recommendations on the kind and amount of physical activity in 2010.

Walking and cycling are important modes of transportation that allow individuals to engage in daily, routine physical activity, but their use and popularity are on the decline in many nations. Sport not only offers major social, cultural, and economic benefits to communities and countries, but it also contributes to physical exercise for people of all ages. Sport may help in emergency and crisis situations as part of humanitarian initiatives that focus on social and health issues. According to the Kazan Action Plan 2, "sport for all, including traditional sport and games, is a fundamental field of intervention for governments to achieve the full potential of physical activity for personal and social development." The Commission on Ending Childhood Obesity3, meanwhile, acknowledged that active play and recreation are important components of healthy growth and development in children, particularly those under five, and both reports emphasise that quality physical activity is essential for a child's healthy development. For many adults, the workplace is a crucial location to engage in physical activity (during commutes to and from work as well as while at work) and reduce sedentary behaviour, which will increase productivity and reduce accidents and absenteeism. As part of the treatment and rehabilitation process, primary and secondary healthcare providers can assist patients in becoming more active and in preventing noncommunicable diseases. Regular physical activity can help older persons maintain their physical, social, and mental health, avoid falls, and age healthily.

Wellness

A person's biological and psychological well-being, as demonstrated by their quality of life and sense of wellbeing, are all components of wellness, which is a state of being that describes a condition of good health in the individual. (Adapted from Corbin, Lindsey & Welk, 2000; Bouchard, et al., 1990; USDHHS, 2000). The term "health" is used to describe the general state of a person's body or mind as well as the presence or absence of illness or injury. Your level of health depends on factors outside of your control, including your genes, age, and family history. The capacity to live freely, energetically, and meaningfully is a sign of wellness. Physical, emotional, intellectual, spiritual, interpersonal, and environmental components are all included in this dynamic, multidimensional system. The decisions you make regarding your style of living affect your level of vitality and optimal health. Making deliberate choices to reduce risk factors that contribute to sickness and injury is a key component of enhanced wellness.

Modern life style:

The best strategy to prevent illness and early mortality in contemporary society is thought to be lifestyle change more than any other element. Urbanization, industrialisation, and resource overexploitation are only a few of the activities that modern lifestyle is responsible for, and they have had a significant impact on the environment. Our contemporary lives are the cause of both global warming and ozone depletion. As a result of the accumulation of numerous gases in the atmosphere, the global ecosystem is changing.

The modern way of life is quite competitive. Each person has become materialistic because to their ambition to quickly attain success, wealth, and power. The use of the most recent methods, theories, and tools is typically meant when we discuss modern lifestyle. Additionally, it suggests a recent or current fashion or trend. It is a particular and distinctive collection of behaviours that includes clothes, consumerism, entertainment, and social interactions. Modern lifestyle behaviour and practises are a blend of customs, routines, ways of doing things, and deliberate acts.

Scientific innovations and inventions:

Modern technology, including everything from the lightbulb to the automobile and other advancements, has virtually reduced the necessity for physical activity in the majority of people's daily lives. Society became automated, with most tasks being completed by machines with a straightforward handle pull or button press. And these technological advancements pose the greatest threat to people's physical health and wellness.

Alarming Global Trend of Physical Inactivity

Around the world, more than 60% of adults do not participate in the recommended amounts of physical activity for their health. The prevalence of physical inactivity is higher among women, older persons, those from poor socioeconomic categories, and people with disabilities. During adolescence, physical activity declines with age and continues to do so into adulthood. Less than one-third of young people in many developed and developing nations are adequately active to improve their current and future health. Teenage girls are less active than teenage boys. An alarming trend is the decline of physical education and activity programs in schools. The prevalence of high body mass index (obesity/overweight) is rising in both young individuals and middle-aged adults at the same time. This is partly due to individuals not engaging in physical activity during their free time, but it is even more likely that this is due to people engaging in sedentary activities like watching television, using computers, and utilizing too many "passive" modes of transportation (cars, buses, and motorcycles). People spend a lot of time being sedentary, and the effects on their health are severe.

WHO about Physical Activity

The draught global action plan on physical activity for the years 2018–2030 recognises the barriers to development and, in response, suggests ways to improve advocacy, leadership, governance, cross-sectoral collaborations, workforce capacities, and information systems. It acknowledges the calls from Member States for improved regional, national, and international cooperation as well as the necessity of a societal movement and paradigm shift in favour of physical exercise.

Physical activity and the sustainable development goals 2030

Many of the SDGs outlined in the Bangkok declaration from 2016 can be achieved with investment in policy activities to enhance physical activity, such as more walking, cycling, active recreation, sport, and play. Increasing physical activity will directly support other Goals, such as eradicating all types of malnutrition, as well as overall health and well-being. A description of the various ways that raising levels of physical activity might support the SDGs, along with the corresponding policy activities. It is time to engage in physical activity, not just for its direct health advantages but also for how boosting walking, cycling, active recreation, sports, and play can result in a more egalitarian, sustainable, and prosperous world. This is because physical activity contributes to the 2030 Agenda.

Benefits of Physical Activity

Cardiovascular disease, certain malignancies, and type 2 diabetes risk are all decreased by physical activity. Numerous pathways contribute to these advantages, but in general, it enhances glucose metabolism, lowers body fat, and lowers blood pressure. Reduces the chance of getting fat and aids in weight management. Lower back pain risk is decreased by exercise, which also aids in the treatment of other painful disorders like knee or back pain. Due to its

effects on hormone metabolism, exercise is also linked to a lower chance of developing breast cancer. PA can help with body eight management, depression symptoms reduction, and musculoskeletal health.

Benefits to Health, Direct and Indirect Regular physical activity, active play, and sports can be practical ways to improve many aspects of health, either directly or indirectly by having a good effect on other significant hazards, such as high blood pressure, high cholesterol, obesity, tobacco use, and stress.

Physical activity is important across all ages

Physical activity is important across all ages, and should be integrated into multiple daily settings. For many adults, the workplace is a key setting to be physically active and reduce sedentary behaviour. The commute to and from work, activity breaks, workplace initiatives, and accidental exercise are all chances for more physical activity during the workday, which can boost output and lower injury and absenteeism rates. Older persons in particular can benefit from regular physical activity to preserve their physical, social, and mental health whether they are working or not.

How Much Physical Activity is needed in Order to improve and Maintain Health?

Much of the health gain is obtained through of at least 30 minutes of cumulative moderate physical activity every day. This level of activity can be reached through a broad range of appropriate and enjoyable physical activities and body movements in people's daily lives, such as walking to work, climbing stairs, gardening, dancing, as well as a variety of leisure and recreational sports.

Conclusion

Wellness and healthy lifestyles have resulted in a shift toward prevention and promotion. The model on physical activity, fitness and health shows the link between product and process, as well as the link between health and wellness. It also illustrates that other processes (lifestyles or behaviours) also have an impact on fitness health and wellness, as do environmental factors and personal attributes. It is our hope that this synthesis of information will be helpful in your efforts to promote physical activity and other healthy lifestyles as a means of improving health and wellness in the years ahead.

Health Tips & Main Message To Be A Healthy Human:

Kindly avoid mobile phones though we are very healthy, auditing to mobile cell phones will cause many diseases due to bacterial attack in that device, health maintenance must be only through good and nutritious food, light food can lead a human for long life, avoid materialism play with human activities like indoor and outdoor games, try to avoid video games and electronic deals like watching TV, head phones etc., breathe good air, be clean, be positive, be aware of unhealthy things and habits, follow good habits, learn to play sports from your childhood, select your own stream in sports practice only to be healthy later it will lead to achieve your goal, prepare a food chart follow it regularly, give everyday time to your health fitness by playing your favourite games or sports, maintain your sport items as much as possible, follow diet as your trainer guides you, make every time fresh while you play do not be upset or depressed, get fresh up both the time before and after you play, act according to situations do not respond for others quarries because you may have critical condition to face that which will affect your health, all these lines will make a human to realise his/her health is depend only upon how they take it and make it, hope this message will surely reach your hearts and make few changes in your daily life.

It is important knowledge for us to realize exercise, games and sports, increased consumption of good nutrition, smoking cessation, and the practice of safe sex are the key of health and wellness. The real happiness of life lies in living healthy and stress free life, happily in a health environment. If a person has good fitness and wellness, he can live a good life in the society. Excessive proclivities for luxuries and utter materialistic outlook, over

industrialization as well as busy life have made man's life more stressful and depressed. To overcome all those people must keep them engaged in the holistic work, fitness programme, community services, participation in games and sports, leisure time activities etc.

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INFLUENCE OF YOGASANAS ON SELECTED PHYSIOLOGICAL VARIABLES AMONG COLLEGE WOMEN

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Abstract

The purpose of the study was to find out the influence of yogasanas on select physiological variables among college women. To achieve the purpose of the present study, college women were selected as subjects from Tamil Nadu Physical Education and Sports University., Chengalpattu District, Tamilnadu and their age shall ranged from 22 to 27. The subjects were divided into two equal groups. The study was formulated as a true random group design, consisting of a pre-test and post-test. The subjects (N=50) were randomly assigned to two equal groups of fifteen subjects each. The groups were assigned as varied yogasanas (EG) and control group (CG) in an equivalent manner. The experimental group were participated the training for a period of six weeks to find out the outcome of the training weekly in three days only training In the current study the variables namely systolic blood pressure, diastolic blood pressure was collected from all subjects before they have to treat with the respective treatment. It was assumed as pre-test. After completion of treatment they were tested again as it was in the pre-test on all variables used in the present study. This test was assumed as post-test. Paired't' test was applied to test the significance of mean gains made in each of the variables by the experimental and control group. To test the obtained results on variables, level of significance 0.05 was selected and considered as sufficient for the study. The Yogasana group (EG) had shown significant improvement in all the selected physiological variables among college women.

Key Words*: Systolic Blood Pressure, Diastolic Blood Pressure*

Introduction

Yogic technique to improve overall performance pranayam is celebrated to be a part of yogic technique. Yoga is one of India's wonderful gifts to mankind. It refers to the union of body and mind. Researchers have proved the beneficial effect of different yogasanas and prayanama are well reported has sound scientifically basis (Raguraj et al., 1998 bhattacharya et al.,2002) Yoga is simple and easy to practice, acceptable to the people of all walks of life. One of its valuable qualities is that it builds up a store of physical health through the practice of a system of exercises call asana which keep the body cleansed and fit. Yoga postures are the physical position that co-ordinate breath with movement and withholding the position to stretch and strengthen different parts of the body. Yoga enhances the intelligence empowers the mind and makes the life. Pleasant yoga is a part of Indian Culture and Religion yogic practice are the supreme complement to other forms of physical exercises such as running, cycling and swimming. Yogic postures systematically work on all the major muscle groups, including the backside neck and shoulder deep abdominal hip and ankles feet wrists and hands. By means of their very nature yogic practice affect all the muscle groups and organs as they at the same time impart strength increase flexibility and bring nourishment to internal organs.

Methodology

The purpose of the study was to find out the influence of yogasanas on selected physiological variables among college women. To achieve the purpose of the present study,

fifty college healthy women students were selected as subjects from Tamil Nadu Physical Education and Sports University., Chengalpattu District, Tamilnadu and their age shall ranged from 21 to 25 The subjects were divided into two equal groups. The study was formulated as a true random group design, consisting of a pre-test and post-test. The subjects (N=50) were randomly assigned to two equal groups of fifteen subjects each. The groups were assigned as yogasana (EG) and control group (CG) in an equivalent manner. The experimental group were participated the training for a period of six weeks at the same time weekly three days only training to find out the outcome of the training package. In the present study the variables namely systolic blood pressure, diastolic blood pressure, was collected from all subjects before they have to treat with the respective treatments. It was assumed as pre-test. After completion of treatment they were tested again as it was in the pre-test on all variables used in the present study. This test was assumed as post-test. Paired‘t’ test was applied to test the significance of mean gains made in each of the variables by the experimental and control group. To test the obtained results on variables, level of significance 0.05 was chosen and considered as sufficient for the study.

Results

TABLE - I

Significance of Mean between Pre and Post Test Scores on Selected Physiological Variables of Yogasana Group

S.No	Variables	Pre-Test Mean	Post-Test Mean	Mean difference	Std. Dev (±)	σ DM	‘t’ Ratio
1	SBP	138.40	124.46	13.93	04.26	01.10	12.64*
2	DBP	86.80	79.53	07.26	04.55	01.17	06.17*

* Significant at 0.05

An examination of table-I indicates that the obtained‘t’ ratios were 12.64, and 06.17, for systolic blood pressure, diastolic blood pressure, respectively. The obtained‘t’ ratios on the selected variables were found to be greater than the required table value of 02.14 at 0.05 level of significance for 14 degrees of freedom. So it was found to be significant. The results of this study showed that statistically significant and explained its effects positively.

Table - II

Significance of Mean Between Pre and Post Test Scores on Selected Physiological Variables of Control Group

S.No	**Variables**	**Pre-Test Mean**	**Post-Test Mean**	**Mean difference**	**Std. Dev (±)**	**σ DM**	**‘t’ Ratio**
1	SBP	136.80	138.53	1.73	6.83	1.76	0.98
2	DBP	88.60	87.26	1.33	4.86	1.25	1.06

* Significant at 0.05

Table-II indicates that the obtained‘t’ ratios were 0.98, and 01.06, for SBP, DBP, The obtained‘t’ ratios on the selected variables were found to be greater than the required table value of 2.14 at 0.05 level of significance for 14 degrees of freedom. So it was found to be insignificant.

Discussion

In this research physiological variables status of the subjects was measured through the physiological variables of Systolic Blood Pressure and Diastolic Blood Pressure twelve week yogasanas proved that physiological variables Systolic Blood Pressure and Diastolic Blood Pressure can be significantly reduced and there by status of the young healthy women students. the finding s of this study that yogasanas would be significantly reduced physiological variables Systolic Blood Pressure and Diastolic Blood Pressure is an agreement with the findings of who

reported the practice of yogasana was found to be associated with significant decrease in Systolic Blood Pressure and Diastolic Blood Pressure.

Conclusions

The findings of the this study proved that the yogasana group (EG) had shown significant reduced in all the selected physiological variables among college women students the physiological variables of the individual were limited only Systolic Blood Pressure and Diastolic Blood Pressure in this study, in future researchers similar other profile can be included to get more accurate influence of yogasanas on other physiological variables.

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EFFECT OF YOGIC PRACTICES ON SELECTED LOCOMOTOR SKILLS OF SCHOOL CHILDREN

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Abstract

The purpose of the study was to find out the effect of yogic practices on selected locomotor skills of school children. For this purpose, sixty (n=60) children were selected from Chennai District, Tamil Nadu, India. The Subjects age ranged between 6 to 10 years. The selected subjects were divided into two groups of thirty subjects each namely experimental and control group. The following locomotor skills namely such as Run, Gallop, hop, leap, horizontal jump, skip, slide for this study. The selected dependent variables were assessed by using the Test of Gross Motor Development PRO-ED. The collected data on the selected variables were treated with dependent "t" test at 0.05 level of significant. The results of the study indicate that there was significant improvement on locomotor skills due to the effect of 12 weeks Yogic practice.

Keywords: *Yogic Practices, Locomotor skills, Motor Skills, Children*

INTRODUCTION

LOCOMOTOR MOVEMENT

The locomotor basic motion is the basis of a child's movement to move places by moving the body from one point to another such as walking, running, jumping, slide, skip, hop, gallop and leap. By mastering the basic movements, children get many benefits for their daily lives.The skills used by an individual to move from one place to another. These skills include rolling, balancing, sliding, jogging, running, leaping, jumping, hopping, dodging, galloping and skipping.

LOCOMOTOR SKILLS

Locomotor skills help us move from one place to another. This movement can take place in different directions and with varying speeds. Children can develop locomotor skills starting at birth when it begins to wiggle and squirm, roll over, army crawl, crawling, kneel walk, and then walking.

IMPORTANCE OF LOCOMOTOR SKILLS

Children need to move from one location to another throughout our daily lives. The other more extensive answer is that using these skills provides opportunities to develop a healthy lifestyle with daily physical activity. Locomotor skills help our bodies with:

- cardiovascular health
- endurance
- balance
- coordination
- enjoyment of sports
- healthy weight
- independence
- functional skills

YOGA

Yoga, in Sanskrit, means to completely know yourself and to be at peace in yourself. It is not possible to define this peace except to say it is freedom from all suffering, freedom from doubt and freedom from confusion. A natural blessedness unfolds in you as you feel this peace and you increasingly realize this as the core essence of your life. This realization is called yoga a clear knowledge of the oneness of yourself with the source of all life. Yoga is a practical aid, not a religion. Yoga is an ancient art based on a harmonizing system of development for the body, mind and spirit. The continued practice of yoga will lead you to a sense of peace and wellbeing and also a feeling of being at one with their environment. (Kalpana arya 2017).

BENEFITS OF YOGA

- Yoga improves strength, balance and flexibility
- Yoga helps with back pain relief
- Yoga can ease arthritis symptoms.
- Yoga benefits heart health.
- Yoga relaxes you, to help you sleep better.
- Yoga can mean more energy and brighter moods
- Yoga helps you manage stress
- Yoga connects you with a supportive community, Yoga promotes better self-care

PURPOSE OF THE STUDY

The purpose of the study was to find out the effect of yogic practices on selected locomotor skills of school children.

HYPOTHESIS

- It was hypothesized that there would be a significant improvement in locomotor skills namely run due to Yogic practices of school children.
- It was hypothesized that there would be a significant improvement on improvement in locomotor skills namely gallop due to Yogic practices of school children.
- It was hypothesized that there would be a significant improvement in locomotor skills namely hop due to Yogic practices of school children.
- It was hypothesized that there would be a significant improvement in locomotor skills namely leap due to Yogic practices of school children.
- It was hypothesized that there would be a significant improvement in locomotor skills namely horizontal jump due to Yogic practices of school children.
- It was hypothesized that there would be a significant improvement in locomotor skills namely skip due to Yogic practices of school children.
- It was hypothesized that there would be a significant improvement in locomotor skills namely slide due to Yogic practices of school children.

DELIMITATIONS

1. Only sixty school children were selected as subjects from Chennai district only.
2. The age group of the subject was 6 to 10 years only.
3. Only locomotor skills namely Run, Gallop, hop, leap, horizontal jump, skip, slide were selected as dependent variables.
4. Yogic practices were selected as independent variable for a period of 12 weeks.

LIMITATIONS

1. The difference that exists among the subject due to varied factors such as heredity, food habit, family type, weight, and health factors would not be considered.

REVIEW OF RELATED LITERATURE

Aggeliki Tsapakidou, Evridiki Zachopoulou &Efthimis Kioumourtzoglou (European jiurnbal of physical education 2001) conducted the was Effect of a music and movement programme on development of locomotor skills by children 4 to 6 years of age. This study investigated the effect of a 10-week music and movement programme on the quality of locomotor skills in children 4 to 6 years of age. Sixty-eight children (35 boys and 33 girls) served as subjects. The Test of Gross Motor Development (Ulrich, 1985) was used for the assessment of locomotor skills (running, skipping, galloping, hopping, leaping, sliding, and horizontal jump). Thirty-five children participated in the exercise programme twice a week while the rest did not participate in any organised physical activity programme. In the absence of significant differences between the two groups in the pre-test, multivariate analysis of variance (2X2 Manova) with repeated measures was used for data analysis. The results revealed a significant measure X group interaction on galloping, leaping, horizontal jump, and skipping. From the comparison of groups' mean differences it was shown that the experimental group had significantly greater improvement on the above skills than the control group. It seems that a music and movement programme can improve significantly the quality of certain more complex locomotor skills.

METHODOLOGY

SELECTION OF SUBJECTS

The purpose of the study was was to find out the effect of yogic practices on selected locomotor skills of school children.For this purpose,sixty (n=60) children were selected from Chennai District, Tamil Nadu, India. The subject's age ranged between 6 to 10 years. The selected subjects were divided into two groups of 30 subjects each namely experimental and control group. The experimental group underwent 12 weeks of Yogic practices. The control group was not allowed to participate in any kind of treatment. The selected locomotor skill variables such as run, gallop, hop, leap, horizontal jump, skip, and slide test used for this study. The selected dependent variables were assessed by using the Test of Gross Motor Development PRO-ED by D.A.Ulrich was treated by using paired t-test. The level of confidence was fixed at 0.05 level.

Training schedule

The yoga training consisted of Loosening Exercises, Asana, Pranayama, and Meditation. All practices were introduced in a slow and progressive manner. Yoga training was for 45 minutes, for 6 days a week for 12 weeks. The experimental group practiced Yoga asanas (postures) and Pranayama (breathing techniques). Each asana pose was held for 15–30 sec initially and for 3 min in the later stages. The duration of Pranayama was 2–3 min initially and was gradually increased to 4 min. The loosening exercises included hand rotation front & back, twisting, side arch hand right & left, forward & backward bending, and side bending. Each exercise was performed for 5 minutes. Standing asana include Ardhakati Chakrasana, Ardha Chakrasana, Padahastasana, Trikonasana, and Tadasana. The sitting position asana were Vajrasana,Ushtrasana,balasana and padmasana. The supine pose asana practiced were Halasana, Setu Bandhasana, and Shavasana. The prone position asana included were Bhujangasana, and Dhanurasana. The breathing exercises for experimental group participants were Bhastrika, Bhramari,sheetali,sheetkari, Nadisodhana, and Ujjjayi Pranayama.

SELECTION OF VARIABLES

Independent Variables

- Yogic practices

Dependent Variables

Locomotor skills:

- Run
- Gallop
- Hop
- Leap
- Horizontal jump
- Skip
- Slide

STATISTICAL TECHNIQUE

The collected data were analyzed statistically with the Dependent 't'test.

RESULTS AND DISCUSSION

Table – I

Variable	Test	Experimental group		Control group	
		Mean	**SD**	**Mean**	**SD**
Run	Pre test	0.53	0.50	0.13	0.34
	Post test	0.63	0.48	0.30	0.46
	T test	**5.50***		1.46	
Gallop	Pre test	0.27	0.40	0.23	0.38
	Post test	0.33	0.47	0.27	0.44
	T test	**3.29***		1.79	
Hop	Pre test	0.53	0.50	0.30	0.46
	Post test	0.70	0.46	0.33	0.47
	T test	**8.79***		1.94	
Leap	Pre test	0.23	0.42	0.27	0.40
	Post test	0.40	0.49	0.30	0.98
	T test	**8.08***		1.78	
Horizontal jump	Pre test	0.57	0.50	0.37	0.48
	Post test	0.47	0.67	0.40	0.49
	T test	**5.50***		1.87	
Skip	Pre test	0.30	0.42	0.28	0.16
	Post test	0.37	0.48	0.31	0.14
	T test	**3.35***		1.79	
slide	Pre test	0.53	0.50	0.40	0.49
	Post test	0.60	0.49	0.43	0.50
	T test	**3.68***		1.85	

***significant at 0.05 level of confidence 't' with 60 is 2.042

The obtained 't' ratio 5.50,3.29,8.79,8.08,5.50,3.35 and 3.68 value of the experimental group is higher than the table value and it is understood that yogic practices had significantly improved the performance of locomotor skills, Run, Gallop, Hop, Leap, Horizontal jump, Skip and Slide. However, the control group has no significant improvement as the obtain 't' value is less than the table value; because it was not objected to any specific training.

CONCLUSIONS

1. There was a significant improvement in run due to Yogic practices of school children.
2. There was a significant improvement in gallop due to Yogic practices of school children.
3. There was a significant improvement in hop due to Yogic practices of school children.
4. There was a significant improvement in leap due to Yogic practices of school children.
5. There was a significant improvement in horizontal jump due to Yogic practices of school children.
6. There was a significant improvement in skip due to Yogic practices of school children.
7. There was a significant improvement in slide due to Yogic practices of school children.
8. Overall, there was a significant improvement on all the selected locomotor skills due to practice among school children.

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EFFECT OF VARIED INTENSITIES OF RESISTANCE TRAINING ON SELECTED MORPHOLOGICAL VARIABLES AMONG UNIVERSITY MEN KABADDI PLAYERS

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ABSTRACT

Kabaddi being a team game, every player has a specific role to play in defense and offense. In this study, a guiding concept here is morphological optimization, the notion of an ideal body morphology, or narrow range of morphologies, most likely to be associated with success in various disciplines. One major success factor is body size and shape, or morphology. The study was formulated as a true random group design, consisting of a pre and post test. Randomly selected forty five (N=45) men kabaddi players from University as subjects for this study. The selected subjects were divided into three groups consisting of 15 Kabaddi players in each group. Experimental group I was assigned as Medium Intensity Resistance Training (MIRTG) Group, Experimental group II was assigned as High Intensity Resistance Training (HIRTG) Group and Control Group was not given any special treatment. Prior to experimental treatment, all the subjects were measured of their morphological variables such as stature and body mass. After 12 weeks of experiments to the experimental groups on respective training, all the three groups were tested on criterion variables, which form post test scores. The difference between pre and post test scores was considered as the effect of varied resistance training. To test the statistical significance of the difference, the obtained pre and post test scores of all the three groups using ANCOVA. In all cases 0.05 level was fixed to test the hypothesis. The results of the study proved that there were significant improvements in the selected morphological variables namely, Stature and Body mass among university men kabaddi players.

***Key Words**: Intensity, Resistance, Training, Stature, Body mass*

INTRODUCTION

Sport is all forms of physical activity which, through casual or organized participation, aim to use, maintain or improve physical fitness and provide entertainment to participants. Sport may be competitive, where a winner or winners can be identified by objective means, and may require a degree of skill, especially at higher levels. Hundreds of sports exist, including those for a single participant, through to those with hundreds of simultaneous participants, either in teams or competing as individuals. Kabaddi is one of the most popular games in India and its unique origin can be traceable in the early Indian history. Many regions of India claim the credit for originating it and that would perhaps indicate that the game has been popular in many parts of the country for a long time ago. The present form of Kabaddi is entirely different from that of the ancient, as changes occurred in the rules and regulation of the game in different periods. At present the game turns more defensive in nature even though it demands a great deal of fitness from the players. Nowadays it is attaining wide popularity and soon the game Kabaddi may find an important place in the international sports calendar Kabaddi is basically an outdoor team game, played in the tropical countries of Asia. The excitement and thrill provided by the game has made it very popular and Kabaddi is rightly called the 'Game of the masses', since spectators totally involve themselves and give the players a great deal of encouragement. Kabaddi is one of the few games which does not require any equipment whatsoever. All that is required is a good play-field, ideally situated. Most of the players, even today prefer to play the game bare-foot although rules now permit the

wearing of soft canvas shoes. Since the game is played bare-foot it is very important to ensure that the play field is soft, pebble free and leveled properly, so as to avoid chances of injuries. The game is such that it involves a good deal of rolling and falling during struggles. This is another reason for having and maintaining the right kind of play field.

OBJECTIVES OF THE STUDY

The following are the objectives of the study:

1. To select forty five kabaddi players at random and to assign them into three groups namely, Moderate Intensity Resistance Training Group (MIRTG), High Intensity Resistance Training Group (HIRTG) and Control Group (CG).
2. To design the Resistance Training under varied intensity and implementing the training for Ten weeks.
3. To find out whether Resistance Training under varied intensity has any effect on the selected morphological variables namely Body mass and Body mass index.

STATEMENT OF THE PROBLEM

The purpose of the study was to find out the effect of varied intensity of Resistance Training on selected morphological and skill related physical fitness variables among university men kabaddi players.

BODY MASS

In contact sports and activities requiring muscular power, successful performance usually requires a large body mass with average to low body fat. In contrast, elite performance in weight-bearing endurance activities requires a lighter body mass and a minimal level of body fat. Proper assessment of body composition, not body weight, should determine an individual's ideal body weight.

Thus, in order to maintain ideal body weight, the energy consumed needs to equal the energy output, and when these are equal, one is said to have an energy balance. Therefore, to gain or lose weight, each side of the equation needs to be adjusted. Thus, exercise appears to play a critical role in body weight control management.

BODY MASS INDEX

Body mass index (BMI) is a summary measure of an individual's height and weight, calculated by dividing a person's weight in kilograms by the square of their height in metres. Using a measure such as Body mass index allows for a person's weight to be standardized for their height, thus enabling individuals of different heights to be compared. Body mass index (BMI) is the most commonly used measure for monitoring the prevalence of overweight and obesity at population level. It is also the most commonly used way of estimating whether an individual person is overweight or obese.

Although Body mass index (BMI) is used to classify individuals as obese or overweight, it is only a proxy measure of the underlying problem of excess body fat. As a person's body fat increases, both their Body mass index (BMI) and their future risk of obesity-related illness also rise (National Heart Foundation in association with the Faculty of Public Health and Department of Health, 2007).

It is only a proxy indicator of body fatness; factors such as fitness (muscle mass), ethnic origin and puberty can alter the relationship between Body mass index (BMI) and body fatness. Therefore, Body mass index (BMI) may not be an accurate tool for assessing weight status at an individual level, and other ways of measuring body composition may be more useful and accurate.

Computation of Analysis of Covariance on Body Mass (Scores in kg)

TEST	MIRTG	HIRTG	CG	SV	SS	df	MS	F
Pre test	7	7	7	B	44.84	2	22.42	1.58
	7	9	6	W	597.47	42	14.23	
Post test	7	7	7	B	115.24	2	57.62	**3.93***
	4	5	8	W	615.07	42	14.64	
Adjusted	7	7	7	B	207.19	2	103.60	
	4	4	8	W	86.93	41	2.12	**48.86***

*Significant at 0.05 level of confidence for 2 and 42 (df) = 3 .22, 2 and 41 (df) = 3.23

Table II shows that 'F' ratio value of 1.58 for pretest mean not significant. The 'F' ratio value 3.93 for post test data significant at 0.05 levels. The 'F' ratio value of 48.86 for adjusted post is significant at 0.05 levels. It is significant difference among the groups. The result of scheffe's post hoc test was applied to find out is presented in Table - III.

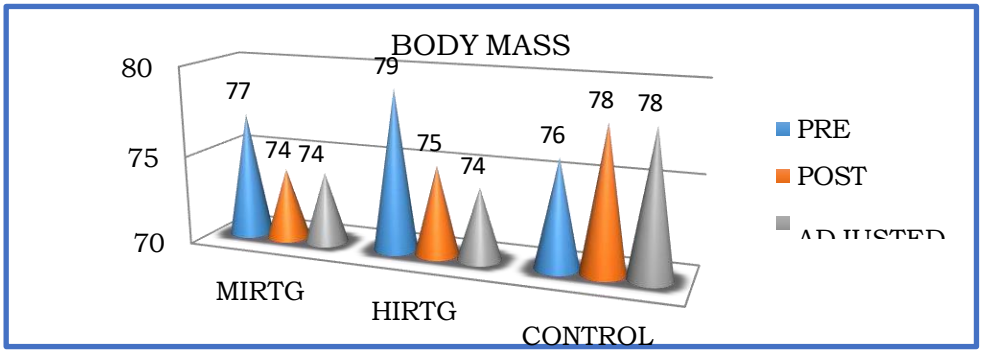
Scheffe's Confidence Interval Test Score on Body Mass (Scores in kg)

MIRTG	HIRTG	CG	Mean Difference	Required C.I
74.13	73.50	-	0.63	1.35
74.13	-	78.43	**4.30***	1.35
	73.50	78.43	**4.93***	1.35

***Significant**

The ordered adjusted means proved that there was significant differences existed between MIRTG and CG (MD: 4.30). There was significant difference between HIRTG and CG (MD: 4.93). There was no significant difference between treatment groups, namely, MIRTG and HIRTG (MD: 0.63) (See Fig-2).

Bar Diagram on Pre Test, Post Test and Ordered Adjusted Means of Body Mass



DEPENDENT VARIABLES

Morphological Variables

i. Body mass
ii. Body mass index

INDEPENDENT VARIABLES

iii. Moderate Intensity of Resistance Training (MIRTG)
iv. High Intensity of Resistance Training (HIRTG)

TESTS SELECTION

S. No.	Variables	Tests / Tools	Unit
Morphological Variables			
1.	Body mass	Electronic Weighing Machine	Kilograms
2.	Body mass index	Small Sliding Caliper	Centimeter

INTRA CLASS CORRELATION CO-EFFICIENT OF SELECTED CRITERION VARIABLES

S. No.	Variables	'r' value
1	Body mass	0.96*
2	Body mass index	0.91*

* Significant at 0.01 level

BODY MASS

Purpose

To measure the weight of the subjects

Equipments required

Electronic weighing machine and score sheet were used.

Procedure

The subject stands with minimal movement with hands by their side. Shoes and excess clothing should be removed during the administration of the test. This could be estimated by first weighing the same or similar clothing to that which will be worn during measurement and subtracting this from the measured scale mass. Generally the mass in minimal clothing is accurate. Check that scale is reading zero. The subject stands on the centre of the scales without support and with the weight distributed evenly on both feet.

Scoring

Record the number showed in the machine as weight of the player in kilograms

BODY MASS INDEX

Purpose

To estimate the body mass index

Equipment required

Electronic weighing scales and stadiometer

Procedure

Body Mass Index **(**BMI) was calculated from body mass (M) and height (H). Body Mass Index = M / (H x H), where M = body mass in kilograms and H = height in meters. The higher the score usually indicating higher levels of body fat **(WHO, 2004)**.

CONCLUSIONS

i. Within the limitation and delimitation of the study, the following conclusions were drawn: Varied intensities such as Medium Intensity Resistance Training (MIRT) and High Intensity Resistance Training (HIRT) significantly altered body mass of the university men kabaddi players. There was no significant difference between the treatment groups.
ii. Varied intensities such as Moderate Intensity Resistance Training (MIRT) and High Intensity Resistance Training (HIRT) significantly altered body mass of the university men kabaddi players. There was no significant difference between the treatment groups.

iii. It was concluded that varied intensities such as Moderate Intensity Resistance Training (MIRT) and High Intensity Resistance Training (HIRT) significantly altered body mass index of the university men kabaddi players. There was no significant difference between the treatment groups.

RECOMMENDATIONS

The finding of this research proved that twelve weeks varied intensities such as Moderate Intensity Resistance Training (MIRT) and High Intensity Resistance Training (HIRT) significantly altered selected Morphological and Skill related physical fitness variables college men kabaddi players. Based on these results, discussions and finding of the research, the following recommendations were suggested by the investigator.

i. The present study is mainly concerned with the university men kabaddi players. So the same study can be conducted on university women kabaddi players.
ii. It is recommended that the same may be conducted at different age group for different age categories.
iii. It is recommended that a similar study may be conducted with a varied training protocol for other Physiological, Biochemical, Hematological and Psychological parameters.
iv. It is recommended that a similar study may be extended with some other variables.
v. It is recommended that a similar study may be conducted with more subjects on elaborate and extensive manner.

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THE GAME CHANGER: THE GAME-SPECIFIC TRAINING REVOLUTION IN CRICKET

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Abstract

The study Explores the need and importance cricket's game specific training. Cricket is the most famous game in the history of all ball games and the richest game. In Cricket, offensive (batting) values include scoring runs, preventing the wicket being withdrawn or defended (staying there). Defensive concepts (bowling and fielding) include limiting runs, battering and stopping space to accomplish these defensive objectives. The simple offensive objectives in cricket are to strike the ball in the field and not get out. The defence is trying to limit running scoring and to eliminate batteries. Agility is a person's ability to rapidly and efficiently shift locations in space or change directions. The capacity to carry out a range of destructive force movements rapidly in the other direction (e.g. zig-zag running or cutting movements). Agility is the ability to quickly and effectively adjust the course of the body. The subjective components of physical-skills Personalized mental skills training enable participants to recognize their cognition in censure to support an intensity of flow in the coordination and capital punishment of task-related skills over the distinct perspective states of participation. The diamond in the rough was approached from a quantitative (descriptive) perspective being it was the perceptions and insane skills subordinate to cricket players' levels of partnership that are assessed.

Introduction

The role of sport in modern society is very promising. For a person, a community, a nation and indeed the world, this is important. The word 'sport' is very common among people of every age and gender. Performance in elite sports at world class level will bring both laurels to the person and to the country. A game between two teams is essentially played. One or more players can be part of a squad. In terms of scores/fixed points or time, the winners are determined. The best teams are generally the winner. The team/individual success is measured by their performances.

Research is required on all aspects of cricket game to understand the players' demands and to relate them to fatigue indicators and the risk of injury. The relation between science and practise in other sports such as football is a long way off. The training programmes would be based too much on trial and error and not on science until more of the demands of the game are understood. This means that players are not sufficiently trained for play and are thus more likely to be injured. This particularly refers to more preventable injury and fatigue-related injuries, such as sprains and strains. In addition, more coordination and collaboration between cricket research scientists and game coaches is required to ensure mutual benefit. This section says that musculoskeletal demands and related stressors are the real cause of stress for cricketers and that research must consider connecting effective excenter training programmes with fatigue indicators, impact on results and risk mitigation on injuries.

Basically, cricket is a bat and ball game played in more than 108 countries all over the world. Since this game was first introduced, there is no accurate record. However, it has more than 300 years of history, the literature suggests. There are many different styles of crickets played, including Test Cricket, One day limited overs, Twenty, 1st class, Sixa-side, 8-page,

single wicket, double wicket etc. The top three cricket variants have been widely admired in the Asian region in particular worldwide. Cricket advocation in the world is critically influenced by the International Cricket Council (ICC), the world's leading body. Sport preparation is designed to enhance a sportsman's performance. Sport preparation is a long-term structured operation. Only sport motor activity or movement may provide sport performance. The ability to conduct these acts or gestures is a significant factor in a sporting person's success.

Cricket

Cricket is a team sport played using a bat and ball on an oval-shaped outdoor arena. During the course of a cricket game we undergo long rest periods with brief bursts of high intensity. As a result, unique components of fitness are necessary for a high-level of cricket success. Cricket is a sport that produces a wide spectrum of reaction from sports fans. Among those who are a part of more action-packed sporting traditions, cricket is variously seen as a dull, repetitive game. To its hundreds of millions of fans united in an intense global fanbase, cricket is a truly international sport, one of the immeasurable subtlety, sportsmanship, and athletic skills. The international competitions create an enthusiasm that is only approached by Soccer's World Cup. To play cricket as a representative of one's country is to gain celebrity status in countries such as India, Pakistan, the various West Indies, and South Africa. Cricket was a product of the English countryside, an ancient game that was played in a formalised fashion at least as early as the 1500s. The rules of the game were first codified in 1744; the format of cricket has been only changed, as opposed to being subjected to widespread reconstruction, since that time. As with American baseball, the fundamental difference between cricket and nearly all other sports is the fact that historically there was no time limit imposed on play; the duration of the game was calculated by how long it took one team to retire the other side in their turn at bat, known as their "innings." The game was an exclusively English endeavour until it was locally imported into the various English colonies around the world in the nineteenth century. Ironically, the first international cricket match was played between two countries with a more minimal existing cricket history, when Canada played with the United States in 1844.

Cricket is a predominately, though not exclusively, male sport. Women's cricket enjoys a following in different countries where cricket is commonly played, but the women's game has not received the publicity nor the professional organisation of men's cricket. The rules of cricket are not complex, but there are subtleties to the game that are best understood by direct involvement, as opposed to observation. The game rules include: the game is played on a field (usually an oval-shaped natural grass surface) between 290 ft and 480 ft (90 m to 150 m). In the oval there's a "pitch," with two numbered plumes where the two bat-men are waiting for a ball from the bowler of the opposing team. One batman faces the bowler on one day by throwing six balls known as a "over." In order to defend the wicket from being hit by a bowled ball, the batman uses his bat. The wicket consists of three upright pillars called "stumps," where two leaves are mounted, square blocks that reside on the corners of the stumps. At each plunge, the batting team or side starts with a batsman. The defence team will take their place, the remaining 10 players will either grab or avoid the ball if it's hit against them. One of the ten fieldmen is a bowler, built to catch the bowling balls not struck by the bowler while he is bowled. The main goal of the game is to get more runs than the other team. The slate creates a run as his team-mate both hits the ball in the field and runs towards the opposite end when he exchanges places. When the ball is bowl. One run counts when each batsman hits the other plinth, and every part of the batsman's body or bat reaching inside the plinth until the ball arrives is labelled.

Fitness for Cricket

Cricket is a sport that historically doesn't consider fitness to be very important. But the success of the Australian team in the 1990s and 2000s worldwide was due to their integrity and

partly their fitness. The other test nations rightly have recently placed more emphasis on health and reap the advantages. Since the advent of Cricket one day and Twenty more recently, substantial improvements have been made to the game and the physical needs of cricketers have also evolved dramatically. The fitness needs of a fast bowler will be greater and therefore different to those of an opening batsman, and cricket on the day is more demanding than the test match, depending on the version of the game being played and the position of the player in the team The value of the fitness will vary.

Physical demands of professional cricket

There are so many diverse types of cricket in the modern county game that fitness is difficult to break down. The fast and furious fitness requirement in Twenty20 lasts 3 hours. In the 50 over a day, Twenty20 is part of the game but it also takes about 6 hours to make the game more exhausting. The purist game, the County Championship, is then there. The player can play for around 250 overs in the game and still be battered for days at a time. The game can be rough like anyone. Cricketer must contain circuits, power lifts and hill sprints in order to achieve the power and pace in the muscle. Cricket is focused primarily on quick and rapid movements over long periods, so hill sprints are a great way to help. Reconciliation is also an integral part of the role of a cricketer in handling its own.

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Functional training

Functional training is a method that facilitates equilibrium training and balance. It is defined by movements such as squatting, pulling or pushing. Functional workouts are better characterised as a continuum of workouts that teach athletes to control their own weight in all movement levels (Boyle, 2004). "Functional training" is among the most current and so-called sports training. While this subject is discussed and taught in sports training and rehabilitation for several years, it is only now that some trainer regard it as a new discovery, which will automatically change the sport performance of anyone who follows it (Siff, 2002). In a number of rehabilitation environments, functional training programmes with reported results have been used. This achievement gained attention for the idea of functional training in applied gymnastics, which enhances sport performance (Thompson, Cobb and Blackwell, 2007). A pragmatic approach to physical training that prevents injuries by improving performance increases overall health and productivity for many active populations (Cook, Burton, and Hoogenboom, 2006). Functional exercise is done to enhance the body's efficiency of these movements in a specific sport or in everyday life.

The Basic Principles of Functional Training

1. Movements should be multi-planar, working across all 3 planes of motion.
2. Movements should be integrated, as we use our entire body.
3. Movements should be fully enriched, as we challenge our brain and our body when moving.
4. The athlete should aim to stand on his/her own feet and in contact with the floor throughout the movement. His/her only point of contact with the ground is his/her feet.

Cricket strength training and exercises

Cricket is a game with little muscle strength. It seems. From a distant watching, cricket seems to be a soft activity where there seems to be no relevance to the principle of strength training and exercises. However, cricket is disceptively challenging, and it can pose significant physical training challenges for athletes, particularly at the elite level, as with many sports with relatively lengthy periods of low activity and intense muscle concentration intervals. For batsmen, bowlers and fieldmen, anaerobic lactic and alactic processes are the primary energy system used during the competition. The periods of action involving the development of power for the muscles of athletes will almost certainly be less than 40 seconds in the acts of bowling, batting and fielding As all cricket players are called to fly and practise at some point in a match, all players get a lot of basic fitness training. Not solely anaerobic priority is cricket preparation. Players also station themselves either for several hours in the field or at the bat. As both a typical English summer sport and a competition in hot, wet places like India, Australia and the West Indies, cricket put the players' environmental demands year-round. The players can help them cope with tiredness and influence their focus in a long match by enhancing aerobic fitness and a good cardiovascular system.

Conclusion

In conclusion, the need for game-specific training for cricketers is undeniable in the pursuit of excellence and success in this dynamic sport. Cricket demands a unique combination of skills, from batting and bowling techniques to fielding and situational awareness. Game-specific training recognizes and addresses these specific requirements, providing cricketers with tailored programs that enhance their abilities and ultimately lead to improved performance on the pitch.

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THE POWER PLAY: TRANSFORMING SHOULDER STRENGTH AMONG SRM UNIVERSITY'S WOMEN VOLLEYBALL PLAYERS

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Abstract

The purpose of the present study was to find out the effect of medicine ball exercises for the development of shoulder strength among Women Volleyball Players of SRM Institute of Science and Technology, Kattankulathur, Tamil Nadu, India. The sample for the present study consists of 20 Women Volleyball Players out of which 10 are experimental group and 10 are controlled group. Medicine ball exercises were given to experimental group on alternate days, that is, three sessions per week and controlled group were given the general training for 6 weeks. Pre-test and post-test were conducted on pull ups to the experimental group and controlled group. This study shows that due to the medicine ball exercises, there is an improvement of the experimental group in shoulder strength. It is concluded that due to medicine ball, there will be improvement in shoulder strength.

Keywords: *Medicine ball exercises, Pull ups, Shoulder strength.*

INTRODUCTION

Medicine ball exercises for building strength, speed, endurance, agility, improving cardiovascular fitness, and boosting your overall health. Avery Faigenbaum (2006) medicine ball training can be used to enhance muscle strength, muscle power, flexibility, endurance, coordinations, agility, balance, and speed. Pramod and Dr. Divya (2019) studied the effect of medicine ball training on shoulder strength and abdominal strength and endurance among Sudan school boy's football players in Qatar. To achieve the purpose of this study, 30 (n = 30) interschool football boys player of Sudan nationalities randomly selected as subject from Indian school Doha-Qatar. Their age ranged between 13 and 17 years. The selected participants were randomly divided into two groups. Group I considers as experimental group (n = 15) and Group II acted as control group (n = 15). Experimental group(EG) underwent medicine ball training (MBT) three alternative days in a week and training section lasted 60 min for 6 weeks. Control group (CG) was not performing any specific training but they were participated in regular activities. The shoulder strength (SS) was assessed by Warner test of soccer skill (in meter) and abdominal strength and endurance (ASE) was assessed by AAHPER Youth Fitness Test (in number) which were selected as variables. The pre- and post-test data were collected on selected criterion variables before and immediately after the training program. The pre- and post-test scores were statistically examined by the dependent "t" test and analysis of covariance (ANCOVA). The level of significant was fixed at 0.5 level of confidence, which was considered as appropriate. It was concluded that the experimental group had shown significantly improved in SS and ASE due to MBT and control group had not showing any significant improvement in SS and ASE.

NEED OF SHOULDER STRENGTH FOR VOLLEYBALL PLAYERS

Shoulder strength is crucial for volleyball players as it plays a significant role in their overall performance and injury prevention. Here are some important notes about the need for shoulder strength in volleyball players:

1. **Powerful Spiking**: A strong shoulder complex, including the deltoid muscles, enables players to generate the power needed for effective spikes. This strength is vital for attacking and scoring points.

2. **Serving**: Serving in volleyball often involves overhead motions that heavily rely on shoulder strength. A strong shoulder allows for more powerful and accurate serves.
3. **Setting**: Setting the ball with precision requires shoulder stability and control. Strong shoulders help players maintain proper form, leading to more accurate and consistent sets.
4. **Blocking**: Blocking at the net involves reaching high and wide with the arms. Strong shoulders enable players to reach and deflect balls effectively, thwarting the opponent's attacks.
5. **Injury Prevention**: Volleyball players frequently subject their shoulders to stress from repetitive overhead movements. A well-conditioned shoulder complex can help prevent injuries such as rotator cuff tears, impingements, and shoulder instability.
6. **Endurance**: Volleyball matches can be long and physically demanding. Shoulder strength and endurance are necessary to maintain consistent performance throughout a match without experiencing fatigue-related declines in accuracy and power.
7. **Recovery**: Strong shoulders can aid in post-match or post-training recovery by reducing the risk of soreness and injuries. Adequate shoulder strength promotes a faster recovery process.
8. **Balanced Muscle Development**: Volleyball players should work on balanced muscle development to avoid overuse injuries. This includes strengthening not only the deltoids but also the supporting muscles, such as the rotator cuff and upper back muscles.
9. **Preventing Overhead Athlete Injuries**: Volleyball players are considered overhead athletes, and they share certain injury risks with other sports like baseball and tennis. Strong shoulder muscles help counteract these risks by providing stability and support.
10. **Functional Mobility**: Volleyball players need to have a wide range of motion in their shoulders. Shoulder strength, combined with flexibility, ensures that players can reach, swing, and hit the ball effectively.
11. **Cross-Training**: Incorporating exercises that target shoulder strength and stability into a volleyball player's training routine is crucial. This can include weightlifting, resistance band exercises, and plyometric training.
12. **Proper Technique**: Strong shoulders are most effective when combined with proper technique. Players should receive coaching to ensure they're using their shoulder strength efficiently.
13. **Regular Maintenance**: Shoulder strength should be maintained throughout the season and during the off-season to prevent weaknesses or imbalances from developing.

    Shoulder strength is a fundamental component of a volleyball player's physical conditioning. It not only enhances performance but also reduces the risk of injury, enabling players to play at their best and stay on the court for longer periods. Players and coaches should pay careful attention to shoulder strength as part of their training and conditioning regimen.

MATERIALS AND METHODS

The sample for the present study consists of 20 Women Volleyball Players of SRM Institute of Science and Technology, Kattankulathur, Tamil Nadu, India, out of which 10 are experimental group and 10 are controlled group. Medicine ball exercises were given to experimental group on alternate days, that is, 3 sessions/week and controlled group was given the general training for 6 weeks.

The following are the medicine ball exercises which were given 3 times a week for 6 weeks on alternate days to the experimental group.

1. Biceps curls with medicine ball
2. Triceps curls with medicine ball
3. Russian twist
4. Bent over rowing

5. Up right rowing
6. Half squats
7. Side wards bend
8. Heel raising with medicine ball
9. Wall pass
10. Sit ups with medicine ball Pre-test and post-test were conducted on pull ups to the experimental group and controlled group.

RESULTS AND DISCUSSION

Table 1: Mean values and paired samples statistics of pull ups between experimental and control groups of B.Ped students

Variables	Group	Pretest Mean± SD	Post-test Mean±SD	t Value	P Value
Pull ups test	Experimental	10.33±0.479	12.73±0.868	4.47	0.000
Pull ups test	Control Group	10.27±0.450	9.80±0.714		

Table 1 shows the mean score of pre-test and post-test in the control group and experimental group in the pull ups test this finding was analyzed using paired "t" test inferential statistics to find out whether there is a significant difference between the mean score of the pre-test and post-test of shoulder strength within the control group and experimental group. The experimental group pre-test mean score in pull ups is 10.33 compare to post-test score is 12.73, there is an improvement of mean score 2.40 between pre-test and post-test due to medicine ball exercises The control pre-test mean score in pull ups is 10.27 compare to post-test score is 9.80, there is a decrease of mean score timing 0.47 between pre-test and post-test due to general training.

The finding of the analysis shows that there is no significant difference between the pre-test and post-test within the control groups in terms of shoulder strength and the findings of experimental group analysis show that there is a significant difference between the pre-test and post-test within the experimental group in terms of shoulder strength.

CONCLUSIONS

There was a significant improvement on shoulder strength due to medicine ball training among Women Volleyball Players of SRM Institute of Science and Technology, Kattankulathur, Tamil Nadu, India. However, the control group had not shown any significant improvement on shoulder strength.

RECOMMENDATIONS

It is recommended that similar studies can be conducted on other events and also female Javelin students. This type of study is useful to coaches to give proper coaching for the development of motor qualities among physical education college students.

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EFFECTS OF A 12-WEEK YOGIC EXERCISE PROGRAM ON BODY COMPOSITION OF OBESE WOMEN

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Abstract

The purpose of this study was to investigate the effect of yogic exercises program on body composition among obese women. To achieve the purpose of the study, thirty obese women were randomly selected as subjects from TNPESU, Chennai. The age of the subjects was ranged from 20 to 23 years respectively. The subjects selected for this study were divided into two groups of fifteen subjects each. The experimental group I underwent yoga training and group II acted as control group. The Analysis of Covariance statistical technique was used to test the adjusted mean differences among the treatment groups. The experimental group had achieved significant improvement on body composition when compared to control group.

Keywords: *Yogic, Body Composition, Obese women.*

Introduction

Obesity is a chronic state of being overweight. It's a life threatening condition and current research has shown that obesity is the leading cause for the increased health threats those persons of the developed world. What worse is the over two third of the industrialized worlds population is suffering from obesity and that's putting them in greater health dangers. Everyone desires good health and it is the ultimate objective of all those who want happiness in life. Each and every one has to follow good health practices in the routine life. Minor health disorders are quite common to all. In the case of major health problems, the precautionary measures are plenty. Some people control their diseases like blood pressure, diabetes, acidity, asthma etc., by taking medicines regularly. But such practice does not in any way completely eliminate the health disorders on the other hand; it leads to several other adverse health problems (Gillette & Elseman, 2003).

The women of today are very much busy with their hectic schedules; the present professional world has drowned them neck-deep within the stressful conditions of the professional life. They are off late lacking energy, vitality of mind and fun. One of the most simple and effective way to achieve their desire can be practicing Yoga. Going through a mere fitness itinerary, that is going to a gym or practicing diet is not the correct path, as they do not always guide one to the right path but doing some easy exercises or yoga for women can really impart upon great spirit to your mind and soul. Yoga for women works on both the mind and body. It makes you strong both physically and emotionally to handle the challenges of life. Yoga practice provides natural relaxation which is not available with any other exercise. A yoga exercise stimulates all the body organs and endocrine glands (Pradhan, 2008).

Methods

The purpose of this study was to investigate the effect of yogic exercises program on body composition among obese women. To achieve the purpose of the study, thirty obese women were randomly selected as subjects from TNPESU, Chennai. The age of the subjects was ranged from 20 to 23 years respectively. The subjects selected for this study were divided into two groups of fifteen subjects each. The experimental group I underwent yoga training and group II acted as control group.

Statistical Procedures

The Analysis of Covariance statistical technique was used to test the adjusted mean differences among the treatment groups.

Results and Discussion

TABLE –I

COMPUTATION OF MEAN AND ANALYSIS OF COVARIANCE OF BODY COMPOSITION OF EXPERIMENTAL AND CONTROL GROUPS

	Experimental Group	Control Group	Source of variance	Sum of squares	df	Mean square	F
Pre test mean	30.32	30.71	BG	1.16	1	1.16	0.36
			WG	89.88	28	3.21	
Post test mean	29.10	30.56	BG	15.98	1	15.98	7.33*
			WG	61.12	28	2.18	
Adjusted post mean	29.20	30.46	BG	11.78	1	11.78	8.35*
			WG	38.30	27	1.41	

* Significant at 0.05 level

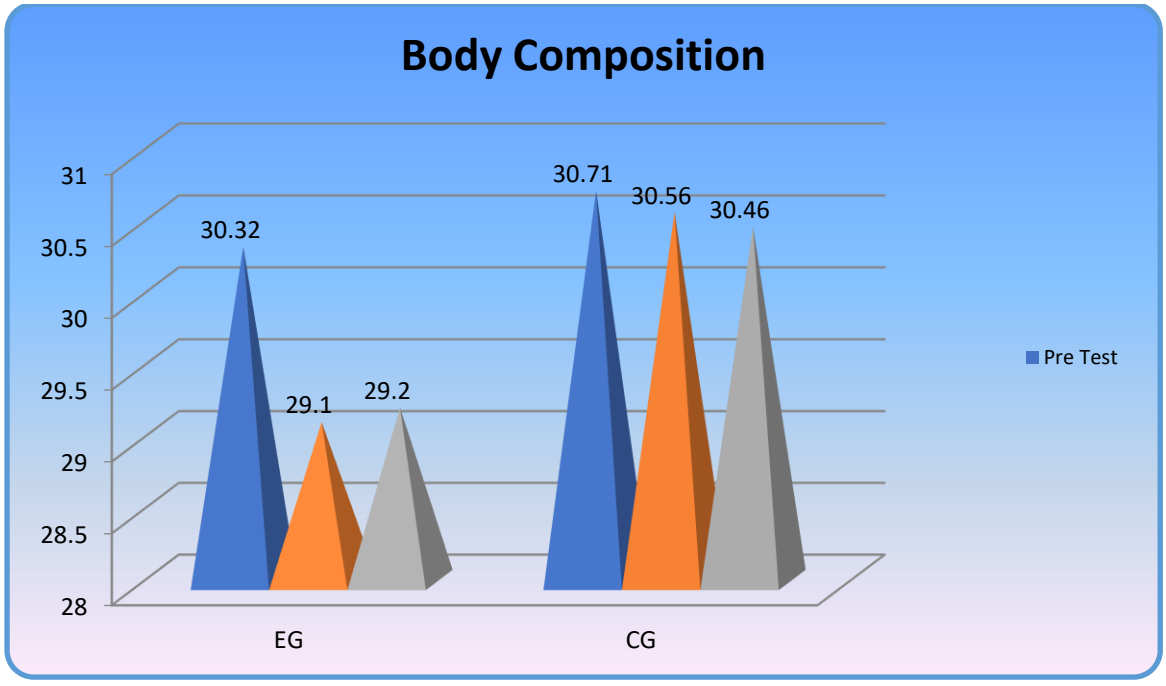
Table value for df 1 and 28 was 4.20

Table value for df 1 and 27 was 4.21

The above table indicates the adjusted mean value of body composition of experimental and control groups were 29.20 and 30.46 respectively. The obtained F-ratio of 8.35 for adjusted mean was greater than the table value 4.21 for the degrees of freedom 1 and 27 required for significance at 0.05 level of confidence. The result of the study indicates that there was a significant difference among experimental and control groups on body composition. The above table also indicates that both pre and post test means of experimental and control groups also differ significantly. The pre and post mean values of body composition of both control and experimental groups are graphically represented in the Figure-I.

FIGURE I

GRAPH OF BODY COMPOSITION OF EXPERIMENTAL AND CONTROL GROUPS



Conclusions

The experimental group had achieved significant improvement on body composition when compared to control group.

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CULTURAL AND TRADITIONAL CUSTOMS OF TAMIL CULTURE ON SCIENTIFIC BASIS

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INTRODUCTION

The terms "customs" and "traditions" are used to describe a wide variety of peculiar behaviours. Because we don't know enough about these customs and traditions and their origins, the majority of them appear absurd to us, the current generation.

When you inquire about spiritual beliefs, you will inevitably reach the same scientific explanations, just like me. I captured a few unfamiliar and enthralling items from a large net. I wish that you would read something novel as well.

Key words: *Customs, Traditions, Behaviours, Generation.*

1. The act of tossing coinage into a river

The common justification for this action is that it brings good fortune. However, scientifically speaking, the majority of ancient currency was made of copper, in contrast to modern coinage made of stainless steel. Copper is an essential element that is extremely beneficial to the human body. As rivers were the only source of drinking water, our ancestors ensured that we ingested enough copper by throwing coins into rivers. Making it a tradition ensured that everyone followed it.

2. Uniting both palms in a salute

In the Hindu culture, palms are joined in a salutation called "Namaskar" Greeting with joined palms typically conveys respect. However, scientifically speaking, joining both hands guarantees the union of all digit ends, which correspond to the pressure points of the eyes, ears, and brain. It is believed that pressing them together activates the pressure receptors that aid an individual's long-term memory. And since there is no physical contact, there are no pathogens!

3. Why do Indian women wear toenail jewellery?

Not only are married women expected to wear toe rings, but there is also a scientific rationale for the practice. The second toe is typically where toe ornaments are worn. From the second toe, a specific nerve connects the uterus to the heart, which strengthens the uterus. The toe ring will maintain the health of the uterus by modulating its blood flow, which in turn will normalize the menstrual cycle. Since silver is an excellent conductor, it absorbs and transmits the earth's polar energies to the body.

4. Why do temples possess bells?

Visitors to the temple must ring the bell before entering the interior sanctum, where the principal deity is located. According to the Agama Sastra, the bell's melody is used to ward off evil forces, and its ringing is pleasant to God. The scientific explanation for bells, however, is that their ringing clears the mind, enables us to remain vigilant, and maintains religious concentration.

5. Why do we revere the 'Peepal Tree'?

Except for its shadow, the "Peepal" tree is virtually useless to the average person. Why should a common villager or person worship or care about the Peepal tree if its fruit is inedible and its wood is useless? Our ancestors recognized that "Peepal" is one of the few (or perhaps the only) trees that produce oxygen at night. In order to preserve this tree due to its unique characteristics, they associated it with God or religion.

6. Why is it not advisable to sleep with your head facing north?

Myth is that it attracts ghost or death but it is because human body has its own magnetic field (Also known as hearts magnetic field, because the flow of blood) and Earth is a giant magnet.

When we sleep with our heads facing north, the magnetic field of our bodies becomes wholly asymmetrical to that of the Earth's. Our heart must work harder to surmount this asymmetry of magnetic fields, which causes blood pressure issues.
In addition, our blood contains a considerable amount of iron. Iron from the entire body begins to accumulate in the brain when we sleep in this position. This can result in headaches, Alzheimer's, cognitive decline, Parkinson's, and brain degeneration.

7. Why are certain days meat-free?

Tuesdays, Thursdays, and Saturdays are examples of days when Hindus abstain from eating flesh. As humans, we only require a small quantity of meat to meet our nutritional needs, which include iron, vitamin B12, and other essential nutrients.
However, we frequently develop an unhealthy dependence on meat consumption. It can lead to diseases like piles, renal stones, and colon cancer, among others. As a result, Hinduism imposes restrictions by designating particular deities to specific days.

8. Diwali is observed with festivities and cleansing

Diwali typically occurs in October or November, coinciding with the beginning of winter and the conclusion of the monsoon season. Back then, the rainy season was not a pleasant time for everyone; after a severe downpour, numerous homes required repair and renovation. Because of this, the time preceding Diwali was regarded as a period in which everyone could clean and decorate their homes. Also, they must remove their winter clothing and prepare their summer attire.

9. Why do people fast?

The underlying principle of fasting is derived from Ayurveda. According to this ancient Indian medical system, the accumulation of noxious substances in the digestive tract is the root cause of many diseases. Regularly removing toxins from the body maintains health. Fasting rests the digestive organs and cleanses and corrects all bodily mechanisms. A complete fast is beneficial to one's health, and the consumption of tepid lemon juice on occasion during the fast prevents flatulence.

10. Lamp lighting

We are all aware that the act of lighting a lamp/Diya signifies the transition from darkness to illumination. However, this ancient Indian custom is grounded in science. The magnetic force produced by a lamp's filament when it is lit is equal to the force of gravity.
It is believed that the light can alter the atmosphere and eliminate airborne impurities. This electromagnetic force influences our body and epidermis, thus revitalizing our blood cells.

11. Why must we visit the Temple?

Temples are situated at a location where magnetic and electric wave distributions of north/south pole propulsion provide an abundance of positive energy. In the central centre of the temple, known as *Garbhagriha* or *Moolasthanam*, the primary deity is located. In actuality, the temple structure is constructed after the idol has been positioned. This *Moolasthanam* is where the earth's magnetic impulses are greatest. We are aware that copper plates bearing Vedic inscriptions are concealed beneath the main Idol. What are they in essence? No, they are not God’s / priests‟ flash cards when they neglect the *shlokas*. Copper plate absorbs and radiates earth's magnetic radiation. Thus, a person who frequently visits a temple and walks in a clockwise direction around the Main Idol receives the transmitted magnetic waves and absorbs them into his body. This is a very sluggish procedure, and he will absorb more of this positive energy through frequent visits. To live a healthy existence, we all require positive energy from a scientific standpoint.

12. Celebrate Diwali / Deepavali

"DEEPA" translates to "light" and "AAVALI" translates to "a row." Therefore, Deepavali is also known as the festival of lights. The scientific explanation for Deepavali is that during the winter months, a large number of insects proliferate and destroy crops. When millions of people

lit lamps, insects began to tumble into them. They are not killed. "ILLUPPA ENNAI" is the name of the oil used in these lanterns, which possessed medicinal properties.

13. Wedding

a. Application of Mehndi / henna to palms

In addition to imparting pigment to the hands, mehndi is an extremely potent medicinal herb. Weddings are stressful, and the stress can frequently result in migraines and fevers. As the wedding day approaches, the bride and groom's enthusiasm and nervousness can take a toll on them. Because it cools the body and prevents nerves from becoming tense, mehndi can prevent excessive tension. Because the palms and feet contain nerve endings, mehndi is applied to these areas.

b. Why is Turmeric utilized at weddings?

Turmeric is used as an antiseptic and for other medicinal purposes. It has a moisturizing effect and eliminates bacteria on the skin, giving the couple a more radiant glow.

c. Donning armbands

Blood circulation is improved by constant friction. As the bangles are ring-shaped, there is no limit to the energy that flows between them, so they remain in good health. Therefore, Indian women view bangles as a symbol of good fortune.

d. The use of toe rings

Initially, a nerve traverses the uterus. The toe ring strengthens the uterus and normalizes the menstrual cycle. These rings also transfer polar energy from the planet to the body.

CONCLUSION

After reading this, you may have discovered the logic behind many things we once deemed "irrational" and "ridiculous." Regional and national customs and beliefs may vary, but the necessity to follow positive energy remains constant. The majority of the beliefs attract positive energy, while the rest inspire positive thoughts toward these customs and health tips. The term "Hindu customs" appeared repeatedly; I believe that positive energy is essential for everyone. So that you can (if you so choose) apply this information in a way that feels meaningful to you in your daily life.

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EFFECT OF NUTRITIONAL SUPPLEMENT COCONUT INFLORESCENCE SAP (CSP) ON THE AEROBIC PERFORMANCE AMONG ATHLETES.

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Nutrition has been increasingly recognized as a key component to optimal sports performance. Though several botanical agents have been reported to possess ergogenic potential, there exists a great interest for tasty and safe natural substances as performance boosters. In the present contribution, the ergogenic potential of a novel powder form of coconut inflorescence sap (CSP) was investigated for the first time.

Introduction

Nutrition is increasingly recognized as a key component to optimal physiological performance and function. Improving exercise performance with dietary modifications and/or supplementation with micro- and macro-nutrients has been on-going for nearly 100 years [1,2]. The development of both carbohydrate-enhanced beverages and foods as well as functional foods or nutraceuticals have been examined as potential ergogenic aids. Many of these dietary and supplemental approaches, however, are limited in use due to side effects such as gastrointestinal discomfort, lack of efficacy or the potential for adverse health consequences [3,4]. Thus, the development of novel and efficacious interventions to alter dietary micro- and macro-nutrients without causing side effects, yet leading to improved exercise performance are timely.

The purpose of this study, therefore, was to determine the efficacy of the novel, micro- and macro-nutrient rich CSP supplement on exercise performance in young, trained adults. We hypothesized that 3 g per day of CSP for 21 days will enhance aerobic capacity, and running performance in young, apparently healthy participants.

Materials and methods

Characterization of CSP

Proteins, fat and carbohydrates content of CSP were estimated by standard procedures as per the official methods of Analysis of AOAC International [9]. Moisture, water activity and ash content were also estimated by the methods of AOAC [9]. Bulk density was determined as per the method of USP 29 (616). Vitamins (B2, B3, B6, B12 and C) were estimated by HPLC method as described by Sami et al., using Shimadzu LC 20 AT instrument fitted with an M20A photodiode array detector (PDA) (Shimadzu Analytical Pvt. Ltd., Mumbai, India) [10].

The elemental analysis was performed as follows. About 3 g of sample was accurately weighed into a crucible and subjected to ashing in a furnace for 4 h at 550 °C. After cooling in desiccator, 2.5 mL of 6 N HNO_3 was added to the crucible and the solution was filtered. The filtrate was made up to 100 mL with distilled water and was analyzed for Ca, Fe, P, Zn, Mn, Na and K by using Atomic Absorption Spectrophotometer (AAS-Perkin Elmer, Model analyst 800) [11].

Subjects

Healthy young male volunteers ($N = 14$) from Christ College, Kerala, India (Age 20 ± 1.5 years; BMI 22.99 ± 0.79 kg/m^2) undergoing regular physical training for running, volleyball, swimming and jumping for at least 2–3 h/week were screened for the study. The small sample size can be rationalized on the basis of the fact that this is a pilot clinical study to investigate the efficacy of a micronutrient enriched CSP in endurance. Inclusion criteria were age (18–25 years), physical activity (a moderate activity with minimum 2 h of endurance exercise twice per week and a maximum of 3 h of endurance exercise thrice per week) with no history of musculoskeletal injury, pain or symptoms. Exclusion criteria were any current medical issues or history related to cardiovascular, liver, kidney or respiratory disease. Individuals taking herbals or other ergogenic supplements were excluded. Volunteers were asked to avoid caffeine-based drinks including coffee, tea or energy drinks during the study period. After detailing all the study procedures and risks, written informed consent was obtained from each participant. The study followed the protocol approved by the registered ethical committee (Reg. No ECR/184/Indt/KA /2014, dated 15/07/2014) and was conducted in accordance with the guidelines of Clinical Trial Registry of India (Reg No.: CTRI/2018/03/012551 dated 13/03/2018).

Study design and materials

A single-blinded (participants were blinded), placebo-controlled, randomized, cross-over design to consume either placebo (200 mL drinking water flavored and sweetened with 400 mg aspartame) or CSP (3 g CSP dissolved in 200 mL drinking water) as single dose per day, 30 min prior to breakfast for 21 days with a 2-week washout period between trials was adopted in this study (Fig. 1). Micronutrient-enriched coconut inflorescence sap powder (CSP, patent-pending and registered formulation as COCOZEN®) undergoing low-termperature processing and the placebo were prepared and provided by Akay Natural Ingredients, Cochin, India. A detailed analytical test report on various safety parameters including heavy metals, aflatoxins, microbial status, and pesticides was also received from the manufacturer. White crystalline powder of CSP was stored in a double-layered polyethylene bags under sealed conditions and kept at room temperature (25 ± 2 °C) in an air-tight high-density polyethylene container. Nutritional analysis for carbohydrates, proteins and fat along with various vitamins and minerals were performed as per the validated and approved analytical methods. Subjects were randomly divided into the placebo or CSP condition and were instructed to take the supplement daily for 21 days.

Following screening (Visit 1), participants underwent familiarization of the exercise protocols. During visit 2 (Day 1; Fig. 1) participants were instructed to wear comfortable, loose-fitting clothing and arrived at the physical education and sport sciences training center by 5 ± 0.5 PM. After 15 min of rest, blood samples (approximately 10 mL) were collected for baseline analysis followed by the exercise protocols (see below). All the physical tests were then performed in the same order and an additional ~10 mL of blood was collected immediately after exercise. This protocol was repeated on day 7 (visit 3), day 14 (visit 4) and day 21 (visit 5). Efficiency parameters of the tests such as speed, time, and the number of repeats were recorded individually on each visit. All the participants completed the exercise tests within a 90 ± 10 min period. After the 14 day washout period, the treatment regime was reversed and the visits from day 1 to day 21 were repeated using the same protocol as specified in Arm 1 (Fig. 1). Participants were instructed to continue their general aerobic and anaerobic exercise patterns for the duration of the study. All participants consumed a controlled food pattern involving typical south Indian diet composed of breakfast (rice-based with an egg), afternoon lunch (rice with egg or chicken or fish), dinner and evening snacks (wheat-based with fish or chicken) consisting on an average of 10% fat, 10–30% proteins and 40–65%

carbohydrates [12]. This dietary control was provided throughout the study period to all candidates (both placebo and CSP condition) to avoid any influence of diet on performance.

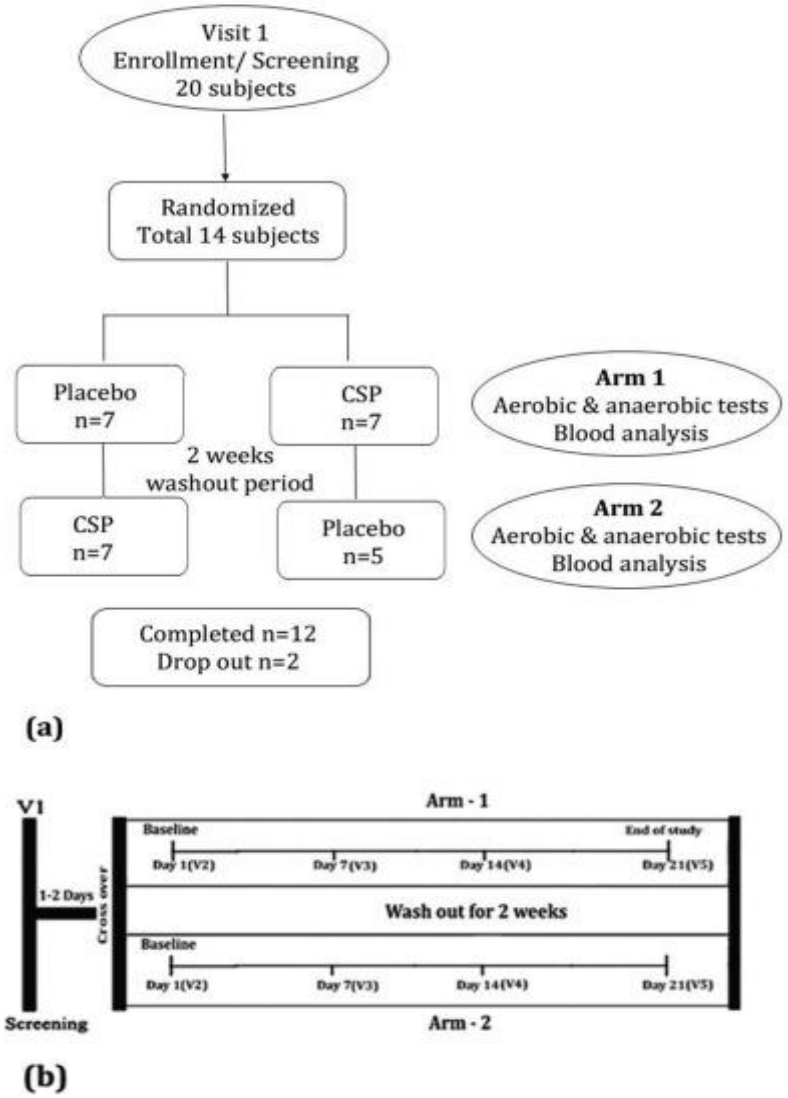


Fig. 1. (a) Consort diagram showing the flow of participants through each phase of the randomized crossover trial; (b) Trial schedule showing the visits, administration of coconut inflorescence sap powder and placebo, and collection of blood samples.

Aerobic testing protocols

The 2.4 km run test was performed on a track as described by Haff & Dumke [14]. Subjects were instructed to run as quickly as possible and the time for completion was recorded to the nearest 0.1 s. Peak oxygen consumption, or VO_2 max, was estimated from the speed and body mass according to the equation of George et al., [15]. The equation used to calculate VO_2 max was $\boldsymbol{VO_2\,max\,(mL.kg^{-1}.min^{-1} = 88.02 + (3.716 \times gender) - (0.0753 \times body\,weight\,in\,pounds) - (2.767 \times time\,for\,2.4km\,in\,minutes)}$ in which where gender = 1 for males and 0 for females VO_2 max is the maximum amount of oxygen in milliliters that is utilized in one minute per kilogram of body weight (mL/kg/min). Those who have a higher VO_2 have a greater aerobic capacity.

2.5. Blood clinical markers

Fasting blood samples and the blood samples before and after the physical tests were collected into heparinized and non-heparinized tubes from the antecubital vein, to analyze

fasting blood sugar level, other hematological and biochemical markers. To separate serum, the blood was allowed to clot for 30 min and centrifuged at 1000 ×*g* at 4 °C for 10 min. Plasma was separated from the heparinized tubes by the same centrifugation protocol. Both serum and plasma samples were stored at −20 °C for later analysis. Hematological parameters include hemoglobin (Hb) content, Alanine Aminotransferase (ALT), Aspartate Aminotransferase (AST) and Alkaline Phosphatase (ALP) levels. Excluding Hb, all other assays were done by assay kits provided by M/s Agappe Diagnostics Pvt. Ltd., Bangalore, India. All assays were performed by a certified medical professional in quadruplicate and the average value was reported.

Serum lactate dehydrogenase (LDH) activity was also determined by a colorimetric assay at 550 nm, using kit method (Cat. No: ab102526; M/s Abcam, Cambridge, USA) [16]. Antioxidant status was measured by estimating serum level activities of superoxide dismutase (SOD) [17], Catalase [18] and glutathione peroxidase (GPx) [19].

Inter- and intra-assay coefficients of variation (%CV) in blood marker analysis was performed as follows. Intra-assay %CV was calculated as the ratio of the pooled standard deviation from all samples (each was analyzed in quadruplicate) to the overall mean, multiplied by 100. Inter-assay %CV refers to assay-to-assay consistency which was calculated as the ratio of the pooled standard deviation to the overall mean of all duplicated samples, multiplied by 100. Mean intra-assay CV for the blood markers was found to be 6.01% and the mean inter-assay CV was 2.96%.

2.6. Statistics

Statistical analysis was performed using Statistical Package for the Social Sciences (SPSS–25) for both placebo and CSP condition. A 2 -way repeated measures Analysis of Variance (ANOVA) was performed to analyze the data. A 2 × 4 Repeated measures ANOVA was also carried out to find out the progress in mean power in condition *vs* time. Differences were considered significant at $p < 0.05$. Reported values are arithmetic means with standard deviation (SD) or standard error of the mean (SEM) as indicated.

3. Results

3.1. Characteristics of CSP

CSP prepared by a proprietary process at controlled conditions of temperature and pressure to preserve the micronutrients in coconut inflorescence sap was employed as the test substance in the present study (CSP; registered as COCOZEN®). It was stable and does not undergo fermentation under ambient conditions (25 ± 2 °C, relative humidity 60 ± 5°). Physicochemical characteristics and various micronutrients in the standardized CSP are given in Table 1, Table 2 respectively. It was found that CSP contains 2 and 5 fold higher levels of vitamins (B and C), 20 and 15 fold electrolytes (Na and K) and around 3, 11, 40 and 16 fold minerals respectively (Ca, P, Fe, and Zn) than coconut water. It also contains 1% Nitrate. The micro and macronutrients composition of CSP and Placebo per serving are provided in Table 3.

Sl. No.	Parameters	Results
1	Colour and appearance	White free flowing granular powder
2	Taste	Sweet
3	Bulk density	0.2–0.5 g/mL
4	Moisturea	4.8%
5	Water activitya	0.25
6	Ash contenta	0.95%
7	Solubility	Soluble in water
8	Proteina	1.5%
9	Fata	1%
10	Carbohydratea	78%

Official Methods of Analysis of AOAC International, 19th Ed., [9]; Method numbers: Moisture - 43:1(986.21); Water activity - 42:1–2(978.18); Ash content - 43:2 (941.12); Protein - 04:33–36 (2001.11); Fat −04: 40–42 (2003.05); Carbohydrate - 50:18(986.25) & Jose et al., [5].

Table 2. Micro nutrient comparison of Coconut inflorescence sap powder with Coconut water[a].

Nutrient	**CSP (3 g)**	**Placebo (3 g)**
Macronutrients		
Carbohydrates[a]	2340 mg	0.356 mg
Protein[a]	45 mg	0.01 mg
Fat[a]	3 mg	0 mg
Micronutrients		
Vitamin C	1.460 mg	0 mg
Vitamin B	0.087 mg	0 mg
Calcium	0.07 mg	0 mg
Iron	0.03 mg	0 mg
Phosphorus	1.740 mg	0 mg
Zinc	0.010 mg	0 mg
Manganese	0.003 mg	0 mg
Sodium	16.080 mg	0 mg
Potassium	78.420 mg	0.02 mg
Choline	0.100 mg	0 mg
Nitrate	30 mg	0 mg

Official Methods of Analysis of AOAC International, 18th Ed., [9]; Method numbers: Moisture - 43:1(986.21); Water activity - 42:1–2(978.18); Ash content - 43:2 (941.12); Protein - 04:33–36 (2001.11); Fat −04: 40–42 (2003.05); Carbohydrate - 50:18(986.25) Micronutrients are estimated as per the method by Sami et al., 2014 & Hussain et al., 2011. Nutrient composition of Aspartame was taken from US Department of Agriculture Official Website Survey (FNDDS) FDC ID: 1103946 Food Code:9120101.

Study subjects

Fourteen apparently healthy males (age 20 ± 1.5 years; BMI 22.99 ± 0.79) were enrolled and 12 subjects completed the study (Fig. 1). Two subjects voluntarily withdrew from the study. Baseline anthropometric measurements and safety parameters were in the normal range (Systolic BP were 123.07 ± 7.34 in placebo and 124.60 ± 5.44 mmHg in CSP group; Diastolic BP were 81.20 ± 6.74 in placebo and 78.53 ± 6.79 mmHg in CSP; Heart rates were 74.07 ± 1.22 in placebo and 69.20 ± 2.21/min in CSP group). Safety parameters were in the normal range: AST was 26.13 ± 7.74 U/L in placebo and 36.20 ± 7.74 U/L in CSP group ; ALT was 29.60 ± 11.41 U/L in placebo and 34.07 ± 10.80 U/L in CSP; ALP in placebo 72.40 ± 18.01 U/L and in CSP 83.27 ± 25.57 U/L respectively). All these parameters remain normal at the end of study which is presented in Table 4. No significant body weight change was noted during the study period. Both placebo and CSP treated condition showed no significant effect ($p > 0.05$) in AST, ALT and ALP levels.

Table 4. Anthropometric characteristics and clinical markers of study subjects (n = 12) All data here (Initial and end of study).

Parameters	**Time point**	**Placebo**	**CSP**
Age (years)	Pre	20.00 ± 1.50	20.00 ± 1.50
	Post	20.00 ± 1.50	20.00 ± 1.50
Height (cm)	Pre	175.33 ± 6.90	175.33 ± 6.90
	Post	175.33 ± 6.90	175.33 ± 6.90
Weight (kg)	Pre	70.70 ± 4.39	70.70 ± 4.39
	Post	70.70 ± 4.39	70.70 ± 4.39
BMI (kg/m^2)	Pre	22.99 ± 0 0.79	22.99 ± 0 0.79
	Post	22.99 ± 0 0.79	22.99 ± 0 0.79
Systolic BP (mmHg)	Pre	123.07 ± 7.34	124.60 ± 5.44
	Post	122.02 ± 5.30	126.67 ± 4.05
Diastolic BP (mmHg)	Pre	81.20 ± 6.74	78.53 ± 6.79
	Post	79.60 ± 4.28	84.53 ± 3.74
Heart rate (per min)	Pre	74.07 ± 1.22	69.20 ± 2.21
	Post	70.51 ± 2.69	73.40 ± 2.96
AST (U/L)	Pre	26.13 ± 7.74	36.20 ± 7.74
	Post	27.57 ± 3.70	28.93 ± 6.24

Parameters	Time point	Placebo	CSP
ALT (U/L)	Pre	29.60 ± 11.41	34.07 ± 10.80
	Post	28.74 ± 9.40	32.67 ± 10.46
ALP (U/L)	Pre	72.40 ± 18.01	83.27 ± 25.57
	Post	71.51 ± 17.80	72.07 ± 18.99
FBS (mg/dL)	Pre	92.64 ± 4.57	95.12 ± 3.46
	Post	93.39 ± 5.63	94.65 ± 5.71
SOD (U/mg)	Pre	6.43 ± 0.64	6.53 ± 0.32
	Post	4.20 ± 0.20	8.20 ± 0.41*
Catalase activity (U/mg)	Pre	40.30 ± 2.01	38.66 ± 2.3
	Post	35.96 ± 1.79	45.47 ± 2.26*
GPx (U/mg)	Pre	197.50 ± 9.87	192.90 ± 9.59
	Post	179.90 ± 9.0	255.90 ± 12.75*
Lactate level (Mm/dL)	Pre	9.14 ± 0.36	9.34 ± 0.35
	Post	8.87 ± 0.40	7.96 ± 0.47*

Values are given as mean ± SD. *$p < 0.05$ indicate post significantly differ with pre treatment. The samples were collected 30 min before exercise and immediately after completeion of exercise performance. CSP-Coconut sap powder; BMI-Body Mass Index; AST- Aspartate amino transaminase; ALT-Alanine amino transaminase; ALP-Alkaline phosphatase; FBS-Fasting blood sugar; SOD-Superoxide dismutase; GPx-Glutathione peroxidase.

Performance testing

In the 2.4 km endurance run test to estimate peak oxygen consumption (VO_2 max), condition × time analysis showed that CSP significantly increased VO_2 max (5.31%; $p < 0.05$), compared to the baseline values (Pre: 59.38 ± 2.15 mL/kg/min; Post: 62.56 ± 0.52 mL/kg/min); but no differences were noted under the placebo condition (Pre: 59.38 ± 2.28 mL/kg/min; Post: 61.07 ± 0.69 mL/kg/min) (Fig. 4).

Blood clinical markers

Compared to baseline, the antioxidant enzyme activities of SOD, CAT, and GPx were lower ($p < 0.05$) in the placebo condition (Table 4). CSP, however, increased SOD (Pre: 6.53 ± 0.32, Post: 8.2 ± 0.41), CAT (Pre: 38.66 ± 2.3, Post: 45.47 ± 2.26 and GPx activities (Pre: 192.9 ± 9.6, Post: 255.9 ± 12.75) at the end of the study period compared to the baseline (all, $p < 0.05$) Serum lactate concentration also increased ($p < 0.05$) in both conditions during heavy exercise. CSP, however, attenuated the rise in lactate concentration ($p < 0.05$; Pre: 9.34 ± 0.35, Post: 7.96 ± 0.47). In conclusion, SOD, CAT, GPx and lactate level were significantly altered in CSP condition × time interaction.

4. Discussion

This is the first study to investigate the ergogenic effect of coconut inflorescence sap using a novel powder formulation (CSP) suitable for storage and supplementation as sachets or powdered drink. The current findings demonstrated that 21-days of CSP supplementation (3 g/day) increases aerobic power with a concomitant increase in endogenous

antioxidant enzyme activity. Thus, the findings of the study suggest CSP may be a novel natural intervention agent rich in micro- and macro-nutrients to improve exercise performance in young, apparently healthy adults.

The oyster–white translucent coconut inflorescence sap is a traditional health drink in many Asian countries. It is reported to contain various vitamins (B1, B3, B5, B7, B8, B9, C), and minerals (Na, K, Ca, Mg, P, Fe, Cu, Zn) in addition to nutrients like biotin, choline, and polyphenols [20]. Rapid fermentation of the sap to alcohol, however, has greatly limited its accessibility as a performance and/or health-enhancing drink. The most popular form of coconut inflorescence sap is coconut sugar, which is a natural sweetener with relatively low glycaemic index (GI = 52) *versus* the table sugar with a high glycemic index of 65 to 70 [5]. Glycemic Index is a relative ranking of carbohydrates in foods in terms of their ability to affect blood glucose levels. Carbohydrates with GI 70 was considered as high, 56–70 as medium and below 55 are considered as low, based on the reface of glucose which has been assigned a GI of 100 [21]. However, the conventional high-temperature evaporation process of preparation of coconut sugar has been shown to destroy the micronutrients in coconut sugar, despite its use as a nutrient-rich natural sweetener. Recently, we had reported the GI of CSP as 52.4 [22].

Our findings demonstrate that CSP has greater concentrations of vitamins (C and B), electrolytes (Na and K), and minerals (Fe, Zn, Ca, P, Mg) than the commonly available coconut water (Table 2). But, nutritional analysis of CSP in comparison with coconut sugar and table sugar indicates that the carbohydrate content and energy of CSP are similar. Carbohydrate-enriched electrolyte drinks have been reported to improve performance [23,24]. Moreover, vitamins and minerals are key regulators of health and function, including work performance [25]. Micronutrients enable the use of macronutrients for all physiologic processes [26]. Vitamins A, C, E, and the minerals selenium and zinc are the non–enzymatic line of defense against reactive oxygen and nitrogen species which are generated in excess during exercise [27]. Zinc is a cofactor for many enzymes and has a role in tissue repair [28]. Similarly, Iron has the principal function in hemoglobin whose deficiency is associated with the reduction in oxygen-carrying capacity and decreased exercise performance [28]. Deficiencies of vitamin B and C were reported to impair exercise performance and lead to a significant decrease in VO_2 max and the ventilatory threshold [29]. Choline is involved in the formation of acetylcholine, a neurotransmitter whose depletion in the nervous system has been correlated to fatigue [30]. Plasma levels of sodium and potassium are extremely important for performance since fluid-electrolyte balance is very important in muscle contractility and transport glucose into the muscle cell [31,32]. Potassium is the primary intracellular electrolyte mostly present in muscle fibers along with glycogen.

In the present study, supplementation of CSP at 3 g/day for 21 days did not produce any adverse events and no significant change in the blood clinical markers related to liver function indicating its safety and tolerance at the tested level. It did not produce any change in the fasting blood sugar, though rich in carbohydrates (Table 4). Further evaluation of its ergogenic potential was carried out with the help of a set of validated physical tests in a crossover design. Crossover design has the advantages over placebo-controlled design in evaluations such as the efficacy of a sports supplement because individuals act as a control for themselves for better sensitivity [33]. The CSP condition demonstrated a significant improvement in anaerobic performance during the study period.

CSP was shown to lower oxidative stress associated with exhaustive exercise in the present study. High muscle activity is associated with the generation of reactive oxygen and nitrogen species (ROS and RNS) with a simultaneous elevation in the body's antioxidant defense system including SOD, Catalase and GPx [43]. CSP condition increased GSH, an important antioxidant involved in the detoxification process. SOD is yet another endogenous

oxidoreductase involved in the dismutation of superoxide anion into molecular oxygen and hydrogen peroxide; which was also increased in CSP condition. Similarly, GPx, an antioxidant enzyme involved in the detoxification of H_2O_2 with the help of GSH was also found to be elevated to the normal level in CSP condition, suggesting a role of antioxidant cellular protection during exhaustive exercise. The involvement of free radicals in the peroxidation of membrane phospholipids and formation of lipid peroxide or hydrogen peroxide has been reported under conditions of oxidative stress and exercise. Further, lactate dehydrogenase (LDH) is also an important enzyme marker of muscle activity and increases with exhaustive exercise [44,45]. Lactate dehydrogenase (LDH) catalyzes the interconversion of pyruvate and lactate, which are critical fuel metabolites of skeletal muscle particularly during exercise [45]. The present study showed a decrease in LDH activity upon CSP supplementation which may be considered as an indication of reduced muscle damage [46]. This is in line with previous studies [44]. Collectively, these findings suggest that CSP may improve antioxidant systems and lower LDH activity to improve performance.

Despite the fact that the study could implement the design with a successful gathering of information, major limitations include the small sample size and lack of a double-blinded placebo-controlled design.

5. Conclusions

In summary, the present study shows the efficacy of CSP to improve physical performance, while demonstrating safety and tolerability. CSP condition improved aerobic performance that was associated with a concomitant increase in plasma antioxidant activity. However, this is a preliminary study which supports follow up investigations to elucidate the efficacy and mechanism(s) for CSP in improving physical performance.

Credit authorship contribution statement

Funding

No external funding was received for the study.

Declaration of Competing Interest

Authors disclose the conflict of interest. CSP is the patent-pending formulation of coconut inflorescence sap by M/s Akay Natural Ingredients Ltd., Cochin, India; trademarked as COCOZEN®.

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THE ROLE OF YOGA AND ITS IMPORTANCE IN HIGHER EDUCATION

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Abstract

The integration of yoga into higher education can take various forms, such as offering yoga classes, incorporating yoga into different health profession education curricula, providing mindfulness workshops, or establishing dedicated spaces for yoga and meditation practice on campus. A study showed that Yoga in higher education is useful in promoting students' health and fitness. The aim of this study is to explain yogic benefits in higher education based on feedback results as well as reviews on yoga. Yoga is a Science to deals with body, mind, and consciousness. Regular practice of yoga harmonizes human values and ethics. We are witnessing this study through the Google form students and their stress levels in all aspects of regular yoga practice. Due to lifestyle changes, sedentary and prolonged reading focus with a multitude of subject materials increases stress levels and hormonal imbalance in body and mind. This may be the root cause of many diseases and disorders among students. This study also examines student stress levels and helps them to learn and experience holistic concepts through the practical and theoretical concepts of yoga. This study got good results for students by giving hands-on training. They can experience the essence of yoga and its physiological aspects, the psychological condition of body, mind, and awareness. Yoga education is to be added to medical and all paramedical health sciences and other professions to lead students' happy lives. Yoga is one of the professions to deal with other students' lives. Adding a yoga curriculum in theory as well as practice is more useful to the students, to know yoga, meaning the aim and objective of yoga, different paths of yoga, and different techniques of yoga.

Keywords: *Higher Education, Yoga Education, Health happiness, Mind and Body awareness.*

Introduction

Education is increasing with a more scientific approach, now it depends on more skill and technological-based learning processes without phone, mail, and social media learning activities improved in different ways. There are teacher-centered learning, student-centered learning, and objective learning however many things are overcome nowadays through social media or online students can learn open to all. This proves that Science theory and practical knowledgecan be modified and changing the philosophy, concept, and approaches needs base modification. Nowadays Yoga education needs to be added to school and university education systems, as per the National Education Policy (NEP) will help the new generation of students learn heart to mind through the application of methods not in the olden memory system, it allows the students to think wise and action will be more while tapping the knowledge, which helps handling time and cost saving.

The role of yoga in Higher Education plays different roles in different topics as follows,

Physical Well-being: Yoga can promote physical health and well-being among students in higher education. Regular yoga practice can enhance flexibility, strength, and balance, reducing the risk of injuries and improving overall fitness levels.

Stress Reduction: Higher education can be demanding and stressful for students. Yoga provides tools and techniques to manage stress effectively. Breathing exercises, meditation, and relaxation techniques in yoga can help students calm their minds, reduce anxiety, and improve their ability to cope with academic pressure.

Mental Health Support: Yoga has been found to positively impact mental health. It can alleviate symptoms of depression and anxiety, improve mood, and enhance emotional well-

being. Incorporating yoga into higher education can provide students with a holistic approach to maintaining mental health and preventing mental health challenges.

Focus and Concentration: Yoga practices, such as mindfulness and meditation, can improve focus and concentration. By training the mind to be present and attentive, students can nhance their ability to absorb and retain information, leading to improved academic performance.

Mind-Body Connection: Yoga emphasizes the connection between the mind and body. By integrating physical postures with breath awareness and mindfulness, students can develop a deeper understanding of their bodies and cultivate a heightened sense of self-awareness, which can positively impact their overall well-being.

Self-Care and Self-Reflection:
Yoga encourages self-care practices, such as prioritizing rest, relaxation, and selfreflection. By incorporating yoga into higher education, students are encouraged to engage in activities that promote their own well-being and develop a deeper understanding of themselves.

Time Management: Regular yoga practice requires commitment and discipline, which can translate into improved time management skills for students. By dedicating time to yoga, students learn to prioritize their physical and mental health alongside their academic responsibilities, leading to a more balanced approach to managing their time.

Leadership and Personal Development: Yoga philosophy emphasizes ethical principles, self-discipline, and personal growth. Incorporating yoga into higher education can foster leadership skills, promote self-awareness, and encourage personal development among students. These qualities are valuable for their future careers and personal lives.

Impact of Yoga in Education
Enhancing Resilience: Higher education often presents students with various challenges, both academically and personally. Yoga can cultivate resilience by teaching students how to face difficulties with a balanced and adaptable mindset. Through yoga, students can develop mental strength, perseverance, and the ability to bounce back from setbacks.
Social Connection: Yoga classes and workshops provide opportunities for social interaction and community building. By participating in yoga sessions together, students can connect with their peers, fostering a sense of belonging and support. This social connection can contribute to a positive campus culture and enhance overall student satisfaction.

Yoga regulates Body-mind awareness

Yoga is a holistic practice that combines physical postures, breathing techniques, meditation, and ethical principles to promote overall well-being and inner harmony. It is a discipline that aims to integrate the body, mind, and spirit, fostering physical strength, mental clarity, and spiritual awareness. Yoga is not just a form of exercise but also a way of life that encourages balance, mindfulness, and self-discovery. It provides tools and practices to cultivate a sense of inner peace, reduce stress, and enhance overall health and happiness.

The Eight Limbs of Yoga, also known as Ashtanga Yoga, is a foundational framework outlined in the ancient yoga text called the Yoga Sutras of Patanjali as follows.

Yama (Restraints): Yama refers to ethical principles and moral restraints that guide our behavior towards others and the world. It includes five aspects such as Ahimsa: Non-violence and compassion., Satya: Truthfulness., Asteya: Non-stealing and honesty. Brahmacharya: Moderation and right use of energy, Aparigraha: Non-greed and non-possessiveness.

Niyama (Observances): Niyama represents personal observances that cultivate selfdiscipline and inner growth. It consists of five aspects as Saucha: Cleanliness and purity, Santosha:

Contentment and gratitude, Tapas: Self-discipline and perseverance, Svadhyaya: Self-study and introspection, Ishvara Pranidhana: Surrender to a higher power or divine.

Asana (Physical Postures): Asana refers to the practice of physical postures in yoga.It involves maintaining a steady and comfortable posture to promote physical health, mental stability, and harmony within the body.

Pranayama (Breath Control): Pranayama focuses on breath control and regulation. It involves various techniques to expand, control, and balance the breath, which influences the flow of life force energy (prana) in the body.

Pratyahara (Withdrawal of Senses): Pratyahara is the practice of withdrawing the senses from external stimuli and turning the attention inward. It involves detaching from sensory distractions to cultivate inner awareness and focus.

Dharana (Concentration): Dharana refers to concentration or single-pointed focus. It involves directing and maintaining attention on a specific object, such as the breath, a mantra, or an image, to cultivate mental stability and clarity.

Dhyana (Meditation): Dhyana is the state of meditation or continuous flow of awareness. It is the effortless contemplation and observation of one's own consciousness, leading to a state of deep absorption and connection.

Samadhi (Union): Samadhi is the goal of yoga, representing a state of profound oneness and spiritual realization. It is a state of pure consciousness where the practitioner merges with the object of meditation, experiencing complete unity and transcendence.

According to the proverb," Old is Gold," the modifications of old techniques are applied nowadays to heal the current solution. Yoga practices promote asanas or postures that will help the student's flexibility, strength, coordination/balance, better respiratory function, mobility joint and bone range and motion, muscle stiffness might be overcome and self-efficacy. Pranayama or breathing practices will promote stress regulation, emotion regulation, resilience equanimity self-efficacy, and brain agitation to calmness. Relaxation will promote attention, mindfulness, concentration, cognition, and metacognition. Meditation will promote the unitive state, transcendence flow, transformation, and life meaning and purpose.

Prevalence of Yoga in Higher Education.
In India, 97.2% of schools included yoga in their curriculum. Higher education can also be added as a part of their curriculum to promote students' health as well as one way of good nation-building.

Students' Physical and Mental health challenges
Yoga is a holistic practice that aims to regulate the body, mind, and awareness.

Body Regulation: Yoga involves various physical postures (asanas) that help stretch, strengthen, and balance the body. Through regular practice, yoga improves flexibility, builds muscle strength, and enhances overall body awareness. Controlled breathing techniques (pranayama) used in yoga also help regulate the body's energy and promote relaxation.

Mind Regulation: Yoga encourages mindfulness and the cultivation of a focused, calm state of mind. Concentration on the breath or a specific point during asana practice helps quiet the mind and develop mental clarity. Meditation, a key aspect of yoga, trains the mind to observe thoughts without judgment and cultivate inner peace.

Awareness Regulation: Yoga brings attention to the present moment, enhancing selfawareness and introspection. By practicing yoga, individuals learn to observe sensations, thoughts, and emotions without getting carried away by them. This increased awareness helps

individuals understand themselves better, make conscious choices, and develop a deeper connection with their inner selves.

Benefits of Regulation: By regulating the body, mind, and awareness, yoga promotes overall well-being and balance. Physically, yoga can improve posture, relieve tension, and enhance vitality. Mentally, yoga reduces stress, and anxiety, and promotes mental resilience. Spiritually, yoga can lead to a greater sense of purpose, inner peace, and a deeper connection with oneself and others.

Stress among students and children

Stress among students and children is a significant concern that requires attention and action. The well-being and mental health of young individuals are essential for their overall development and future success. Here are some important statements regarding stress among students and children:

Impact on Mental Health: Excessive stress can have detrimental effects on the mental health of students and children, leading to anxiety, depression, and burnout. It can affect their ability to concentrate, learn effectively, and engage in healthy social interactions.

Academic Performance: High levels of stress can negatively impact academic performance. When students and children feel overwhelmed, their ability to retain information, solve problems, and perform well in exams may be compromised. This can create a cycle of stress and underachievement.

Physical Health: Prolonged stress can manifest in physical symptoms such as headaches, stomach-aches, fatigue, and a weakened immune system. It can also contribute to unhealthy coping mechanisms like poor eating habits and lack of exercise, which can further impact their overall well-being.

Long-Term Consequences: Unmanaged stress during childhood and adolescence can have long-term consequences. It may lead to chronic stress, and anxiety disorders, and even increase the risk of mental health issues in adulthood. Addressing stress early on can help prevent such outcomes.

Supportive Environments: Creating supportive environments in educational institutions and homes is crucial. Schools, teachers, parents, and caregivers should prioritize the well-being of students and children, fostering open communication, providing resources for stress management, and promoting a healthy work-life balance.

Holistic Approaches: Introducing holistic approaches to stress management is beneficial. Incorporating mindfulness practices, physical activities, creative outlets, and teaching stress coping strategies can empower students and children to better manage stress and build resilience.

Collaboration and Awareness: Collaboration among educators, parents, healthcare professionals, and policymakers is essential in addressing stress among students and children effectively. Raising awareness about the importance of mental health, reducing academic pressure, and implementing supportive policies can contribute to a healthier learning environment.

Current scenario of status of stress

There also seems to be a troubling trend emerging among families in which parents are understanding much of the stress their children experience and the impact their own stress has on their children. At the same time, whether young or old, everyone facing stress may have consequences often associated with stress. 5.6 out of 100,000 students at Big Ten schools died

by suicide from 2009 to 2018. The college students suicide rate is lower than the suicide rate among all 18 to 24 years old in the U.S In 2022,2% of college students surveyed, results showed that most of the students attempted suicide in the year 2007 to 2021 because of stress. Suicide is preventable. Colleges must take steps to reduce the stigma of getting help, end discrimination against certain student groups, and eliminate barriers to culturally sensitive mental health care.

Conclusion

The integration of yoga into higher education can offer numerous benefits to students. Yoga promotes physical well-being by improving flexibility, strength, and balance while reducing the risk of injuries. It also serves as an effective tool for stress reduction, helping students manage academic pressures and anxiety. Moreover, yoga supports mental health by alleviating symptoms of depression and anxiety and enhancing emotional well-being. By improving focus and concentration through mindfulness practices, it enhances academic performance. Yoga fosters a strong mind-body connection, cultivates resilience, and promotes self-awareness and selfcare.

It also provides opportunities for social connection and community building within the higher education environment. Furthermore, yoga develops time management skills and instills principles of leadership and personal development. By acknowledging and taking proactive measures to address stress among students and children, we can help foster their overall well-being, academic success, and long-term happiness. As such, incorporating yoga into higher education can contribute to students' holistic growth and well-rounded educational experience. By reconsideration of review research papers, this paper showed the answer of the importance of yoga in Education. Yoga tools and techniques can be used for the therapeutic application of diseases and disorders also.

Suggestions for the government

Yoga's different practices help in students' health and happiness part they deal with holistic approaches to body, mind, and consciousness. It could be added by school and higher education curricula. Previous research papers confirm the benefits of yoga's cognitive function of the brain, attention, peace, and calm, and more physical and psychological, moral values and ethic values -principles playing a big role in education.

Benefits of Yoga Practices

Yoga practices can provide successful learning in all other skills. It could be better to learn separately practical the theory concepts and dealing with body and mind composition. Everything will be better for students, so they can understand the old techniques of India and, the new golden periods of introducing new education through assessment and evaluation methods. It encourages yoga in education to improve the benefits of physical, psychological, social, moral, ethical, individual capacity, and spiritual development. Due to lifestyle modification, work life, food, and stress all play vital roles in health, better development of health yoga adding higher education is very useful to the student's health and betterment of the society

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THE INFLUENCE OF LADDER TRAINING ON SELECTED PHYSICAL FITNESS PARAMETERS AMONG KABADDI PLAYERS

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Abstract

The purpose of the present research was to look at the effect of ladder training on specific physical fitness parameters in intercollegiate men kabaddi players. Thirty male kabaddi players were chosen at random from the Govt. College of Physical Education in Ganderbal, J&K. The participants' ages varied from 18 to 25 years. They were sorted into two groups of equal size. Group-1 was designated as the experimental group (ladder training), whereas Group-2 was designated as the control group. For every group, a pre-test on Agility and Flexibility was administered, and the result of the reading was carefully written down in their respective units as a pre-test score. Following the pre-test, the experimental group underwent customized ladder training for 60-90 minutes three days per week for eight weeks. The control group received no additional instruction. Following eight weeks of training, a post-test was administered, and the readings were carefully tracked down in their appropriate units as post-test scores. The pre as well as post tests were analyzed. The data acquired on physical fitness measures as a result of eight weeks of ladder training was analyzed using the paired't' test and Analysis of covariance (ANCOVA) at a level of confidence of 0.05. According to the study's findings, there were substantial improvements in physical fitness parameters among intercollegiate men Kabaddi players.

***Keywords**: Ladder training, Physical Fitness, Kabaddi.*

INTRODUCTION

In order for players to succeed and perform well in a variety of sports disciplines, physical fitness is essential. A certain set of physical characteristics are necessary for competitors to succeed in the extremely dynamic and contact sport of kabaddi. Among these qualities, agility, speed, coordination, and cardiovascular stamina are especially necessary for Kabaddi players to properly demonstrate their talents.

Athletes utilize ladders, usually referred to as speed ladders, as elements of training apparatus to increase their flexibility and agility in a range of sports. When working on the agility ladder, one must move their feet steadily while going forward, sideways, or backward in and out of the enclosed compartments. Additionally, agility ladder training helps with balance, endurance of the muscles, response time, and synchronization between different body parts. Exercises including an agility ladder serve to strengthen the neurological system and associated muscle groups in addition to these physical benefits. The researcher in the present research trained the male kabaddi players in Kashmir using a normal agility ladder. The agility ladder was twenty inches wide and fifteen feet long. Additionally, there are many various kinds of ladders available, ranging from 5 yards to 10 yards and occasionally much longer. These ladders may be used in the house as well as outdoors due to their portability and compact size. **(Pratama *et.al*, 2018)**.

In a range of sports, from baseball to boxing, coaches employ quick training agility ladders. Nowadays, physical education teachers train pupils in the usage of these ladders in schools as well. You may create your own agility ladders using thick rope or wood if you don't already have one. One of the variations of agility ladder training is doing training maneuvers on car wheels instead of agility ladders. The simulated agility ladder is a less complex variant

of this apparatus and can be marked with string or lines on a flat surface. **(Fantiros and Sapuiras, 2015)**.

PURPOSE OF THE STUDY

The goal of the study was to determine how ladder training affected certain physical fitness measures in kabaddi players.

HYPOTHESIS

1. There would be a significant improvement on agility and flexibility due to ladder training programme among college men kabaddi players.
2. There would be a significant difference in agility and flexibility between the ladder training group and the control group among collegiate male kabaddi players.

METHODOLOGY

The study's goal was to determine the effect of ladder training on specified physical fitness parameters in thirty males. Subjects were chosen at random from the Govt. College of Physical Education in Ganderbal, J&K. Participants varied in age from 18 to 25 years. The subjects chosen were separated into two categories. Group-1 received ladder training, while Group-2 served as the control group. The experimental group was subjected to training three days per week for eight weeks. T-test and sit-and-reach tests were used to assess the physical fitness criteria of agility and flexibility. Before and after the training period, data from each subject were collected, and statistical analysis was done using the paired‘t’ test to determine whether there had been a significant improvement on a set of criterion parameters and the Analysis of Covariance (ANCOVA) to determine whether there had been a significant difference between the experimental and control groups on each parameter separately. Across the board to test the hypotheses, a threshold of confidence of 0.05 was established.

TRAINING PROGRAMME

The experimental groups participated in their particular training programs alongside to their normal routines within the training period. For eight weeks, Group-1 received ladder practice for three days each week. All of the training sessions lasted roughly one hour to one and a half hours, including warm-up and cool-down. Group-2 served as a control group that didn't take part in any special training. All of the research participants were closely watched throughout their training regimens to ensure they didn't have any injuries. Throughout the training program, questions concerning their health state were asked of them. They all came forward without any injury. However, muscular discomfort started to show up during the initial stages of the workout program and eventually subsided.

ANALYSIS OF THE DATA

Participants in each group were evaluated for agility and flexibility before and after the training session. The selected criteria parameters were statistically examined using the paired "t" test to see if there was significant change among the pre and post-test means among the two groups, and analysis of covariance (ANCOVA) was performed to determine whether there was significant variation between the experimental and control groups. To verify the hypothesis, the 0.05 level of significance was used in all situations.

TABLE-I

The summary of mean and‘t’ ratio for the pre and post tests on agility and flexibility of ladder training group and control groups

Parameters	Mean	Ladder training group	Control group
Agility	Pre test	10.60	10.64
	Post test	9.92	10.59
	‘t’ ratio	**6.14***	**0.37**
Flexibility	Pre test	19.09	19.10
	Post test	20.98	19.11
	‘t’ ratio	**4.18***	**0.11**

*Significant at 0.05 level.

(The table value required for 0.05 level of significance with df 14 is 2.14).

The Table-I shows that the pre-test mean value of physical fitness parameters namely agility and flexibility in ladder training group and control group are 10.60 & 10.64 and 19.09 & 19.10 respectively whereas the post test means are 9.92 & 10.59 and 20.98 & 19.11 respectively. The computed paired t-ratios for the pre- and post-test means of flexibility and agility in the ladder training group are 6.14 and 4.18, respectively. The obtained paired t-ratio values between the pre and post test means of agility and flexibility in control group are 0.37 and 0.11 respectively. The table value required for significant difference with df 14 at 0.05 level is 2.14. Since the experimental group's acquired "t" ratio value is higher than the table value, it is clear that the agility and flexibility of the ladder training group have risen significantly. The control group, on the other hand, did not considerably improve since their achieved "t" value was lower than the table value because they did not receive any special training.

The analysis of covariance on agility and flexibility of ladder training and control groups have been analysed and presented in Table II.

TABLE – II

ANALYSIS OF COVARIANCE ON AGILITY AND FLEXIBILITY OF LADDER TRAINING AND CONTROL GROUPS

Parameters	Adjusted post test means		Source of variance	Sum of squares	DF	Mean squares	Obtained ‘F’Ratio
	Ladder training group	Control group					
Agility	9.93	10.58	Between	3.14	1	3.141	**17.99***
			Within	4.71	27	0.175	
Flexibility	20.98	19.10	Between	26.34	1	26.343	**18.98***
			Within	37.44	27	1.388	

*Significant at .05 level of confidence

(The table values required for significance at 0.05 level of confidence with df 1 and 27 is 4.21)

The table II shows that the adjusted post test means of agility and flexibility of ladder training and control groups are 9.93 & 10.58 and 20.98 & 19.10 respectively. The obtained ‘F’ ratio value of agility and flexibility are 17.99 and 18.98 which are higher than the table value of 4.21 with df 1 and 27 required for significance at 0.05 level. Since the value of F- ratio is higher than the table value, it indicates that there is significant difference among the adjusted post-test means of ladder training and control groups on selected parameters namely agility and flexibility.

The results of the study showed that there was a significance difference between the adjusted post-test mean of ladder training group and control group on agility and flexibility among men kabaddi players.

The pre-test, post-test and adjusted post-test mean values of experimental and control groups on agility and flexibility are graphically represented in the figure-I.

FIGURE – I

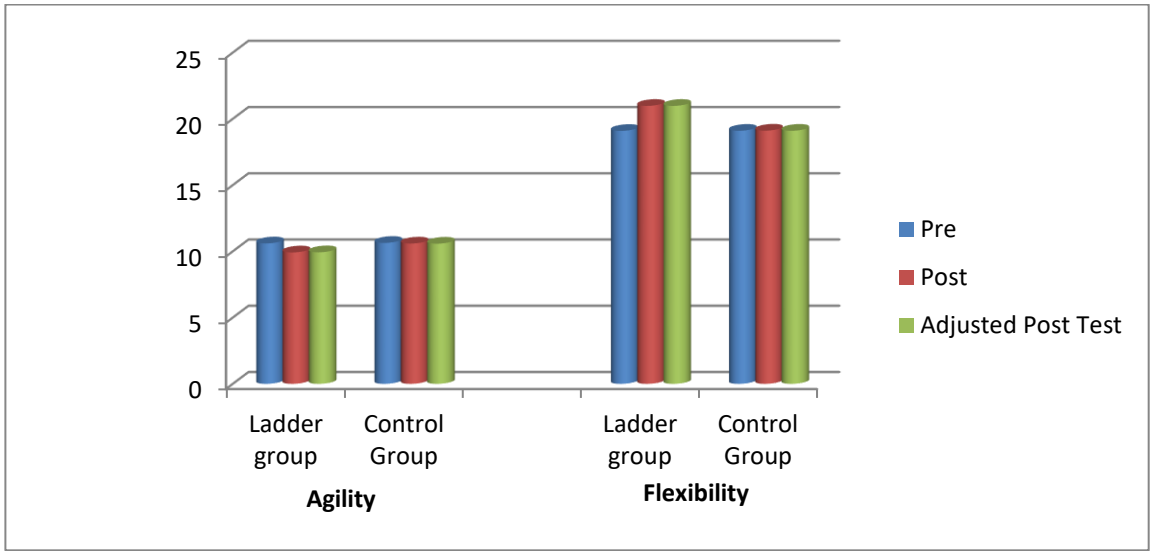


Figure I: Pre, Post and Adjusted Post Tests Mean Values of Experimental and Control Groups on Agility and Flexibility.

DISCUSSION ON FINDINGS

The present study experimented the influence of eight weeks ladder training on the selected parameters of inter collegiate men kabaddi players. The results of this study reveal that there was a significant changes found after the ladder training on agility and flexibility. These results are in corroboration with the studies of **Athisayaraj Aldrin (2014) Manimaran (2018)**.

CONCLUSION

1. There was a significant improvement on agility and flexibility due to the effects of the ladder training among college men kabaddi players.
2. There was a significance difference between ladder training group and control group on agility and flexibility among college men kabaddi players.
3. Finally, it was determined that the ladder training group outperformed the control group. Therefore, I advised physical education specialists and coaches to give consideration to the significance of ladder training, which enables the athlete to perform better in sporting competitions.

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EFFECTS OF YOGIC PRACTICES ON CARDIO PULMONARY VARIABLES AMONG ASTHMATIC PATIENTS

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ABSTRACT

The purpose of the study was to find out the effect of yogic practices on breath holding time (BHT) and Heart rate among asthmatic patient. To achieve the purpose, 30 women with asthma from Salem district within the age range 35 to 45 years were selected using purposive random sampling technique. Pre-test was conducted on the selected variables. They were divided into two groups A and B having 15 subjects in each group. Group A was given yogic practices for 6 days a week for one hour a day for 12 weeks. The total period of training program was for 12 weeks. Group B (Control Group) did not receive any specific training other than medication, but in active rest. After the experimental period of 12 weeks, the two Groups (A and B) were retested again on the selected dependent variables to find if any changes existed. Analysis of co-variance (ANCOVA) was used to find out the significant differences between experimental group and the control group. It was hypothesized that there would be significant differences among the middle-aged women with asthma due to Yogic practices on selected cardio pulmonary variables such as Heart rate and Breath Holding Time than the control group. The output of the study on the cardio pulmonary variables proved that the Experimental Group showed significant differences than the Control Group due to yogic practices. The hypothesis was accepted at 0.05 level of confidence. Hence, it was concluded that yogic practices were found to be beneficial to the middle-aged ASTHMA women to maintain healthy Heart Rate and breath holding capacity.

KEYWORDS: *Asthma, Yogic practices, Heart Rate and Breathe Holding Capacity.*

INTRODUCTION

Asthma affects an estimated 300 million individuals worldwide. It is a serious global health problem affecting all age groups, with increasing prevalence in many economically developing countries, rising treatment costs, and a rising burden for patients and the community. Asthma still imposes an unacceptable burden on health care systems, and on society through loss of productivity in the workplace, and (especially for paediatric asthma), disruption to the family. Asthma still contributes too many deaths worldwide, including among young people. Approximately 96% of asthma deaths are in low- and middle-income countries. Healthcare providers managing asthma face different issues globally, depending on the local context, the health system, and access to resources.

According to GINA (Global Initiative for Asthma established by WHO), Asthma is a heterogeneous disease, usually characterized by chronic airway inflammation. It is defined by the history of respiratory symptoms, such as wheeze, shortness of breath, chest tightness and cough that vary over time and in intensity, together with variable expiratory airflow limitation. The present study was conducted to assess the outcome of yoga training on cardio pulmonary functions in patients with Bronchial asthma.

AIM

The aim of this research is to examine the effects of yogic practices on cardio pulmonary functions among bronchial asthma.

MATERIALS AND METHODS

To achieve the purpose of the study, 60 came forward, 45 were screened and 30 women with asthma were selected randomly from Salem, between the age group of 35 to 45 years and they are equally divided into two groups A and B with 15 subjects in each group. Preliminary test was taken for the two groups (A and B) on the selected dependent variable before the start of the training program. Group A was given Yogic practices for 60 minutes Six days for a total period of 12 weeks. Group B (control group) was allowed to undergo their routine and normal life style during the course of experiment without any specific training. After eight weeks, the two groups were retested again on the same selected dependent variable, the cardio pulmonary variables as Heart Rate (HR) and Breath Holding time. Analysis of co-variance (ANCOVA) was used to find out the significant differences between experimental groups and the control group. The analysis of significance was fixed at 0.05 level of confidence.

YOGA INTERVENTION

Yogic practices of asana, pranayama and mudra were given 6 days in a week for 12 weeks the morning for experimental group. Given yogic practices are Bhujangasana, Hasta uttanasana, Dhanurasana, Artha Ustrasana, matsyasana, sedubandasana, Nadi suddhi with and without holding, Nuero muscular breathing, Bhastrika, Bhramari, Linga mudra, Prana mudra, Surya mudra and Vayu mudra.

DATA ANALYSIS

The data pertaining to the variable collected from the groups before and after the training period were statistically analysed by using analysis of covariance (ANCOVA) to determine the significant difference between pre and post values.

RESULTS

The analysed results of breath holding time is explained in Table -1. Graph-1 shows the results of the table -1.

Table-I

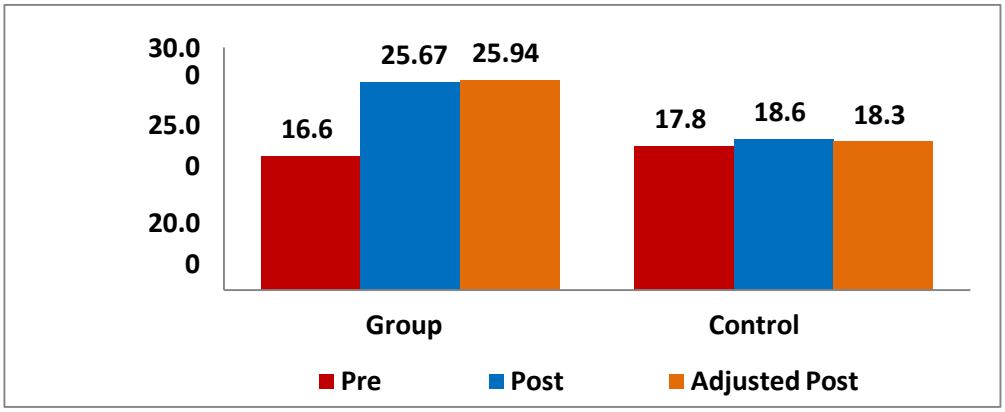
Computation of analysis of covariance of training groups and control group on breath holding time (in seconds)

	Group A	Control group	Source of Variance	Sum of Squares	Degrees of Freedom	Mean Squares	Obtained F ratio
Pre Test Mean	16.60	17.80	Between	10.80	1	10.80	1.17
			Within	354.00	28	12.64	
Post Test Mean	25.67	18.67	Between	367.50	1	367.50	40.41*
			Within	254.67	28	9.10	
Adjusted Post Test Mean	25.94	18.39	Between	414.77	1	414.77	62.03*
			Within	180.53	27	6.69	
Mean difference	9.07	0.87					

*Significant at 0.05 level of confidence (Table F-ratio at 0.05 level of confidence for 2 and 28 (df) =4.2, 1 and 27 (df) =4.21)**.**

As shown in Table I, The obtained F value on post-test means was 40.41, which was greater than the required table value of 4.20 the study was significance. Taking into consideration of the pre test means and post test means adjusted post test means were determined and analysis of covariance was done and the obtained F value 39.31 was greater than the required table value of 4.21.

Bar diagram showing the mean difference of experiment group and control group on breath holding time (in sec.)



The results of the study on the selected Physiological variable showed that Group I has significant differences on Breath Holding Time, due to yogic practices. Hence, the hypothesis was accepted at 0.05 level of confidence.

Results:

The analysed results of Resting Pulse Rate are explained in table -2. Graph 2 shows the results of table -2.

Table-2

Computation of analysis of covariance of training groups and control group on heart rate (in pulse/min)

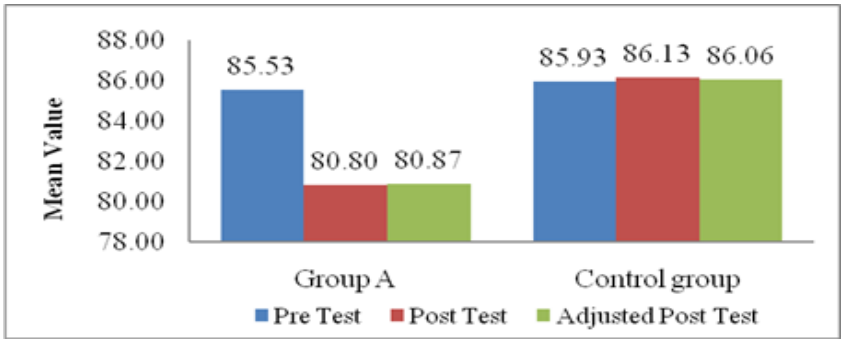
	Group A	Control group	Source of Variance	Sum of Squares	Degrees of Freedom	Mean Squares	Obtained F ratio
Pre Test Mean	85.53	85.93	Between	1.20	1	1.20	50.08
			Within	1682.67	28	60.10	
Post Test Mean	80.80	86.13	Between	213.33	1	213.33	9.19*
			Within	650.13	28	23.22	
Adjusted Post Test Mean	80.87	86.06	Between	201.57	1	201.57	12.9*
			Within	421.88	27	15.63	
Mean difference	4.73	0.20					

*Significant at 0.05 level of confidence (Table F-ratio at 0.05 level of confidence for 2 and 28 (df) =4.2, 1 and 27 (df) =4.21).

As shown in Table- II, the obtained F value on post-test means was 9.19, which was greater than the required table value of 4.20 the study was significance. Taking into consideration of the pre-test means and post-test means adjusted post-test means were determined and analysis of covariance was done and the obtained F value 12.9 was greater than the required table value of 4.21 and hence it was accepted that there was significant differences among the treated groups. This proved that there was a significant difference among the means due to 12 weeks of training of Yoga Practices on Heart Rate in line with the study conducted by Sharpe et.al, 2021.

Graph - 2

Bar diagram showing the mean difference of experiment group and control group on heart rate (in Pulse/min)



The results of the study on the selected Cardio-pulmonary variables showed that Group A has significant differences on Heart Rate, due to Yoga practices. Hence, the hypothesis was accepted at 0.05 level of confidence. The above finding can also be substantiated by the observations made by experts such as Sharpe et.al, 2021.

DISCUSSION ON RESULTS

The data pertaining to the variable collected from the groups before and after the training period were statistically analyzed by using analysis of covariance (ANCOVA) to determine the significant difference and the hypothesis was tested at 0.05 level of confidence. The obtained F-ratio value for the Breath Holding Time and Heart Rate were greater than the table value, indicating that there was a significant difference among the post- test and adjusted post-test means of the yogic practices group than the control group on selected cardio pulmonary variables.

DISCUSSION ON HYPOTHESIS

It was hypothesized that there would be significant differences on selected cardio pulmonary variables such as Breath Holding Time and Heart Rate due to yogic practice among middle aged women with asthma than the control group. The results proved that there were significant differences on Breath Holding Time and Heart Rate (Increased) due to yogic practices than the control group among middle aged women with asthma. Hence the Hypothesis was accepted at 0.05 level of significant.

CONCLUSION

It was concluded that yogic practices provide significant differences in Breath Holding Time and Heart Rate among middle aged women with ASTHMA. We recommend conducting large sale study on the effect of yoga on above mentioned on cardio pulmonary variables among people with asthma.

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INFLUENCE OF SHALLOW AND DEEP-AQUA AEROBIC EXERCISES ON MAXIMAL OXYGEN CONSUMPTION PARAMETER TESTED TO COLLEGE MEN STUDENTS

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Abstract

The purpose of this current study was to explore the influence of shallow and deep-aqua aerobic exercises on maximal oxygen consumption parameter tested to college men students. To achieve this purpose of the study forty-five (N=45) college men students were selected from north Chennai swimming academy, Chennai, Tamil Nadu during the year 2023-24. The subject's age ranges from 17 to 23 years. The selected subject were divided into three equal groups consists of fifteen subject each namely two experimental groups and control group from college students. The experimental group I underwent shallow aqua aerobic exercise group (SAAG) and experimental group II underwent deep aqua aerobic exercise group (DAAG) programme for six weeks. The control group was not taking part in any exercise during the course of the study. The dependent variable selected for the study were maximal oxygen consumption measure by Cooper's formulae was used and accordingly Cooper's 12 Minutes Run / Walk Test.Pre-test was taken before the exercise period and post- test was measured immediately after the six weeks exercise period. The data collected from the three groups were statistically analyzed for significance, the analysis of covariance (ANCOVA) was used and the F ratio was found out. The Scheffe's test is applied as post-hoc test to determine the paired mean differences. The level of significance will be fixed at 0.05 level of confidence for all the cases.

Keywords: *Shallow aqua, Deep aqua, Aerobic exercise and Maximal oxygen consumption*

Introduction

Aqua aerobics (aquarobics, aquatic fitness, aqua fitness, aqua fit) is the performance of aerobic exercise in fairly shallow aqua such as in a swimming pool. Done mostly vertically and without swimming typically in waist deep or deeper aqua, it is a type of resistance training. Aqua aerobics is a form of aerobic exercise that requires aqua-immersed participants. Most aqua aerobics is in a group fitness class setting with a trained professional teaching for about an hour. The classes focus on aerobic endurance, resistance training, and creating an enjoyable atmosphere with music. Different forms of aqua aerobics include: aqua Zumba, aqua yoga, aqua aerobics, and aqua jog. Most land-based aerobic exercisers don't incorporate strength training into their schedules and therefore adding aquatic exercise can greatly improve their health. Over time aqua aerobics can lead to a reduction of blood pressure and resting heart rate, which will improve health overall.

While similar to land aerobics, in that it focuses on cardiac training, aqua aerobics differs in that it adds the component of aqua resistance and buoyancy. Although heart rate does not increase as much as in land-based aerobics, the heart is working just as hard and underaqua exercise actually pumps more blood to the heart. Exercising in the aqua is not only aerobic, but also strength-training oriented due to the aqua resistance. Moving your body through the aqua creates a resistance that will activate muscle groups.

According to Moreno (1996) and her quotes from Huey an Olympic athlete trainer, the benefits of aqua resistance training include the activation of opposing muscle groups for a balanced workout. The push and pull of the aqua allows both increased muscle training and a built-in safety barrier for joints. In fact, before aqua aerobics aqua, injury therapy used the benefits of aqua. The aqua also helps to reduce lactic acid buildup. Another obvious benefit to

aqua exercise is the cooling effect of the aqua on the system. The average temperature around 78 degrees in a group fitness pool, this temperature will force the body to burn calories to stay at homeostasis while also maintaining a cool, comfortable atmosphere with less sweat noticeable to the participant.

Methods

Forty five men college students of age 17 to 23 years from north Chennai swimming academy, Chennai were selected as subjects at random to undergo the training. They were divided into three groups namely shallow aqua aerobic exercise group (Experimental group I), deep aqua aerobic exercise group (Experimental group II), and control group (group III) each consists of 15 subjects. The experimental groups (I & II) were subjected to six weeks of shallow and deep aqua aerobic exercise training respectively, and the group III acted as control. The experimental groups I and II used exercises of travel, forward, backward, sideways, grapevine (feet alternately cross in front and behind), in circles (in place, but change direction faced), whirlpool, ladder, downward (alternate 2 exercises, do 8, 6, 4, 2 reps each), upward (as upward, but start with smaller number of reps) and the load given were progressively increased from 50%,60%,70% intensity level aqua aerobic exercise drills respectively for one hour per day for three days a week for a period of six weeks. The subjects of all the three groups were tested on maximal oxygen consumption prior to and after the training period.

To ascertain Maximal oxygen consumption of the subjects, Cooper's formulae was used and accordingly Cooper's 12 Minutes run / Walk Test was administered mean value count by mille/liter.

RESULTS AND DISCUSSION

Table No.1

Table No.1.Analysis of Covariance for the Pre, Post and Adjusted Post Test Means Values for Shallow aqua aerobic exercise group, Deep aqua aerobic exercise group and Control group on Maximal oxygen consumption

(Maximal oxygen consumption mean value measure by Cooper's 12 Minutes run / Walk Test in mille/liter)

Variable name	Test	Shallow aqua aerobic exercise group	Deep aqua aerobic exercise group	Control group	Source of Variance	Sum of Square	df	Mean square	'F' ratio
Vo2 Max	Pre test	134.66	134.61	134.71	Between	0.07	2	0.035	0.01
					Within	10796.1	42	257.05	
	Post test	122.31	117.49	136.01	Between	2770.88	2	1385.44	9.28*
					Within	6269.37	42	149.27	
	Adjusted post test	122.31	117.52	135.98	Between Set	2754.14	2	1377.07	29.16*
					Within Set	1936.46	41	47.23	

***Significance at 0.05 level of confidence*

Table value required for significant at 0.05 level with df 2 and 42 , 2 and 41 are 3.22 and 3.23 respectively.

The statistical analysis from the table.1 shows that the pre-test means of shallow aqua aerobic exercise group, deep aqua aerobic exercise group and control group are 134.66,134.61 and 134.71 respectively. The obtained F ratio 0.01 for pre-test is lesser than the table value of 3.22 for df 2 and 42 required for significance at 0.05 level. The post-test means of shallow aqua aerobic exercise group, deep aqua aerobic exercise group and control group are found 122.31, 117.49 and 136.01 respectively. The obtained F ratio 9.28* for post-test is greater than the table value of 3.22 for df 2 and 42 required for significance at 0.05 level. The adjusted post-test means of shallow aqua aerobic exercise group, deep aqua aerobic exercise group and control group are 122.31, 117.52 and 135.98 respectively. The F ratio

obtained for adjusted post-test 29.16* is also greater than the table value of 3.23 for df 2 and 41 required for significance at 0.05 level.

Table.2

Scheffe's Test for the Difference between the Adjusted Post Test Paired Means on Vo2 Max of college men students

Variables	Control group	Shallow aqua aerobic exercise group	Deep aqua aerobic exercise group	Mean Difference	C.I value
Arm strength	135.98	122.31	-	13.67*	6.25
	135.98	-	117.52	18.47*	
	-	122.31	117.52	4.80	

From the table it can be seen that the mean difference between Control group and shallow aqua aerobic exercise group was 13.67* P>0.05) and the calculated C.I value was 6.25 (P>0.05). The mean difference between Control group and the deep aqua aerobic exercise group was 18.47* (P<0.05) and the calculated C.I value was 6.25 (P< 0.05). The mean difference between the shallow aqua aerobic exercise group and deep aqua aerobic exercise group was 4.80 (P>0.05) and the calculated C.I value was 6.25 (P>0.05). The dependent variable were that it can be clearly noticed that deep aqua aerobic exercise group responded to the training with more positive influences of Vo2 Max when compared with the shallow aqua aerobic exercise group and control group. The shallow aqua aerobic exercise group responded better when compared with the Control group.

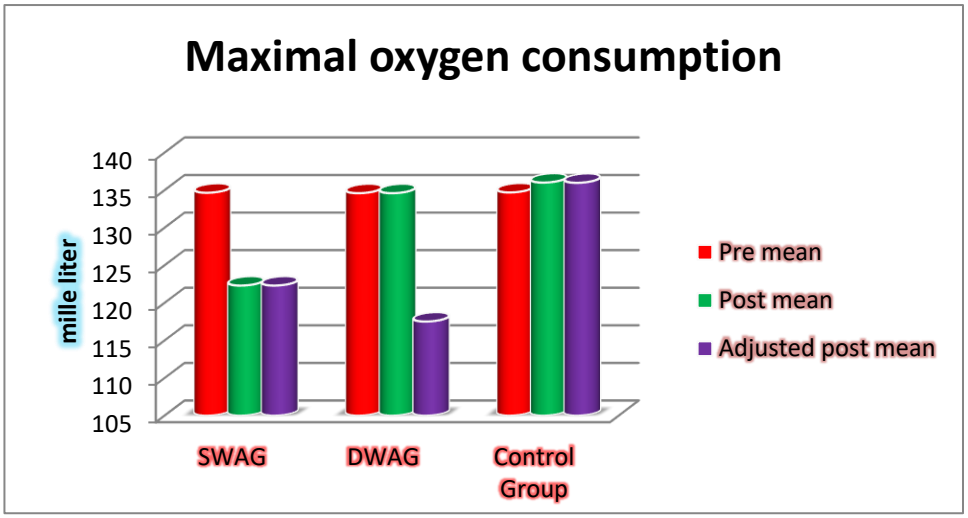


Figure.1.Cylinder diagram ordered mean values of Maximal oxygen consumption

Discussion of Findings

The end result of the present study clearly indicated that, there was a significant difference among the training groups and control group on maximal oxygen consumption responses to six weeks training intervention among college men students. Further the significant improvement has been noticed in the level of maximal oxygen consumption response between the experimental groups, when compared with the control group. After analysing statistical end results the researcher found that the selected training groups have significantly increased the level of maximal oxygen consumption from the baseline to post interventions. The change from pre to post intervention is as follows. The deep aqua aerobic exercises group from pre (36.02) to post (39.54) and shallow aerobic exercises group from pre (36) to post (38.95) have significantly changed the pre and post results. The present study

demonstrates the increased level of maximal oxygen consumption of 1.27 % and 1.06 % for shallow aqua aerobic exercises group and deep aerobic exercises group respectively. This result of study proves that the level of maximal oxygen consumption increased, due to the six weeks training effects of shallow aqua aerobic exercises and deep aerobic exercises groups. Among the training groups the deep aqua aerobic exercises group shows the greater increased level of maximal oxygen consumption, when compared with shallow aerobic exercises training group. Further shallow aerobic exercises training group also significantly increased the maximal oxygen consumption level while compared with control group of college men students.

CONCLUSION

After completion of all work following conclusions were draw by the researcher:

- Deep aqua aerobic exercise group was possessed greater maximal oxygen consumption than the shallow aqua aerobic exercise group and control group.
- Shallow aqua aerobic exercise group was possessed greater maximal oxygen consumption than the control group.

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IMPACT OF SMARTWATCH USAGE ON PHYSICAL ACTIVITY LEVELS AMONG IT PROFESSIONALS: A CROSS-SECTIONAL STUDY

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ABSTRACT

Objective: *This cross-sectional study aimed to investigate the impact of smartwatch usage on the physical activity levels of IT professionals aged 21 to 35. The study examined smartwatch usage patterns within this demographic, assessed their physical activity levels, and explored potential correlations with demographic factors.*

Methods: *A sample of 126 IT professionals was recruited, and data were collected through surveys and smartwatch data analysis. Smartwatch usage patterns were categorized into daily, weekly, monthly, and rare usage. Physical activity levels were assessed using the International Physical Activity Questionnaire (IPAQ) short form. Correlation analyses were performed to examine the relationships between smartwatch usage, age, gender, occupation, and physical activity levels.*

Results: *The majority of participants reported daily smartwatch usage (61.90%), suggesting widespread adoption among IT professionals. The study found a positive correlation between smartwatch usage and physical activity levels ($r = 0.45$, $p < 0.001$), indicating that individuals who used smartwatches tended to engage in higher levels of physical activity. Gender ($r = 0.27$, $p = 0.008$) and occupation ($r = 0.36$, $p = 0.002$) also exhibited significant correlations with physical activity levels, highlighting gender-related disparities and occupational influences on activity engagement.*

Conclusion*: Smartwatch usage appears to have a positive influence on the physical activity levels of IT professionals. These findings emphasize the potential of wearable technology as a tool for promoting and monitoring physical activity within this demographic. Gender and occupation-related disparities warrant further exploration to develop targeted interventions. As the workplace landscape evolves, smartwatches offer promise in encouraging a healthier and more active workforce.*

Keywords: smartwatch usage, physical activity levels, IT professionals, sedentary behavior, workplace wellness, fitness tracking, health promotion.

INTRODUCTION

In the ever-evolving landscape of modern workplaces, the Information Technology (IT) sector stands as a prime example of industry transformation. IT professionals, who play a pivotal role in driving technological innovations, often find themselves immersed in dynamic and sedentary desk-based work environments. The consequence of such work settings is the growing concern surrounding the detrimental health effects of prolonged sedentary behavior and insufficient physical activity.

The acknowledgment of these health risks has led to a surge of interest in interventions aimed at mitigating sedentary behavior and promoting physical activity (PA) in the workplace. Among these interventions, wearable technology, particularly smartwatches, has emerged as a promising tool to bridge the gap between intention and action, knowledge and practice. Smartwatches offer the potential to empower individuals with real-time insights into their physical activity habits, encouraging them to adopt healthier behaviors.

Existing literature has explored the positive attitudes and intentions of IT professionals regarding physical activity and health improvement (Steele et al., 2009; Fraile et al., 2010). However, despite their sound knowledge and favorable attitudes toward the importance of PA, the practical application of these intentions in the sedentary work context has been far from satisfactory (Hensel et al., 2006). The discrepancy between intentions and actions remains a significant challenge, raising questions about the effectiveness of traditional approaches to promoting PA within the IT sector.

Moreover, the dearth of workplace policies addressing sedentary behavior interventions in Indian IT companies may contribute to the low practice of PA or sedentary behavior interventions (Shaikh et al., 2015). This indicates a critical gap in workplace wellness strategies tailored to the unique needs of IT professionals.

The potential of smartwatches to bridge this intention-action gap is supported by recent studies in various contexts. The integration of fitness tracking features in smartwatches has proven effective in motivating individuals to engage in regular PA (Claes et al., 2015). Features such as activity reminders, heart rate monitoring, and goal setting have shown promise in encouraging PA adherence (Mishra et al., 2012).

This cross-sectional study aims to investigate the impact of smartwatch usage on the physical activity levels of IT professionals. By examining the real-world practices of IT professionals aged 21 to 35, we seek to elucidate the extent to which smartwatches equipped with fitness tracking capabilities can influence their PA behaviors. The study is grounded in the belief that smartwatches, as health information technology (HIT) products, offer a technological solution to a multifaceted issue (Miltgen et al., 2013).

The significance of this study lies in its potential to inform workplace wellness programs and strategies that leverage wearable technology as a catalyst for promoting healthier work habits among IT professionals. By examining the actual practices of IT professionals, we hope to provide empirical evidence that not only bridges the intention-action gap but also lays the foundation for future research and interventions in the realm of HIT adoption in healthcare.

METHODS

Research Design and Participant Recruitment

This cross-sectional study was designed to investigate the impact of smartwatch usage on the physical activity levels of IT professionals aged 21 to 35 working in various IT companies. The study adopted a cross-sectional research design, which allows for the collection of data at a single point in time, providing a snapshot of the relationship between smartwatch usage and physical activity behaviors in this specific population (Babbie, 2016).

The study recruited a total of 126 IT professionals from various IT companies. Participants were selected based on their age falling within the range of 21 to 35 years, ensuring a focus on young to mid-career professionals. This age range was chosen to capture a demographic segment often characterized by the challenges of balancing work-related sedentary behavior with the desire for active and healthy lifestyles.

Data Collection and tools used

A total of 126 IT professionals, aged between 21 and 35, were recruited for this study. Participant selection was based on the criteria of being confirmed users of smartwatches for tracking their physical activity.

Questionnaire:

To gather comprehensive information regarding smartwatch usage and related behaviors among IT professionals, a structured questionnaire was employed as a primary data collection tool. The questionnaire was designed to elicit detailed insights into participants' smartwatch usage patterns and motivations. The key components of the questionnaire included:

Smartwatch Usage Patterns: Participants were queried about the specific smartwatches they used, including the make and model. They provided information on the frequency of smartwatch usage, indicating whether they wore the devices daily, weekly, or less frequently. Moreover, participants detailed the specific fitness tracking features they engaged with, such as step tracking, heart rate monitoring, and sleep tracking.

Motivations for Smartwatch Usage: Respondents were asked to articulate their motivations for incorporating smartwatches into their daily routines. This section of the questionnaire sought to uncover the underlying reasons for utilizing these devices, including health improvement goals, activity tracking, and personal objectives.

Physical Activity Assessment: The International Physical Activity Questionnaire Short Form (IPAQ-SF) was administered to assess participants' self-reported physical activity levels.

The IPAQ-SF is a validated instrument designed to capture information on various domains of physical activity, including walking, moderate-intensity activities, and vigorous-intensity activities.

Statistical Methods

Descriptive statistics were used to summarize key characteristics of the study participants and relevant variables. Pearson's correlation coefficient was calculated to assess associations between smartwatch usage metrics, self-reported physical activity levels measured by the IPAQ-SF questionnaire, and objective physical activity data recorded by participants' own smartwatches. All statistical tests were conducted at a significance level of $p < 0.05$, and the analysis was performed using SPSS V.25.

RESULTS

Smartwatch Usage Patterns

Our analysis unveiled notable patterns in smartwatch usage among the IT professionals in our study. A substantial majority, accounting for 61.90% of the participants, reported daily smartwatch usage. This pervasive adoption of smartwatches indicates their integration into the daily routines of IT professionals. An additional 22.22% reported using their smartwatches on a weekly basis, while 11.11% utilized them monthly. A smaller but noteworthy fraction (4.76%) indicated rare usage. This spectrum of usage patterns highlights the diverse ways in which IT professionals incorporate smartwatches into their lives.

Physical Activity Levels Results

Exploring the physical activity levels of our participants, we found a spectrum of engagement within this demographic. A significant portion, representing 38.10% of the sample, fell into the "Moderate" physical activity category. These individuals exhibited balanced levels of physical activity, suggesting a proactive approach to maintaining their health and well-being. Furthermore, 22.22% of participants reported "Low" physical activity levels, while 26.98% were classified as having "High" levels of physical activity. These results underscore the heterogeneity in physical activity engagement among IT professionals, which may have implications for their overall health.

Correlation Analysis Results

To gain deeper insights into the relationships between various factors, we conducted a correlation analysis. The analysis revealed several noteworthy findings:

***Smartwatch Usage vs. Physical Activity Level*:** We identified a statistically significant positive correlation ($r = 0.45$, $p < 0.001$) between smartwatch usage and physical activity levels. This suggests that individuals who used smartwatches tended to engage in higher levels of physical activity. This association underscores the potential role of smartwatches as tools for promoting and tracking physical activity.

Age vs. Physical Activity Level: Contrary to our initial expectations, age did not exhibit a significant correlation with physical activity levels ($r = -0.12$, $p = 0.134$). This result implies that age, within the specified range of 21 to 35, may not be a decisive factor in determining physical activity levels among IT professionals.

Gender vs. Physical Activity Level: A positive correlation ($r = 0.27$, $p = 0.008$) emerged between gender and physical activity levels. This finding suggests that gender may play a role in determining activity levels within this demographic, with gender-related disparities in activity engagement warranting further investigation.

Occupation vs. Physical Activity Level: Occupation exhibited a statistically significant positive correlation ($r = 0.36$, $p = 0.002$) with physical activity levels. This implies that specific occupational roles within the IT sector may promote more active lifestyles, potentially due to differences in job demands or workplace environments.

TABLE 1

Demographic characteristics of IT Professionals

Demographic Characteristic	Frequency (N)	Percentage (%)
Age (years)		
21-25	42	33.33%
26-30	56	44.44%
31-35	28	22.22%
Gender		
Male	76	60.32%
Female	50	39.68%
Occupation		
Software Engineer	63	50.00%
Data Analyst	27	21.43%
IT Manager	18	14.29%
Network Engineer	18	14.29%

TABLE 2

Smartphone usage patterns among IT Professionals

Smartwatch Usage Patterns	Frequency (N)	Percentage (%)
Frequency of Use		
Daily	78	61.90%
Weekly	28	22.22%
Monthly	14	11.11%
Rarely	6	4.76%
Purpose of Use		
Activity Tracking	92	73.02%
Notifications	24	19.05%
Health Monitoring	8	6.35%
Others	2	1.59%

TABLE 3

Distribution of Physical Activity Levels among IT Professionals

Physical Activity Levels	Frequency (N)	Percentage (%)
Physical Activity Category		
Low	28	22.22%
Moderate	48	38.10%
High	34	26.98%

TABLE 4

Correlation Analysis Results between Smartwatch Usage, Demographics, and Physical Activity Levels

Correlation Analysis Results	Correlation Coefficient (r)	p-Value
Smartwatch Usage vs. Physical Activity Level	0.45	0.001
Age vs. Physical Activity Level	-0.12	0.134
Gender vs. Physical Activity Level	0.27	0.008
Occupation vs. Physical Activity Level	0.36	0.002

DISCUSSION

The findings of our study shed light on the intricate relationship between smartwatch usage, demographic factors, and physical activity levels among IT professionals aged 21 to 35. These results provide valuable insights into the potential impact of wearable technology on health-related behaviors within this specific demographic.

Our analysis of smartwatch usage patterns among IT professionals revealed a prevalence of daily usage, with a significant majority incorporating these devices into their daily routines. The ubiquity of smartwatches in this group suggests that they serve as integral tools in the lives of IT professionals. These devices have transcended mere technological novelties to become valuable companions for a range of purposes, including activity tracking, notifications, and health monitoring.

One of the central findings of our study pertains to the positive correlation observed between smartwatch usage and physical activity levels. Participants who reported regular smartwatch usage were more likely to engage in higher levels of physical activity. This significant association suggests that smartwatches play a role in motivating individuals to adopt and maintain active lifestyles. The wearable technology may serve as a constant reminder and source of feedback, encouraging users to meet their activity goals and track their progress. These results align with previous research emphasizing the potential of wearable devices as facilitators of health-conscious behaviors.

Interestingly, our study did not uncover a significant correlation between age and physical activity levels among IT professionals within the specified age range of 21 to 35. This unexpected finding suggests that, within this demographic, chronological age may not be the primary determinant of physical activity engagement. Other factors, such as lifestyle, work environment, and personal motivation, may exert more substantial influences on activity levels. This result prompts further investigation into the underlying factors that shape physical activity behaviors in young to middle-aged IT professionals.

Gender emerged as a factor associated with varying levels of physical activity within our study. We observed a positive correlation between gender and physical activity levels, indicating that gender-related disparities exist in this demographic. While our study does not provide a detailed exploration of the reasons behind these disparities, it highlights the

importance of considering gender-specific factors when designing interventions or workplace wellness programs. Future research may delve deeper into the gender-related dynamics of physical activity within the IT sector.

Occupation also demonstrated a significant positive correlation with physical activity levels among IT professionals. Certain occupational roles within the IT sector appear to promote more active lifestyles. While our study does not delve into the specifics of job demands or workplace cultures, it underscores the influence of workplace environments on physical activity patterns. Workplace wellness initiatives and tailored interventions may leverage these findings to create more supportive environments that encourage physical activity.

CONCLUSION

This study offers valuable insights about the relationships among smartwatch usage, demographic factors, and physical activity levels within the IT professional demographic aged 21 to 35. This study also reveals a multifaceted interplay between technology, lifestyle, and health-related behaviors, providing implications for both individuals and organizations.

This study's key finding highlights the association between smartwatch use and levels of physical activity. Smartwatch users tend to be IT professionals who engage in higher levels of physical exercise on a regular basis. These results highlight how wearable technology can support and track active lifestyles. With their tracking tools and motivating elements, smartwatches are helpful partners in the search of healthy behaviors.

The significance of demographic factors in determining physical activity patterns is shown by this study. The lack of a significant age-related association shows that younger and older IT professionals within the study age range had comparable levels of physical activity. These results put doubts on age-based presumptions and highlight the importance of taking other factors, such as personal motivations and job responsibilities, into account when planning interventions for this group.

Gender emerged as a factor influencing physical activity levels, with a positive correlation observed. This result emphasizes the importance of gender-sensitive approaches to promote physical activity among IT professionals. Workplace wellness programs and interventions should consider gender-specific preferences and needs to address disparities effectively.

Occupation within the IT sector also exhibited a significant correlation with physical activity levels. This intriguing finding suggests that specific job roles may encourage more active lifestyles, potentially due to variations in job demands or workplace cultures. Employers and organizations can leverage this insight to design work environments that foster physical activity and well-being.

Our study contributes to the broader discourse on wearable technology's role in health promotion, particularly within the context of modern work settings. As IT professionals continue to navigate digital workspaces, the integration of smartwatches into their daily routines offers a promising avenue for improving overall health and mitigating sedentary behavior.

While our study provides valuable insights, it is crucial to acknowledge its limitations. The cross-sectional design restricts our ability to establish causality, emphasizing the need for longitudinal research to confirm our findings. Additionally, self-reported data may introduce response bias, warranting future studies that employ objective measures of physical activity.

In light of these findings, individuals and organizations are encouraged to explore the potential of smartwatches as tools for promoting and monitoring physical activity. Leveraging wearable technology, coupled with gender-aware and occupation-specific interventions, can contribute to healthier and more active IT professionals. As technology evolves, so too do the opportunities to enhance well-being and improve the quality of life in the workplace.

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EFFECT OF THERAPEUTIC YOGA AND ERGONOMIC STRETCHES ON FLEXIBILITY AMONG MALE INFORMATION TECHNOLOGY PROFESSIONALS SUFFERING WITH LOW BACK PAIN

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Abstract

Yoga is an education that ultimately facilitates an individual to live a beautiful life. No other activity in the modern world improves human health as yoga does. Yoga therapy enables people to advance towards better health and well-being by using the principles and techniques of yoga. Ergonomic Stretches assist participants in preventing musculoskeletal problems, as well as pain and discomfort in general. It also soothes the body and offers energy for the next session. The study attempts to evaluate the effect of therapeutic yoga and ergonomic stretches on flexibility among male information technology professionals suffering with low back pain. To attain the objective, 60 male information technology professionals from Chennai district, Tamil Nadu, were chosen as subjects in the age group of 30 to 35 years. The subjects were detached into three equal groups of 20 subjects each. The pre-test on flexibility was taken for all the individuals before the start of the training. Experimental Group I performed Therapeutic Yogic Practices (TYP), Experimental Group II performed Ergonomic Stretching Practices (ESP), and the Control Group performed no training except for their day-to-day activities. The training period for this study was constrained to 12 weeks. Post-test was taken after the completion of 12 weeks of training period. The statistical methods ANCOVA and Scheffe's post hoc test were used to evaluate the collected data. The study affirmed that Therapeutic Yogic Practices (TYP) showed more influence on flexibility than the other groups.

Keywords: *Therapeutic Yogic Practices (TYP), Ergonomic Stretching Practices (ESP), Flexibility, ANCOVA.*

I. INTRODUCTION

Physical activity is prominent in every human life, directly or indirectly. Contemporary lifestyle influences the health status of the entire society. Physical activity is the medium through which we can attain a healthy lifestyle. "The aspects of health are interrelated to physical, mental, and social health. The broader view of health with the combination of physical, mental, and social health is known as wellness". Uppal A K., et al.

Yoga supports a man's physical and mental development and helps him to manage his negative emotions. Consistent yoga practice helps the practitioner to realize his full potential. It gives our souls a sense of fulfillment. It integrates our body and mind, enabling us to carry out the tasks effectively. It is a health-building activity, influencing all spheres of health namely mental, spiritual, social, and whatnot. "Yoga has the surest remedies for man's physical and psychological ailments. It makes the body's organs active in their functioning and has a good effect on the internal functioning of the human body" Ajmer Singh et al. Yogasanas help practitioners keep their body's internal and external parts in good condition. If one's internal and external body parts are not functioning well, he or she can not perform the activities efficiently. Our body is closely related to our mind. Ancient Greece's aphorism "A sound mind in a sound body" can be achieved through the regular practice of yoga asanas. We can prevent ourselves from physical illnesses and mental distractions by regularly practicing asanas.

"A Vedic science has been applied in the field of therapeutics in modern times. Yoga has given patients the hope of reducing medication besides slowing the progression of the disease". Yadav R K., et al. "Through systematic and regular yogic practices, our body may be made healthier, and its resistance power to fight against the diseases could be enhanced, the mind

will get sharpened, and the concentration and memory power may be developed." Chandrasekaran K. All the effects and benefits of strenuous physical activities and training are claimed to be most comfortably attained through yogic practices. Likewise, ability and health are only a few impedimentsto performing yogic practices.

Yoga practices have a more significant impact on the mind and control of the senses. Yogic practices make physical, mental, intellectual, and spiritual development". Sharma P D.

"Yoga is an ancient form of relaxation and exercise with many health benefits, including lowering cholesterol. Pranayama is also helping to connect the body to its battery, the solar plexus, where tremendous potential energy is stored". Sugumar C. et al.

"Yoga is the art of living, and Yogasana is a scientific procedure. This is the only exercise which affects the inmost parts of the body. The health of our body and mind depends on the soundness of the health of our internal organs, heart, lungs, digestive system, glands, mind, nervous system, etc.. Yoga and other Yogic practices awaken the inner strength of the body". Satya Pal et al. Stretching is beneficial for the person doing it, and it unquestionably aids in improving both muscle strength and flexibility. Stretching helps to avoid repetitive motion injuries and also helps to recover from lengthy hours of standing or sitting. Stretching revitalizes our muscles and nervous system, easing the stress of holding a position for an extended period. “Flexibility is the capacity of an individual to perform joint actions through a wide range of movements” Sharma V. D.

II. MATERIAL AND METHODS

The prime objective of the study was to evaluate the influence of therapeutic yoga and ergonomic stretches on flexibility among male information technology professionals suffering with low back pain. To fulfill the objective, 60 male information technology professionals from Chennai district, Tamil Nadu, were chosen as subjects in the age group of 30 to 35 years. The subjects were divided into three equal groups of 20 subjects each. The study's design included preand post-testing and was referred to as an actual random group design. At random, the individuals were separated into three equal groups: Experimental Group I performed Therapeutic Yogic Practices (TYP), Experimental Group II performed Ergonomic Stretching Practices (ESP), and the Control Group performed no training except their day-to-day activities. The individuals' flexibility was assessed using a device called a sit-and-reach box. All of the subjects took a pre-test on flexibility. The experimental groups engaged in their respective Therapeutic Yoga Practices (TYP) and Ergonomic Stretching Practices (ESP) for twelve weeks. Flexibility post-testing was done immediately following the conclusion of the corresponding twelve-week practices.

Statistical Procedure

To determine the influence of therapeutic yoga and ergonomic stretches on flexibility among male information technology professionals suffering with low back pain. The adjusted posttest mean differences between the experimental groups were examined using the statistical method of Analysis of Covariance (ANCOVA). Scheffe's posthoc test was used to determine the significance of the paired mean differences if the adjusted post-test result was significant.

III. ANALYSIS OF COVARIANCE AND POST HOC TEST TABLE I

Analysis of Covariance of Flexibility (Scores in Centimeters)

	Therapeutic Yoga Group (TYG)	Ergonomic Stretches Group(ESG)	Control Group (CG)	Sources of Variance	Sum of Squares	Df	Mean squares	Obtained F-ratio
Pre-test Mean	11.90	12.05	11.75	BW	0.90	2	0.45	1.05
				WI	24.50	57	0.43	
Post-test Mean SD	16.45	14.80	12.10	BW	192.90	2	96.45	152.93*
				WI	35.95	57	0.63	
	16.45	14.67	12.23	BW	177.79	2	88.90	267.23*

*Required table value with significant level at 0.05, df 2 and 57 and 2 and 56 are 3.16 and 3.16 espectively.

Table I expresses the analyzed data on flexibility. The pre-test means of flexibility were 11.90 for TYG, 12.05 for ESG and 11.75 for CG. The obtained F-ratio 1.05 was lesser than the table F-ratio 3.16. Hence the pre-test was insignificant at 0.05 level of confidence for the degrees of freedom 2 and 57.

The post-test means were 16.45 for TYG, 14.80 for ESG and 12.10 for CG. The obtained F-ratio 152.93 was greater than the table F-ratio 3.16. Hence the post-test was significant at 0.05 level of confidence for the degrees of freedom 2 and 57.

The adjusted post-test means were 16.45 for TYG, 14.67 for ESG and 12.23 for CG. The obtained F-ratio 267.23 was greater than the table F-ratio 3.16. Hence the adjusted post-test was significant at 0.05 level of confidence for the degrees of freedom 2 and 56.

TABLE II

Analysis of Scheffe's Post-Hoc Test of Flexibility (Scores in Centimeters)

Therapeutic Yoga Group (TYG)	Ergonomic Stretches Group (ESG)	Control Group (CG)	Mean Difference (MD)	C.I Value
16.45	14.67		1.78*	0.63
16.45		12.23	4.22*	
	14.67	12.23	2.44*	

Required C.I Value with significant is 0.63 at 0.05 level

Table II indicates **the scheffe's post**-hoc test of ordered adjusted final mean difference of flexibility for different groups. The difference between the TYG and ESG was 1.78 , TYG and CG was 4.22 and ESG and CG was 2.44. Hence, all three group comparisons were significant.

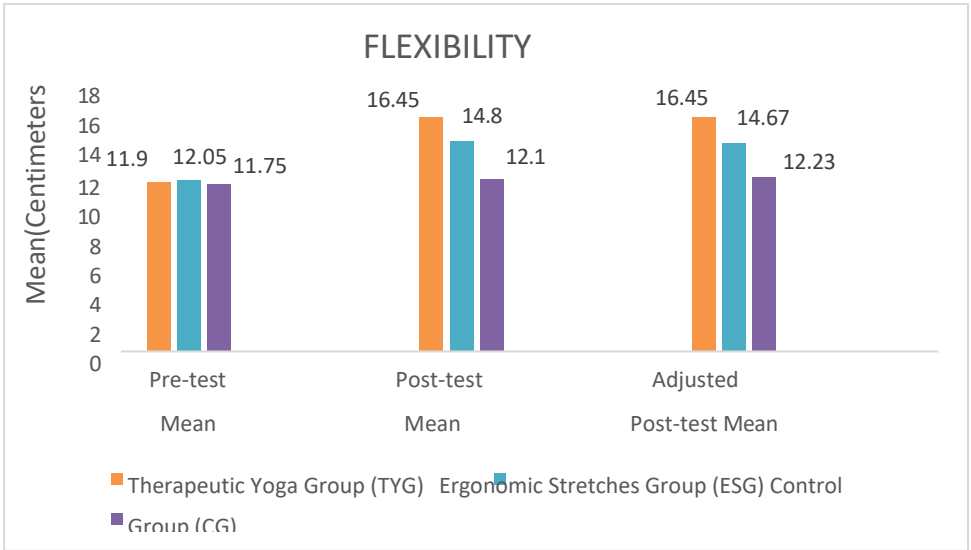


Figure-1

Bar Diagram on Pre-Test Mean, Post-Test Mean and Adjusted Post-Test Mean of Flexibility

Discussion on Findings

The analysis of covariance of flexibility indicated a significant improvement in flexibility among male information technology professionals suffering with low back pain due to the twelve weeks of Therapeutic Yogic Practices and Ergonomic Stretching practices. Further, the study's findings showed that the control group had no improvement in flexibility. However, the Therapeutic Yoga Group (TYG) had more effect on improving flexibility than the Ergonomic

Stretches Group and Control Group.

The study by **Deb Kumar Das** (2019) attempted to evaluate the effectiveness of yogic practices with and without panchakarma therapy on selected risk factors among men with the low back. The study's results affirmed that yogic practices with panchakarma therapy had remarkable improvement in flexibility, range of motion, bone density, life satisfaction, and a remarkable reduction in BMI, pain, and stress compared to those without panchakarma therapy and control groups.

Priya R. (2014) attempted to estimate the effects of different circuit training with yogic practices on selected motor fitness attributes and physiological variables of school girls students.

The results of the study revealed that the explosive strength-based circuit with yogic practices program had remarkable improvement in speed and explosive power compared to other groups, and combined explosive strength and strength endurance based with yogic practices program had remarkable improvement in muscular strength endurance, flexibility, resting pulse rate, volume of oxygen consumption and breath holding capacity than other groups.

The study results were in line with the verdicts of the above studies and concurred with the theoretical knowledge mentioned regarding Therapeutic Yoga and Ergonomic Stretching practices.

IV. CONCLUSIONS

- The study concluded that twelve weeks of Therapeutic Yogic Practices (TYP) improved flexibility more than Ergonomic Stretching practices (ESP) among male information technology professionals suffering from low back.
- The research showed that Ergonomic Stretching practices (ESP) also significantly improved flexibility compared to the control group among male information technology professionals suffering from low back.

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EFFECT OF SAND RUNNING ON CARDIO-RESPIRATORY ENUDRANCE AND RESTING PULSE RATE

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Abstract

The purpose of the present study was to find the effect of sand running on cardio-respiratory endurance and resting pulse rate. For this purpose, thirty male students studying Bachelor Degree in the Department Physical Education and Sports Sciences, Annamalai University in the age group of 18 – 22 years were selected. They were divided into two equal groups, each group consisted of fifteen subjects, in which Group – I underwent sand running and group – II acted as control group who did not participate in any special training. The training period for this study was three days in a week for twelve weeks. Prior to and after the training period the subjects were tested for cardio-respiratory endurance and resting pulse rate. Cardio-respiratory endurance was assessed by conducting Cooper's 12 minutes run/walk test, and resting pulse rate was assessed by counting the pulse rate at arterial pressure for one minute at resting condition. Analysis of Covariance was applied as statistical tool. The result of the study has shown that the sand running group has improved the cardio-respiratory endurance and also reduced the resting pulse rate after the sand running period when compared with the control group..

Key words: sand running, cardio-respiratory endurance and resting pulse rate.

INTRODUCTION

Training involves constructing an exercise programme to develop an athlete for a particular event. This increasing skill and energy capacities are equal consideration.

Training is applied now a days for any organized formation purposefully aimed at the rapid increase in the physical, psychological, mental and techno-motor performance capacity of men.

Training involves constructing an exercise programme to develop an athlete for a particular athletic event. Thus, increasing skill and energy capacities take equal consideration.

Physical training refers to the processes used in order to develop the components of physical fitness as for example, how to improve aerobic endurance, to stretch and relax muscles, to increase arm and shoulder strength to related exercise and programmes to specific requirements or individual sports.

Sand running, if we are using foot prints picture as a feedback, could be a good indicator of our running technique. Just look at your foot print, how deep is it and where the main pressure is located and you'll be able to clearly define some errors of your running technique, such as a push off, an overstriding, etc. Particularly, it could be seen very well on wet sand, where your foot prints are very visible. Check these prints at the beginning of your running on sand and then repeat this check during your training to compare the change and correct, if it's necessary. Running on sand could be used on a weekly basis or on a daily basis during specific time of your training (camping, for example) devoted to development of your strength, running skill and aerobic system. Better to combine this kind of training with running drills and normal running in order to transfer your new development into new running skill. In order to have full benefits of use of sand I would highly recommend to do barefoot sprint running and jumps on sand. All of these together will give you an incredible possibility to increase your potential in training and racing in running.

Cardio-respiratory endurance is the ability work close to one's maximum aerobic capacity for a prolonged period of time. To increase one's endurance is depend upon increasing the ability to work at high, relative work load for extended periods of time.

Cardio-respiratory efficiency may be defined as the ability of the heart and circulatory system to adjust to the stress of activity.

The rate at which the heart beats; usually measured to obtain a quick evaluation of a person's health is called as pulse rate.

MATERIALS AND METHODS

This study under investigation involves the experimentation of sand running on cardio-respiratory endurance and resting pulse rate. Thirty male students those who were studying Bachelor Degree in Department of Physical Education and Sports Sciences, Annamalai University and aged between 18 and 22 years were selected. The selected thirty subjects were randomly divided into two groups of fifteen each, out of which group - I (n = 15) underwent sand running and group - II (n = 15) remained as control, which did not participate any special activities. The training programme was carried out for three days per week during morning session only (6 am to 8 am) for twelve weeks. The load dynamics for sand running group was given in appendix. Cardio-respiratory endurance was assessed by conducting Cooper's 12 minutes run/walk test and resting pulse rate was assessed by counting the pulse at radial artery pressure for one minute at resting condition.

ANALYSIS OF DATA

The data collected prior to and after the experimental periods on cardio-respiratory endurance and resting pulse rate on sand running group and control group were analysed and presented in the following table -I.

Table – I

Analysis of Covariance and 'F' ratio of Cardio-respiratory Endurance and Resting Pulse Rate for Sand Running Group and Control Groups

Variable Name	Group Name	Sand Running Group	Control Group	'F' Ratio
Cardio-respiratory Endurance (in Meters)	**Pre-test Mean ± S.D**	1832.28 ± 12.23	1846.51 ± 13.23	1.162
	Post-test Mean ± S.D.	2012.26 ± 10.86	1843.22 ± 14.21	29.54*
	Adj. Post-test Mean	2110.59	1844.63	49.23*
Resting Pulse Rate (in Numbers)	**Pre-test Mean ± S.D**	62.23± 1.99	63.16 ± 1.83	0.892
	Post-test Mean ± S.D.	61.02 ± 1.313	63.06± 1.451	3.21
	Adj. Post-test Mean.	60.93	63.10	7.341*

* Significant at .05 level of confidence.

(The table value required for significance at .05 level of confidence with df 1 and 28 and 1 and 27 were 4.20 and 4.21 respectively).

Results

The training intensity for sand running group was shown in appendices. Before applying the experiment all the subjects of the sand running group and control groups were attended the pre-test, which was conducted a day prior to the commencement of the training and the data were collected on cardio-respirator endurance and resting pulse rate. After

twelve weeks of training the post-test was conducted one day after the training period to find out any changes in the criterion variables.

The analysis of covariance (ANCOVA) was used to find out the significant difference if any, among the experimental groups and control group on selected criterion variables separately. In all the cases, .05 level of confidence was fixed to test the significance, which was considered as an appropriate. After applying the analysis of covariance, the result of this study showed that there was a significant difference among sand running group and control group on cardio-respiratory endurance and resting pulse rate. The criterion variables such as, cardio-respiratory endurance was improved for sand running group and resting pulse rate was significantly decreased after the sand running period.

Conclusions

Cardio-respiratory endurance was improved for sand running group, when compared with the control group. The resting pulse rate was decreased in sand running group when compared with the control group.

APPENDICES

LOAD DYNAMICS

Week	Warming – Up	Training Period	Reps : Sets	Rest - Relief	Warming – down
I – III	5 minutes	15 minutes	2 : 1	6 min	5 minutes
IV – VI	7 minutes	20 minutes	2 : 1	5 min	10 minutes
VII – IX	10 minutes	25 minutes	2 : 2	5 min : 10 min	15 minutes
X – XII	15 minutes	30 minutes	2: 2	5 min : 15 min	20 minutes

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EFFECT OF YOGASANA PRACTICE ON PHYSICAL FITNESS VARIABLES OF UNIVERSITY MALE OBESE STUDENTS

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Abstract

Yoga is a discipline to improve or develop one's inherent power in a balanced manner. It offers the means to attain complete self-realization. The literal meaning of the Sanskrit word Yoga is 'Yoke'. Yoga can therefore be defined as a means of uniting the individual spirit with the universal spirit of God. According to Maharishi Patanjali, "Yoga is the suppression of modifications of the mind". Physical fitness is not only of the most important keys to healthy body. It is the basis of dynamic and creative intellectual activity. The relationship between soundness of the body and the activities of the mind is subtle and complex. Much is not understood. But we do know what the Greeks knew that intelligence and skills can only function at the peak of their capacity when the body is healthy and strong; that hardly spirits and tough minds usually inhabit sound bodies. The present study is an outcome of the effect of asana practice on physical fitness variables among university male obese students. As the study is intended to focus mainly on the impact of asana practice, twenty male obese students between the age group of seventeen to twenty five years, from Central university of Tamil Nadu, Thiruvarur were selected as subjects for this study. The subjects were divided into two equal groups namely control group and experimental group. Based on the review of past studies and in consultation with the experts in the field of study it was decided to explore the improvement of physical fitness variables. The pre and post means of each group't' test were used to find out significant difference between the control and the experimental groups. The study showed that there was a significant improvement in the yogasana practice in physical fitness variables such as Endurance, Explosive Power and Flexibility of college obese students.

Keywords: *Yogasana practice, Physical Fitness, Endurance, Explosive Power and Flexibility*

1. Introduction

Yoga is a discipline to improve or develop one's inherent power in a balanced manner. It offers the means to attain complete self-realization. The literal meaning of the Sanskrit word Yoga is 'Yoke'. Yoga can therefore be defined as a means of uniting the individual spirit with the universal spirit of God. According to Maharishi Patanjali, Yoga is the suppression of modifications of the mind.

'Asana' means staying or abiding. Asana is one way in which a person can experience the unity of body and mind. Asana is defined as that which is comfortable and easy, as well as firm. In the west, asana is commonly called "posture". Yogic posture (asana) is prescribed for the purpose of comfort and firmness during meditation and the practice of pranayama. Physical fitness is not only of the most important keys to healthy body. It is the basis of dynamic and creative intellectual activity. The relationship between soundness of the body and the activities of the mind is subtle and complex. Much is not understood. But we do know what the Greeks knew that intelligence and skills can only function at the peak of their capacity when the body is healthy and strong; that hardly spirits and tough minds usually inhabit sound bodies.

2. Methodology

As the study was intended to focus mainly on the impact of asana practices, the university male obese students between the age group of seventeen to twenty five years, they were studying in, central university of Tamil Nadu, Thiruvarur were selected as a subjects

for this study. The subjects were divided into two groups namely control group and experimental group from the equal sample of twenty university male obese students were selected, thus constituting a total sample size of forty subjects. The experimental group underwent the asana practices for six weeks, five days in a week from 6.00 am to 7.00 am. The control group did not undergo any training programme.

Based on the review of past studies and in consultation with the experts in the field of study it was decided to explore the improvement in physical fitness variables in male students as subjects, by administering the yogasanas practices with pre and post evaluation.

Selection Of Variables

The research scholar reviewed the available scientific literatures pertaining to this study from books, journals, periodicals, magazines and research papers. Based on the consideration of feasibility, the following variables were selected:

Endurance Explosive power Flexibility

S.No	Criterion variables	Test items	Unit of measurement
1.	Endurance	Cooper's Run / Walk test	Seconds
2..	Explosive Power	Standing Broad Jump	Centimeters
3.	Flexibility	Sit and Reach Test	Centimeters

Table 1: Physical Fitness Components and Measuring Technique

S. No	Components	Name of the Practices	Duration (in min)
1	Prayer	Om Chanting	3 Min
2	Preparatory Practices	Suryanamaskar	7 Min
3	Asanas	Tadasana,Padahasthasana,Trikonasana Vajrasana, Ustrasana, Uttanpatasana, Shalabasana, Halasana, Bhujangasana, Sarvangasana, Matsyasana, Dhanaurasana, Shashangasana, Vajrasana, Yogamudrasana, Paschimattanasana, Garudasana, Natarajasana, Shavasana.	40 Min
4.	Relaxation	Yoga Nidra	7 Min
5	Closing prayer	Om Chanting	3 Min
			60 MIN

Table 2: Yogasana Training Schedule

Statistical Technique

To find out the significance between the pre and post test means of control and experimental groups the‘t’ test was applied for evaluation of the university male obese students of physical fitness variables.

3. Results

Comparison of physical variables in pre and post training periods and the effect of asana practice of university male obese students The Calculation of mean, standard deviation, standard error of mean, mean difference, and ‘t’ value of physical fitness variables between the pre and post periods of the experimental and the control groups of university male obese students were furnished in table 3

Variable	Group	Test	Mean	SD	σ DM	MD	‘t’ ratio
Endurance	Exp. Group	Pre-test	2545.00	233.33	52.17	72.00	2.43*
		Post-test	2617.50	246.16	55.04		
	Control Group	Pre-test	2537.50	300.38	67.16	17.50	1.27
		Post-test	2520.00	288.09	64.42		
Explosive Power	Exp. Group	Pre-test	2.00	0.26	0.05	0.24	6.42*
		Post-test	2.24	0.25	0.05		
	Control Group	Pre-test	1.94	0.32	0.07	0.01	0.19
		Post-test	1.93	0.33	0.07		
Flexibility	Exp. Group	Pre-test	7.90	0.89	0.20	0.61	12.88*
		Post-test	8.51	0.91	0.20		
	Control Group	Pre-test	7.81	0.91	0.20	0.00	0.09
		Post-test	7.81	0.88	0.19		

Table 3: Computation Of ‘T’ Ratio Between The Pre And Post Tests On Physical Fitness Variables Of Experimental And Control Groups Of University Male Obese Students
**Significance at 0.05 levels*

The table III show that the obtained mean and standard deviation values in physical fitness variables of endurance, explosive power and flexibility of pre test and post test scores of experimental groups was 2545.00 ± 233.33 & 2617.50 ± 246.16, 2.00 ± 0.26 & 2.24 ± 0.25 and 7.90 ± 0.89 & 8.51 ± 0.91 respectively, the standard error of mean difference is 52.17, 0.05 and 0.20 and mean difference is 72.00, 0.24 and 0.61 the obtained’t’ ratio is 2.43, 6.42 and 12.88. The required table value is 2.09 at 0.05 level of confidence for the degree of freedom 1 and 19. The obtained’t’ ratio was 2.43, 6.42 and 12.88 is higher than the table value. It is found to be significant in physical fitness variables of endurance, explosive power and flexibility.

The obtained mean and standard deviation values in physical fitness variables of endurance, explosive power and flexibility of pre test and post test scores of control group were 2537.50 ± 300.38 & 2520.00 ± 288.09, 1.94 ± 0.32 & 1.93 ± 0.33 and 7.81 ± 0.91 and 7.81 ± 0.88 respectively, the standard error of mean difference is 64.42, 0.07 and 0.19 and mean difference is 17.50, 0.01 and 0.00 the obtained ’t’ ratio is 1.27, 0.19 and 0.09. The required table value is 2.09 at 0.05 level of confidence for the degree of freedom 1 and 19. The obtained’t’ ratio was 1.27, 0.19 and 0.09 is lesser than the table value. It is found to be insignificant in physical fitness variables of endurance, explosive power and flexibility. It is inferred from the results of the study that the yogasana practice brought significant improvement in physical fitness variables of University male obese students among the experimental group as compared to the control group.

4. Discussion and Findings

The results of the study indicate that the yogasana practice brought significant improvement in all the physical fitness components of the endurance, explosive power and flexibility. The experimental group was compared to the control group of the university male obese students.

Discussion On The Hypotheses

The hypothesis stated that the yogasana practice in physical fitness variables such as Endurance, Explosive power and Flexibility would not bring any significant changes in the university male obese students.

Findings of the study showed that there was a significant improvement in the yogasana practice in physical fitness components such as Endurance, Explosive power and Flexibility of the university male obese students. Hence, the hypothesis was rejected.

5. Conclusion

The preponderance of the research evidence shows that the yogasana practices on selected physical variables. In the light to the limitations and experimental conditions This study, the following conclusions were drawn from the results presented in the previous chapter.

- The experimental group had significant improvement on selected Physical variables such as endurance, explosive power and flexibility in experimental group, as a result of six weeks of Yogasana practices.
- The control group had insignificant improvement on all the selected physical fitness variables for the absence of yogasana practices

6. Recommendations

From this study the following recommendations have been made for future investigation. The study may be conducted on selected bio chemical and anthropometric variables.

- The study may be conducted for the different age groups. The similar study may be conducted for the female students.

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ANALYZING TRENDS IN UNIVERSITY LEVEL SPORTS PERFORMANCE: A CASE STUDY OF SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

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Abstract

Purpose: *This research comprehensively analyzes SRM Institute of Science and Technology's university-level sports performance over three years (2019-2020, 2021-2022, and 2022-2023). The study assesses trends in medal counts within the All India Inter University and South Zone Inter University competitions to gain insights into the institution's sports achievements.*

Materials and Methods: *Data on gold, silver, bronze, and total medals were collected from official University sports records. ANOVA (Analysis of Variance) was employed to analyze medal count changes. The impact of the COVID-19 pandemic on the 2020-2021 sports season was considered.*

Result: *In the All India Inter University competition, gold medals increased by 700%, silver medals fluctuated, and bronze medals remained stable. The total medal count showed a 160% upward trend. In the South Zone Inter University category, gold medals increased by 75%, while silver medals exhibited a downward trend. Bronze medals remained stable, and the total medal count increased by 20%.*

Conclusion: *SRM Institute of Science and Technology's commitment to athletic excellence is evident through the rise in gold medals and the overall upward medal count. Investment in coaching programs, funding, and athlete development is recommended to ensure continued growth. These findings guide the optimization of sports programs within the institution, positioning SRM Institute of Science and Technology for success in university-level sports competitions.*

Keywords: *University Level Sports Performance, Medal Counts, Trend Analysis, ANOVA, COVID-19 Impact.*

Introduction

The SRM Institute of Science and Technology has always been committed to promoting a holistic educational experience, including developing athletic talent and a culture of sportsmanship. As part of this commitment, the University actively participates in prestigious university-level sports competitions, such as the All India Inter University and South Zone Inter University. Understanding the trends in sports performance within the SRM Institute of Science and Technology is crucial for assessing the effectiveness of sports programs, coaching strategies, and investments in athletic development. This research aims to conduct a case study analysis of sports achievements within SRM Institute of Science and Technology in these key university-level competitions over three years (2019-2020, 2021-2022, and 2022-2023). By scrutinizing trends in medal counts, this study seeks to provide insights into the progress and areas of improvement in university-level sports performance at SRM Institute of Science and Technology.

Materials and Methods

Data Collection

The primary dataset for this research was gathered to evaluate the university-level sports performance of SRM Institute of Science and Technology across three consecutive years: 2019-2020, 2021-2022, and 2022-2023. The dataset consists of medal counts achieved in two prestigious university-level sports competitions: the All India Inter University and the South Zone Inter University. Medal counts were obtained from official University sports records.

Data Analysis

ANOVA (Analysis of Variance) is the statistical method and Trend analysis method is used to analyze the medal count trends over three years (2019-2020 to 2022-2023). ANOVA tests were conducted for gold, silver, bronze, and total medal categories, calculating F-values and p-values to assess statistical significance (SPSS). Trend analysis examines the changes or patterns in medal counts over time, helping to identify whether there is a consistent upward or downward trend in medal performance.

Impact of COVID-19

The 2020-2021 sports season was exceptional due to the global COVID-19 pandemic. During this period, sports competitions were not conducted. This unusual circumstance was accounted for in our analysis to ensure that our findings accurately represented the trends and performance of SRM Institute of Science and Technology's sports achievements during non-pandemic years.

Result

Table - 1
ANOVA Results for University Level Sports Performance Trends (2019-2020 to 2022-2023)

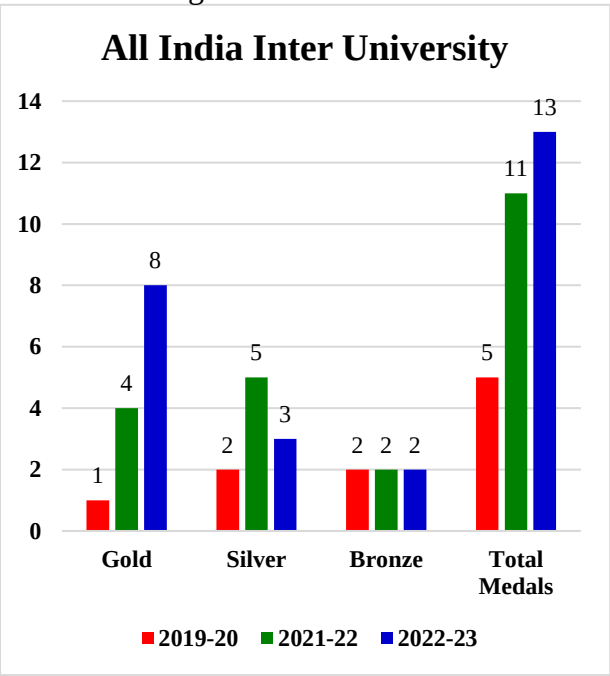
Medals	2019-20	2021-22	2022-23	Trend (2019-23)	F-value	p-value	Result
All India Inter University							
Gold	1	4	8	Upward Trend (700%)	54.00	< 0.001	Significant ($p < 0.05$)
Silver	2	5	3	Fluctuating Trend	1.50	0.278	Non-Significant ($p > 0.05$)
Bronze	2	2	2	Stable Trend	0.00	1.000	Non-Significant ($p > 0.05$)
Total Medals	**5**	**11**	**13**	**Upward Trend(160%)**	**6.40**	**0.033**	**Significant ($p < 0.05$)**
South Zone Inter University							
Gold	4	4	7	Upward Trend (75%)	6.75	0.028	Significant ($p < 0.05$)
Silver	4	4	3	Downward Trend (-25%)	2.25	0.163	Non-Significant ($p > 0.05$)
Bronze	2	2	2	Stable Trend	0.00	1.000	Non-Significant ($p > 0.05$)
Total Medals	**10**	**10**	**12**	**Upward Trend (20%)**	**3.20**	**0.075**	**Non-Significant ($p > 0.05$)**

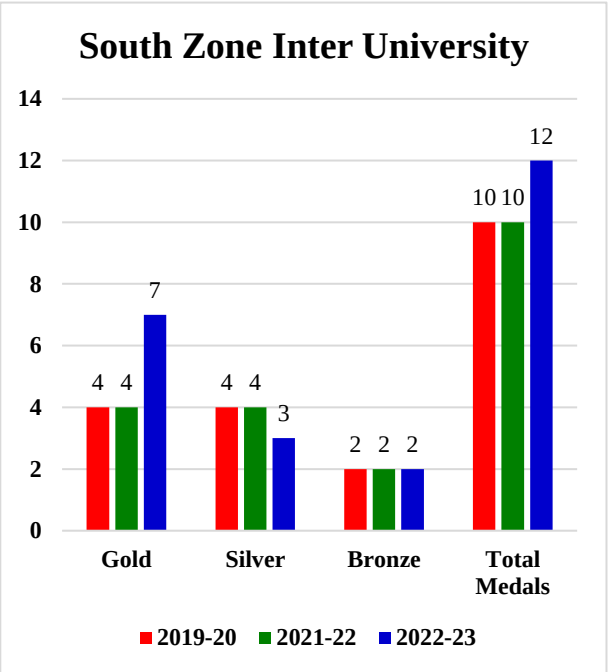
*****In the 2020-2021 season, sports competitions were not conducted due to the COVID-19 pandemic.

The ANOVA results outlined in Table 1 provide a comprehensive view of the trends in university-level sports performance at SRM Institute of Science and Technology over three years, from 2019-2020 to 2022-2023.

Within the All India Inter University category, there is a striking upward trend in gold medal achievements, with an impressive 700% increase from the initial year to the final year of the study. This substantial improvement is highly statistically significant, as indicated by the robust F-value and a p-value of less than 0.001. These findings underscore the efficacy of the University's strategies in enhancing gold medal performance. In contrast, silver medals exhibit a fluctuating trend with no significant statistical differences observed over the years. The stable trend in bronze medals aligns with this lack of statistical significance. However, the total medal counts show a significant upward trend of 160%, signifying an overall enhancement in medal performance, consistent with the gold medal surge.

Gold medals within the South Zone Inter University category also show a significant upward trend (F-value = 6.75, $p < 0.05$), indicating a 75% improvement. Despite displaying a downward trend, silver medals do not reach statistical significance. The stable trend in bronze medals corresponds with this non-significant pattern. Furthermore, the total medal counts reveal a non-significant 20% increase.





Discussion

This study analyzes SRM Institute of Science and Technology's university-level sports performance throughout three years (2019-2020, 2021-2022, and 2022-2023) in both the All India Inter University and South Zone Inter University competitions. The primary objective was to identify trends in medal counts and assess their implications for the institution's sports programs. In the All India Inter University competition, a remarkable increase in gold medals was observed, signifying a noteworthy advancement in the institution's commitment to athletic excellence. However, the trends in silver medals fluctuated over the years, and bronze medals remained stable. The total medal count showed an upward trend, suggesting an improvement in SRM Institute of Science and Technology's university-level sports performance. Similarly, the South Zone Inter University competition showed a significant increase in gold medals, demonstrating improvement. However, silver medals declined, particularly from 2021-2022 to 2022-2023. Bronze medals remained stable, and the total medal count showed an upward trend, indicating overall improvement.

These findings underscore SRM Institute of Science and Technology's commitment to fostering athletic talent and achieving excellence. The substantial rise in gold medals and the overall upward trend in total medals signify significant progress and a positive trajectory. The

fluctuation and decline in silver medal counts call for focused efforts to maintain and enhance performance in this category. Stable bronze medal counts highlight consistent performance.

Conclusion

SRM Institute of Science and Technology should continue its investment in well-structured coaching programs, adequate funding, and athlete development initiatives to ensure sustained growth. These findings provide valuable insights for optimizing sports programs within the institution. Ultimately, the University's dedication to sports development and excellence positions it well for continued success in university-level sports competitions.

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IMPACT OF SMALL SIDED GAMES ON STRIKING SKILLS OF INTER COLLEGIATE LEVEL SOCCER PLAYERS

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ABSTRACT

The study was designed to investigate the impact of small sided games on striking skills of inter collegiate level soccer players. Thirty men football players who participated in the Anna university zone XIV inter collegiate tournaments were selected as subjects and segregated into two groups of fifteen subjects each as experimental group and control group following random procedure. The experimental group underwent small sided games training over a period of twelve weeks whereas control group did not participate in any of the training except their regular play. Kicking and Dribbling assessed before and after they were experimental period by using kicking and dribbling tests respectively. ANNOVA was used to analyze the collected data. The results of this study showed that there was a significant difference between experimental group and control group on kicking and dribbling. This suggests that the use of small-sided games has an impact on kicking performance compared to traditional training methods.

Key words: Soccer, kicking, dribbling Analysis of Co variance (ANNOVA)

INTRODUCTION

Soccer is by far the world's most popular game. Millions play the game and hundreds of millions are entertained by it, either at football grounds or through television. Soccer is a game which calls for strenuous, continuous thrilling action and therefore, appeals to the youth worldwide. The skills involved in the game are simple, natural and yet are highly stimulating and satisfying to any one who participates in the game". Football as it is popularly called in India is a game where the foot is used much more than any part of the body. Bernard Shaw's comment underlines this reality that "Footballers think with their feet".

Kicking, foot dribbling, trapping and punting are examples of striking skills using the feet. These striking skills involve applying a force to an object with the foot or leg, and require good eye-foot coordination. Striking with the feet can include: kicking a stationary or moving object, like a small can or a ball; tapping a ball under control, as in soccer dribbling and trapping; and punting, which is kicking a ball while it is in the air. These fundamental striking skills are used in sports like soccer, rugby union and rugby league.

The game of soccer is full of challenges and counter challenges between the contesting teams. Many unforeseen situations evolve during the game. The most important factor of soccer is influenced by the stress of competitiveness in each conflicting situation. Performance of a team depends on the talents of the individual players and the understanding between the team mates and above all, the attitude of players towards the interest of the team. Good soccer mainly depends on the quality of players. Success in competitive sports depends largely on the athlete's skill and motivation.

Soccer practitioners require many attributes to become successful players. Few players possess 'natural ability' in all areas. Indeed, the vast majority of players undergo training programmes, in some or all attributes, to improve their ability on the field. Muscle strength training, combined with technical training, improves a player's power-output during explosive activities in a match. Performance in soccer means to exert one's physical fitness and athletic skills which are required in the game. Better physical fitness and better athletic skills bring about a better performance in the game. Team sports like soccer make it even harder to determine what areas of fitness are required.

For soccer we see speed as the ability to accelerate quickly. The speed of play in today's game is said to be quicker than ever. While elite soccer players are by no means Olympic sprinters, all other things being equal, faster players have a marked competitive edge. Soccer, like any sport, places a lot of uneven demands on the body. Soccer is the total sport, and a well-thought-out soccer training program must reflect that. Soccer is one of the few sports demands speed and other speed factors. It makes roughly equal amounts of explosive force and strength endurance. Strength endurance is essential for soccer - and like power, perhaps more essential than all-out strength. At some point in your soccer training routine you should focus on developing strength endurance. Soccer is one of the few sports demands roughly equal amounts of explosive force and strength endurance. The best players in the world are useless on the sidelines (Reilly, 2005).

METHODOLOGY

To achieve the purpose of the study, thirty men football players studying various engineering courses and who participated in the Anna university zone XIV inter collegiate tournaments were selected as subjects from TRP engineering college, Sri Angalamman engineering college and K.Ramakrishna engineering college, Trichy, Tamilnadu. Their age ranges between 19 and 25 years and they were divided into two equal groups of fifteen subjects each as experimental group and control group. The experimental group underwent small sided games training over a period of twelve weeks where as control group did not participate in any of the training except their regular play. The selected soccer striking skills such as kicking and dribbling were assessed by using kicking and dribbling tests respectively. The collected data were statistically analyzed for significant difference, if any, by applying analysis of covariance (ANCOVA). In all cases 0.05 level was fixed as confidence interval to test the significance.

ANALYSIS OF DATA

Kicking

The analysis of covariance on kicking of pre and post test scores of small sided group and control group have been analyzed and presented in Table I.

Table - I

ANALYSIS OF COVARIANCE OF KICKING OF SMALL SIDED GAMES AND CONTROL GROUPS

Test	SSG	Control	**Source of Variance**	**Sum of Squares**	**df**	**Mean Squares**	**'F' ratio**
Pretest Mean	47.60	47.20	Between	1.228	1	1.228	
SD	1.169	1.024	Within	33.84	28	1.209	1.016
Posttest	50.86	47.69	Between	75.36	1	75.36	
Mean SD	1.483	0.997	Within	44.73	28	1.598	**47.172***
Adjusted	50.64	49.91	Between	53.96	1	53.96	
Posttest Mean			Within	4.835	27	0.179	**301.33***

*Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for degree of freedom 1 and 28 and 1 and 27 are 4.20 and 4.21 respectively)

The table-1, shows that the pre-test mean value of kicking for small sided games and control group are 47.60 and 47.20 respectively. The obtained "F" ratio of 1.016 for pre-test scores which were less than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence. The post-test mean value of kicking for small sided games and control group are 50.86 and 47.69 respectively. The obtained "F" ratio of 47.172 for post-test scores which were higher than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence. The adjusted post-test mean value of kicking for small sided

games and control group are 50.64 and 47.91 respectively. The obtained "F" ratio of 301.33 for adjusted post-test scores which were more than the required table value of 4.21 for significance with df 1 and 27 at 0.05 level of confidence. The results of the study showed that there was a significant difference between the adjusted post test means of small sided games group and control group on kicking.

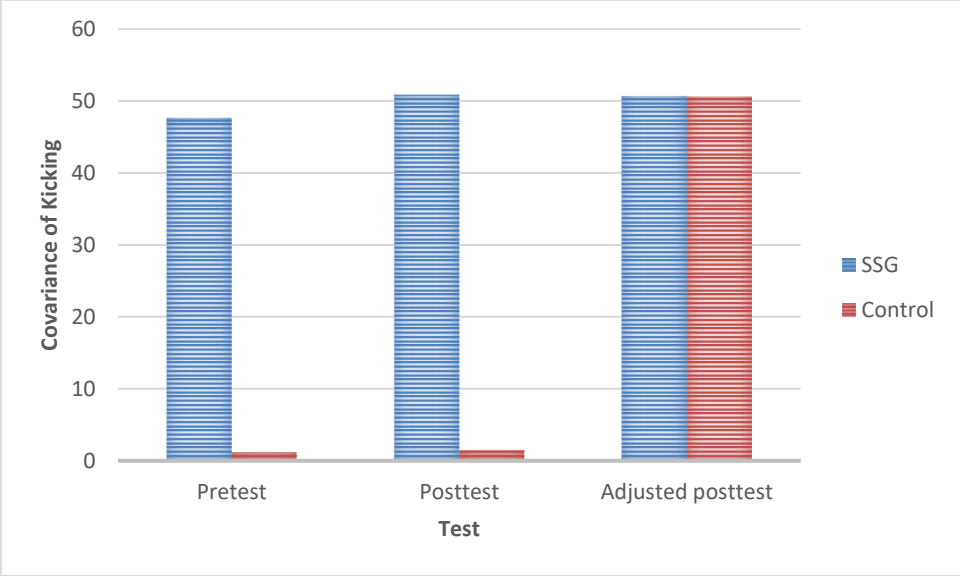
Dribbling

The analysis of covariance on dribbling of pre and post test scores of small sided group and control group have been analysed and presented in Table II.

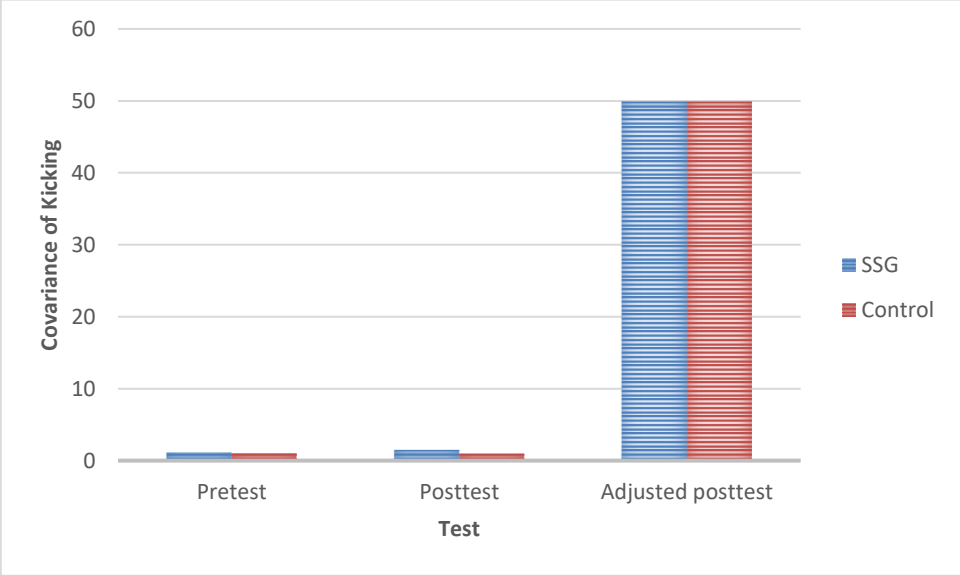
Figure - 1

ANALYSIS OF COVARIANCE OF KICKING OF SMALL SIDED GAMES AND CONTROL GROUPS

a.



b.



a. Analysis of Covariance of kicking of small sided games and control groups in between source of variance

b. Analysis of Covariance of kicking of small sided games and control groups within source of variance

Table - II

ANALYSIS OF COVARIANCE ON DRIBBLING OF SMALL SIDED GAMES AND CONTROL GROUPS

Test	SSG	Control	**Source of Variance**	**Sum of Squares**	**df**	**Mean Squares**	**'F' ratio**
Pretest Mean	17.68	17.72	Between	0.013	1	0.13	
SD	0.255	0.304	Within	2.206	28	0.074	1.168
Posttest	17.24	17.64	Between	1.18	1	1.18	
Mean SD	0.215	0.308	Within	1.986	28	0.071	16.74*
Adjusted			Between	0.967	1	0.967	
Posttest Mean	17.26	17.62	Within	0.198	27	0.007	132.12*

* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for degree of freedom 1 and 28 and 1 and 27 are 4.20 and 4.21 respectively)

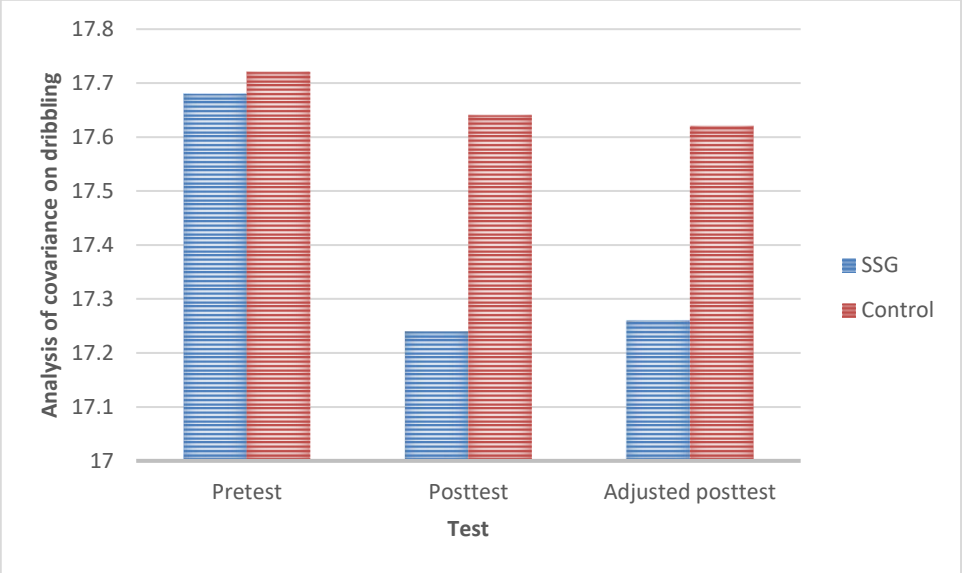
The table-II, shows that the pre-test mean value of dribbling for small sided games and control group are 17.68 and 17.72 respectively. The obtained "F" ratio of 0.168 for pre-test scores which were less than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence. The post-test mean value of dribbling for small sided games and control group are 17.24 and 17.64 respectively. The obtained "F" ratio of 16.74 for post-test scores which were higher than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence. The adjusted post-test mean value of dribbling for small sided games and control group are 17.26 and 17.62 respectively. The obtained "F" ratio of 132.12 for adjusted post-test scores which were more than the required table value of 4.21 for significance with df 1 and 27 at 0.05 level of confidence.

The results of the study showed that there was a significant difference between the adjusted post test means of small sided games group and control group on kicking.

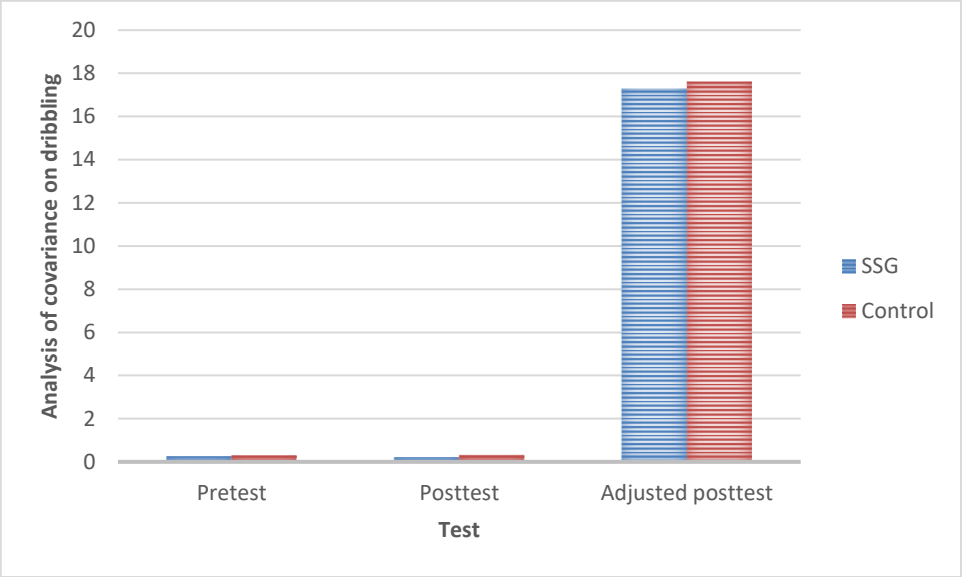
Figure - 2

ANALYSIS OF COVARIANCE ON DRIBBLING OF SMALL SIDED GAMES AND CONTROL GROUPS

a.



b.



a. Analysis of Covariance on dribbling of small sided games and control groups in between source of variance

b. Analysis of Covariance on dribbling of small sided games and control groups within source of variance

RESULTS AND DISCUSSION

There was a significant difference existed between small sided games group and control group due to twelve weeks of experimental training on kicking and dribbling. In high performance sports it has been well documented that the maximum benefits are achieved when the training stimuli are similar to competitive demands (Bompa, 1983). In order to reproduce the physical, technical and tactical requirements of real match play coaches often use Small Sided Games in their training programs.

Small Sided Games started as an optimal task to optimize training time by fulfilling the broad range of fitness requirements without compromising skill performance and decision-making. Therefore, they are used extensively to improve physical fitness levels and also technical and tactical performance in a wide variety of soccer codes

Hill-Hans et al., 2009 and Balsom, 2000; The intensity of these soccer- specific training drills with the ball can be affected or manipulated to provide different physical, technical and tactical responses by several factors, such as, the number of players involved, the size and the shape of the pitch, the duration of exercise and rest periods, the rules of the game, coach encouragement, the availability of balls or by the way of scoring points. A better understanding of the influence of modifying those variables on Small Sided Games will assist coaches in controlling the training process with players.

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ANALYSIS OF YOGIC PRACTICE INDUCED ADAPOTATION ON BODY COMPOSITION AMONG MIDDLE AGED MEN AND WOMEN OF DIFFERENT AGE CATEGORY

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Abstract

The purpose of this study is to examine the effect of six weeks of yogic practices on body composition of middle age men and women of different age category. To achieve the purpose of this study eighty middle aged people were selected, in which 40 subjects were men and remaining 40 subjects were women. They were further categorized into four sub-groups of 20 subjects each. The first one is 40-44 age groups of men and women separately and another one is 45-49 age groups of men and women separately. The selected participants were in the age group of 40 to 49 years. The training regimen lasted for six weeks. Prior to and after six weeks of yogic practices the subjects body composition was assessed by using Skinfold calliper. The application of dependent 't' test, to eliminate the influence of pretest, the net mean gains are computed separately. The paired mean gains of groups are tested for significance by applying independent 't' test. Three-way analysis of variance is used to find out the influence of each factor independently and also their combined influence on each of the selected variables. The analysis of the data revealed that six weeks of yogic practices had significant impact on body composition of different age category middle aged men and women.

Key words: *Yogic practices, Body composition, Middle age men and women.*

Introduction

Body composition is the proportion of the lean body mass and depot fat and it is one of the most important morphological features characterizing human organization. Ideal body fat levels for men are 12% to 17% and 18% to 22% for women. Body fat is essential for certain bodily functions. Body composition assessment has revealed that athletes generally have physique characteristics unique to their specific sports. For example, field events athletes have large quantities of lean tissue and a high percent body fat whereas long distance runners have the least amount of lean body and fat weight. Now a day's body composition is considered one of the components of fitness as it plays important role in developing fitness (Singh *et al*., 2004).

Health practitioners universally agree that too much body fat is a serious health risk. Problems such as hypertension, elevated blood lipids (fats and cholesterol), diabetes mellitus, cardiovascular disease, respiratory dysfunction, gall bladder disease, and some joint diseases are all related to obesity. Also, some research suggests that excessive accumulation of fat at specific body sites may be an important health risk factor (Wilmore, Buskirk, DiGirolamo, & Lohman, 1986). For instance, it appears that extra fat around the abdomen and waist is associated with higher risk of diabetes, heart disease, and hyperlipidemia. Individuals who accumulate a lot of fat around the waist (apple-shaped) are worse off than those who tend to accumulate fat in the thighs and buttocks (pear-shaped).

Changes in diet and exercise patterns are the primary ways for one to lose weight. A change in diet facilitates weight loss by restricting total caloric as well as fat intake. A change in exercise patterns also facilitates weight loss by increasing caloric and fat expenditure (Keim *et al*., 1990). Even though individuals may attempt to lose weight, many never meet their goals. Weight loss programs often lack the two major elements needed for long-term adherence enjoyment and results.

Yoga is an age-old system of healing that seeks to restore imbalances in the body, mind and soul. Yoga practices help in energizing the body, which has been in an inactive mode due to obesity. Importantly, yoga helps in cleansing the body of toxins and reduces fatigue. Asanas or yoga postures help to burn up excess fat, improve metabolism, tone up muscles and help the practitioner enjoy a healthy lifestyle. Practicing yoga can be one of the most enjoyable and

rewarding ways for obese people to become healthy, build confidence and self-esteem, and sometimes achieve weight loss.

Yoga can benefit to the obese people in many ways, including building strength, flexibility and balance. In addition, yoga positions are designed in a way that stimulates the glandular system, which invigorates and energizes of the body. Yoga also revitalizes the nervous system and improves cardio-respiratory health. The stress can be a factor contributing to weight gain, and we can lower our stress level by practicing yoga. Dieting and physical exercise are the mainstays of treatment for obesity. The diet quality can be improved by reducing the consumption of energy-dense foods such as those high in fat and sugars, and by increasing the intake of dietary fiber.

METHODOLOGY

Subjects and Variables

For the purpose of this study, eighty middle aged people were selected, in which 40 subjects were men and remaining 40 subjects were women. They were further categorized into four sub-groups of 20 subjects each. The first one is 40-44 age groups of men and women separately and another one is 45-49 age groups of men and women separately. The selected participants were the inhabitants of Arakkonam, a small town in the State of Tamil Nadu, India, and they were in the age group of 40 to 49 years. The selected criterion variable lean body mass was assessed by using formula LBM=Body weight- Total fat mass.

Training Protocol

The training programmes were scheduled for one session a day, each session lasted between forty five minutes to one hour approximately including warming up and warming down. During the training period, the experimental groups underwent yoga training six days a week for six weeks. The standing series of asanas like Suriyanamaskar, Tadasana, Trikonasana, Utkatansana, Utthita Parsvakonasana and Cakrasana; long sitting series of asanas like Yoga Mudra, Paschimottanasana and Ardha Matsyendrasana; kneeling asana like vajrasana; Prone position asanas like Bhujangasana, Shalabhasana and Dhanurasa; and Supine position asanas like Naukasana, Sarvangasana, Halasana and Savasana were given. The pranayama exercise included in this training programme were Bhastrika Pranayama, Kapalbhati Pranayama, Bahya Pranayama, Anulom Vilom Pranayama, Bhramari Pranayama, Udgeeth pranayama, Pranav Pranayama respectively. The training load was progressively increased once in three weeks. The work rest ratio of 1:1 between each asana and 1:3 between sets were given. The training programme was conducted in the evening sessions between 5.00 -6.30 pm.

Experimental Design and Statistical Procedure

The data was collected from different age category men and women prior and after the completion of the training. The application of dependent ‘t’ test, to eliminate the influence of pretest, the net mean gains are computed separately. The paired mean gains of groups are tested for significance by applying independent ‘t’ test. Three-way analysis of variance is used to find out the influence of each factor independently and also their combined influence on each of the selected variables with the help of SPSS package.

Result and Discussion

The descriptive analysis of the pre and post test data showing mean and standard deviation and ‘T’ ratio on lean body mass of different age category men and women groups is presented in table–I.

Table – I: Descriptive Analysis of the Data and ‘T’ Ratio on Lean Body Mass of Men and Women of Different age Groups

Gender	Age Category	Test	Mean	Standard Deviation	Mean Differences	'T' ratio
Men	40-44 years	Pre test	54.48	5.75	2.48	13.28*
		Posttest	56.96	5.97		
	45-49 years	Pre test	57.21	3.13	2.53	13.52*
		Posttest	59.74	2.95		
Women	40-44 years	Pre test	44.03	4.02	2.82	15.38*
		Posttest	46.85	3.86		
	45-49 years	Pre test	45.19	4.77	2.51	7.13*
		Posttest	47.70	5.23		

**Significant at 0.05 level*

The table value required for significant for df 19 is 2.09.

Table-I shows that the pre-test and post test mean and standard deviation values on lean body mass of 40 to 44 age category of men yoga training group are 54.48 $\pm$ 5.75 and 56.96 $\pm$ 5.97 respectively. It resulted with a mean difference of 2.48. The obtained 't' ratio is 13.28 and it is higher than the table value of 2.09 required for significance at 0.05 level for df 19. Hence, it is concluded that due to the effect of yoga training the lean body mass of 40 to 44 age category men was significantly decreased.

The pre-test and post test mean and standard deviation values on lean body mass of 45 to 49 age category of men yoga training group are 57.21 $\pm$ 3.13 and 59.74$\pm$ 2.95 respectively. It resulted with a mean difference of 2.53. The obtained 't' ratio is 13.52 and it is higher than the table value of 2.09 required for significance at 0.05 level for df 19. Hence, it is concluded that due to the effect of yoga training the lean body mass of 45 to 49 age category of men was significantly decreased.

Table-I also shows that the pre-test and post test mean and standard deviation values on lean body mass of 40 to 44 age category of women yoga training group are 44.03 $\pm$ 4.02 and 46.85 $\pm$ 3.86 respectively. It resulted with a mean difference of 2.82. The obtained 't' ratio is 15.38 and it is higher than the table value of 2.09 required for significance at 0.05 level for df 19. It proved that due to the effect of yoga training the lean body mass of 40 to 44 age category of women was significantly decreased.

The pre-test and post test mean and standard deviation values on lean body mass of 45 to 49 age category of women yoga training group are 45.19 $\pm$ 4.77 and 47.70 $\pm$ 5.23 respectively. It resulted with a mean difference of 2.51. The obtained 't' ratio is 7.13 and it is higher than the table value of 2.09 required for significance at 0.05 level for df 19. Hence, it is concluded that due to the effect of yoga training the lean body mass of 45 to 49 age category of women was significantly decreased.

Table –II: Comparison of Mean Gain on Lean Body Mass Between Different Age Category Men and Women

Gender	Age Category	Mean	S.D	SE	t-ratio
Men	40-44 Age	2.48	0.83	0.19	0.18
	45-49 Age	2.53	0.84	0.19	
Women	40-44 Age	2.82	0.82	0.18	0.77
	45-49 Age	2.51	1.58	0.35	
Men	40-44 Age	2.48	0.83	0.19	1.30
Women		2.82	0.82	0.18	
Men	45-49 Age	2.53	0.84	0.19	0.03
Women		2.51	1.58	0.35	

**Significant at 0.05 level*

The table value required for significance for df 38 is 2.02

Table-II shows the mean gain for different age category of men groups as a result of yoga training are 2.48 and 2.53 respectively. It resulted with a 't' ratio of 0.88 and it is lesser than the table value of 2.02 required for significant at 0.05 level to the df 38. Hence, it is concluded that no significant differences exists between different age category men groups in decreasing the lean body mass.

The mean gain for different age category of women groups as a result of yoga training are 2.82 and 2.51 respectively. It resulted with a 't' ratio of 0.77 and it is lesser than the table value of 2.02 required for significant at 0.05 level to the df 38. Hence, it is concluded that no significant differences exists between different age category women groups in decreasing the lean body mass.

Table-II also shows the mean gain for 40 to 44 age category of men and women groups as a result of yoga training are 2.48 and 2.82 respectively. It resulted with a 't' ratio of 1.30 and it is lesser than the table value of 2.02 required for significant at 0.05 level to the df 38. Hence, it is concluded that no significant differences exists between 40 to 44 age category of men and women groups in decreasing the lean body mass.

The mean gain for 45 to 49 age category of men and women groups as a result of yoga training are 2.53 and 2.69 51respectively. It resulted with a 't' ratio of 0.03 and it is lesser than the table value of 2.02 required for significant at 0.05 level to the df 38. Hence, it is concluded that no significant differences exists between 45 to 49 age category of men and women groups in decreasing the lean body mass.

The pre and post test data collected from the different age category men and women on lean body mass was statistically analyzed by three factor factorial analysis and the results are presented in table-III.

Table –III: Three Factor Factorial Analysis of the Data on Lean Body Mass

Source	Sum of Squares	df	Mean Squares	'F' ratio
Gender	4975.130	1	4975.130	236.43*
Age	141.150	1	141.150	6.71*
Test	266.927	1	266.927	12.69*
Gender & Age	30.748	1	30.748	1.46
Age & Tests	0.266	1	0.266	0.01
Gender & Tests	0.169	1	0.169	0.01
Gender, Age & Tests	0.312	1	0.312	0.02
Error	3198.559	52	21.043	

**Significant at .05 level of confidence*

(Table values required for significance at .05 level with df 1 and 152 is 3.91)

Table-III reveals that men and women differ significantly on lean body mass irrespective of age and tests, since the obtained f ratio value of 236.43 is greater than the required table value of 3.91 for the degrees of freedom 1 and 152. It also proved that significant differences exist between age categories irrespective of gender and tests, since the obtained f ratio value of 6.71 is greater than the required table value of 3.91 for the degrees of freedom 1 and 152. Further, it reveals that significant differences exist between tests irrespective of gender and age, since the obtained f ratio value of 12.69 is greater than the required table value of 3.91 for the degrees of freedom 1 and 152.

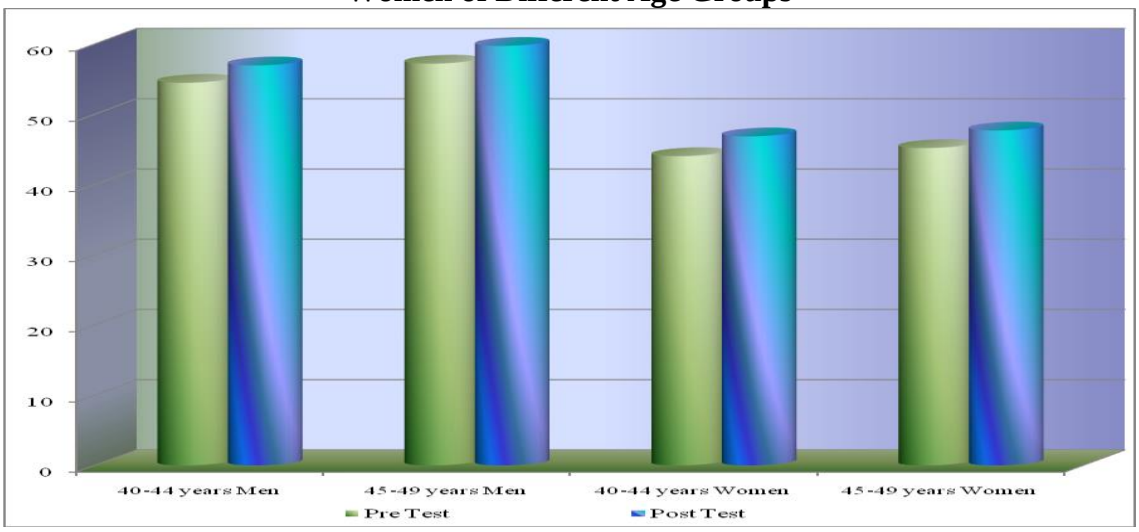
The obtained 'F' ratio value for interaction of gender and age irrespective of testing conditions is 1.46, which is lesser than the table value of 3.91 with df 1 and 152 required for significance at .05 level of confidence. The result of the study shows that no significant difference exists for the interaction of gender at different age categories on lean body mass irrespective of testing conditions. The results of the study also shows that the obtained 'F' ratio value for the interaction of age and testing conditions irrespective of gender is 0.01, which is

lesser than the table value of 3.91 with df 1 and 152 required for significance at .05 level of confidence. It reveals insignificant difference on lean body mass among different age categories at pre and post tests irrespective of gender.

The obtained 'F' ratio value for interaction of gender and tests irrespective of age categories is 0.01, which is lesser than the table value of 3.91 with df 1 and 152 required for significance at .05 level of confidence. The result of the study shows that no significant difference exists for the interaction of gender at different age categories on lean body mass irrespective of testing conditions. It is observed that the obtained 'F' ratio value for the interaction of gender, age and testing conditions is 0.08, which is lesser than the table value of 3.91 with df 2 and 152 required for significance at .05 level of confidence. It confers the existence of insignificant difference on lean body mass among gender in relevance to different age categories during pre and post tests.

The pre post test mean values of men and women yoga training and control groups on lean body mass was graphically represented in figure-I.

Figure – I: Bar Diagram Showing the Mean Values on Lean Body Mass of Men and Women of Different Age Groups



Discussion

Regular hatha yoga practice can elicit improvements in the health-related aspects of physical fitness (Tran *et al.*, 2001). Recent studies have suggested that it is possible to prevent obesity in children and adolescents through limited, school-based programs that combine the promotion of healthy dietary habits and physical activity (Flodmark, Marcus & Britton, 2006). In both healthy and diseased populations, yoga may be as effective as or better than exercise at improving a variety of health-related outcome measures (Ross & Thomas, 2010). Balaji, Varne and SadatAli (2012) observed significant decrease in body mass index due to the effects of yogic practices and transcendental meditation. Chen *et al.*, (2009) observed that after 2 weeks of self-practice at home, yoga exercise continued to improve BMI, flexibility, muscular strength, and cardiopulmonary fitness. Regular yoga practice can benefit individuals who wish to maintain or lose weight (Kristal *et al.*, 2005) and reducing body fat (Pal, Srivastava & Tiwari, 2011). McCaffrey *et al.*, (2005) determined the effectiveness of a yoga program and found significantly decreased body mass index levels.

An observational study involving long-term yoga practitioners showed that a consistent, long-term Hatha yoga practice in a nonprobability sample of women over 45 years was linearly associated with declines in BMI even after correcting for nonyogic exercise hours and processed food consumption (Moliver, *et al.*, 2011). A retrospective study involving 15,550 adults aged 53-57 years, found that regular yoga practice for 4 years or more was associated with attenuated weight gain, especially among people who were overweight (Kristal

et al., 2005). A week of intensive yoga course reduced the BMI as well as waist and hip circumference, decreased total cholesterol, improved posture, and stability (Telles, *et al.*, 2010). Hagberg et al., (1999) documented that individuals of all genotype subgroups were generally similar before training; they also changed body weight, body composition, similarly with training. Both short term and long-term studies have confirmed the useful role of yoga in increasing lean body mass and decrease in body fat percentage (Sahay, 2007).

Conclusion

Due to the effect of twelve weeks of yoga practice the lean body mass of 40 to 44 and 45 to 49 age category men and women were significantly changed. In altering the lean body mass no significant difference exists between 40 to 44 and 45 to 49 age category men and also no significant difference was found between these two age categories of women subjects. In improving the lean body mass no significant difference exists between 40 to 44 age category men and women and also between 45 to 49 age category men and women. The result of the study also confers the existence of insignificant difference on lean body mass among gender in relevance to different age categories during pre and post tests.

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EFFECT OF INDIANIZED AND WESTERNIZED STRENGTHENING EXERCISES ON SELECTED STRENGTH PARAMETERS AMONG URBAN YOUTH

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Abstract

The purpose of the study was to find out the effect of Indianized and westernized strengthening exercises on selected strength parameters among urban youth. To achieve the purpose of the study 60 youth were selected from Chennai metro city (urban area) and they divided into three experimental groups each group consists of twenty subjects. Group one, two and three were exposed to Indianized strengthening exercise, westernized strengthening exercise, and combination of Indianized and westernized strengthening exercise respectively. Pre and Post test were conducted prior to and after the experimental training. The experimental period was restricted to six days in a week for six weeks. The collected were analyzed statistically with Analysis of Covariance (ANCOVA) and Scheffes post hoc test. The result revealed that the Indianized and Westernized strengthening exercises significantly improved of the strength parameters of urban youth.

Keywords: *Indianized and Westernized strengthening exercises, strength parameters, urban youth*

INTRODUCTION

Strength is the ability of the contractile tissue to produce tension and a resultant force based on the demands placed upon it. Greatest measurable force that can be exerted to overcome the resistance in one maximum effort. Strength training (also known as resistance exercise) increases muscle strength by making muscles work against a weight or force. Resistance exercise is an anaerobic exercise.

- Different forms of strength training include using free weights, weight machines, resistance bands and your own body weight.
- A beginner needs to train two or three times per week to gain the maximum benefit.
- Client should complete a pre-participation health screening and consult with professionals example doctor, exercise physiologist, physiotherapist or registered exercise professional, before starting a new fitness program.

Effect of strength training

Strength training stimulates a variety of positive neuromuscular adaptations that enhance both physical and mental health. Physical and mental health benefits that can be achieved through resistance training include:

- Improved muscle strength and tone.
- Maintaining flexibility, mobility and balance, which can help maintain independence in ageing.
- Weight management and increased muscle-to-fat ratio – might be even more beneficial than aerobic exercise for fat loss.[1]
- May help reduce or prevent cognitive decline in older people.
- Greater stamina – as you grow stronger, you won't get tired as easily.
- Prevention or control of chronic diseases such as diabetes, coronary artery disease, arthritis, back pain, depression and obesity.

Indianized Exercise

Indianized exercise refers to an exercise routine that incorporates elements of traditional Indian practices such as dands and baithakes, yoga, meditation, Ayurveda, and martial arts. It

involves a holistic approach to fitness, focusing not only on physical fitness but also mental and spiritual well-being.

Gada (mace swing)

The Gada is a roughly constructed strength tool comprised of clay, cement, or stone with a bamboo pole over a meter long inserted into its center. This gives it the appearance of a giant lollipop. The Gada was used as a weapon for many centuries in India. To increase a warrior's battle prowess, it was employed as a training tool.

1. The Gada is swung from between the legs to gain momentum, then launched over the shoulder to begin the move.
2. Catching the momentum, the head of the Gada is then swung in in a pendulum arc behind the body before being pulled up and over the shoulder, pausing momentarily before being sent back over the opposite shoulder.
3. The arcing movement is used again to achieve the same result on the opposite side. This is repeated for the desired number of repetitions.

The Gada is a great tool for developing grip, back, and shoulder power and if used correctly fully engages the core musculature. The Gada was the weapon of choice for Hanuman and in all depictions of him he is seen with this symbol of strength and power.

Dands and Baithaks

Dands and baithaks are peculiarly indigenous exercise which go to secure strength and development of body. Dands are valuable for developing strong arms and chest, while baithaks are developing strong legs.

In addition to the standard type of Dands and baithaks, these variations should also be practiced. They are now so regulated as to be done to counts and also by a large number together. However, it should be remembered that in order to derive full benefit from them, they should be done in a slower rhythm.

Westernized Exercise

Westernized exercise refers to the concept of physical activity and fitness practices that have been influenced by Western culture and traditions. examples of gym workouts,cross fit, aerobic and zumba dance,etc

Bulgarian bag training

The Bulgarian bag also known as the Bulgarian training bag is a crescent-shaped exercise equipment used in strength training, plyometric weight training, cardiovascular training, and general physical fitness. The bags are made of leather or canvas and filled with sand; they weight from 11 pounds (5.0 kg) to 50 pounds (23 kg) and have flexible handles to allow for both upper and lower body training, and for building grip strength.

The Bulgarian bag was invented by Ivan Ivanov at around 2005. Ivanov, a former Bulgarian Greco-Roman Olympic athlete, was working as a U.S. Olympic Greco-Roman wrestling coach at the Olympic training centre in Marquette, Michigan and was looking for a training tool that would allow his wrestlers to improve explosive actions and dynamic movements involved in pushing, twisting, swinging, pulling, bending, rotating, squatting, lunging, and throwing. Bulgarian bag breaks the tradition with static resistance devices such as free weights, by using accelerating and deceleration movements to swing and spin the Bag at various angles to athlete's body. This results in the Bulgarian bag's ability to increase overall body strength and agility. The unique design of the Bulgarian bag makes it incredibly functional and versatile.

Spiderman Plank

The spiderman plank is a bodyweight exercise that works mainly the core and the upper body. This is also a great cardio move, it gets the heart pumping and the blood flowing. If you want to burn extra calories, improve your balance and strengthen your muscles, add this exercise to your warm up routine or to a core workout.

Weight Training (Free Weights)

Free weights are a type of exercise equipment that consists of individual weights, such as dumbbells or barbells, that are not attached to any machines or cables. They provide a versatile and effective way to build strength, improve muscle tone, and increase overall fitness. Free weights allow for a wide range of exercises and can be used for both upper and lower body workouts. It is important to use proper form and technique when using free weights to prevent injury and maximize results.

Purpose of the Study

The purpose of the study was to find out the differences exists due to the effect of Indianized and westernized strengthening exercises on selected strength parameters among urban youth.

Hypothesis

1. It was hypothesized that there would be a significant improvement on selected strength parameters due to Indianized strengthening exercise training among urban youth.
2. It was hypothesized that there would be a significant improvement on selected strength parameters due to westernized strengthening exercise training among urban youth.
3. It was hypothesized that there would be a better significant improvement on selected strength parameters due to combined training than the isolated Indianized and westernized strengthening exercises among urban youth.

Delimitation

1. Only sixty urban youth (Chennai metro city)
2. The age group of the subjects was 18 to 25 years
3. Only Indian strengthening exercise namely Gada, dands and baithk and western strengthening exercise namely Bulgarain bag, Spiderman Plank and Free Weight were selected as independent variable
4. Only strength parameters namely Shoulder Strength, Hand Grip strength and Leg strength were selected as dependent variable.
5. The following tests were only used to collect the data such as Push Up, Hand Grip Strength and Squat.

Limitation

1. The previous training age of the subjects were not considered
2. Factors such as heredity, food, family type, job, nature and type of living where not considered in the study
3. Previous experience of handling smartphone and other digital devices also not considered

Review of Related Literature

This study aimed to describe the national prevalence of Chinese children and adolescents who met the World Health Organization muscle-strengthening exercise (MSE) recommendations and identify correlates of meeting the MSE recommendations. Cross-sectional data from the 2019 Physical Activity and Fitness in China—The Youth Study, a nationally representative sample of Chinese children and adolescents ($n = 80,413$; mean age = 13.7 years; 53.9% girls) and their parents, were analyzed. Children and adolescents who reported engaging ≥3 days (up to 7 days) of MSE per week were classified as meeting the MSE recommendations. MSE, demographics, lifestyle behaviors (sport participation, moderate-to-vigorous physical activity, screen time, and sleep duration), exercise intention, peer and parental support, and parental MSE participation were assessed through self-reports. Logistic regression models were used to determine the correlates of meeting the MSE recommendations. The analyses were completed in 2020.Overall, 39.3% of children and adolescents met the MSE recommendations. Girls, 10th–12th graders, minorities, those from lower income households and those from families with lower parental education were less likely to meet the MSE recommendations. Children and adolescents who were proficient in ≥2 sports were more likely

to meet the MSE recommendations (adjusted odds ratio (aOR) = 1.44, 95% confidence interval (95%CI): 1.26–1.65), as were those with more moderate-to-vigorous physical activity (aOR = 1.57, 95%CI: 1.53–1.61). Additionally, children and adolescents with high exercise intention (aOR = 1.60, 95%CI: 1.51–1.69), those whose parents met the adult MSE recommendations (aOR = 1.46, 95%CI: 1.40–1.52), and those who received high peer (aOR = 1.27, 95%CI: 1.20–1.34) and parental support (aOR = 1.07, 95%CI: 1.04–1.12) were more likely to meet the MSE recommendations.Less than two-fifths of Chinese children and adolescents met the World Health Organization MSE recommendations. The correlates identified in our study can help inform the development of school and community based strategies and policies to enhance participation in MSE and improve muscular fitness of all Chinese children and adolescents.

Methodology

Selection of subjects

To achieve the purpose of the study 60 youth were selected from Chennai metro city (urban area) and they divided into three experimental groups each group consists of twenty subjects. Group one, two and three were exposed to Indianized strengthening exercise, westernized strengthening exercise, and combination of Indianized and westernized strengthening exercise respectively. Pre and Post test were conducted prior to and after the experimental training. The experimental period was restricted to six days in a week for six weeks. The collected were analyzed statistically with Analysis of Covariance (ANCOVA) and Scheffes post hoc test.

TABLE - I

TRAINING SCHEDULE

S.No	Name of the Group	Duration	Frequency
1.	Group 1 – Indianized exercise (IE)	6 Weeks	6 days / week
2.	Group II – westernized Exercise (WE)	6 Weeks	6 days / week
3.	Group III – Combined Group (CG)	6 Weeks	6 days / week Alternate days

TABLE - II

TRAINING PROGRAMME FOR EXPERIMENTAL GROUP – I

INDIANIZED STRENGTHENING EXERICISE

Weeks	Training	Duration
I to III Weeks	**Warming up**	**5 Mins**
Monday	Gada	
Tuesday	Dands	
Wednesday	Baithaks	**30 Mins**
Thursday	Dands	
Friday	Gada	
Saturday	Baithaks	
	Warming down	**10 Mins**
IV to VI Weeks	**Warming up**	**5 Mins**
	Baithaks	
	Gada	
	Dands	**30 Mins**
	Gada	
	Baithaks	
	Dands	
	Warming Down	**10 Mins**

TABLE - III
TRAINING PROGRAMME FOR EXPERIMENTAL GROUP – II
WESTERNIZED STRENGTHENING EXERICISE

Weeks	Training	Duration
I to III Weeks	**Warming up**	**5 Mins**
Monday	Bulgarian bag	
Tuesday	Spiderman plank	
Wednesday	Free weights	**30 Mins**
Thursday	Spiderman plank	
Friday	Bulgarian bag	
Saturday	Free weight	
	Warming Down	**10 Mins**
IV to VI Weeks	**Warming up**	**5 Mins**
	Free weight	
	Spiderman plank	
	Bulgarian bag	**30 Mins**
	Free weight	
	Spiderman plank	
	Bulgarian bag	
	Warming Down	**10 Mins**

TABLE - IV
TRAINING PROGRAMME FOR EXPERIMENTAL GROUP – III
COMBINED GROUP

Weeks	Day 1,3 and 5	Day 2,4 and 6	Duration
	Warming up	**Warming up**	**5 Mins**
	Baithaks	Free weights	
	Gada	Bulgarian bag	
I to III	Dands	Free weights	**30 Mins**
	Gada	Spiderman plank	
	Dands	Bulgarian bag	
	Baithaks	Spiderman plank	
	Warming up	**Warming Down**	**10 Mins**
	Warming Up	**Warming up**	**5 Mins**
	Dands	Bulgarian bag	
IV to VI	Baithaks	Free weights	
	Dands	Bulgarian bag	**30 Mins**
	Gada	Spiderman plank	
	Baithaks	Free weights	
	Gada	Spiderman plank	
	Warming Down	**Warming Down**	**10 Mins**

SELECTION OF VARIABLES

INDEPENDENT VARIABLE

- Indianized strengthening exercise
- Westernized strengthening exercise

DEPENDENT VARIABLE

- Shoulder strength
- Hand grip strength
- Leg Strength

STATISTICAL TECHNIQUE

The collected data were analyzed statistically with the Analysis of Covariance and Scheffes Post hoc test.

RESULT AND DISCUSSION

TABLE – V

ANALYSIS OF COVARIANCE ON SHOULDER STRENGTH

Variables	Test	IE	WE	Combined group	SV	SS	df	MS	F
Shoulder Strength	Pre test	7.55	8.25	7.7	B	5.433	2	2.716	2.92
					W	52.9	57	0.92	
	Post test	9.01	11.02	11.08	B	80	2	40.2	5.46*
					W	418.9	57	7.33	
	Adjusted	9.25	11.17	11.57	B	60.13	2	30.06	4.18*
					W	402.19	56	7.18	

***Significant: Table Value requires 3.15**

The above table- I shows that there were no significant difference between group the pre test level and which indicate that there were no difference among the of the group. But due the training effect that there were significant difference in the post and adjusted post test which indicates the effectiveness of the experimental training programme. The combined group of Indianized and westernized strengthening exercises two isolated training groups proved to be effective in improving the Shoulder strength among urban youth.

TABLE – VI

SCHEFFE'S POST HOC TEST ON SHOULDER STRENGTH

Variables	Westernized exercise	Combined group	Indianized exercise	MD	CI
Shoulder Strength	11.45	11.70	-	0.25	2.34
	-	11.70	8.80	2.65	
	11.45	-	8.80	2.91	

The above table indicates the pair wise comparison and indicate the supremacy of the combined group over the isolated training groups. The combined group showed better significant improvement in Shoulder strength than the other two isolated training groups among urban youth**.**

Figure – I

BAR DIAGRAM ON PRE, POST AND ORDERED ADJUSTED MEANS OF SHOULDER STRENGTH

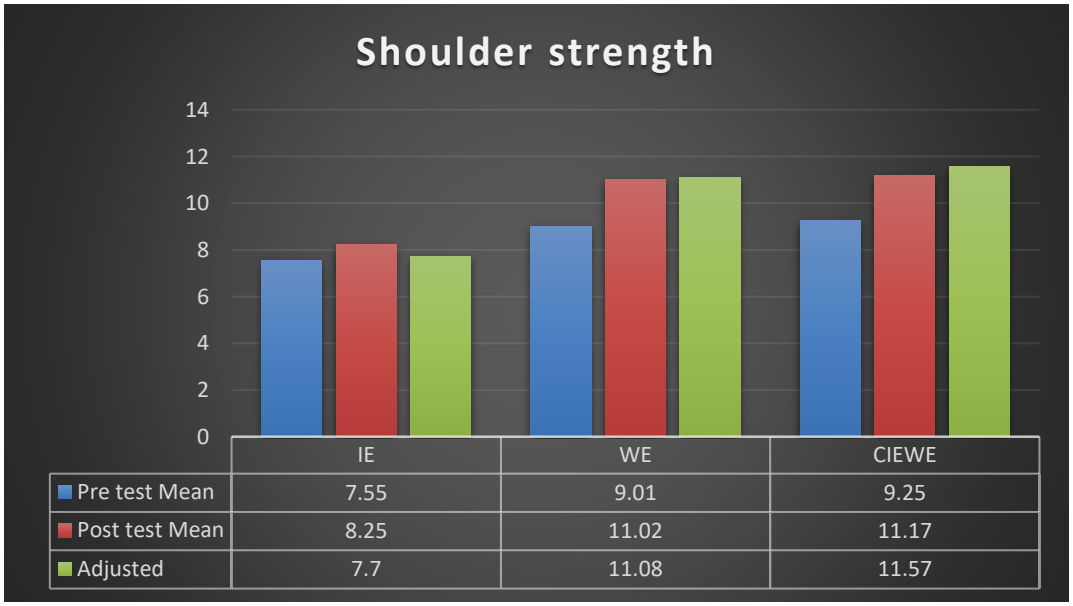


TABLE - VII
ANALYSIS OF COVARIANCE ON HAND GRIP STRENGTH

Variables	Test	IE	WE	Combined group	SV	SS	df	MS	F
Hand Grip	Pre test	30.28	30.78	31.45	B	13.78	2	6.89	1.57
					W	24.9	57	4.37	
	Post test	42.05	43.4	45.15	B	96.63	2	48.31	5.46*
					W	504	57	8.84	
	Adjusted	42.10	43.40	45.090	B	84	2	42.49	4.74*
					W	501	56	8.96	

***Significant: Table Value requires 3.15**

The above table- II shows that there were no significant difference between group the pre test level and which indicate that there were no difference among the of the group. But due the training effect that there were significant difference in the post and adjusted post test which indicates the effectiveness of the experimental training programme. The combined group of Indianized and westernized strengthening exercises two isolated training groups proved to be effective in improving the Hand grip strength among urban youth.

Table – VIII
SCHEFFE'S POST HOC TEST ON HAND GRIP STRENGTH

Variables	Westernized exercise	Combined group	Indianized exercise	MD	CI
Hand grip Strength	43.41	45.09	-	1.69	2.14
	43.41	-	42.10	1.30	
	-	45.09	42.10	2.99	

The above table indicates the pair wise comparison and indicate the supremacy of the combined group over the isolated training groups. The combined group showed better significant improvement in Hand grip strength than the other two isolated training groups among urban youth**.**

FIGURE – II
BAR DIAGRAM ON PRE, POST AND ORDERED ADJUSTED MEANS OF HANDGRIP STRENGTH

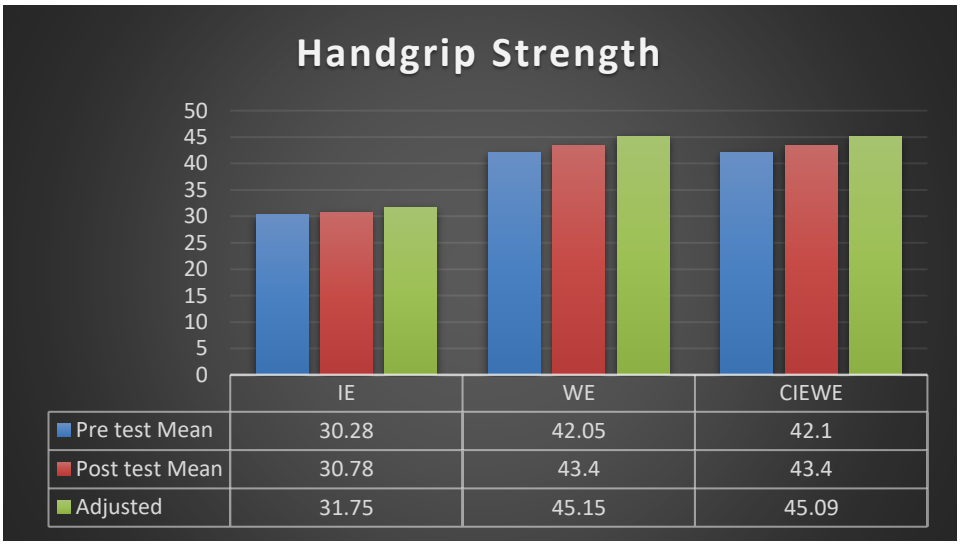


TABLE - IX
ANALYSIS OF COVARIANCE ON LEG STRENGTH

Variables	Test	IE	WE	Combined group	SV	SS	df	MS	F
Leg Strength	Pre test	9.15	8.9	9.1	B	0.7	2	0.35	0.45
					W	44.15	57	0.77	
	Post test	11.75	12.5	14.6	B	82.63	2	9.94	4.152*
					W	567.1	57	41	
	Adjusted	11.76	12.82	14.67	B	82.50	2	41.25	4.08*
					W	566.06	56	10.10	

***Significant: Table Value requires 3.15**

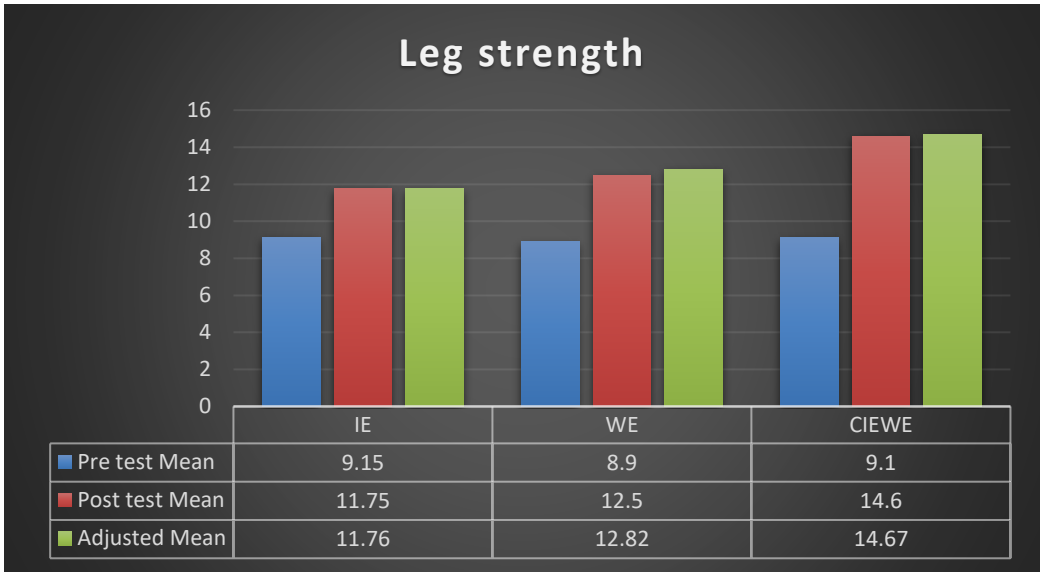
The above table- II shows that there were no significant difference between group the pre test level and which indicate that there were no difference among the of the group. But due the training effect that there were significant difference in the post and adjusted post test which indicates the effectiveness of the experimental training programme. The combined group of Indianized and westernized strengthening exercises two isolated training groups proved to be effective in improving the leg strength among urban youth.

Table – X
SCHEFFE'S POST HOC TEST ON LEG STRENGTH

Variables	Westernized exercise	Combined group	Indianized exercise	MD	CI
Leg strength	12.83	14.61	-	1.78	2.56
	12.83	-	11.77	1.06	
		14.61	11.77	2.84	

The above table indicates the pair wise comparison and indicate the supremacy of the combined group over the isolated training groups. The combined group showed better significant improvement in Leg strength than the other two isolated training groups among urban youth**.**

FIGURE – III
BAR DIAGRAM ON PRE, POST AND ORDERED ADJUSTED MEANS OF LEG STRENGTH



Conclusions

1. The isolated Indianized strengthening exercise proved to be effective in improving the Shoulder strength, Hand grip strength and Leg strength among urban youth.
2. The isolated Westernized strengthening Exercise proved to be effective in improving the Shoulder strength, Hand grip strength and Leg strength among urban youth.
3. The combined training group of Indianized strengthening Exercise and Westernized strengthening Exercise proved to be effective in improving Shoulder strength, Hand grip strength and Leg strength among urban youth.
4. The combined group showed better significant improvement than the isolated Indianized strengthening Exercise and Westernized strengthening Exercise in improving Shoulder strength, Hand grip strength and Leg strength than the other two isolated training groups among urban youth.

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EFFECT OF INTERVAL TRAINING ON SELECTED PHYSICAL AND PHYSIOLOGICALVARIABLES AMONG COLLEGE VOLLEY BALL PLAYERS

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ABSTRACT

For purpose of these study 30 male volleyball players were selected from SRM Arts & Science College Chennai., Random group design was used. The subject's age ranged from 17 to 21 years. The subjects were divided in two groups namely experimental group (Group-I) and control group (Group-II). Experimental group underwent interval training and Control group did not consider for any specific training.

To carry out the study the investigator used two groups, one experimental group and one control group, each group consists of 15 subjects. All the groups were tested on selected criterion variable and the readings were recorded in their respective unit, as pre-test scores. After pre-test the experimental group was treated with interval training for a period of six weeks. After six weeks of training both the groups were tested again on the selected criterion variables and the scores were recorded in their respective units as post test scores. The pre and posttest were taken for analysis. The researcher used t-ratio to find the significant difference between the means of pre test and post test of all the selected variables.

Introduction

Sports have become as competitive as other fields in the world. In ancient times, our ancestors exhibited the extraordinary talents in terms of physical activity. But now it has become completely professional. Somehow or other irrespective of age the human race is involved in different kinds of sports either for recreation or competition. In the present world, Sports have become extremely competitive. It is not mere participation or practice that makes an individual victorious. Sports life is affected by various factors like physiology, biomechanics, sports training, sports medicine, sociology and coaching, computer application and psychology and so on.

To achieve top level performance in the international arena one has to have a plan and systematic execution. To win medals, in the Olympics, there should be spotting of talent, systematic and scientific method of training, competitive exposure, etc. It is not only because of training, but also because of psychological, and physiological aspects that goals are achieved. The experts in the field of sports have put their mind into it and made tremendous efforts to find out ways and means to achieve top-level performance. During this Olympic season, one may hear from announcers, critics, commentators and even athletes that the Olympic Games are too commercial, too political, and too "professional," and that judging too is nationalistic.

It is easy to assume that the ancient Olympic Games were different, that ancient Greek athletes were pure in mind and body, and that they trained and competed for no other reason than the love of physical exercise, fair competition and to honor their gods. In modern Olympics sports ideology has been totally changed. It is not to participate in the Olympics to honor their Gods, nor for love of physical exercise, but only to win medals that players compete.

Statement of the Problem

The purpose of the study was to find out the effect of interval training on selected physical and physiological variables among College male volleyball players.

Hypothesis

1. It was hypothesized that there will be a significant difference in physical fitness variables between College volleyball players.
2. It was further hypothesized that the experimental group may be better than Control group.

Delimitations

1. For this purpose of this study 30 male volleyball players were selected from SRM Arts & Science College Chennai.
2. The age of the subject ranged from 17-21years.
3. The selected variables are Speed, Arm power, Flexibility, Agility.
4. The training program is delimited to 6 week.

METHODOLOGY

SELECTION OF THE SUBJECTS

1. To achieve the purpose of this study 30 male College level volleyball players were selected from SRM Arts & Science College Chennai.

College. Random group design was used. The subject's age ranged from 17 to 21 years. The subjects were divided in two groups namely experimental group (Group-I) and control group (Group-II). Experimental group underwent interval training and Control group did not considered for any specific training.

Selection of Variables/Test

S. No	Variables	Test Items
1	Speed	50mts dash
2	Arm Power	Push ups
3	Flexibility	Sit and reach
4	Agility	Shuttle run

ANALYSIS OF DATA AND INTERPRETATION OF THE STUDY

Findings

The mean difference between the pre and post test of the control and experimental groups was tested by correlated 't' ratio to find the significant of the difference between the experimental and control group after the experimental period of six weeks.

The mean difference between the experimental and control group after six weeks of training was tested by 't' ratio and determined the significance of the difference.

Computation of 't' Ratio between the Pre and Post Test Mean Values of Speed of Control Group

Group	Mean	md	SD	SD Error	Df	't' Ratio	Table Value
Pre test	8.31		0.12	0.03			
Post test	8.35	0.04	0.14	0.03	14	1.70	2.15

Insignificance at 0.05 level of confidence df (14) is = 2.15

An examination of table 4.1 shows that the obtained mean values of pretest and posttest were 8.31, 8.35 respectively. The standard deviations were0 .12 and 0.14 and mean difference is 0.04; the obtained 't' ratio is 1.70; the required table value is 2.15; insignificance at 0.05 level. The obtained 't' ratio is lesser than the table value. It is found to be insignificant.

Computation of't' Ratio between the Pre and Post Test Mean Values of Speed of Experimental Group

Group	Mean	Md	SD	SD Error	df	't' Ratio	Table Value
Pre test	8.20		0.16	0.04			
Post test	6.81	1.39	0.44	0.11	14	10.48*	2.15

*Significance at 0.05 level of confidence df (14) is = 2.15

An examination of table 4.2 shows that the obtained mean values of pretest and posttest were 8.20, 6.81 respectively. The standard deviations were 0.16 and 0.44 and mean difference is 1.39; the obtained't' ratio is 10.48; the required table value is 2.15; significance at 0.05 level. The obtained't' ratio is greater than the table value. It is found to be significant.

Computation of 't' Ratio between the Pre and Post Test Mean Values of Arm Power of Control Group

Group	Mean	Md	SD	SD Error	Df	't' Ratio	Table Value
Pre test	18.06	0.86	1.58	0.40	14	1.71	2.15
Post test	17.20		1.82	0.47			

Insignificance at 0.05 level of confidence df (14) is = 2.15

An examination of table 4.3 shows that the obtained mean values of pretest and posttest were 18.06, 17.20 respectively. The standard deviations were 1.58 and 1.82 and mean difference is 0.86; the obtained 't' ratio is 1.71; the required table value is 2.15; insignificance at 0.05 level. The obtained't' ratio is lesser than the table value. It is found to be insignificant.

Computation of't' Ratio between the Pre and Post Test Mean Values of Arm Power of Experimental Group

Group	Mean	Md	SD	SD Error	df	't' Ratio	Table Value
Pre test	18.33	6.33	1.54	0.40	14	6.20*	2.15
Post test	24.66		2.79	0.72			

*Significance at 0.05 level of confidence df (14) is = 2.15

An examination of table 4.4 shows that the obtained mean values of pretest and post test were 18.33, 24.66 respectively. The standard deviations were 1.54 and 2.79 and mean difference is 6.33; the obtained 't' ratio is 6.20; the required table value is 2.15; significance at 0.05 level. The obtained 't' ratio is greater than the table value. It is found to be significant.

Computation of 't' Ratio between the Pre and Post Test Mean Values of Flexibility of Control Group

Group	Mean	Md	SD	SD Error	Df	't' Ratio	Table Value
Pre test	15.93	0.80	2.19	0.56	14	1.11	2.15
Post test	15.13		1.78	0.46			

Insignificance at 0.05 level of confidence df (14) is = 2.15

An examination of table 4.5 shows that the obtained mean values of pretest and posttest were 15.93, 15.13 respectively. The standard deviations were 2.19 and 1.78 and mean difference is 0.80; the obtained't' ratio is 1.11; the required table value is 2.15; insignificance at 0.05 level. The obtained't' ratio is lesser than the table value. It is found to be insignificant.

Computation of 't' Ratio between the Pre and Post Test Mean Values of Flexibility of Experimental Group

Group	Mean	Md	SD	SD Error	df	't' Ratio	Table Value
Pre test	15.86	5.34	1.81	0.47	14	5.77*	2.15
Post test	21.20		2.60	0.67			

*Significance at 0.05 level of confidence df (14) is = 2.15

An examination of table 4.6 shows that the obtained mean values of pretest and posttest were 15.86, 21.20 respectively. The standard deviations were 1.81 and 2.60 and mean difference is 5.34; the obtained 't' ratio is 5.77; the required table value is 2.15; significance at 0.05 level. The obtained 't' ratio is greater than the table value. It is found to be significant.

Computation of 't' Ratio between the Pre and Post Test Mean Values of Agility of Control Group

Group	Mean	Md	SD	SD Error	df	't' Ratio	Table Value
Pre test	15.19	0.23	0.35	0.09	14	1.53	2.15
Post test	15.42		0.63	0.16			

Insignificance at 0.05 level of confidence df (14) is = 2.15

An examination of table 4.7 shows that the obtained mean values of pretest and post test were 15.19, 15.42 respectively. The standard deviations were .35 and .63 and mean difference is 0.23; the obtained 't' ratio is 1.53; the required table value is 2.15; insignificance at 0.05 level. The obtained 't' ratio is lesser than the table value. It is found to be insignificant.

Computation of 't' Ratio between the Pre and Post Test Mean Values of Agility of Experimental Group

Group	Mean	Md	SD	SD Error	Df	't' Ratio	Table Value
Pre test	14.93		0.45	0.11			
Post test	11.19	3.74	1.00	0.26	14	16.75*	2.15

*Significance at 0.05 level of confidence df (14) is = 2.15

An examination of table 4.8 shows that the obtained mean values of pretest and post test were 14.93, 11.19 respectively. The standard deviations were 0.45 and 1.00 and mean difference is 3.74; the obtained't' ratio is 16.75; the required table value is 2.15; significance at 0.05 level. The obtained't' ratio is greater than the table value. It is found to be significant.

Discussion on Findings

The investigator had a through and vision that interval training would improve College male volleyball players speed, power, flexibility, agility, resting heart rate and breath holding time which in turn would help them to playing better. The investigator selected exercises that are interval training for volleyball players. To perform exercise the volleyball players should have better physical and physiological variables. It is a matter of interest how far interval training improve the College volleyball male players.

The statistical values presented in Table 2, 4, 6, 8, 10 and 12 proved that there was a significant improvement in selected physical and physiological variables among school male volleyball players due to interval training. Obtained't' value of speed is 10.48, Arm power is 6.20, flexibility is 5.77, agility is 16.75, respectively which is greater than the required 't' value to be significant. For the degrees of freedom 2.14 at 0.05 level of confidence.

Thus the hypothesis of this study that there would be significant improvement due to interval training on selected physical and physiological variables among College male volleyball players was accepted at 0.05 level of confidence.

Summary

To achieve the purpose of these study 30 male volleyball players were selected SRM Arts & Science College Chennai.. Random group design was used. The subject's age ranged from 17 to 21 years. The subjects were divided in two groups namely experimental group (Group-I) and control group (Group-II). Experimental group underwent interval training and Control group did not considered for any specific training.

To carry out the study the investigator used two groups, one experimental group and one control group, each group consists of 15 subjects. All the groups were tested on selected criterion variable and the readings were recorded in their respective unit, as pre-test scores. After pre-test the experimental group was treated with interval training for a period of six weeks. After six weeks of training both the groups were tested again on the selected criterion variables and the scores were recorded in their respective units as post test scores. The pre and posttest were taken for analysis.

The researcher used t-ratio to find the significant difference between the means of pre test and post test of all the selected variables.

Conclusions

Based on the results of the present study the following conclusions have been college boys.

1. Results on testing the differences on pre-test means between experimental and control groups, no difference was found on variables used in the study namely speed, arm power, flexibility, and agility.

2. On testing the post-test means between experimental and control groups, significant mean difference was found on variables used in the study.
3. In the view of maximize the treatment variance, the collected data were tested by T-ratio used.

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MENTAL HEALTH PROFILES OF COLLEGE COMPETITIVEATHLETES AND REGULAR EXERCISERS IN KERALA: A COMPARATIVE STUDY

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Abstract

Mental health, in the context of physical activity, refers to the psychological and emotionalwell-being of an individual. Engaging in physical activity has a positive impact on mental health,as it stimulates the release of neurotransmitters and hormones in the brain that promote feelings ofwell-being and happiness. This study aimed to assess and compare the mental health of college competitive athletes and regular exercisers. The mental health inventory, developed by Dr. D.J. Bhatt and Shilpa in 2007, was employed for this purpose. The sample consisted of 140 college students, comprising 70 competitive athletes (35 men and 35 women) and 70 regular exercisers (35 men and 35 women) affiliated with various colleges under Calicut University, Kerala. Data collection and analysis were carried out according to the manual, and 't' tests were performed. Theresults revealed several key findings: (1) No significant difference in mean mental health scores was observed between competitive athletes and regular exercisers among college students. (2) A significant difference was found in mean mental health scores between men and women exercisersamong college students, indicating that men exercisers tend to have better mental health than theirwomen counterparts. (3) No significant difference was noted in the mean mental health scores between men and women college students engaged in competitive athletics. (4) Likewise, no significant difference was observed in the mean mental health scores between men and women college students who were regular exercisers. This study provides insights into the mental health of college students involved in physical activities, shedding light on potential gender-related differences.

Keywords: Mental health, competitive athletes, regular exercisers, college students, gender differences, Calicut University, Kerala.

Introduction:

Mental health in relation to physical activity encompasses the positive effects of exercise on an individual's emotional and cognitive state, fostering a sense of mental well-being and balance. Exercise can help reduce the production of stress hormones like cortisol. Physical activityacts as a natural stress reliever, promoting relaxation and reducing feelings of tension and anxiety.Exercise triggers the release of endorphins, often referred to as "feel-good" hormones. These chemicals can improve mood and create a sense of euphoria, leading to a more positive outlook. Regular exercise has been shown to be effective in reducing symptoms of depression and anxiety. It can be used as an adjunct therapy or even as a standalone treatment in some cases. Exercise canhelp regulate sleep patterns. People who exercise regularly often experience better sleep quality and find it easier to fall asleep and stay asleep. Achieving fitness goals and improving physical health through exercise can boost self-esteem and self-confidence, leading to a more positive self-image. Physical activity has cognitive benefits, including improved concentration, enhanced memory, and better overall cognitive function. It can be particularly beneficial for students and those in high-stress jobs. Many forms of exercise involve social interaction, which can combat feelings of loneliness and improve social connections, contributing to mental well-being. Certain activities like yoga and tai chi emphasize the mind-body connection, promoting mindfulness and relaxation. Exercise can lead to increased levels of neurotransmitters like serotonin and dopamine,which play a crucial role in regulating mood. Regular physical activity is associated with a reduced risk of developing mental health disorders over time.

It is important to note that the relationship between exercise and mental health is complex,and individual responses can vary. However, incorporating physical activity into one's routine is generally regarded as a positive step toward maintaining and improving mental well-being.

Competitive athletes, like anyone else, can experience various mental health challenges despite their physical prowess and success in their respective sports. The intense pressure to perform at the highest level, along with expectations from fans, coaches, and sponsors, can lead tostress, anxiety, and even performance-related disorders like "choking" under pressure. Competitiveathletes may suffer from physical injuries that can have profound psychological effects. These injuries can lead to depression, anxiety, The transition from a high-profile athletic career to retirement can be emotionally challenging. Competitive Athletes often grapple with identity loss,as their self-worth and identity have been closely tied to their sport. Competitive Athletes can experience feelings of isolation due to the rigorous training and competition schedules that can limit their social lives. This isolation can contribute to loneliness and mental health issues and a sense of loss due to the inability to compete. Some athletes may turn to substances like alcohol ordrugs as a coping mechanism for stress or mental health issues, which can exacerbate their problems. The pressure to succeed can drive some athletes to use performance-enhancing drugs, leading to both physical and mental health consequences. Sports with weight Increasingly, professional sports organizations are recognizing the importance of mental health and are taking steps to raise awareness, provide support, and reduce stigma.

It is important to emphasize that mental health challenges do not discriminate based on one's career or achievements. Competitive Athletes, like everyone else, should be encouraged to seek help when needed and be supported in their mental health journey. Mental health awareness,education, and access to appropriate resources are crucial for the well-being of Competitive athletes' appearance requirements can contribute to body image issues and eating disorders among athletes. While professional athletes have access to resources, including sports psychologists and mental health professionals, many may be hesitant to seek help due to stigma or concerns about how it might affect their careers. Competitive athletes face personal life challenges just like anyoneelse, such as relationship issues, family stress, and financial concerns.

Objectives:

The objectives are,

1. To find out whether mental health is more among competitive athletes and regular exercisers of college students.
2. To compare the mental health among men and women exercisers of college students.
3. To find out whether mental health is more among men and women of college students ofcompetitive athletes of college students.
4. To find out whether mental health is more among men and women of college students ofregular exercisers of college students.

Hypotheses:

H0 1: It was hypothesized that there would be no significant difference in the mean scoreof mental health among competitive athletes and regular exercisers of college students.

H0 2: It was hypothesized that there will be no significant difference in the mean score of the mental health among men and women exercisers of college students.

H0 3: It was hypothesized that there will be no significant difference in the mean score of the mental health among men and women of college students of competitive athletes.

H0 4: It was hypothesized that there will be no significant difference in the mean score of the mental health among men and women of college students of regular exercisers.

Materials & Methods:

The study comprised a total of 140 college students, with 70 participants belonging to thecompetitive athletics (35 men and 35 women) and the remaining 70 participants engaged in regularexercises (35 men and 35 women) colleges affiliated with Calicut University in Kerala. Competitive Athletes Group (CAG): The CAG consists of 70 students (35 men & 35 women) actively engaged in competitive sports. Members of this group are characterized by their strong commitment to their respective sports, often participating in structured training and competitive events. Regular Exercisers Group (REG): Comprising 70 students (35 men & 35 women), the REGis composed of individuals who incorporate regular exercise into their daily routines as a means of maintaining a healthy lifestyle. These participants are known for their commitment to fitness and overall well-being, often adhering to consistent exercise regimens.

A total sample of 140 exercisers of college students equally distributed between types of exercises and gender from various colleges form colleges affiliated with Calicut University in Kerala selected for the research study.

Sample Distribution

Gender	Types of exercisers		Total
	Competitive Athletes	Regular Exercisers	
Men	35	35	70
Women	35	35	70
Total	70	70	140

Variables	
Independent Variables	**Dependent variables**
Types of Exercisers: Competitive athletes & Regular exercisers	Mental health score
Gender: (Men & Women)	

Procedure:

Permission to collect data in colleges affiliated with Calicut University was obtained from multiple colleges after establishing rapport. Subsequently, participants' personal information and the 'Mental Health Inventory (MHI)' were administered, and the data was meticulously collected.The collected data was scored according to the manual's guidelines and subjected to a statistical analysis using the 't' test, with the results subsequently interpreted. The acquired data was analysedusing analysis of variance with a significance level of 0.05.

RESULT AND DISCUSSION

Table – 1: Showing mean, SD and "t" value of competitive athletes and regular exercisers ofcollege students.

Group	N	MEAN	SD	"t" Value	Significance level
Competitive athletes	70	93.28	11.47	0.23	N.S
Regular exercisers	70	93.75	12.67		

From the table presented above, it is evident that the calculated "t" value of 0.23 is not statistically significant at the 0.05 significance level. This finding implies that there is no significant difference in terms of mental health between the two groups under study. The mean score for the competitive athletes of college students' group is 93.28, with a standard deviation (SD) of 11.47, while the mean score for the regular exercisers of college students' group is

93.75,with an SD of 12.67. Therefore, Hypothesis No.1, which posits that "There was no significant difference in the mean score of mental health among competitive athletes and regular exercisers of college students," is accepted based on the analysis and results.

The chart visually conveys the findings of the study, showcasing whether there are noticeable differences or similarities in mental health scores between these two groups.

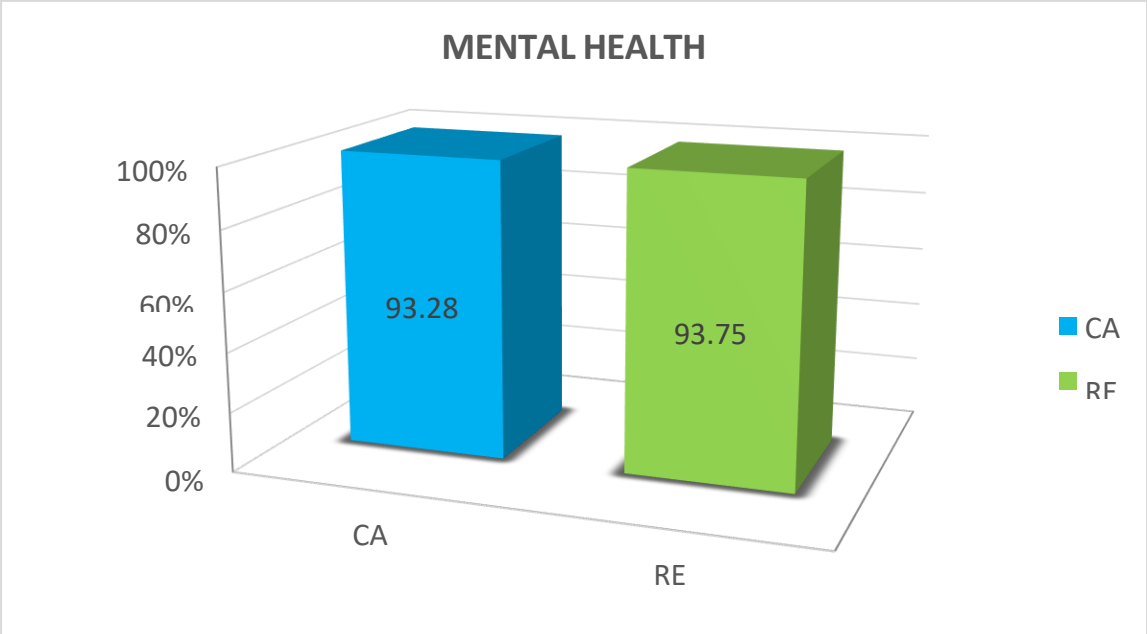


Table – 2: Showing mean, SD and "t" value of men and women exercisers of college students:

Group	N	MEAN	SD	"t" Value	Significance level
Men	70	95.94	12.34	2.57	0.05
Women	70	90.54	12.24		

From the table provided above, it is evident that the calculated "t" value of 2.57 is statistically significant at the 0.05 significance level. This indicates that the two groups being studied do indeed differ significantly concerning mental health. The mean score for the men exercisers of college students' group is 95.94, with a standard deviation (SD) of 12.34. In contrast,the mean score for the women exercisers of college students' group is 90.54, with an SD of 12.24.Notably, based on the scoring pattern, a higher score indicates higher mental health. Thus, it can be concluded from the results that men exercisers among college students exhibit better mental health compared to their women counterparts. Consequently, Hypothesis No.2, which postulated that "There was no significant difference in the mean score of mental health among men and women exercisers of college students," is rejected based on the analysis and findings.

The chart visually conveys the findings of the study, showcasing whether there are noticeable differences or similarities in mental health scores between these two genders.

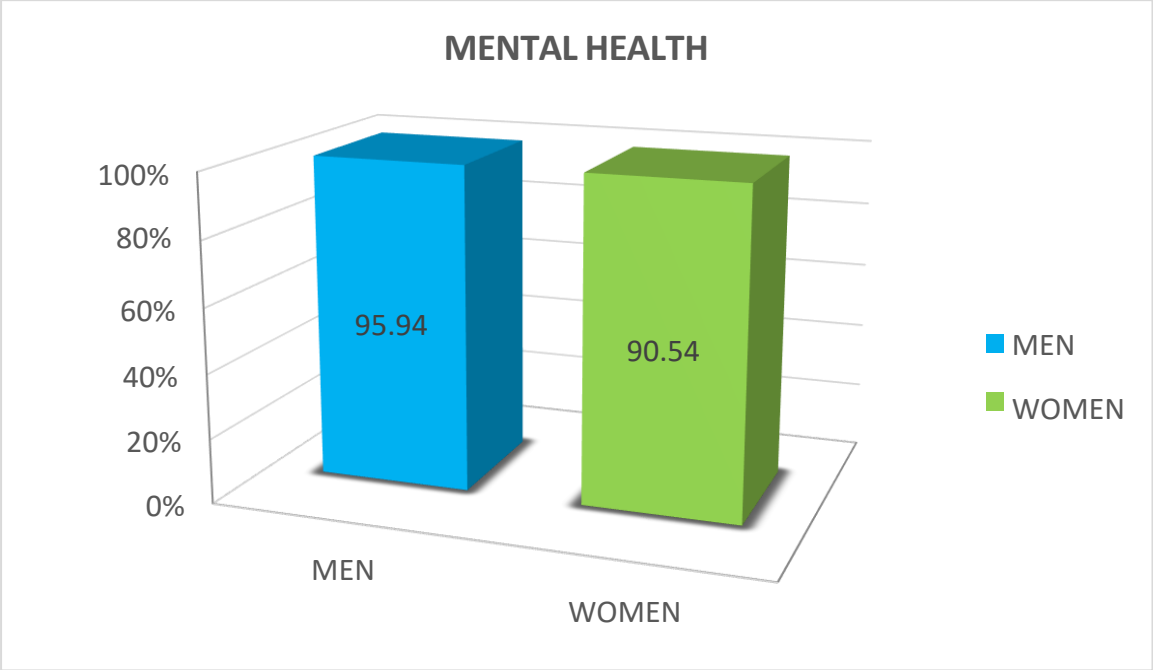


Table – 3: Showing mean, SD and "t" value of men and women college students of competitive athletes:

Group	N	MEAN	SD	"t" Value	Significance level
Men	35	95.07	10.48	0.57	N.S
Women	35	96.41	9.47		

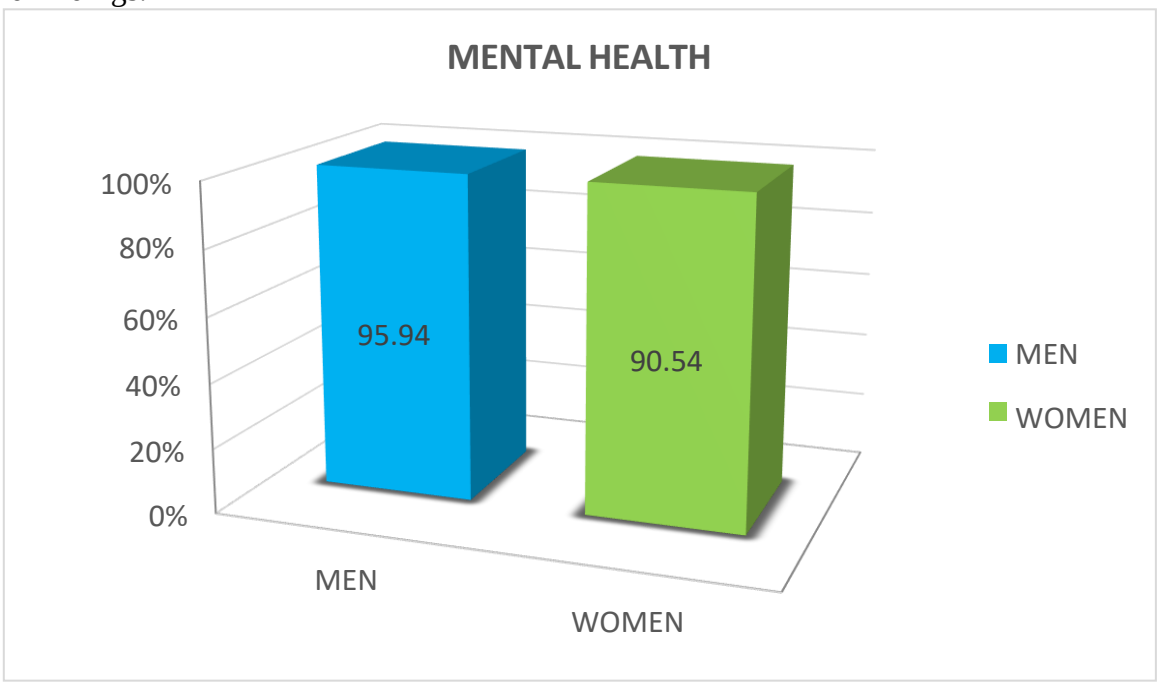
According to the table provided, the calculated "t" value of 0.57 is not statistically significant at the 0.05 significance level. This suggests that the two groups being studied do not exhibit a significant difference concerning mental health. In more detail, the mean score for men college students in the competitive athletes' group is 95.07, with a standard deviation (SD) of 10.48. In contrast, the mean score for women college students in the competitive athlete's group is 96.41, with an SD of 9.47. It is important to note that, based on the scoring pattern, a higher score implies higher mental health. As a result, Hypothesis No.3, which posited that "There was no significant difference in the mean score of mental health among men and women of college students in the competitive athletes' group," is accepted based on the analysis and findings. The chart visually conveys the findings of the study, showcasing whether there are noticeable differences or similarities in competitive athletes' mental health scores between these two genders.

Table – 4: Showing mean, SD and "t" value of men and women college students of regular exercisers:

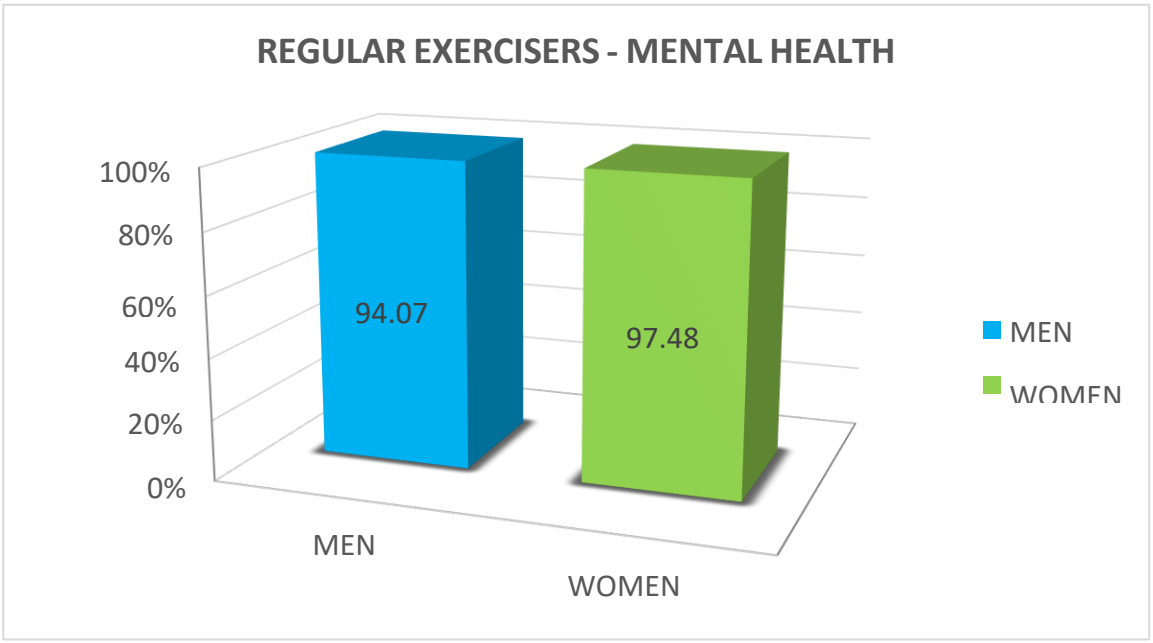
Group	N	MEAN	SD	"t" Value	Significance level
Men	35	94.07	11.15	1.36	N.S
Women	35	97.48	9.75		

Based on the information presented in the table, the calculated "t" value of 1.36 is not statistically significant at the 0.05 significance level. This suggests that the two groups being studied do not exhibit a significant difference concerning mental health. Specifically, the mean score for men college students in the regular exercisers group is 94.07, with a standard deviation (SD) of 11.15. In contrast, the mean score for women college students in the regular exercisers group is 97.48, with an SD of 9.75. It is important to note that, based on the scoring pattern, a higher score implies higher mental health. Therefore, Hypothesis No.4, which stated

that "There was no significant difference in the mean score of mental health among men and women of collegestudents in the regular exercisers group," is accepted based on the analysis and findings.



The chart visually conveys the findings of the study, showcasing whether there are noticeable differences or similarities in regular exercisers mental health scores between these twogenders.



Limitations of the study:

The questionnaires were distributed among the participants in this study, and they were filled out at their leisure. The questionnaire was written in English, and the participants' knowledgeof it may vary. The participants came from various events, and no particular sport was chosen to collect the data. As a result, the outcomes may differ.

Conclusion:

1. There was no significant difference in the mean score of mental health between competitive

athletes and regular exercisers among college students.

2. There was no significant difference in the mean score of mental health between men and women players among college students. However, it is noteworthy that men exercisers among college students tend to exhibit better mental health than women exercisers among college students.
3. There was no significant difference in the mean score of mental health between men and women college students in the competitive athletes group.
4. There was no significant difference in the mean score of mental health between men and women college students in the regular exercisers group.

These findings provided valuable insights into the mental health of college students engaged in competitive athletics and regular exercise. It is important to note that while there may not be significant differences in some cases, understanding the nuances within these groups can still be valuable for promoting mental well-being among college students.

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A STUDY ON EFFECTS OF YOGIC PRACTICES ON STRESS AND ANXIETY AMONG COLLEGE STUDENTS

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Abstract

The persons, who are mentally fit and well can achieve their goal in their life, can live a happy and successful life. This study involves review on various yoga research papers for stress and anxiety. For that 60 articles were collected from various data basis and among them only 12 articles were satisfied inclusion and exclusion criteria. Based on the literature review of those articles, yoga significantly reduces stress and anxiety for college students. Additionally as an individual practice, surya namaskar significantly reduces stress, Super brain Yoga significantly reduces anxiety and also individual practice laughter yoga and yoga nidhra significantly reduces anxiety and stress together. These yogic practices will promote psychological well-being of college students.

Introduction

Human beings are one of the living organism in this earth have four dimensions of their self. They have physical, mental, intellectual and the soul dimensions. Among these dimensions, mental dimensions plays a vital role in one's life since through the mind only one can able to think, speak, manipulate their limbs to work, able to communicate in society to live a life. The persons, who are mentally fit and well can achieve their goal in their life, can live a happy and successful life; face every emotion and every dimensions of life with great mental stability. Also psychological wellness can prevent psychosomatic diseases. So when the college students develop themselves as multitalented persons to handle their own emotions like stress, anxiety, fear, greedy, happiness and so on and manage all these positive and negative emotions well they will become a successive and happy person.

Stress and anxiety have unfavorable effects on the body that, if ignored, could develop into chronic illnesses. For instance mental stress has been linked to adverse effects on the immune system. *(Segerstrom, S. C., & Miller, G. E., 2004*). Anxiety has been associated with coronary heart disease *(Roest, A. M., et.al, 2010)* and decreased quality of life. *(Olatunji, B. O.et.al, 2007).* Many researches shows that Yogic practices contributed great on psychological wellbeing. A study reveals that irest yoga nidhra reduced stress, depression and worry among college students. *(Eastman-Mueller, H.et.al, 2013).* Another study shows that laughing therapy reduced anxiety and increased life satisfaction and psychological well-being in nursing students during COVID 19 period. *(Eraydin, C., & Alpar, S. E., 2022).* This present study reviews various studies on effects of yogic practices for stress and anxiety among college students.

AIM

To find the yogic practices which reduce the stress and anxiety among college students by reviewing various yoga studies among college students.

METHODS

Literature searches were conducted using Google Scholar. The searches include words like yoga, stress, anxiety, and college students in either combinations of these words or altogether. Articles were retrieved from various sources, like Elsevier, Proquest and Pubmed which satisfying inclusion and exclusion criteria. Totally 60 articles are collected. From that

only 12 articles were selected for literature review work based on inclusion and exclusion criteria.

INCLUSION CRITERIA

- Published in the English language.
- Subjects are college students only.
- Experimental studies only included.

EXCLUSION CRITERIA

- Articles in any other language than English were excluded.
- Subjects other than college students were excluded.
- Studies without experiment or review studies are excluded.

RESULTS

Results of the analyzed articles were summarized with study design, author name, and yoga type and assessment methods in table 1.

Table 1

Study/ Design	Participants	Yoga intervention	Control/ comparative	Duration & practices	Assessment tool	Results
Beck.et.al	Female graduate students. (n=29) Age 21-24 years	Exp sub group 1a(n=14) Exp Sub group 1b (n=15)	Same group act as control group before or after yoga intervention	60 mins yoga per week for six weeks. *Practices*: • Yoga intervention	• PSS-Perceived stress scale • PSQI – sleep quality	• Stress reduced • No significant results for sleep level
West.et.al	69College students	African dance (n=21) Hatha yoga (n=18)	Biology class (n=30)	90 minutes class *Practices*: • African dance • Hatha yoga	• PSS-Perceived stress scale • PANAS-Positive Affect and Negative Affect Schedule. • luminometer and salivary cortisol kit-cortisol	• Both African dance and Hatha yoga reduced perceived stress and negative affect. • Cortisol increasedin African dance. • Cortisol decreasedin Hatha yoga.

Godse.et.al	80 college students. Age:17-22 Years	Surya namaskar (n=62)	Control (n=62)	20mins intervention for 14 days *Practices*: • Warm up • Surya namaskar-13 rounds • Cool down	• SSSI-frequently reported stress symptoms. • SRDI-propensity	• The experimental group was higher on physical relaxation, mental quiet, at ease/peace, rested and refreshed, strength and awareness and joy. • Experimental group lower on sleepiness, and stress dispositions –somatic stress, worry,and negative emotion.
Xu.et.al RCT Design	100 college students. Age: 18-26	Yama&Nyama Group YN (n=50)	Control (n=50)	45 minutes per session for six sessions in each week for three months. *Practices*: • Yama-Nyama lecture • Japa writing • Introspection • Counseling	• Biowell-Emotional Pressure	• YN Intervention reduced stress levelin experimental group.

Wheeler.et. al Single group study	79 moderately stressed university students. Age: 18-54	Yoga asana group (n=79)	-	One hour yoga class for ten weeks. *Practice sequence:* • standing poses • supine pose • mild inversions • prone backbends • seated postures	• Perceived stress • Heart rate/min–Clock • Breathing rate - Clock	• Perceived stress and breathing rate decreased in experimental group. • No significant changes in heart rate.
Prasad.et. al prospective case-control study	27medical students. Age:24-32	Experimental group (n=27)	-	One hour biweekly Hatha yoga classes for six weeks. *Practices*: • Asanas • Pranayama • Meditation .	Perceived Stress Scale Survey – Stress self-assessment survey	• Reductioni n perceived stress. • Improvement in feelingsof peace, focus,endurance, happiness, positivity, personal satisfaction, and self-confidence.
Falsafi, N stratified-randomized controlled design	90 college students Age: above 18	mindfulness intervention group yoga-only intervention group.	Non interventional group-control	75 minutes per week for 8 weeks *Practices*: • Mindfulness practices • Hatha Yoga	• Beck Depression Inventory • Hamilton Anxiety Scale • Student-Life Stress Inventory • Self-compassion Scale • Cognitive and Affective Mindfulness Scale– Revised.	• Depressive, anxiety, and stress symptoms decreased significantly for both mindfulness and yoga groups. • Mindfulness score increased significantly for both mindfulness and yoga groups. • Self compassion

						increasedin Mindfulness group only.
Lemay.et. al	20 college students in initial and 17 in final Age:19-23 Years	Yoga and meditation group (n=20)	-	60+30minutes once per week for 6 weeks. *Practices*: • Yoga • Meditation	• Beck Anxiety Inventory (BAI) • Perceived Stress Scale (PSS) • FiveFacet Mindfulness Questionnaire (FFMQ)	• Anxiety and stress decreased and total mindfulness increasedin experimental group.
Kumar, K.	80college students. Age: 20-30	Experimental group (n=50)	Control group (n=30)	Both group practicing yoga. In additional Exp group practice yoga nidra for 30 minutes for 6 months. *Practices*: • Shavasana • Yoganidra includes • Body part awareness, breath awareness & visualization.	• Eight state questionnaire for anxiety and stress	• Anxiety and Stress level decreased in experimental group

Eraydin, C., & Alpar, S. E Randomized control study	79 nursing students	Intervention group (n=39)	Control group (n=40)	five weeks, two sessions a week, for ten session. *Practices*: • Hand Clapping& Warm up • Deep breathing • Childlike games • Laughter yoga	• State-Trait Anxiety Inventory (STAI) • The Satisfaction with Life Scale (SWLS) • Psychological Well-Being Scale (PWBS)	• Laughter therapy reduced anxietyand stress level. • It increased individuals' satisfaction with life and psychological well-being.
Dönmez .et.a l	88 undergraduate students.	Intervention group (n=44)	Control group (n=44)	40 minutes laughter Yoga Session. *Practices*: • Hand Clapping & Warm up • Deep breathing • Childlike games • Laughter yoga	• State-trait anxiety scale • Perceived stressscale fornursing students • Students' vitalsigns evaluation form • Student satisfaction andself-confidence in learning scale	• stateanxiety, perceived stress, mean pulse rate and arterial pressure of the intervention group were significantly lower than those of the control group. • student satisfaction and self-confidence in the learning of the intervention group were significantly higher

Kumar, P., & Singh, V.	50 male college students. Age: 15-19 Years	Experimental group (n=50)	-	30minutes super brain yoga per day for 30 days. *Practices:* Gayatri Mantra Chanting. Super brain yoga Relaxation/ Yoga nidra Shantipath	• Academic Anxiety Scale for Children	• Intervention significantly reduced anxiety level in experimental group.

DISCUSSIONS

Table 1 summarizes twelve yoga research papers which works on either stress or anxiety or combined together or combined with any other dependent variables. Among these studies all the twelve yoga research papers shows significant decrease in stress level. The yoga interventions which reduces stress includes yama, nyama disciplines, japa, introspection, surya namaskar, hatha yoga, Pranayama, meditation, yoga nidra, laughing therapy and super brain yoga. The study which reduces anxiety and stress simultaneously together includes practices as hatha yoga, meditation, yoga nidhra and laughing therapy. *(Falsafi, N, 2016), (Lemay.et.al, 2019), (Kumar, K, 2008), (Eraydin, C., & Alpar, S. E, 2022), (Dönmez.et.al, 2023).* As an individual practice, surya namaskar significantly reduces stress *(Godse.et.al., 2015),* Super brain Yoga significantly reduces anxiety *(Kumar, P., & Singh, V. 2017)* and also individual practice laughter yoga and yoga nidhra significantly reduces anxiety and stress together. *(Eraydin, C., & Alpar, S. E, 2022), (Dönmez.et.al, 2023, (Kumar, K, 2008).* Thus along with common yogic practices like asanas, mudras, bandhas, pranayama and meditation including laughter therapy, super brain yoga and yoga nidhra will yield tremendous impact on stress and anxiety level of college students.

CONCLUSION

This study reveals that Yoga might be an effective and safe intervention for college students on emotional wellness. Emotional wellness will balance the mind and body and prevent many psychosomatic diseases. Mental health is a base for all dimensions of health. So our current study helps to identify the yogic practices which are beneficial for anxiety and stress reduction for college studying students and pave way for positive younger generation development.

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EFFECT OF PLYOMETRIC TRAINING ON SELECTED BIO MOTOR VARIABLES OF COLLEGE MEN

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Abstract

The purpose of this study was to find out the impact of plyometric training on abdominal muscular strength endurance and leg explosive power of college men. To execute the present study the research investigator selected thirty (30) college level men from Sri Ramakrishna Mission Vidyalaya College of Arts & Science, Periyanaickenpalayam, Coimbatore, Tamilnadu. The subjects were randomly divided into two equal groups namely plyometric training group (RTG), and control group (CG). Each group consisted of fifteen (15) college level men. The experimental group underwent the plyometric training for a period of eight (8) weeks and the control group did not undergo any special training programme apart from their regular routine. The selected variables namely abdominal muscular strength endurance, and leg explosive power were selected as dependent variables of the study. Independent variable was plyometric training. To determine the significant difference between the pre and post-tests the statistical procedure namely paired "t" test was applied. To test the level of significance the level of confidence was fixed at 0.05 level for the chosen variables. The analysis of the data revealed that there was a significant improvement on the selected bio motor variables namely abdominal muscular strength endurance and leg explosive power by the application of plyometric training programme.

Key words: Plyometric training, abdominal muscular strength endurance, and leg explosive power.

Introduction

Plyometric rapidly become known to coaches and athletes as exercises or drills aimed at linking strength with speed of movement to provide power. Plyometric training become essential to athlete who jumped, lifted, or threw. During the late 1970s and into the 1980s, those in other sports also began to see the applicability of these concepts to their own movement activities. Throughout 1980s coaches in sports such as volleyball, football, and weightlifting began to use plyometrics exercises and drill to enhance their training programs. If there was any drawback to this enthusiasm, it lay with the lack of expertise that American coaches and athletes had in administering plyometric programs and faulty belief that more must be better. Since these early growth years, however, practitioners have learned through applied research, as well as trial and error, to established realistic expectations.

Plyometrics are also called ploy, and they consist of powerful and fast movements. These exercises improve the working of the nervous system and thus improve the overall performance in sporting events. They involve relaxing and contracting muscles in fast sequences, making use of elasticity, innervations, and strength of tissues and muscles that are involved in running faster, jumping higher, and throwing farther. Thus plyometrics are especially useful for track and field athletes. Ploys raise the force and speed of the muscle contractions, leading to higher explosive power that is needed in sports activities. Track and field events aren't the only sports that need ploys. Soccer, rugby, racket sports, martial arts, and basketball also make use of plyometrics, and in fact every sport can benefit to some extent from plyometric training.

Methodology

To execute the present study the research investigator selected thirty (30) college level men from Sri Ramakrishna Mission Vidyalaya College of Arts & Science, Periyanaickenpalayam, Coimbatore, Tamilnadu. The subjects were randomly divided into two equal groups namely plyometric training group (PTG), and control group (CG). Each group consisted of fifteen (15) college level men. The experimental group underwent the plyometric training for a period of eight (8) weeks and the control group did not undergo any special training programme apart from their regular routine. The selected variables namely abdominal muscular strength endurance, and leg explosive power were selected as dependent variables of the study. Independent variable was plyometric training. To determine the significant difference between the pre and post-tests the statistical procedure namely paired "t" test was applied. To test the level of significance the level of confidence was fixed at 0.05 level for the chosen variables.

RESULTS OF THE STUDY

TABLE-I

COMPUTATION OF 'T'-RATIO BETWEEN THE PRE AND POST TESTS ON ABDOMINAL MUSCULAR STRENGTH ENDURANCE OF EXPERIMENTAL AND CONTROL GROUPS

Group	Test	M	SD	σ DM	DM	t-ratio	'p' value
Experimental	**Pre Test**	17.27	1.83	0.31	3.40	11.13*	0.01
	Post Test	20.67	1.50				
Control	**Pre Test**	16.07	1.83	0.31	0.40	1.31	0.21
	Post Test	16.47	2.07				

* significance at 0.05 level.

The table I indicates that there was a significant improvement on the abdominal muscular strength endurance through the plyometric training. It reveals that the obtained t-ratio 11.13 was differ significantly, because the 'p' value (0.01) was lesser than the 0.05, level of confidence. So, there was a significant improvement on the abdominal muscular strength endurance between the pre and post-tests of experimental group, whereas the control group showed no significant improvement. Hence the results indicated that the significant improvement on the abdominal muscular strength endurance was due to the plyometric training alone.

FIGURE- I

THE FIGURE SHOWING THE MEAN DIFFERENCE OF PRE AND POST-TESTS SCORES ON ABDOMINAL MUSCULAR STRENGTH ENDURANCE OF EXPERIMENTAL AND CONTROL GROUPS

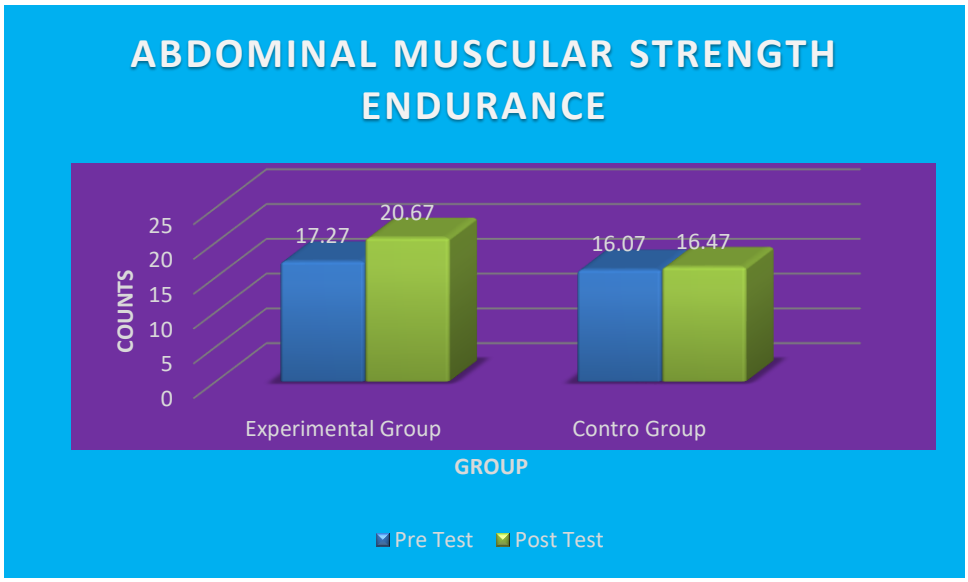


TABLE-II

COMPUTATION OF 'T'-RATIO BETWEEN THE PRE AND POST TESTS ON LEG EXPLOSIVE POWER OF EXPERIMENTAL AND CONTROL GROUPS

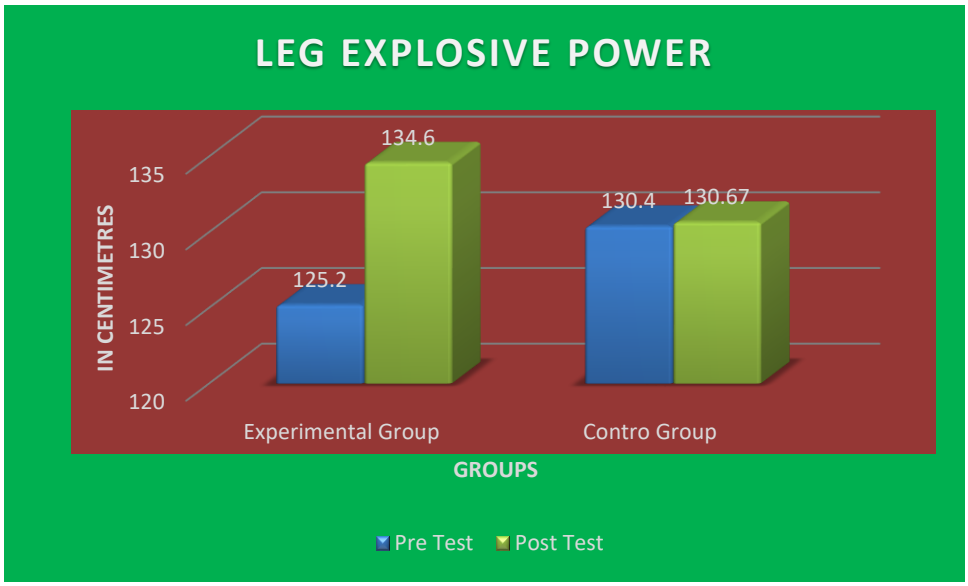
Group	Test	M	SD	σ DM	DM	t-ratio	'p' value
Experimental	**Pre Test**	125.20	17.86	0.60	9.40	15.67*	0.01
	Post Test	134.60	18.30				
Control	**Pre Test**	130.4	17.82	0.61	0.27	0.44	0.67
	Post Test	130.67	18.32				

* significance at 0.05 level.

The table II indicates that there was a significant improvement on the leg explosive power through the plyometric training. It reveals that the obtained t-ratio 15.67 was improved significantly because the 'p' value (0.01) was lesser than the 0.05 level of confidence. So, there was a significant improvement on the leg explosive power between the pre and post-tests of experimental group, whereas the control group showed no significant improvement. Hence the result indicated that the significant improvement on the leg explosive power was due to the plyometric training alone.

FIGURE- II

THE FIGURE SHOWING THE MEAN DIFFERENCE OF PRE AND POST-TESTS SCORES ON LEG EXPLOSIVE POWER OF EXPERIMENTAL AND CONTROL GROUP



DISCUSSION ON FINDINGS

The result of the study reveals that the eight weeks of plyometric training on the selected dependent variables there was a significant improvement on the abdominal muscular strength endurance. It reveals that the obtained t-ratio 11.13 was a significant because the 'p' value (0.01) was lesser than the 0.05, level of confidence. So, there was a significant improvement on the abdominal muscular strength endurance between pre and post-tests of the experimental group, whereas the control group showed no significant improvement. Hence the result indicates that the significant improvement on the abdominal muscular strength endurance was due to the plyometric training alone. The result of the study is in consonance with the research done by **Jaime Fernandez-Fernandez, et al (2015).**

The result of the study reveals that the eight weeks of plyometric training on the selected dependent variable there was a significant improvement on the leg explosive power. It reveals that the obtained t-ratio 15.67 was significant because the 'p' value was lesser than the 0.05, level of confidence. So, there was a significant improvement on the leg explosive power

between pre and post-tests of the experimental group, whereas the control group showed no significant improvement. Hence the results indicated that the significant improvement on the leg explosive power was due to the plyometric training alone. The result of the study is in consonance with the research done by **Sakthivel & Ramesh (2019).**

CONCLUSIONS

It was concluded that the plyometric training is an effective training means to improve the selected bio motor variables namely abdominal muscular strength endurance and leg explosive power.

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EFFECT OF STEP AEROBIC EXERCISES ON VOLLEYBALL SKILL PERFORMANCE

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Numerous studies have shown that athletes must use motor skills throughout the competition such as dashing, lunging, and quickly changing direction. The SAT pattern combined with the skill of an athlete that used the step 6–8 inches height, and controlled movement speed in 120–150 BPM range will help to increase the level of optimal training intensity and can develop muscle power for athletes. Previous studies have indicated that the SAT pattern is a low-impact training that does not affect the safe knee and ankle. Thereby, the study was aimed to find out the effect of step aerobic exercises on skill performance of women volleyball players. To achieve the purpose of the study, thirty women volleyball players were selected from Autonomous engineering colleges of Anna University, Zone II, Chennai, Tamil Nadu. Fifteen(N=15) players were allotted randomly as subjects to Experimental Group I (Step Aerobic training) and the remaining of fifteen players acted as control group. Pre-test was conducted for all the subjects on skill performance variables. This initial test scores formed as pre-test scores of the subjects. The players were randomly assigned as experimental Group and control group. Experimental group was exposed to step aerobics training for three alternative days in a week and Control Group was not exposed to any experimental training other than their regular daily activities. The duration of experimental period was 8 weeks. Helmen wall spike test and subjective rating method was used to assess spiking and blocking skill performance respectively. After the experimental treatment, all the subjects were tested on their skill performance variables. This final test scores formed as post test scores of the subjects. The pre test and post test scores were subjected to statistical analysis using dependent 't' test to find out the significance differences between the pre and post test mean. In all cases 0.05 level of confidence was fixed to test hypotheses. It was statistically confirmed that eight weeks of step aerobic exercises significantly enhanced the spiking and blocking skill performance of women volleyball players.

Key Words: *Step Aerobic Exercise, Skill Performance, Volleyball.*

Introduction

Aerobic exercise refers to exercise that involves or improves oxygen consumption by the body. Aerobic means "with oxygen" and refers to the use of oxygen in the body's metabolic or energy generating process. To obtain the best results, an aerobic exercise session involves a warming up period, followed by at least 20 minutes of moderate to intense exercise involving large muscle groups and a cooling down period at the end. Step aerobics resulted from some twentieth-century fitness concepts and an injured knee. American Gin Miller, who is credited with developing step training, pointed out on her website that coaches trained athletes by having them run up and down stadium stairs. During World War II, Harvard University developed a fitness test that involved the test subject stepping on and off of a 20 in. (50.8 cm) tall bench. The Harvard Step Test required the person to step 30 times for a minute, with the subject tested for from one to three minutes. The person's resting pulse rate was taken before the test and measured again after the test. 1968, American Kenneth Cooper, MD, MPH, introduced the world to a new exercise concept with his bestselling book, Aerobics. Cooper coined the word aerobics and advocated for the relationship between cardiovascular fitness and health and longevity.

Step aerobics is an aerobic exercise that is performed by stepping onto and off of an elevated platform while doing upper body movements. Also known as step training, the choreographed moves are done as a moderate- to high-intensity cardiovascular workout. Step

aerobics is a classic cardio workout. It's lasted for decades for a simple reason: It delivers results. The "step" is a 4-inch to 12-inch raised platform. Step up, around, and down from the platform in different patterns to boost heart rate and breathing, and strengthen our muscles. The intensity level depends on how high we make the step and what kinds of movements we do on it. For the lowest intensity, put the step flat on the floor. To make it more intense, add risers that raise the step's height. Use arms, too. The more we raise our arms overhead, the harder we will work. It target on areas like arms, legs gluts and back The fluid motions of stepping improves our flexibility. The heart pumps harder and body secrets sweat and burn calories. Stepping up and down works the muscles in our calves, legs, and buttocks. Many step aerobics classes add strength-training with weights. Although we can also use light weights while we step, it's best not to, since we could injure our shoulder joint An athlete might use step aerobics to cross train. **In step aerobics training programme, participants** usually keep one foot on the bench or ground, so step aerobics can be a low-impact program.

Step aerobics routines are easy to learn for most people, and workouts are designed for a range of fitness levels. Step aerobics are usually done to music that ranges from 120 to 127 beats per minute, and the goal of the workout is to exercise within the target heart range for a certain amount of time. The target heart rate is the rate that the heart should pump during exercise to achieve the maximum cardiovascular benefit. The rate is based on a percentage of the maximum heart rate, a figure based on factors including age and fitness level. Step aerobics provides the health benefits of an aerobic workout without the adverse affects of high impact activity. Stepping exercise benefits the heart and lungs while burning calories. In addition, step training shapes and tones upper and lower body muscles, especially those in the buttocks, thighs, and legs.

Methodology

To achieve the purpose of the study, thirty women volleyball players were selected from autonomous engineering colleges in Zone –II, Anna University. Fifteen Players were as subjects to Experimental Group I (Step aerobics training) and Control Group also consisted of fifteen players. Pre-test was conducted for all the subjects on skill performance variables. This initial test scores formed as pre-test scores of the subjects. The players were randomly assigned as Experimental Group and control group. Experimental group was exposed to step aerobics training for three alternative days in a week and Control Group was not exposed to any experimental training other than their regular daily activities. The step aerobics exercises prescribed in training programme were High Knee March, Low Step-Ups, Box Squat Jump, Lift and Reach, High Knee and Push, Centre Hop and Squat, Side Steps and High Kicks and Hop and Jack. The duration of experimental period was 8 weeks. Helmen wall spike test and subjective rating method were used to assess spiking and blocking skill performance respectively. After the experimental treatment, all the subjects were again tested on their skill performance variables.

Experimental Design and Statistical Technique

Random sampling method was adopted for the selection of subjects. Randomized pre test post test control group design was adopted for this study. Thereby, the subjects (n=30) were divided at random into two equal groups of fifteen each and randomly allocated to the experimental and control groups. All the groups were selected from the same population. No effort was made to equate the groups prior to the commencement of the experimental treatment. Pre and post test were conducted to treatment and control groups. The pre test and post test scores were subjected to statistical analysis using dependent‘t’ test to find out the significance differences between the pre and post test mean. In all cases 0.05 level of confidence was fixed to test hypotheses.

Results

Table-I

SIGNIFICANCE OF MEAN GAINS AND LOSSES BETWEEN PRE AND POST-TEST SCORES ON SELECTED VARIABLES OF CONTROL GROUP (CG)

Variables	Pre-Test Mean	Post-Test Mean	Mean Difference	Std. Dev. (±)	σ DM	't' Ratio
Spiking	33.73	34.00	0.26	1.70	0.44	0.60
Blocking	3.80	4.13	0.33	0.89	0.23	1.43

***Significant at 0.05 level of confidence**

Table - I shows the acquired't' ratios for pre and post test mean difference in the selected variable of spiking (0.60) and blocking (1.43) skills respectively. The obtained ratios when compared with the table value of 2.14 of the degrees of freedom (1 & 14) it is found to be statistically insignificant at 0.05 level of confidence. It has been observed that the means gain and losses made from pre to post-test have not significantly improved skill performance variables. So it is found to be insignificant.

Table-II

SIGNIFICANCE OF MEAN GAINS AND LOSSES BETWEEN PRE AND POST-TEST SCORES ON SELECTED VARIABLES OF STEP AEROBIC TRAINING GROUP (SATG)

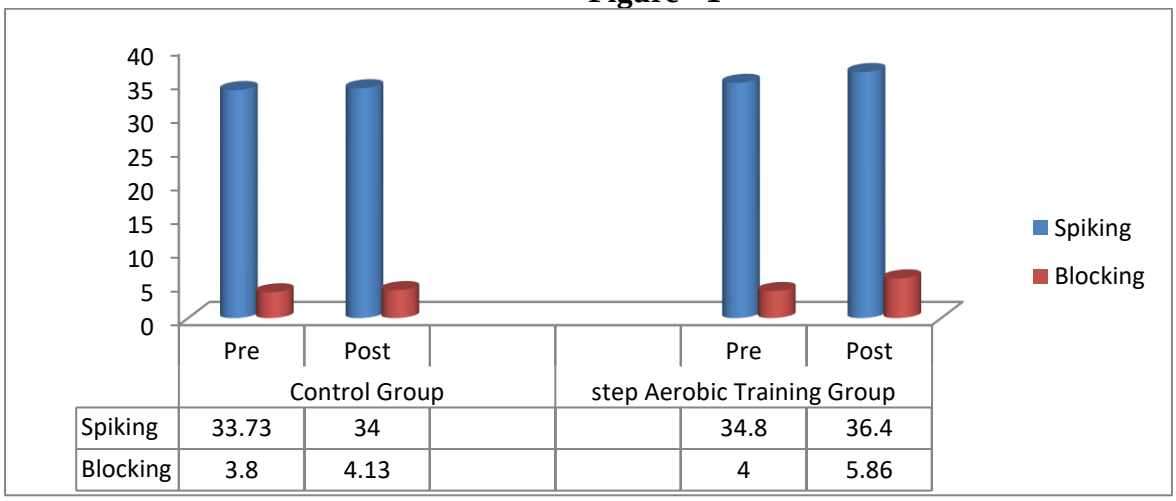
Variables	Pre-Test Mean	Post-Test Mean	Mean Difference	Std. Dev. (±)	σ DM	't' Ratio
Spiking	34.80	36.40	1.60	1.59	0.41	3.88*
Blocking	4.00	5.86	1.86	1.06	0.27	6.82*

*** Significant at 0.05 level of confidence**

Table - II shows the acquired 't' ratios for pre and post test mean difference in the selected variable of spiking (3.88) and blocking (6.82) skills respectively. The obtained ratios when compared with the table value of 2.14 of the degrees of freedom (1 & 14) it is found to be statistically significant.

The pre and post test means on spiking and blocking performance of both groups were accessible from beginning to end bar map for better consideration of the results of this revise in Figure – 1

Figure - 1



Discussion on findings

The pre and post test mean values of spiking and blocking skill performance of experimental and control groups from table I and II deliberately reveals that control group has not enhanced skill performance where as the 8 weeks of step aerobics training given best result. The findings of the study is in bar with the findings of the following studies.

Sunanth & Sudheer (2018) assessed the impact of Yoga and Aerobic activities among the cricket players. The subjects for the examination were 30 cricket players who had partaken in intercollegiate rivalries. The test pursued by a preparation indicated critical improvement in the chose factors speed, deftness and leg quality for cricket players to turn out without a hitch. Zahoor & Karthikeyan (2017) found out the effect of moderate and high force oxygen consuming activity on chose biomotor execution of school men football players. The consequences of the examination uncovered that there was a critical enhancement for chosen bio engine factors, for example, parity and coordination for moderate oxygen consuming power preparing gathering and high-impact force preparing bunch when contrasted with control bunch among school men football players. Jansupom Charee,et.al.(2022) confirmed that the 6–8 inches height of SAT and the rhythm movement control of 130–140 beats per minute (BPM) can increase muscle power and agility in 4 weeks, which is beneficial for those badminton players and coaches who want to use a short period of training.

Conclusion

The study of finding out the effect of step aerobic exercises on skill performance of women volleyball players has brought out the following conclusions.

1. The spiking and blocking performance of control group remain similar statistically.
2. The eight weeks of step aerobics treatment has boosted up the spiking and blocking performance remarkably.
3. It is understood from the result that incorporating step aerobics in volleyball training programme could be a significant element to promote the key elements of the performance of players.

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EFFECT OF CONCURRENT TRAINING ON NOMINATED PHYSIOLOGICAL VARIABLES AMONG ENGINEERING COLLEGE LEVEL HANDBALL PLAYERS

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Abstract

The purpose of the current study was to investigate the effect of concurrent training on nominated physiological variables among engineering college level handball players. For the purpose of the study, thirty men handball players studying bachelor's degree in the different engineering colleges, Tiruvallur District, were selected as subject. The age of the selected subjects was ranged from 18 to 25 years. Group I underwent concurrent training for three days per week for twelve weeks and Group II acted as control they did not undergo any special training programme apart from their regular activity. The following dependent variables were selected for this study namely cardio respiratory endurance, vital capacity and resting heart rate. The data were collected on selected dependent variables at prior and immediately after the experimental period as pretest and posttest respectively. The data were analyzed by applying dependent 't' test and analysis of covariance (ANCOVA) was used to find out the significant difference among the groups, if any separately for each dependent variable. Since, two groups were compared, whenever the obtained 'F' ratio for adjusted posttest was found to be significant. The 0.05 level of confidence was fixed to test the level of significance which was considered as an appropriate. The result of the study showed that concurrent training group has significantly varied on selected physiological variables namely cardio respiratory endurance, vital capacity and resting heart rate when compared to control group.

Keywords: *Concurrent training, Cardio respiratory endurance, Vital capacity and Resting heart rate.*

Introduction

Concurrent Training

Concurrent training (CT) has become a contemporary topic for coaches, strength and conditioning professionals, and researchers because a large number of sports require both strength and aerobic capacities for maximizing performance. However, resistance and endurance trainings produce divergent metabolic and morphological adaptations with little overlap between them. Therefore, it seems necessary to find optimal combinations of both types of training regimes to obtain maximum simultaneous development of strength and endurance capacities.

Concurrent Training is a large influence of the interindividual variation in response to a training program, the effects of CT on strength gains may vary markedly due to a large number of design factors, including the mode, frequency, duration, type of exercises, volume, and intensity used during both resistance and aerobic training, different sequences and recovery times between resistance and aerobic training sessions, training history of participants, and dependent variables selected. The effect of most of these variables has already received considerable attention in previous studies and reviews. However, to the best of our knowledge, a question that remains ignored in the literature is the possibility of manipulating the load magnitude during resistance training. In addition, most of resistance exercises used in studies analyzing the effect of CT on physical performance were open-chain, isolated, isotonic, or machine-based exercises (i.e., leg extension and flexion, seated hamstring curl, leg curl, leg press, isometric plantar flexion, calf rise).

Limitation

1. The previous experience of the subjects in the field of sports and games which may influence the training was not considered.
2. Food habits were not taken into consideration.

3. The weather condition such as atmosphere temperature and humidity during test period were also not considered

Delimitation

1. Selected physiological variables such as cardio respiratory endurance, vital capacity and resting heart rate were measured.
2. Intercollegiate level 30 men handball players were selected as subjects.
3. Age group the subjects ranged from 18 to 25 years.

METHODOLOGY

To achieve the purpose, thirty men handball players studying bachelor's degree in the different engineering colleges, Tiruvallur District were selected as subject and they were divided into two equal groups of fifteen subjects each at random namely concurrent training group and control group. The age of the selected subjects was ranged from 18 to 22 years. Group I underwent concurrent training for three days per week for twelve weeks and group II acted as control they did not undergo any special training programme apart from their regular activity. The following dependent variables were selected for this study namely cardio respiratory endurance, vital capacity and resting heart rate. The experimental design selected for this study was pre and posttest randomized design. The data were collected form each subject before and after the training period and statistically analyzed by using dependent 't' test and analysis of covariance (ANCOVA).

TABLE I

DESCRIPTION OF TRAINING SCHEDULE FOR CONCURRENT GROUP

Week	1-2 Week			3-4 Week			5-6 Week		
Load	Set	Reps	Volume	Set	Reps	Volume	Set	Reps	Volume
Leg Press	2	10	20	2	12	24	3	12	36
Seated Hamstring Curl	2	10	20	2	12	24	3	12	36
2 foot ankle hop	2	10	20	2	12	24	3	12	36

Week	7-8 Week			9-10 Week			11-12 Week		
Load	Set	Reps	Volume	Set	Reps	Volume	Set	Reps	Volume
Leg Press	3	15	45	4	15	60	4	15	60
Seated Hamstring Curl	3	15	45	4	15	60	4	15	60
2 foot ankle hop	3	15	45	4	15	60	4	15	60

TABLE II

TESTS SELECTION

Variable	Tests/ Equipment	Unit of measurement
Cardio Respiratory Endurance	12 minutes coopers test	Seconds
Vital Capacity	Spirometer	Milliliters
Resting Heart Rate	Digital Heart Rate Machine	No. of Beats

RESULTS AND DISCUSSIONS

The data pertaining to the variables in this study were examined by using dependent 't' test to find out the significant improvement and analysis of covariance (ANCOVA) for each variables separately in order to determine the difference and tested at 0.05 level of significance.

The analysis of dependent 't' test on data obtained for cardio respiratory endurance, vital capacity and resting heart rate of the pretest and posttest means of experimental (concurrent) and control group have been analyzed and presented in Table III.

TABLE III

MEAN AND DEPENDENT 'T' TEST OF EXPERIMENTAL (CONCURRENT) AND CONTROL GROUPS ON SELECTED PHYSIOLOGICAL VARIABLES

Variables	Mean	Concurrent	Control Group
Cardio Respiratory Endurance	Pre Test	2375.00	2364.00
	Post Test	2468.00	2334.33
	't' test	6.75*	1.87
Vital Capacity	Pre Test	3173.33	3280.00
	Post Test	3753.33	3326.67
	't' test	7.61*	1.40
Resting Heart Rate	Pre Test	73.33	75.53
	Post Test	70.00	75.67
	't' test	11.42*	0.38

*Significant at 0.05 level of confidence (14) is 2.145

The obtained 't' ratio value on cardio respiratory endurance, vital capacity and resting heart rate of experimental (concurrent) group was higher than the table value, it was understood that the concurrent training had made significant improvement on cardio respiratory endurance, vital capacity and resting heart rate. However, the control group has not made significant changes as the obtained 't' value is less than the table value, because it was not subjected to any specific training. The analysis of covariance on the data obtained on cardio respiratory endurance, vital capacity and resting heart rate due to the effect of concurrent training and control groups have been analyzed and presented in Table IV.

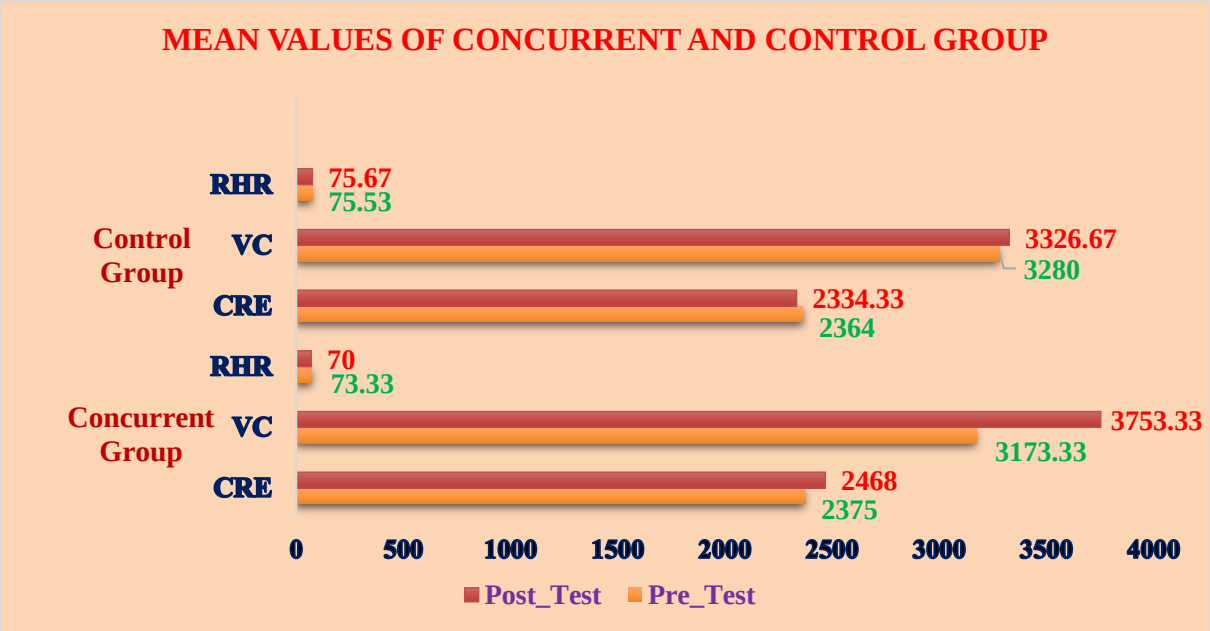


FIGURE1: SHOWING THE MEAN VALUES OF CARDIO RESPIRATORY ENDURANCE, VITAL CAPACITY AND RESTING HEART RATE FOR CONCURRENT AND CONTROL GROUPS AMONG ENGINEERING COLLEGE HANDBALL PLAYERS

TABLE IV
ANALYSIS OF COVARIANCE OF EXPERIMENTAL AND CONTROL GROUPS ON PHYSIOLOGICAL VARIABLES

Variables	Adjusted Post Test Means		Source of variance	SS	df	Mean squares	F ratio
	Concurrent training	Control Group					
Cardio Respiratory Endurance	2369.50	2401.17	Between	134000.83	1	134000.83	**27.72***
			Within	151783.33	28	5420.83	
Vital Capacity	3226.67	3540.00	Between	1365333.33	1	1365333.33	**7.79***
			Within	4906666.67	28	175238.10	
Resting Heart Rate	74.73	72.83	Between	240.83	1	270.83	**17.41***
			Within	387.33	28	13.83	

*Significant Table F-ratio at 0.05 level of confidence for 1 and 28 (df) =4.196

Table IV showed that the obtained 'F' ratio value of cardio respiratory endurance 27.72, vital capacity 7.79 and resting heart rate 17.41, which were higher than the table value of 4.196 with df 1 and 28 required to be significant at 0.05 level. Since the obtained value of 'F' ratio was higher than the table value, it indicated that there was significant difference among the adjusted posttest means of concurrent training and control group on cardio respiratory endurance, vital capacity and resting heart rate.

CONCLUSIONS

- The result of the study showed that concurrent training group has significantly varied on nominated physiological variables namely cardio respiratory endurance, vital capacity and resting heart rate when compared to control group.
- There was no significant difference among the cardio respiratory endurance, vital capacity and resting heart rate on control group.

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WINNING FROM WITHIN: THE POWER OF PSYCHOLOGICAL RELAXATION FOR ATHLETE'S BEST PERFORMANCE

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Abstract

The connection between mind and body is something that sports professionals have become more conscious of in recent years. A wealth of research suggests the close link between to two. As such, techniques developed for relaxation in sport have become an important part of athletic performance training for athletes of all levels. Relaxation has been defined as a psychological strategy used by sports performers to help manage or reduce stress-related emotions (e.g., anxiety and anger) and physical symptoms (e.g., physical tension and increased heart rate during high pressurized situations. Research has indicated that most successful athletes used relaxation techniques compared to less successful athletes Many researches indicated that relaxation techniques benefits athletes by enhancing self-confidence, concentration, performance, reducing anxiety and stress, blood pressure besides muscle tense. Using relaxation techniques in daily sport is therefore a particularly useful skill for athletes to develop. It's part of the way one can self-regulate and manage a spectrum of unhelpful emotions. Unhelpful emotions we might commonly associate with competitive sport. The followings are the important psychological relaxation techniques used by the Sport psychologists in recent years to help the athletes for better performance in sport. So the present study focused on application and usefulness Relaxation Techniques for higher performance of the athletes.

MUSCLE-TO-MIND RELAXATION SKILLS AND STRATEGIES

Progressive Muscle Relaxation (PMR) One of the most popular methods of relaxation is PMR. In using this technique, an athlete tense up a group of muscles so that they are as tight as possible, and holds them in a state of extreme tension for a few seconds (Ampofo-Boateng, 2009). The muscles are then progressively relaxed to their previous conditions. Jacobson (1930) developed the concept of progressive relaxation (PR), another muscle-to-mind approach to relaxation. PR consists of a series of exercises that involve contracting a specific muscle group, holding the contraction for several seconds, then relaxing. The exercise progress from one muscle group to another. The purpose of the contraction is to teach an awareness and sensitivity to what muscular tension feels like. The letting go, or relaxation phase, teaches an awareness of what absence of tension feels like and the acknowledgement that it can voluntarily be induced by passively releasing the tension in a muscle. The initial training programme devised by Jacobson required much more time in training each muscle group than many of the modifications that have been developed over the years.

Breathing Exercises Breathing properly is not only relaxing; it facilitates performance by increasing the amount of oxygen in the blood. This carries more energy to the muscles and facilitates the removal of waste products. Unfortunately, many individuals have never learned deep, diaphragmatic breathing and those who have often find their breathing patterns disrupted under stress. Athletes who get uptight during a high-pressure performance situation find their breathing is usually affected in one of two ways-they either hold their breath or they breath rapidly and shallowly from the upper chest. Both of these adjustments create even more tension and impairment of performance. A good technique for making athletes aware of what shallow, chest breathing feels like is to have them raise their shoulders way up and notice what happens

to their breathing. Some coaches and sport psychologists even "choreograph" specific breathing times into the performance of certain skills such as gymnastic and figure skating routines.

Concentration Breathing

Have the athletes concentrate on focusing their attention on their breathing rhythm. Tell them that if their mind wanders to some other thought between inhaling and exhaling to redirect their attention back to their next breath, letting the intruding thought disappear. Instruct them to think of becoming more relaxed with each exhalation. This is a good exercise for athletes to practice when they are having problems with distracting thoughts.

Mind-to-Muscle Relaxation Techniques

The majority of additional relaxation techniques and strategies focus on efferent nerve control, or the stimulation from the brain to the muscles. Among these techniques are meditation, imagery and autogenic training. The techniques should be initially practiced in a comfortable position in a quite environment. Any of the positions suggested for PR practice can be used.

Meditation

Meditation facilitates concentration by disciplining the mind. Four basic components are common to most types of meditation: A quite environment, a comfortable position, a mental device and a passive attitude. A mental device, such as a mantra or fixed gazing at an object, helps to shift the mind from logical externally oriented thought by providing a focus of attention on something that is non-stimulating. A mantra is a non-stimulating, meaningless rhythmic sound of one or two syllabus that a person regularly repeats while meditating. It is critical that athletes not worry about how well they are performing the technique because this disrupts effective meditation. Stress their adopting a "let it happen" attitude. The passive attitude is perhaps the most important element in learning to meditate. Distracting thoughts or mind wandering may occur, but this is to be expected and does not mean that the technique is being performed incorrectly. When these thoughts occur, simply redirect attention to the mental device, focusing on this cue and letting all other thoughts move on through consciousness with a passive attitude, making no attempt attend to them.

Imagery

Imagery, known as mental rehearsal, mental visualization or mental practice, helps athletes to reduce anxiety and improve performance by activating the muscles (Cox, Qiu and Liu, 1993). Imagery in its simplest form, involves an athlete imagining a scene, place of even that he or she sees as peaceful, restful, beautiful and bringing happiness. According to (Feltz and Lirgg, 2007) imagery is the most common technique to improve performance among athletes in competitive situation. The senses for imagery may include, but not limited to: 1. Sounds of running water and rivers. 2. That resemble green space like natural or semi natural habitats, rivers, canals, parks, gardens, street trees, parks, golf courses, sports fields, mountain view, sounds of running water, grass, flowers, the scene of cool mountain water, the breath of fresh air and so on.

Autogenic Training

Autogenic training was developed in Germany in the early 1930 s by Johannes Schultz and has been used extensively with European athletes. The training consists of a series of exercises designed to produce two physical sensations, warmth and heaviness. Basically, it is a technique of autohypnosis or self-hypnosis. Attention is focused on the sensations one is trying to produce. As in meditation, it is important to let the feeling happen in a very passive manner. There are six stages in the training. Have the athletes learn each stage before progressing to the next stage. Some people suggest that trainees spend 2 weeks at each stage; however, the progression can be modified to suit the athletes' learning rate as well as the training program and length of season of the sport. It usually takes several months of regular

practice of 10–40 min, one to 6 times per day to become proficient enough to experience heaviness and warmth in the limbs and to produce the sensation of a relaxed, calm heartbeat and respiratory rate accompanied by warmth in the abdomen and coolness in the forehead. Once athletes have reached that level of training and can attain a relaxed state, they can use imagery to increase the depth of relaxation.

The first autogenic stage involves focusing attention in a passive manner on the dominant arm while silently saying, "My right/left arm is heavy," three to 5 times during 1 min. Have the athletes flex the arms and move the body about; then repeat the sequence with the non-dominant arm, then with the dominant leg. A sense of heaviness should take over the body. If the mind wanders, emphasize passively redirecting attention back to the task at hand. Some athletes may be able to produce a sense of heaviness immediately; other may take one or 2 weeks of three or more times of practice daily to accomplish the sensation. Instructions should follow the same general format for the warmth stage, which may take longer to achieve.

It may take anywhere from two months to a year to master these skills. As one becomes more proficient, the six stages can be combined by going through the above directions once, completing the entire series in a matter of minutes. At this stage, the appropriate phrases, respectively, for Stage 1 and Stage 2 are "my arms and legs are heavy" and "My arms and legs are warm." Regular daily practice for several minutes three or 4 times a day is recommended during training.

CONCLUSION

Just before any competition sit back and take a breath. The simple acts of inhaling, exhaling and relaxing for just a few moments can have a significant impact on the sports performance. This ability to relax and focus on the skill to be executed is not something that can be implemented instantaneously but rather it is developed over time and with practice. Practicing "relaxing" may sound easy enough but in reality it is something that requires dedication, time and effort. One of the most popular techniques that anyone can use is PMR. This technique involves tensing and relaxing muscle groups for 20 min a day, in a quiet location where you can "let go" and clear your mind of worry. It is a very accessible method. PMR has been shown to have hugely significant long-term effects in sport, particularly with helping to reduce general anxiety and stress, while also helping to increase concentration. Studies showed that PMR led to improved performance. Many athletes struggle with "over arousal," where they are overly anxious and stressed or even overmotivated, before matches and this can have a debilitating affect on performance. Concentrated breathing techniques can help overcome these negative pre-match effects by decreasing arousal to a level. Breathing techniques are arguably most relevant in sports involving a "closed skill," where there are fewer "outside distractions" during a match and there is the time available to take a moment to relax. Even in team sports, there will be times when deep breathing techniques can give an athlete a vital few seconds to ensure they are in the right state of mind to execute a skill effectively. We all know that relaxation is a psychological strategy used by sports performers to help manage or reduce stress-related emotions like anxiety and anger and physical symptoms of physical tension and increased heart rate during high pressurized situations. Relaxation is a vital part of all sports persons of every level and stages of their sports career during and after training, of every day, before the competition, during the competition and after the competition.

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THE EFFECT OF 12 WEEKS OF YOGIC PRACTISES AND A YOGIC DIET ON SELECTED PHYSIOLOGICAL PARAMETERS IN OBESE FEMALE ADULTS

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Abstract

Background: *Obesity is a major public health issue all over the world. Several trials have shown that yoga can reduce risk factors for cardiovascular disease, obesity, and psychological stress. The purpose of this research was to determine how benefits of yoga (Asanas, Pranayama, and Surya Namaskar) and yogic diet influenced selected physiological parameters in obese women.*

Objective: *The current study aims to examine the improvement in selected physiological parameters among obese adults after twelve weeks of yogic practises and diet.*

Methods: *A total of sixty obese female adults (Mean SD; age: Mean ± SD; age: 18.92 ± 1.54 yrs.; height: 172.4 ± 5.4 cm.; weight: 84.4 ± 6.3 kg) were randomly assigned to one of three equal (n = 20) groups: Yogic Practices (YPG), Yogic Diet (YDG), or a control group. For 12 weeks, the YPG & YDG training protocol was followed three days per week. At baseline and 12 weeks, all of the selected physiological parameters were evaluated. The control group does not engage in any activities.*

Results: *The YPG and YDG groups had significantly improved vital capacity (VC), mean arterial blood pressure (MABP), resting pulse rate (RPR), respiratory rate (RR), and breath holding time (BHT) than the control group ($p < 0.05$). Significant in the YPG and YDG groups when compared to the control group ($p < 0.05$).*

Conclusion: *Our new findings indicate that yogic practises and a yogic diet were found to be beneficial in the management of physiological symptoms in obese adults. These findings indicate that continuous yoga practise and a yogic diet can be used as an alternative therapy for obesity prevention and health promotion in obese adolescents, similar to what has been seen in other clinical studies.*

Keywords: *Obesity; Yogic Practices; Yogic Diet; Female* Adults; Physiological

Introduction:

Obesity is becoming more prevalent throughout the world, particularly in developing and newly industrialising countries. Women have a higher point prevalence (15%) than men (11%), resulting in a relative risk of 1.4 [1]. Obesity has been identified as an important risk factor for heart disease, high blood pressure, diabetes, stroke, cancers, and metabolic disorders, particularly in the abdominal, gluteal-femoral, pelvic, buttocks, and thighs areas, and is not limited to overweight people [2, 3]. Because, in addition to poor eating habits, a sedentary lifestyle is the leading cause of obesity [4], Medical guidelines recommend regular physical activity as the most important therapeutic option in nonmorbid obesity [5]. The fact that a significant proportion of obese people do not follow such recommendations, on the other hand, provides a valid reason to investigate alternative forms of physical activity for weight loss [6]. Scientific investigation established yoga is one such alternative form of physical activity that is increasingly being used to promote health [7, 8]. Yoga is primarily composed of body postures (asanas), breathing exercises (pranayama), and meditation in North America and Europe (dhyana). “Yoga is also becoming more popular as a therapeutic tool”. Approximately 80% of yoga practitioners in the United States (more than 16 million people) reported that they began the practise with the explicit goal of improving their health [9, 10]. One of the most important reasons for taking up yoga in this context was the motivation to lose weight [11]. Although preliminary evidence from surveys [12,13] and clinical studies [14] supports the effectiveness of yoga for weight control and improved body composition, the effects of yoga

practises and yogic diet on female obesity adults have not been investigated in recent years. This study examined the effect of 12 weeks of yogic practises and a yogic diet on selected physiological parameters in obese female adults.

Material and Methods

Participants Recruitment: Sixty obese female adults were recruited from the SRM Institute of Science and Techlogy, Kattankulathur, Tamilnadu, India. The participants came from various family backgrounds and took part in similar academic activities. The participants were selected at random. Total sixty female adults with obese (Mean ± SD; age: 18.92 ± 1.54 yrs.; height: 172.4 ± 5.4 cm.; weight: 84.4 ± 6.3 kg) were randomly allocated into three equal (n = 20) groups: Yogic Practices (YPG), Yogic Diet (YDG) or a control group. The flow diagram is displayed in **Figure 1.**

Obesity: The following formula was used to calculate the obesity based on their BMI: Metric: BMI = kilograms/meters^2. Males with a BMI of 30kg/m^2 or higher are considered obese for the purposes of this study.

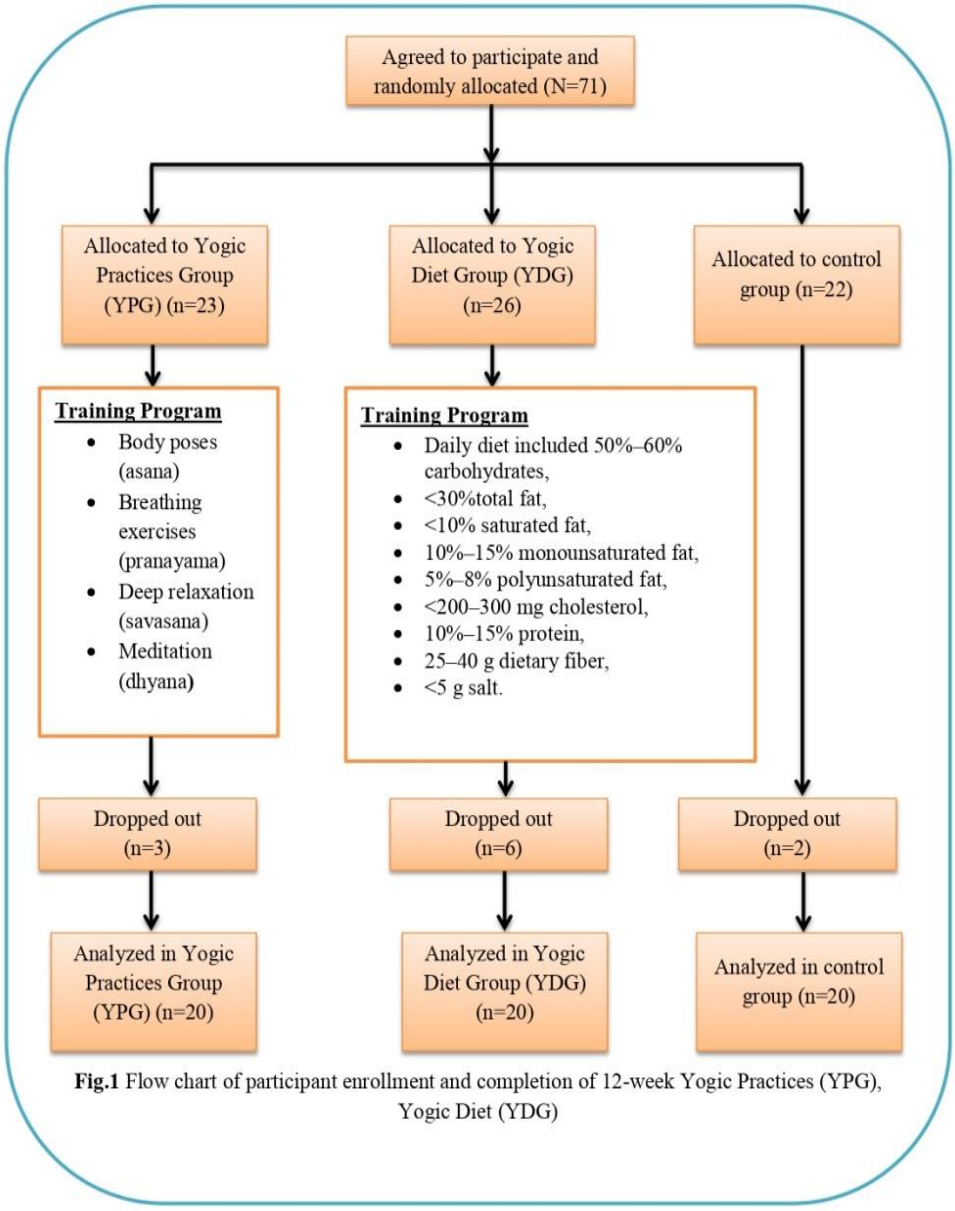


Fig.1 Flow chart of participant enrollment and completion of 12-week Yogic Practices (YPG), Yogic Diet (YDG)

Study Design: The participants were divided into three groups at random, with each group consisting of twenty participants subjects. All participants were randomly divided into three groups with 20 participants in each group: Yogic Practices (YPG), Yogic Diet (YDG) or a control group. YPG and YDG group were intervened with respective exercises for twelve weeks whereas control group does not perform any exercise and diet intervention. Selected physiological parameters were compared at baseline and at endpoint in all groups. The requirements of the experiment procedures, testing, and exercise schedule were explained to the participants prior to the administration of the study in order to obtain full cooperation of the effort required on their part. The subjects completed training three days a week, except on Saturdays and Sundays, from 6.30 to 7.30 a.m. Diet intervention followed everyday. The yoga asanas were introduced gradually. A procedure ranging from simple to complex was used.

Physiological Parameters Measures: The selected physiological parameters of people with obese adult individuals who participated in this study was measured using measuring instruments available in the department of yoga, kattankulathur campus, tamilnadu, India. As for the measurement criteria: "Spirometer was used to assess vital capacity [14]. The resting heart rate was measured using a National Company, Japan, Digital Heart Rate Measuring Machine, Model No. EW 243. [15]. Mean arterial blood pressure was calculated using Systolic and Diastolic blood pressure, as proposed by Mathews and Fox [16]. Breath Holding Time was determined using a nose clip and a stop watch, as recommended by Mathew [17]. Saroja recommended using a bio-monitor to measure respiratory rate"[18].

Training Intervention: The yogic practices programs, comprising 60-min sessions weekly for 12 weeks, were conducted at the Yoga Centre of SRM IST (Fig. 1). Each session included 10-min warm-up, cool-down, and stretching periods. Under the guidance and supervision of yoga experts and faculty, subjects performed yogic practices. The yogic practiced were **Jal Neti** (nasal cleansing) once in a week; this is a process of cleaning the nasal passage with salt water and is essential in allowing free breathing. **Shavashana** (body awareness, 10-15 min) laying flat on back in the supine position. **Bhujangasana** (5 times in 3 min) lying flat on the stomach with the legs straight and the soles of the feet uppermost. **Shashankasana** (5 times in 3 min) sitting in **Vajrasana** then bending forward and placing the hand and foreheads rest on the floor in front of the knees. **Ush trasana** (5 times in 3 min) kneel and adjust the knees and feet so that they are separated by the same width as the hips. **Hasthutthanasana** (5 times in 3 min) inhale deeply and slowly raising the arms above the head bending the head slightly backward and look up at the hands. **Naukasana** (5 times in 3 min) spine straight sit and straight both legs up both hand also up and catch on both legs thumb fingers. **Trikonasana** (5 times in 3 min) stand and both leg apart and straight, bend right side, right hand to touch right feet left hand straight upward. **Parvatasana** (5 times in 3 min) both hands up and stand. bent forward, palms touch the floor. Legs together. **Vrikshasana** (5 times in 3 min) the spine straight and stand right leg feet put on the left leg thigh strongly and stand one leg both hands up and namaskar mudra. **Bhastrika Pranayama** (5 times in 3 min) sit in any meditation pose, both hands up. Force fully exhale with hands down and normal inhale with hands up. **Shiddhasana** (changing the feet, 5 min) sitting with the legs straight in front of the body. Bending the right leg and placing the sole of the foot flat against the inner left thigh. **Nadi Shodhan Pranayama** (5 times in 6-7 min) with om chanting (3 times in 2 min) was also done. **OM Meditation** (10 min) Sit in any meditative pose. Eyes should close. And mentally chant A-U-M with deep exhalation & deep inhalation. Total duration of these practices was 45-60 min/day, five days in week till 12 weeks in the Department of yoga of the institute of SRMIST. During the 12-week period, all participants were asked not to change their dietary habits; yogic diet intervention group according to the nutritionist suggesting the diet chart only followed the participants **Table 1.** Moreover, the CG was asked to not change their exercise habits and maintain normal activity.

Statistical Analysis: Data were analysed using the GraphPad Prism. Mean was used as measure of central tendency and standard deviation was used to define variability. Paired t-test was used to compare means by taking $p<0.05$ as significant.

Table 1 showed on the Yogic Diet Intervention for 12 weeks

Day	First 1 – 4 weeks Yogic Diet Plan			
	Early Morning	**Breakfast**	**Lunch**	**Dinner**
M	Worm water +Lemon	Oatmeal +Milk	Rice, Vegetables, Salad	Pumpkin soup
T	Worm water +Lemon+Honey	Salad with sweet potato	Rice/Chapati, dal, vegetables, sweet corn boil	Papaya salad
W	Cumin water	Oatmeal +vegetables	Brown Rice, vegetables soup with spinach	Fruits and carrot salad
T	Tulusi Tea	Idly/Dhosa, chatni	Rice , dal, any ind of gravy with small quantity of oil and masala	Steamed veg, Tomato soup
F	Lemon Water	Oat meal , Tendon Water	Rice / Chapati, dal, vegetables, soyabin	Carrot , Raw papaya soup
S	Herbal Tea	Pongal, Khichiri	Vegetables soup, corn boil	Chapati, veg soup, Apple
S	Cumin water	Bread + Butter+Banana	Rice/ Chapati, dal, soyabin gravy, mixed soup	Green juice, Pure sattvic Salad
Day	**First 5 – 8 weeks Yogic Diet Plan**			
	Early Morning	**Breakfast**	**Lunch**	**Dinner**
M	Cucumber detox water	Oats meal	Rice / Chapati, Simmed milk paneer	Steamed rice, Pala leaves, mixed vegetables salad
T	Cumin water	Cup of fruits	Rice , dal, green leaves, steamed vegetables	Roti, Green gram whole dal, steamed veg
W	Herbal Tea	Pongal, Khichiri Tendon Water	Bajra roti, Sweet potato, Fruits	Rice, Low fat panner curry with olive oil
T	Worm water +Lemon+Honey	Vegetables soup, corn boil	Rice , all ind of vegetables, lemon fruites	Carrot salad,
F	Tulusi Tea	Idly/Dhosa, chatni frut and nuts	Oats meal, veg soup, fruits	Cup of fruits, Toor dal (oil free)
S	Cucumber detox water	Cup of fruits	Brown Rice, vegetables soup with spinach	Cucumber salad
S	Worm water +Lemon	Oats meal tomato chatni	Vegetables soup, corn boil	Sweet potato boil

Day	First 9 – 12 weeks Yogic Diet Plan			
	Early Morning	**Breakfast**	**Lunch**	**Dinner**
M	Green tea	Sprouts, oatsmeal	Rice, cabbage, carrot sambar(minimum oil)	Veg soup+ massroom
T	Cumin water	Idely/ Dhosa, Mint chutni	Bajra roti, sweet potato, salad	Beetroot and tulsi soup (olive oil)
W	Tendon Water	Cup of fruits, Poha, Blac tea	Brown rice, Masroom gravy, Cucumber salad	Cup of fruits
T	Worm water +Lemon+Honey	Oat meal , Tendon Water	Rice, roti, cabbage and carrot samber, fruits	Pumpin soup
F	Herbal Tea	Oatmeal +Milk	Cup of fruits, toor dal	Steamed veg, Tomato soup
S	Normal water	Salad with sweet potato	Rice/ Chapati, dal, soyabin gravy, mixed soup	Raw papaya soup
S	Tendon Water	Bread + Butter+Banana	Corn soup, fruits salad	Pure sative salad

Results

Significant improvement it was observed in terms of vital capacity, mean arterial blood pressure, resting pulse rate, respiratory rate, and breath holding time in participants performing Yogic Practices (YPG), Yogic Diet (YDG) whereas no significant improvement was observed in control group (**Table 2**).

Physiological Parameters	**Yogic Practices (YPG)**			**Yogic Diet (YDG)**			**Control Group (CG)**		
	Base line	**End point**	**P Value**	**Base line**	**End point**	**P Value**	**Base line**	**End point**	**P Value**
Vital Capacity(VC)	3165 ± 338.8	3725 ± 389.2	0.0001***	3158 ± 255.1	4035 ± 392.4	0.0001***	3255 ± 502.3	3330 ± 478.0	0.0271*
Mean Arterial Blood Pressure(MABP)	97.93 ± 2.612	96.76 ± 2.363	0.0001***	98.18 ± 2.667	97.88 ± 2.443	0.0001***	97.05 ± 5.127	98.46 ± 4.572	0.3565
Resting Pulse Rate (RPR)	73.65 ± 4.082	69.95 ± 3.818	0.0001***	73.30 ± 3.935	70.80 ± 4.262	0.0001***	74.95 ± 3.790	74.90 ± 3.508	0.8252
Respiratory Rate (RR)	33.15 ± 3.265	27.25 ± 3.385	0.0001***	32.25 ± 4.327	28.80 ± 3.458	0.0001***	34.60 ± 4.978	34.50 ± 3.900	0.8374
Breath Holding Time (BHT)	42.55 ± 8.407	54.50 ± 8.912	0.0001***	41.70 ± 9.493	51.35 ± 8.768	0.0001***	39.50 ± 4.796	39.85 ± 5.451	0.5384

The analysis of present in the above table 2 showed that the baseline and endpoint mean of vital capacity of YPG-I Group, YDG-II Group and CG were 3165, 3725, 3158, 4035, 3255 and 3330 individually. The obtained P value $p<0.05$ as significant YPG-I Group, YDG-II Group $p<0.0001$ there was a null hypothesis rejected alternate hypothesis was accepted. Mean Arterial Blood Pressure 97.93, 96.76, 98.18, 97.88, 97.05 and 98.46 individually. The obtained P value $p<0.05$ as significant YPG-I Group, YDG-II Group $p<0.0001$ there was a null hypothesis rejected alternate hypothesis was accepted. Resting Pulse Rate 73.65, 69.95, 73.30,

70.80, 74.95 and 74.90 individually. The obtained P value $p<0.05$ as significant YPG-I Group, YDG-II Group $p<0.0001$ there was a null hypothesis rejected alternate hypothesis was accepted. Respiratory Rate 33.15, 27.25, 32.25, 28.80, 34.60 and 34.50 individually. The obtained P value $p<0.05$ as significant YPG-I Group, YDG-II Group $p<0.0001$ there was a null hypothesis rejected alternate hypothesis was accepted. Breath Holding Time 42.55, 54.50, 41.70, 51.35, 39.50 and 39.85 individually. The obtained P value $p<0.05$ as significant YPG-I Group, YDG-II Group $p<0.0001$ there was a null hypothesis rejected alternate hypothesis was accepted.

Discussion

Women have a higher point prevalence (15%) than men (11%), yielding a relative risk of 1.4 [1]. In the study, 12 weeks of yogic practises and a yogic diet on selected physiological parameters in obese female adults resulted in significant improvements in vital capacity, mean arterial blood pressure, resting pulse rate, respiratory rate, and breath holding time, and our findings were supported by other researchers [15-17]. A six-week programme of yoga and meditation was undertaken in Connecticut, USA, to observe the brachial artery reactivity, and significant reductions in blood pressure, heart rate, and BMI were observed in the total cohort with yoga [18]. Yoga practice has also been shown to significantly improve blood pressure in people with hypertension [19] and cardiovascular disease. Yoga practices have been found to be beneficial in preventing and managing disorders of the body systems [20]. Vital capacity and breath holding time improved significantly after yogic practises and a yogic diet intervention in the current study. The feasibility of implementing a yoga programme among obese adults was investigated in this study. Yoga could have served as a precautionary measure. Another study, also conducted in Toronto, Canada, clearly shows that physically active people are less likely to develop obesity than sedentary people. We discovered that yogic practises and yogic diet intervention significantly improved the level of selected physiological parameters. Because it is a piolet study, it has several limitations that indicate a gap in which future research could be conducted. One limitation of the current study is that we only recruit female participants. Obesity is also common in men, so future studies could include male participants. Another limitation of the study is that it focuses on a specific age group; future studies could include all age groups. This will aid in validating the current study's findings for all age groups. Another limitation of the current study is the small sample size. Because the current study's sample size is so small, the findings cannot be generalised to the general population. Furthermore, because the current study is a single-centric study, a multicentric study should be conducted in the future to determine the role of yogic practices and yogic diet in the management of obesity in adults.

Conclusion

Overall the physiological parameters were significantly improved and associated with the obese adults engaging YPG & YDG but the control group there were not significant. Present study revealed significant improvement in adult obese in terms of vital capacity (VC), mean arterial blood pressure (MABP), resting pulse rate (RPR), respiratory rate (RR), and breath holding time (BHT) domains after practising the YPG & YDG. Therefore, yogic practices, yogic diet included in this study are helpful for the female obese adults.

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COMPARATIVE STUDY OF STRENGTH AND SPEED COMPONENTS AMONG BASKETBALL, HANDBALL AND NETBALL PLAYERS

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Abstract

Physical fitness is the ability to carry out daily tasks with vigour and alertness. The purpose of this investigation was to find a comparative study on selected strength and Speed of variables between male basketball Handball and Netball players. A group of 36 male players represented Andhra Pradesh in Nationals selected randomly for this study. Basketball handball and Netball male players were divided into three groups i.e., Basketball (N=12) and handball (N=12) Netball (N=12 Players. Participant's age ranges between 14-17 years. These studies included relevant information on Strength, and Speed variables. The data collected for the selected physical fitness test and were statistically analysed to find out the purpose of comparison whether there was any significant difference in the various selected components of physical fitness among the Handball, Basketball and Netball. The mean was calculated from the obtained data. By computing the F ratio, the difference in mean of the Handball, Basketball and Netball players were tested for statistical significance. The level of significance was set at 0.05 levels. Each dependent variable and the total scores were compared separately and each "f" value was calculated. There was no difference in strength among the handball, basketball Netball players. In Speed the Basketball players obtained the highest value when compared to handball and Netball players.

1.1Introduction

Sports play a major role in the lives of almost every individual player coaches, officials , and even spectators , interest in sports is the results of several factors including more time for leisure because of fewer working hours per week and more vacation period. There is also increased emphasis on physical fitness awareness and health consciousness which demonstrated through greater participation in playing like basketball, handball, skipping and aerobics and going to gym as a life time sports. Through sport participation children and adults; not only improve and maintain fitness but also develop overall functional capacity of organs, skill groups and personal satisfaction and enjoyment, everyone must have full opportunity in accordance with his national tradition of sports for practicing physical education and sports.

1.2 Statement of the Problem:

Comparative study of strength and speed Components among Basketball, Handball and Netball Players

1.3 Delimitation

This study is delimited to Basketball, Handball and Netball Players of age of 14 to 16 years

Daily activities and food habits of the subject were not taken into consideration.

The subjects who have participated in the national level were only taken consideration.

1.4 Limitation:

The subject for this study were the students of Basketball, handball and Netball Players in Andhra Pradesh

2.1 Methodology

This study has been designed to comparative study on selected strength and Speed of variables between male basketball handball and Netball players. A group of 36 male players represented Andhra Pradesh in Nationals selected randomly for this study. Basketball handball and Netball male players were divided into three groups i.e. Basketball (N=12) and handball

(N=12) Netball (N=12 Players. Participant's age ranges between 14-17 years. These studies included relevant information on Strength, and endurance variables

2.2 Selection of variables

The study was taken to pinpoint Physical Fitness. Therefore, based on literary evidence and scholar's own understanding the following variables were selected for the purpose of this study: Physical Fitness Variables were selected for this study: Speed and strength

2.3 Research Design

Selection of Variables and Tests

S No		Variables	Test
1	Physical Fitness	Speed	50mts
2	Physical Fitness	Strength	Standing Broad Jump

2.4 Statistical Technique

Statistical Analysis procedures were followed to compare the Strength and Speed of basketball handball and Netball players. In each group consisting 12 subject's calculations were done by raw score method. For this testing of basketball, handball and Netball players was compared. Through the table "F" ratio is calculated.

3. Results and Discussion

Since the purpose of the study was to analyse the selected physical fitness Variables of players of Basketball, Handball and Netball were explained with the help of different tables

Table 1: Statistical difference on Strength between Basketball, Handball and Netball players

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.337	2	0.169	2.509	0.096	3.285
Within Groups	2.221	33	0.067			
Total	2.559	35				

Not Significant at 0.05 level of confidence Table value (0.05) =3.28

Table I indicate that there were no significant differences in strength among basketball, handball and Netball players. The „F" value required to be significant at 0.05 level was 3.28. The calculated value 2.50 was less than the required value 3.28 to be significant at 0.05 level. Therefore, the null hypothesis was accepted.

Table 2: Statistical difference on Speed between Basketball, Handball and Netball players

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	5.875	2	2.937	6.553	0.004	3.285
Within Groups	14.799	33	0.448			
Total	20.667	35				

Significant at 0.05 level of confidence Table value (0.05) =3.28

Table 2 indicate that there were significant differences in Speed among basketball, handball and Netball players. The "F" value required to be significant at 0.05 level was 3.28. The calculated value 6.55 was greater than the required value 3.28 to be significant at 0.05 level. Therefore, the null hypothesis was accepted.

Table 3: Ordered adjusted mean for basketball, handball and Netball players for Significance using.

	Strength		Speed	
	Mean	Std	Mean	Std
Basketball	1.95	0.3	6.88	0.5
Handball	2.15	0.25	7.19	0.67
Netball	1.93	0.21	7.85	0.76
P Value	0.096		0.004	

*Significant at 0.05 level

Basketball players were better in Speed than

Discussion on Findings

The game Basketball needs strength and speed. Each skill required scientific exercise and training to achieve the above purpose. There were no significant differences in the selected physical fitness component strength, handball, basketball, and Netball players at 0.05 level of significance. This shows that the physical fitness components of basketball, handball and Netball players were same. The data collected on Speed among basketball, handball and Netball show that there was a significant difference among the basketball, handball, and Netball players; in the Speed at 0.05 level of significant.

Conclusion

The following conclusions were drawn based on the limitations and delimitation of study.

1. There were no difference in strength among the Handball, basketball, and Netball players.
2. In Speed the basketball players obtained the highest value when compared to Netball and handball players.
3. The basketball players obtained a higher score in speed than the handball players and Netball Players .

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IMPACT OF ASANASAND PRANAYAMA ON SELECTED PSYCHOLOGICAL VARIABLEAMONG STRESSED COLLEGE SPORTS WOMEN

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Abstract

The purpose of the present study was to find out Impact of Asanas and Pranayama on selected Psychological variable among stressed college sports women. To facilitate the study, 30 subjects were selected at random from Annamalai University only. Their age were ranged between 18 – 22 years old. They two groups as namely Asanasand Pranayama group and Control group. All the subjects were tested prior were tested prior to and immediately after the 12 weeks treatment in progression to Psychological variable such as Stress. The initial and final scores in selected Psychological variable were put in to statistical treatment using Analysis of Covariance (ANCOVA) to find out the significant mean differences. Systematic 12 weeks of Asanas and Pranayama group and Control group. Asanas and Pranayama group reduced the Stress than the control group.

Keywords: *Asanas, Pranayama and Stress.*

INTRODUCTION

Yoga

Yoga, a holistic mind-body practice that includes cognitive (meditation) and somatic (physical postures and breathing exercises) elements, has been described as an "attractive therapeutic option" for stressed person, especially for people who reject conventional psychological treatments. Health is a great treasure. It is the highest blessing. It is the source of all happiness. We all know the popular saying "Health is Wealth". It is a state of complete physical, mental and social well-being. "When the five senses, along with the mind, remain still and the intellect is not active, that is known as the highest state. They consider yoga to be firm restraint of the senses. Then one becomes un-distracted for yoga is the arising and the passing away. Yoga is the suppression of the activities of the mind.

Yoga is an ancient physical and spiritual discipline and branch of philosophy that originated in India reportedly more than 5,000 years ago. The word yoga comes from the Sanskrit word *yuj*, which means to yoke, join, or unite. The earliest written record of yoga, and one of the oldest texts in existence, is generally believed to have been written by Patanjali, an Indian yogic sage who lived somewhere between 2,000 and 2,500 years ago. Patanjali is credited with writing the Yoga Sutras (*sutra* means "thread" in Sanskrit), which are the principles, philosophy, and practices of yoga that are still followed today. Although many schools of yoga have evolved over the centuries, they all follow these same fundamental principles. Buddhism and other Eastern spiritual traditions use many of the yoga techniques or derivations of those techniques.

Yoga helps in proper circulation of blood, heat, air, energy and bio-magnetism, ensuring maintenance of health and prevention of disease in a gentle way. It develops the immunity system and thus acts as a preventive and as a curative to various diseases. Yoga can reduce physical illness, biochemical change, and psychological imbalance. Yoga comes in many different forms and can be easily adapted to any level of fitness or ability. During the typical yoga session, we will flow through a series of different stretches, balances, flexes and calm movements, focusing on drawing deep, healing breaths throughout the process.

Stress – World Health Organization (WHO)

Stress can be defined as a state of worry or mental tension caused by a difficult situation. Stress is a natural human response that prompts us to address challenges and threats in our lives. Everyone experiences stress to some degree. The way we respond to stress, however, makes a big difference to our overall well-being.

Stress effects on the body

Stress affects all systems of the body including the musculoskeletal, respiratory, cardiovascular, endocrine, gastrointestinal, nervous, and reproductive systems. Our bodies are well equipped to handle stress in small doses, but when that stress becomes long-term or chronic, it can have serious effects on your body.

Musculoskeletal system

When the body is stressed, muscles tense up. Muscle tension is almost a reflex reaction to stress—the body's way of guarding against injury and pain. With sudden onset stress, the muscles tense up all at once, and then release their tension when the stress passes. Chronic stress causes the muscles in the body to be in a more or less constant state of guardedness. When muscles are taut and tense for long periods of time, this may trigger other reactions of the body and even promote stress-related disorders.

Respiratory system

The respiratory system supplies oxygen to cells and removes carbon dioxide waste from the body. Air comes in through the nose and goes through the larynx in the throat, down through the trachea, and into the lungs through the bronchi. The bronchioles then transfer oxygen to red blood cells for circulation. Stress and strong emotions can present with respiratory symptoms, such as shortness of breath and rapid breathing, as the airway between the nose and the lungs constricts. For people without respiratory disease, this is generally not a problem as the body can manage the additional work to breathe comfortably, but psychological stressors can exacerbate breathing problems for people with pre-existing respiratory diseases such as asthma and chronic obstructive pulmonary disease (COPD; includes emphysema and chronic bronchitis). The Power of Music on Memory and Learning

Cardiovascular system

The heart and blood vessels comprise the two elements of the cardiovascular system that work together in providing nourishment and oxygen to the organs of the body. The activity of these two elements is also coordinated in the body's response to stress. Acute stress—stress that is momentary or short-term such as meeting deadlines, being stuck in traffic or suddenly slamming on the brakes to avoid an accident—causes an increase in heart rate and stronger contractions of the heart muscle, with the stress hormones—adrenaline, noradrenaline, and cortisol—acting as messengers for these effects. In addition, the blood vessels that direct blood to the large muscles and the heart dilate, thereby increasing the amount of blood pumped to these parts of the body and elevating blood pressure. This is also known as the fight or flight response. Once the acute stress episode has passed, the body returns to its normal state.

Chronic stress, or a constant stress experienced over a prolonged period of time, can contribute to long-term problems for heart and blood vessels. The consistent and ongoing increase in heart rate, and the elevated levels of stress hormones and of blood pressure, can take a toll on the body. This long-term ongoing stress can increase the risk for hypertension, heart attack, or stroke. Repeated acute stress and persistent chronic stress may also contribute to inflammation in the circulatory system, particularly in the coronary arteries, and this is one pathway that is thought to tie stress to heart attack. It also appears that how a person responds to stress can affect cholesterol levels.

The risk for heart disease associated with stress appears to differ for women, depending on whether the woman is premenopausal or postmenopausal. Levels of estrogen in premenopausal women appears to help blood vessels respond better during stress, thereby helping their bodies to better handle stress and protecting them against heart disease. Postmenopausal women lose this level of protection due to loss of estrogen, therefore putting them at greater risk for the effects of stress on heart disease.

Endocrine system

When someone perceives a situation to be challenging, threatening, or uncontrollable, the brain initiates a cascade of events involving the hypothalamic-pituitary-adrenal (HPA) axis, which is the primary driver of the endocrine stress response. This ultimately results in an increase in the production of steroid hormones called glucocorticoids, which include cortisol, often referred to as the "stress hormone".

Nervous system

The nervous system has several divisions: the central division involving the brain and spinal cord and the peripheral division consisting of the autonomic and somatic nervous systems. The autonomic nervous system has a direct role in physical response to stress and is divided into the sympathetic nervous system (SNS), and the parasympathetic nervous system (PNS). When the body is stressed, the SNS contributes to what is known as the "fight or flight" response. The body shifts its energy resources toward fighting off a life threat, or fleeing from an enemy. The SNS signals the adrenal glands to release hormones called adrenalin (epinephrine) and cortisol. These hormones, together with direct actions of autonomic nerves, cause the heart to beat faster, respiration rate to increase, blood vessels in the arms and legs to dilate, digestive process to change and glucose levels (sugar energy) in the bloodstream to increase to deal with the emergency.

The SNS response is fairly sudden in order to prepare the body to respond to an emergency situation or acute stress—short term stressors. Once the crisis is over, the body usually returns to the pre-emergency, unstressed state. This recovery is facilitated by the PNS, which generally has opposing effects to the SNS. But PNS over-activity can also contribute to stress reactions, for example, by promoting bronchoconstriction (e.g., in asthma) or exaggerated vasodilation and compromised blood circulation. Both the SNS and the PNS have powerful interactions with the immune system, which can also modulate stress reactions. The central nervous system is particularly important in triggering stress responses, as it regulates the autonomic nervous system and plays a central role in interpreting contexts as potentially threatening.

Chronic stress, experiencing stressors over a prolonged period of time, can result in a long-term drain on the body. As the autonomic nervous system continues to trigger physical reactions, it causes a wear-and-tear on the body. It's not so much what chronic stress does to the nervous system, but what continuous activation of the nervous system does to other bodily systems that become problematic.

Stress and health

Glucocorticoids, including cortisol, are important for regulating the immune system and reducing inflammation. While this is valuable during stressful or threatening situations where injury might result in increased immune system activation, chronic stress can result in impaired communication between the immune system and the HPA axis. This impaired communication has been linked to the future development of numerous physical and mental health conditions, including chronic fatigue, metabolic disorders (e.g., diabetes, obesity), depression, and immune disorders. Stress is a general term applied to various mental and psychological pressures experienced by people feel in their lives (Cohen, S., Kessler, R. C., & Gordon, L. U., 1997).

Signs of Stress

Stress can be short-term or long-term. Both can lead to a variety of symptoms, but chronic stress can take a serious toll on the body over time and have long-lasting health effects.

Some common signs of stress

Changes in mood	Clammy or sweaty palms
Decreased sex drive	Diarrhea
Difficulty sleeping	Digestive problems

Dizziness Feeling anxious
Frequent sickness Grinding teeth
Headaches Low energy
Muscle tension, especially in the neck and shoulders
Physical aches and pains Racing heartbeat
Trembling

If we think stress might be affecting us, there are a few things we can watch for:

- *Psychological signs* such as difficulty concentrating, worrying, anxiety, and trouble remembering
- *Emotional signs* such as being angry, irritated, moody, or frustrated
- *Physical signs* such as high blood pressure, changes in weight, frequent colds or infections, and changes in the menstrual cycle and libido
- *Behavioral signs* such as poor self-care, not having time for the things you enjoy, or relying on drugs and alcohol to cope

Need for the study

Yoga is an ancient Hindu discipline in which pranayama is explicitly concerned with the control of breathing. Earlier studies have indicated that a pranayama type of breathing results in reduction of symptoms reduced beta-adrenergic utilization and reduced airway hyperactivity.

Hypotheses

The following hypotheses were formed in the study,

1. It was hypothesized that there would be a positive significant changes on selected psychological variable among stressed college sports women due to the asana and pranayama practices group at the end of twelve weeks training.
2. It was hypothesized that the Asana and Pranayama practices group better than the control group on selected psychological variable among stressed college sports women.

Methodology

The purpose of the study was to find out the Impacts of Asanas and Pranayama group on selected Psychological variable among stressed college sportswomen. To facilitate the study, 30 subjects were selected at random from Annamalai University. Their age were ranged between 18-22 years old. They were assigned into two groups as Asanas and Pranayama group and Control group. All the subjects were tested prior to and immediately after the 12 weeks treatment in progression to Psychological variable such as stress. The initial and final scores in selected stress variable were put in-to statistical treatment using Analysis of Covariance (ANCOVA) to find out the significant mean differences. Tools used personal stress inventory constructed by Marlene Shiple (2000).

Table - I

Asanas and Pranayama Training Schedule

S.NO	Name of the practices	Duration in Weeks		
		1 to 4 (40 min)	**5 to 8 (50 min)**	**9 to 12 (60 min)**
1	Loosening Exercise	10 min	10 min	10 min
2	Asanas	20 min	25 min	30 min
3	Pranayama	5 min	5 min	10 min
4	Savasana	5 min	10 min	10 min

RESULTS AND DISCUSSION

Table-II

CALCULATIONOF ANCOVA ON STRESS

	Experimental Group	Control Group	Sourceof Variance	Sum of Squares	df	Means Squares	F-ratio
Pre-test Mean	20.89	20.98	**BG**	1.027	1	1.027	0.070
S.D.	3.83	3.85	**WG**	412.89	28	14.746	
Post-test Mean	**21.02**	**18.97**	**BG**	661.45	1	661.45	46.71*
S.D.	**3.45**	**4.05**	**WG**	396.53	28	14.16	
Adjusted Post-test Mean	**21.00**	**18.93**	**BG**	33.80	1	33.80	270.63*
			WG	3.37	27	0.13	

B-Between Group Means **- Significant*

W-Within Group Means (Table Value for 0.05 Level for df 1 and 28 = 4.196) df – Degrees of Freedom (Table Value for 0.05 Level for df 1and 27=4.210)

Table – II shows that the pre-test means on stress for experimental and control group were 2.89 ± 3.83 and 20.98 ± 3.85 and 21.00 respectively. The obtained 'F' ratio value of 0.070 for pre-test score of experimental and control group on stress was less than the required table value of 4.196 for significance with df 1 and 28 at .05 level of confidence.

The post-test mean values of stress experimental and control groups were 21.02 and 18.97 espectively. The obtained 'F' ratio value of 46.71 for post-test scores of experimental and control groups was higher than the required table value of 4.196 for significance with df 1 and 28 at .05 level of confidence. The adjusted post – test mean value of stress for experimental and control groups were 21.00 and 18.93 respectively. The obtained 'F' ratio value of 270.63 for adjusted post-test scores of stress for experimental and control group was higher than the required table value of 4.210 for significance with df1 and 27 at .05 level of confidence.

The above statistical analysis indicates that there was a significant reduce in stress among stressed college sports women who have underwent Asanas and Pranayama.

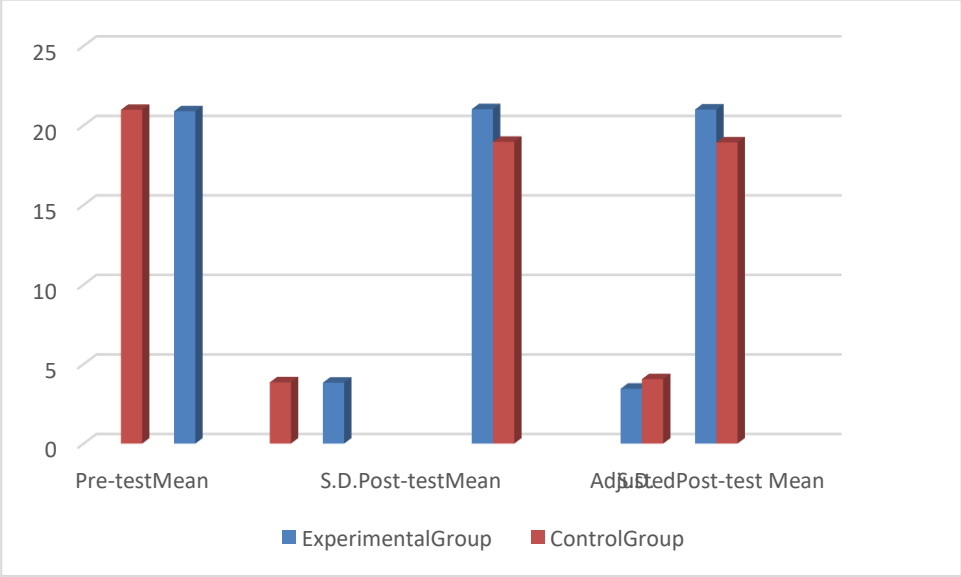


FIGURE1: Bar Diagram show the mean values of experimental and control group

Findings and Summary

The aim of the study was to examine the effect of Asanas and pranayama to reduce stress among stressed college sports women. To achieve this purpose of the study, thirty students were randomly selected as subjects. They were divided into two equal groups each group consists of fifteen subjects in which group - I underwent asanas and pranayama training and group - II acted as control who did not participate in any special training. The training period was limited to twelve weeks and five days per week. The subjects were tested on selected criterion variables such as age, gender and stress level scoring. The selected criterion variables such as stress was assessed by administering Personal Stress Inventory questioner and selected subject who scored above 15. The analysis of covariance (ANCOVA) was used to find out the significant difference if any, among the experimental groups and control group on selected criterion variables. Since no attempt was made to equate the group in any manner and therefore to eliminate the variation in pre-test means. The 'F' ratios of the adjusted post-test means were found to be significant at level of confidence. All the data were analyzed using (SPSS) statistical package in the computer.

Thomas and Nelson (1996) computed magnitudes of improvements for all the groups on selected criterion variables separately suggested. In all cases, 0.05 was fixed as level of confidence.

The statistical analysis of the pre and post stress scores of students among the experimental and control group shows that there is a significant difference in stress level among the experimental group subject than the control group.

RECOMMENTATION

- ❖ As there is a significant difference in reliving of stress among young college going students after the continues practice of asanas and pranayama on daily basis it is recommended to implement the basic asanas and pranayama in the curriculum of all disciplinary of education and making yoga practice as a hour in time table.
- ❖ It is also recommended to perform the research in a larger population to generalize the results.

Conclusion

The statistical finding of this study states that asanas and pranayama have a positive effect of stress i.e the stress which is encountered among young college going students is reduced after undergoing the practice of asanas and pranayama on daily basis.

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EFFECTS OF ISOLATED AND COMBINED STRENGTH AND YOGIC PROGRAM ON CORPOREAL, PHYSIOLOGICAL AND SKILL PERFORMANCE VARIABLES AMONG COLLEGE CRICKET PLAYERS

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Abstract

Background & Study Aim: *Cricket performance is known to be influenced by skills to overall development. Present, training sessions typically involve fielding-specific drills and conditioning exercises. Scientific evidence for inclusion of a comprehensive yoga involvement in daily training and exercise sessions remains unknown. The present explored the effects of isolated and combined strength and yogic program on corporeal, physiological and skill performance in cricket players.*

Material & Methods: *The study were conducted among 60 male college cricket player aged 18 to 25 years. The fitness and skill performance was evaluated to physical fitness variables as speed, physiological variables VO_2 Max Skill Performance Skills cricket batting before the training and after 8 weeks of training. The subjects were randomly assigned into four groups, namely strength training group, yogic training group, combined strength and yogic training and control group. Statistically significant improvements in baseline scores in speed, physiological variables VO_2 Max Skill Performance Skills cricket batting were comparable between the three groups of college cricket players.*

Results: *Speed improved by 6.68 in strength group, 6.83 in the yoga group 6.78 combined strength and yoga group 73.26 in the control group. VO_2 Max improved by 74.03in strength group, 72.20in the yoga group 6.78 combined strength and yoga group 69.89 in the control group. Batting ability improved by 8.05 in strength group, 6.28 in the yoga group 7.33 combined strength and yoga group 4.98 in the control group Additional research on long-duration intervention in elite players may help to establish the role of yoga in conventional cricket-batting ability for training.*

Conclusions: *The results of the study shows that the experimental group-I and experimental group II and Experimental group III that had undergone strength training group, yoga training and combined training group significantly improved corporeal variables namely speed, physiological variables namely VO_2 Max, skill performance variables namely cricket batting ability of college level men cricket players. From the findings of the study it was concluded that the strength training group, yoga training group and combined training group had better improvement than the control group.*

Key words: *cricket, physical fitness, strength training, VO_2 Max, yogic training*

GLOSSARY

Cricket – the game was very famous and huge audience in the next level of game than the other games. Because of new rules and regulation s was applied with short period of the tournament. The game cricket after introduced the Top 20 match most popular in the world.

Strength training – the game cricket need physical fitness components and much needed particularly in shoulder muscular strength. Because all the power in needed in hand (bowlers, fielders, batsman). So in this study refer the strength training was applied college cricket players.

VO_2 Max – the amount air inhale after a deepest possible of exhale is called volume of oxygen. It was measured lung capacity of the individual. In this study VO_2 maximum was measured through the equipment of peak expiratory flow meter. Recently yo-yo test was introduced and applied VO_2 maximum in all the research particularly in football and cricket.

Yogic training – recently all the research studies applied yoga is one of the best exercise for improvement of lung capacity and concentrate the all the activity. The scholar was attempted the yoga training and given the yoga training for better improvement of this study.

INTRODUCTION

Sport performance is the manner in which sport participation is measured. Sport performance is a complex mixture of biomechanical function, emotional factors, and training techniques. When an athlete and the coach can isolate areas on which to focus in training, the ultimate result is likely to be improved.Body proportions, skills training, strength, flexibility and endurance. These five factors will influence what sport you play, what position you play and how good you can be at either. Each of these factors may individually or as a group affect your sport performance.

Cricket is a team sport played using a bat and ball on an oval-shaped outdoor arena. During the course of a cricket game we experience long rest intervals with short bursts of high intensity. As a result, specific components of fitness are essential for a high-level of cricket performance. Cricket is a sport that generates a broad range of reaction from sports fans.Among those who are a part of more action-packed athletic traditions, cricket is variously seen as a boring, tedious game. In the present day the game of cricket has developed to such an extent that millions of people take part and many more around the world take an interest through the media to watch the game. Teaching, training and coaching in cricket are essentially an educational process. The cricketer is supervised and educated by the coach, trainer or physical education teacher. In cricket, offensive (batting) principles include scoring runs, avoiding getting out or defending the wicket (staying in), and hitting into space to achieve these offensive goals.

Resistance training (RT) is an important tool for improving health and performance for one and all. Strength training (ST) is of utmost importance for athletes with regard to their training program. Upper body strength is a very important part of the training program for the following sports men and women globally i.e., cricketers, basketball players, boxers, baseball players, wrestlers, judo players, etc. Strength training (ST) may provide useful benefits and enhancement in overall health and well-being, including increased bone, muscle, tendon and ligament strength and toughness, improved joints, injury prevention, augmented bone density, improved metabolism, improved cardiac function, elevated HDL, and good cholesterol [1,2]. Physical exercise is extremely important for maintaining physical fitness including healthy weight, building and maintaining healthy bones, muscles and joints, promoting physiological well-being and strengthening the immune system. To improve or maintain a desired level of physical fitness, there is a need to constantly administer an adequate training intensity while exercising. The physiological goal of training is to improve body function and optimize athletic performance. Training is primarily a systematic athletic activity of long duration, which is progressively and individually graded. Human physiological functions are modeled to meet demanding tasks [3]. Improving muscular strength and endurance has long been the goal of physical training programs. To elicit changes in muscular strength and endurance, skeletal muscles must receive appropriate levels of stress, commonly achieved by the application of external resistance. Some of the most widely accepted methods for applying exercise resistance are free weights, weight machines, and elastic cords. Some less common methods include hydraulic machines, pneumatic machines, stones, kegs, and logs. Manual resistance training (MRT) is another method that has yet to be well accepted among strength and conditioning professionals. A possible explanation for the underutilization of MRT may be the lack of published research investigating the efficacy of this very basic and simple training method [4]. Plyometric and core training is widely used as a method of developing explosive power capacity in those sports that require jumping ability such as athletics, basketball, and volleyball [5]. Most sports require various kinds of fast and

slow muscle strength and speed [6]. Although typical training methods for increasing the muscle strength of athletes include weight training, such as resistance exercises and plyometric training [7]. The power necessary for explosive jumping refers to the power exhibited in dynamic states [8]. Plyometric training is a type of muscle strength exercise that can improve basic physical strength and it has been extensively studied for the improvement of exercise performance ability [9]. It is an explosive and repetitive rebounding load type exercise that uses the muscles' stretch reflexes and stretch shortening cycles to develop lower extremity muscles [10]. Stretch reflexes are used to promote motor unit mobilization in order to reduce differences between speeds and muscle strength [11]. In cricket, diverse efforts have been made to try and enhance records through active studies and the development of training methods. With increasing interest in cricket, the importance of athletic scientification has been recognized. Desired records in performance cannot be achieved only with natural movements and efforts, but also require more reasonable and scientific training content and methods [12]. The physical strength and power elements required for cricket throwing, bowling, batting events include muscle strength, swiftness, agility, speed, flexibility, and physical balance. Although plyometric training and core training are implemented as representative training methods for improving swiftness and agility, most studies of it have been conducted with players of other sports.

MATERIAL AND METHODS

Methods

The Methodology for the present investigation is on the effects of isolated and combined strength and yogic program on corporeal, physiological and skill performance variables among inter collegiate cricket players**.** The purpose of study 60 male cricket students selected from various colleges. Their age ranges between 18 to 25 years .the subjects were randomly assigned into four groups, namely experimental group I (strength training), Experimental group II (yogic training), experimental group III (strength and yogic training) and control group. In order to ensure the full cooperation from the subjects, the scholar had a meeting with them and explained the purpose of the study. It was made clear by explanation in order to ascertain that there was no ambiguity among the players regarding the effort, which they had to put in for the successful completion of this study. Experimental group I participated for a period of 8 weeks resistance training with game specific training. Experimental group II participated for a period of 8 weeks yoga practices with game specific training. Experimental group III for a period of 8 weeks resistance and yoga training with game specific training and Control group only game specific training. The subjects were tested on selected criterion variables physical fitness variables as speed, physiological variables VO_2 Max and Skill Performance Skills cricket batting before the training and after 8 weeks of training.

Training procedure

Experimental Group-I underwent strength training, experimental Group-II underwent yogic training and experimental Group-III underwent combined training respectively. The control group was not exposed to any specific training / conditioning program. The experimental treatments namely strength t training, yogic training and combined training was administrated for duration of 82 weeks and the number of session per week was confined to three alternative days and each session lasted 60 minutes.

Statistical technique

The collected data from the three groups prior to and after the experimental treatments on selected physical, physiological and performance variables were statistically analysed by using the statistical technique of analysis of covariance (ANCOVA). Whenever the 'F' ratio for adjusted post test means was found to be significant, Scheffe's test was followed as a post hoc test to determine which of the paired means difference was significant. In all the cases 0.05 level of confidence was fixed as a level of confidence to test the hypotheses.

RESULTS

Required table value at 0.05 level of significant with degrees of freedom 3 and 56 is 2.77 and degrees of freedom 3 and 55 is 2.77.

Table 1 shows the obtained 'F' values on pre test, post test and adjusted post test means on speed of strength training group, yoga training group, combined training group and control group.

Table 1. Analysis of covariance among strength training group I, yoga training group II, combined training group III and control group on speed.

Variables	Strength Training Group	Yoga Training Group	Combined Training Group	Control Group	Source of Variance	Sum of square	Df	Mean square	F value
Pre test Mean	7.04	7.05	7.02	7.06	between	0.13	3	0.004	0.16
					within	1.496	56	0.027	
Post test Mean	6.68	6.84	6.76	7.03	between	1.019	3	0.340	14.12*
					within	1.347	56	0.024	
Adjusted post mean	6.68	6.83	6.78	7.01	between	0.859	3	0.286	67.21*
					within	0.234	55	0.004	

*Significant at 0.05 level of confidence

The pre test means on speed were 7.04, 7.05, 7.02 and 7.06 respectively. The 'F' value observed for the pre test on speed was 0.16. It fails to reach the table value of 2.77 for degrees of freedom 3 and 56 at 0.05 level of confidence. Based on the results it was confirmed that the mean differences among the groups of strength training group, yoga training group, combined training group and control group on speed before the start of the respective treatments were found to be insignificant.

The post test means on speed of strength training group, yoga training group, combined training group and control group were 6.68, 6.84, 6.76 and 7.03 respectively. The 'F' value observed for the post test on speed was 14.12. It was greater than the table value of 2.77 for degrees of freedom 3 and 56 at 0.05 level of confidence. Thus, the results obtained proved that the training on speed produced significant improvement among the experimental groups.

The adjusted post test means on speed test of strength training group, yoga training group, combined training group and control group were 6.68, 6.83, 6.78 and 7.01 respectively. The 'F' value observed for the adjusted post test means on speed was 67.21. It was greater than the table value of 2.77 for degrees of freedom 3 and 55 at 0.05 level of confidence.

The observed 'F' value on adjusted post test means among the groups on speed was highly significant as the value was higher than required table value of 2.77. Thus the results obtained proved that the training on speed test produced significant improvements among the experimental groups.

Required table value at 0.05 level of significant with degrees of freedom 3 and 56 is 2.77 and degrees of freedom 3 and 55 is 2.77.

Table 2 shows the obtained 'F' values on pre test, post test and adjusted post test means on VO_2 Max of strength training group, yoga training group, combined training group and control group.

Figure 1. Bar diagram showing the adjusted post test mean values of strength training group I, yoga training group II, combined training group III and control group on speed.

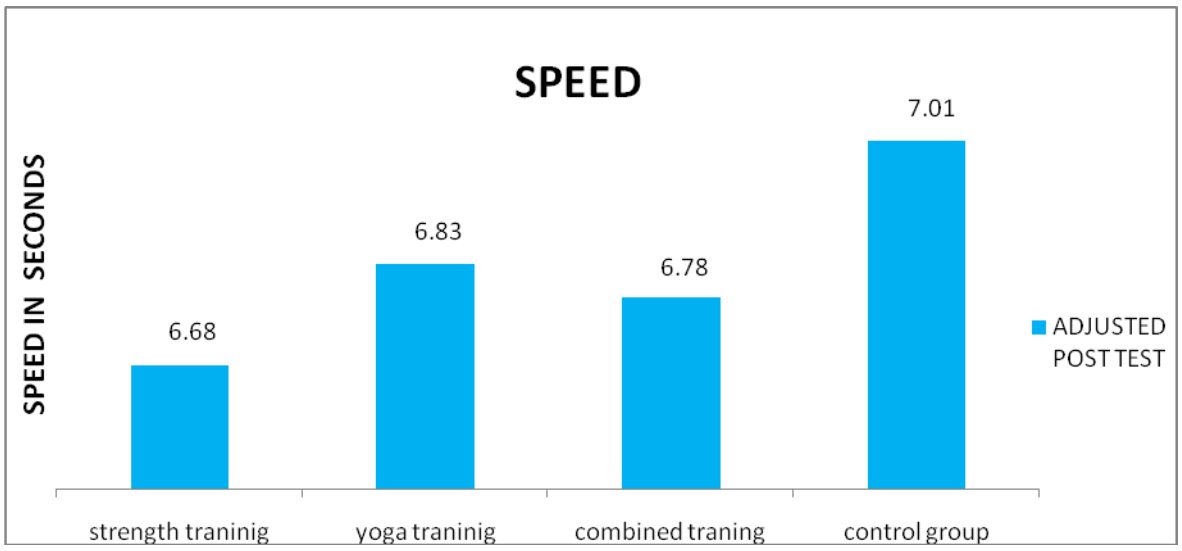


Table 2. Analysis of covariance among strength training group I, yoga training group II, combined training group III and control group on VO_2 Max.

Variables	Strength Training Group	Yoga Training Group	Combined Training Group	Control Group	Source of Variance	Sum of square	Df	Mean square	F value
Pre test mean	69.06	70.20	70.20	70.33	between	15.783	3	5.261	0.79
					within	373.06	56	6.662	
Post test mean	73.33	72.40	73.46	70.20	between	102.58	3	34.194	5.24*
					within	365.06	56	6.519	
Adjusted post mean	74.03	72.20	73.26	69.89	between	143.33	3	47.778	20.70*
					within	126.92	55	2.308	

*Significant at 0.05 level of confidence

The pre test means on VO_2 Max were 69.06, 70.20, 70.20 and 70.33 respectively. The 'F' value observed for the pre test on VO_2 Max was 0.79. It fails to reach the table value of 2.77 for degrees of freedom 3 and 56 at 0.05 level of confidence. Based on the results it was confirmed that the mean differences among the groups of strength training group, yoga training group, combined training group and control group on VO_2 Max before the start of the respective treatments were found to be insignificant.

The post test means on VO_2 Max of strength training group, yoga training group, combined training group and control group were 73.33, 72.40, 73.46 and 70.20 respectively. The 'F' value observed for the post test on VO_2 Max was 5.24. It was greater than the table value of 2.77 for degrees of freedom 3 and 56 at 0.05 level of confidence. Thus, the results obtained proved that the training on VO_2 Max produced significant improvement among the experimental groups.

The adjusted post test means on VO_2 Max test of strength training group, yoga training group, combined training group and control group were 74.03, 72.20, 73.26 and 69.89 respectively. The 'F' value observed for the adjusted post test means on VO_2 Max was 20.70. It was greater than the table value of 2.77 for degrees of freedom 3 and 55 at 0.05 level of confidence.

The observed 'F' value on adjusted post test means among the groups on VO_2 Max was highly significant as the value was higher than required table value of 2.77. Thus the results obtained proved that the training on VO_2 Max test produced significant improvements among the experimental groups.

Required table value at 0.05 level of significant with degrees of freedom 3 and 56 is 2.77 and degrees of freedom 3 and 55 is 2.77.

Table 3 shows the obtained 'F' values on pre test, post test and adjusted post test means on batting ability of strength training group, yoga training group, combined training group and control group.

Figure 2. Bar diagram showing the adjusted post test mean values of strength training group I, yoga training group II, combined training group III and control group on VO_2 Max

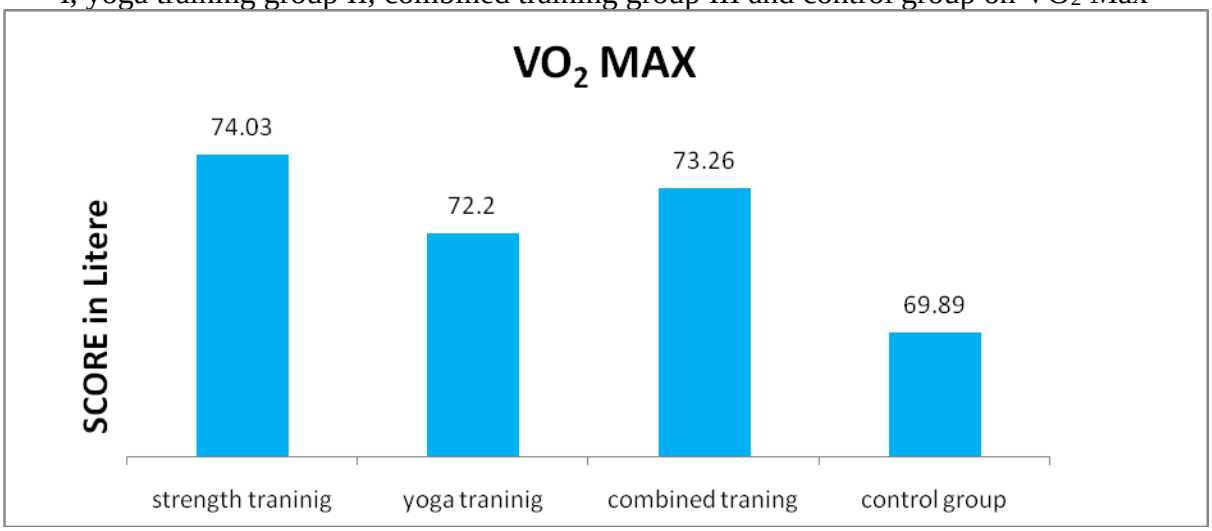


Table 3. Analysis of covariance among strength training group I, yoga training group II, combined training group III and control group on cricket batting ability.

Variables	Strength Training Group	Yoga Training Group	Combined Training Group	Control Group	Source of Variance	Sum of square	Df	Mean square	F value
Pre test mean	4.86	4.73	4.93	4.86	between	0.317	3	0.106	0.17
					within	33.33	56	0.595	
Post test mean	8.06	6.20	7.40	5.00	between	82.40	3	27.46	44.03*
					within	34.93	56	0.624	
Adjusted post mean	8.05	6.28	7.33	4.98	between	79.98	3	26.663	93.52*
					within	15.68	55	0.285	

*Significant at 0.05 level of confidence

The pre test means on batting ability were 4.86, 4.73, 4.93 and 4.86 respectively. The 'F' value observed for the pre test on batting ability was 0.17. It fails to reach the table value of 2.77 for degrees of freedom 3 and 56 at 0.05 level of confidence. Based on the results it was confirmed that the mean differences among the groups of strength training group, yoga training group, combined training group and control group on batting ability before the start of the respective treatments were found to be insignificant.

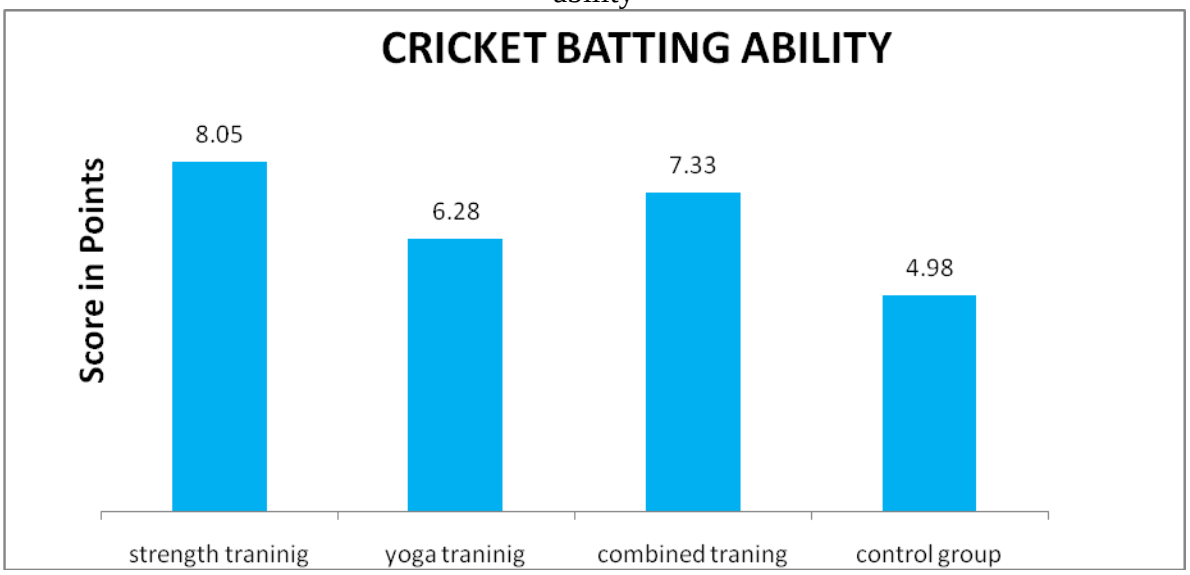
The post test means on batting ability of strength training group, yoga training group, combined training group and control group were 8.06, 6.20, 7.40 and 5.00 respectively. The 'F' value observed for the post test on batting ability was 44.03. It was greater than the table value of 2.77 for degrees of freedom 3 and 56 at 0.05 level of confidence. Thus, the results obtained proved that the training on batting ability produced significant improvement among the experimental groups.

The adjusted post test means on batting ability test of strength training group, yoga training group, combined training group and control group were 8.05, 6.28, 7.33 and 4.98 respectively. The 'F' value observed for the adjusted post test means on batting ability was

93.52. It was greater than the table value of 2.77 for degrees of freedom 3 and 55 at 0.05 level of confidence.

The observed 'F' value on adjusted post test means among the groups on batting ability was highly significant as the value was higher than required table value of 2.77. Thus the results obtained proved that the training on batting ability test produced significant improvements among the experimental groups.

Figure 3. Bar diagram showing the adjusted post test mean values of strength training group I, yoga training group II, combined training group III and control group on Cricket batting ability



The influence of independent variables on each of the criterion variables is analysed and presented below.

The training period was limited to twelve weeks. The dependent variables selected for this study were Physical variables Speed Physiological variables, VO_2 Max and performance variables. All the subjects were tested prior to and immediately after the experimental period on the selected dependent variables.

The data obtained from the experimental groups before and after the experimental period were statistically analysed with dependent 't' test and Analysis of covariance (ANCOVA). Whenever the 'F' ratio for adjusted post test means was found to be significant, the Scheffe's Posthoc test was applied to determine the paired mean differences. The level of confidence was fixed at 0.05 level for all the cases.

DISCUSSION

The mean difference between strength training group and yoga training group and between strength training group and combined group and between strength training group and control group and between yoga training group and control group and between combined training group and control group were 0.15, 0.1, 0.33, 0.18 and 0.23 respectively. The values of mean difference of adjusted post test means were higher than the required confidence interval value of 0.07 and it was found to be significant on speed.

The mean difference between strength training group and control group and between yoga training group and control group and between combined training group and control group were 1.83, 4.14, 2.31 and 3.37 respectively. The values of mean difference of adjusted post test means were higher than the required confidence interval value of 1.58 and it was found to be significant on VO_2 Max.

The mean difference between strength training group and yoga training group and between strength training group and combined group and between strength training group and control group and between yoga training group and combined and between yoga training and

control group and between combined training group and control group were 1.77, 0.72, 3.07, 1.05, 1.3 and 2.35 respectively. The values of mean difference of adjusted post test means were higher than the required confidence interval value of 0.55 and it was found to be significant on batting ability.

CONCLUSIONS

The findings of the study showed that there was a statistically significant improvement in the physical fitness variables speed physiological variables VO_2 Max and Skill performance variables batting ability as compared to control group.

1. The results of the study shows that the experimental group-I that had undergone strength training group, improved corporeal variables namely Speed, physiological variables namely VO_2 Max skill performance variables namely cricket batting ability of college level men cricket players.
2. The results of the study shows that the experimental group-II that had undergone yoga training group, improved corporeal variables namely Speed physiological variables namely VO_2 Max skill performance variables namely cricket batting ability of college level men cricket players.
3. The results of the study shows that the experimental group-III that had undergone combined training group, improved corporeal variables namely Speed physiological variables namely VO_2 Max skill performance variables namely cricket batting ability of college level men cricket players.

RECOMMENDATIONS

It is recommended that coaches and physical educators in the game of cricket should give due to include strength training group, yoga training group and combined training group in their training schedules.

In the physical exercise, while designing the training program the effect of varied training modalities is explained on positively on physical fitness parameters and skill performance variables of cricket players, the physical education teachers and coaches can prefer this type of training so as to achieve aim in time.

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COMPARISON OF EMOTIONAL INTELLIGENCE AND MENTAL HEALTH AMONG HIGH AND HIGHER SECONDARYSCHOOL BOYS

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ABSTRACT

One in six children and teenagers aged between 10-19 years of age suffer from depression. There is one suicide attempt every three seconds and one death by suicide every forty seconds by the youth. These statistics alone are alarming enough to take cognizance of the fact that mental health among students is going to be the next crisis. Aim of this study is to analyse the status of the high and higher secondary school students on mental health and emotional intelligence. For this study 40 High and Higher Secondary school boys were randomly selected from Kandigai Government High School and Madampakkam government higher secondary school and 9th std for High school and 11th std for Higher Secondary school their age range between 14 to 17 year. The data pertaining to the variables under the study was examined using 't' ratio. Result of the study shows high school boys has better Emotional intelligence and Mental Health than the higher secondary school boys.

***Key Words**: Emotional intelligence, Mental Health, School boys and Yoga.*

Introduction

In the current wake of the pandemic, WHO states that India is the most depressed country in the world. One in six children and teenagers aged between 10-19 years of age suffer from depression. There is one suicide attempt every three seconds and one death by suicide every forty seconds by the youth. These statistics alone are alarming enough to take cognizance of the fact that mental health among students is going to be the next crisis. Currently, the students are stressed, worried and anxious about the uncertainties of the future. Students who are at the brink of their board exams; those who have got admissions into universities overseas or have completed their education and looking forward to starting new jobs are all stuck at crossroads, with no new beginnings. Most teenagers and adolescents have expressed feeling detached, lonely and extremely bored which creates a lot of frustration. Added to this, there is a sense of social detachment and a loss of social skills, group dynamics and relationships. There are many children who have turned towards the virtual world and virtual reality in creating friendships, interacting. This excessive online presence or screen time itself is creating mood swings, irritability, social withdrawal, changes in sleeping and eating patterns, difficulty with attention, focus and concentration, and further detachment from family or the real world. There is a significant loss of sports, play, movement, exercise, sleep, rest and outdoor activities. This leads to unhealthy diets, hygiene concerns, skin or hair related issues and emergence of multiple underlying medical concerns such as vitamin D3 deficiency, borderline diabetes, obesity, and increased lipid or cholesterol profiles. Families at home are also going through severe stress with conflicts, job stressors, financial problems, parental conflicts and even abusive relationships. These kinds of stressors and abuse also greatly increase the risk for emotional and psychological setbacks in children. Parents working from home and students' online education make the whole work-life balance environment stressful at home. As mental health professionals, seeing a large surge of diagnosed mental health disorders such as depression, anxiety, panic attacks, OCD, and substance abuse. Setbacks with learning disabilities and dyslexia or dysgraphia are also emerging. (mental health issues that students are facing today – india today -www.indiatoday.in)

Importance of Mental Health On School Students

Mental health includes emotional, psychological and social well being. It affect how one think, feel and act. It also helps determine how to handle stress, relate to others and make healthy choices. Mental health is important at every stage of life, from childhood and adolescence through adulthood. (www.cdc.com)

One of the most crucial aspects of a students path to success is mental health. Without balanced mental health, students fail to focus on their studies and as such, their grades slip, leading to more anxiety and nervousness. Thus, it is important to be aware that mental health can significantly impact students. (www.dpsparowal.com)

Why Emotional Intelligence is Important

It's a scientific fact that emotions precede thought. When emotions run high, they change the way the brain's function…diminishing the cognitive abilities, decision-making powers, and even interpersonal skills. Understanding and managing the emotions (and the emotions of others) helps to be more successful in both the personal and professional lives. (www.ihhp.com)

Yoga and Mental Health

Yoga and mental health are closely intertwined, with yoga practices offering numerous psychological benefits. Firstly, yoga is a potent stress reducer. Its mindfulness and relaxation techniques, including deep breathing and meditation, activate the body's relaxation response, lowering stress hormone levels. This contributes to a calmer mind and reduced anxiety.

Furthermore, yoga has proven effective in managing conditions like anxiety and depression. It stimulates the release of serotonin and increases GABA, neurotransmitters that promote well-being and relaxation. The practice fosters emotional regulation, teaching individuals to acknowledge and manage their emotions without judgment.

Yoga can also improve sleep quality, combat insomnia, and enhance the mind-body connection. Regular practice fosters greater self-awareness, positively impacting self-esteem and body image. Cognitive function and memory may also see improvements due to yoga's combination of physical postures, breath control, and meditation.

Moreover, yoga has shown promise in trauma recovery and bolstering resilience. Participating in group classes can provide social support, reducing feelings of isolation. Ultimately, yoga's holistic approach aligns with mental health principles, emphasizing the interconnectedness of the mind, body, and spirit.

PURPOSE OF THIS STUDY

The purpose of this study was to compare the Emotional intelligence and Mental health among High school and Higher Secondary school boys.

HYPOTHESIS

It was hypothesized, that these would be significant difference between high school and higher secondary school boys on emotional intelligence and mental health.

REVIEW OF RELATED LITERATURE

Vishal YadavNaveen et.al (2017) conducted a study to examine the relationship between emotional intelligence and mental health among university students. A sample of 80 participants was taken out of which 40 were male and 40 female students with in the age range of 16-20 years from Banaras Hindu University. Emotional Intelligence and Mental Health of the participants were assessed, Pearsonr yielded positive correlation between mental health and emotional intelligence, ($r = 0.31$, $p < 0.01$).

Romana HubackovaDorota Groffik et.al (2016) conducted a study to assess differences in physical activity (PA) and physical inactivity (PI) among primary and secondary school boys and girls in specific segments of a school day. The research was conducted between 2010 and 2014 at 15 secondary schools (SS) and 9 primary schools (PS) in the Silesia-Katowice region in Poland. In total, 86 boys and 71 girls at PS and 125 boys and 113 girls at SS took part in the

research. We recorded 587 school days, in total. The ActiTrainer accelerometer was used for PA and PI monitoring. PS boys and girls were more physically active than SS boys and girls. Before school, we observed SS boys to have higher energy expenditure than PS boys ($p < .001$) and also than SS girls ($p < .001$). During the school time, 73% of PS boys (40% at SS) and 58% of PS girls (42% at SS) met the recommendation of 500 steps/hour. Within the entire school day monitoring, 44% of PS boys (29% at SS) and 41% of PS girls (34% at SS) met the recommended 11,000 steps/day. The results of our study confirmed the facts that PS boys and girls are more physically active than SS boys and girls and, furthermore, that boys are more physically active than girls at both types of schools.

M. Vaquero-Solis et.al (2020) conducted a study to examine the relationship between motivation, physical activity and emotional intelligence, and test in which degree physical activity influences on emotional intelligence. A sample size of 431 individuals (12-16 years old) from different schools participated in the study. Levels of self-determination, physical activity and emotional intelligence were assessed. Results showed significant relationships between physical activity, levels of self-determination and interpersonal, adaptability and mood state dimension from the emotional intelligence. Moreover, regression analysis revealed that physical activity levels predicted interpersonal, adaptability and mood state dimensions from the emotional intelligence. In conclusion, our study highlights the importance of mood and emotional adaptability, accompanied by more self-determined levels of motivation, in the performance of physical activity.

Zahra HosseinkhaniMahboubeh et.al (2021) conducted a study to investigate the risk factors at student and school levels. This was a cross sectional study for which 1740 students and 53 schools were selected between February and March 2018 in Qazvin, Iran. Multistage stratified cluster sampling was used for data collection. Mental health problems were measured by the Strengths and Difficulties Questionnaire (SDQ). Emotional symptom, conduct problem, hyperactivity, peer relationship problem, and prosocial behavior were the subscales. This study used multilevel analysis to determine the association between each of the questionnaire scales and students and schools variables. The prevalence of the mental health problems was 16.2%. Conduct problem was more prevalent than others (21.1%). Overall, the score of mental health problems was significantly lower in boys' schools, in adolescents with physical activity, and in families with high socioeconomic status. Hyperactivity and emotional symptoms were significantly higher in girls' schools. While prosocial behavior and peer relationship problems were significantly higher in boys' schools. The association between variables and the scales of mental health problems was different. Results indicated desirable physical activity and socioeconomic status are effective components in the adolescents' mental health, and, mostly girls' schools were more vulnerable than boys' schools. Therefore, the educational authorities and health policymakers should consider this diversity to design interventional programs and pay more attention to the high-risk adolescents in different schools.

METHODOLOGY

SELECTION OF SUBJECTS

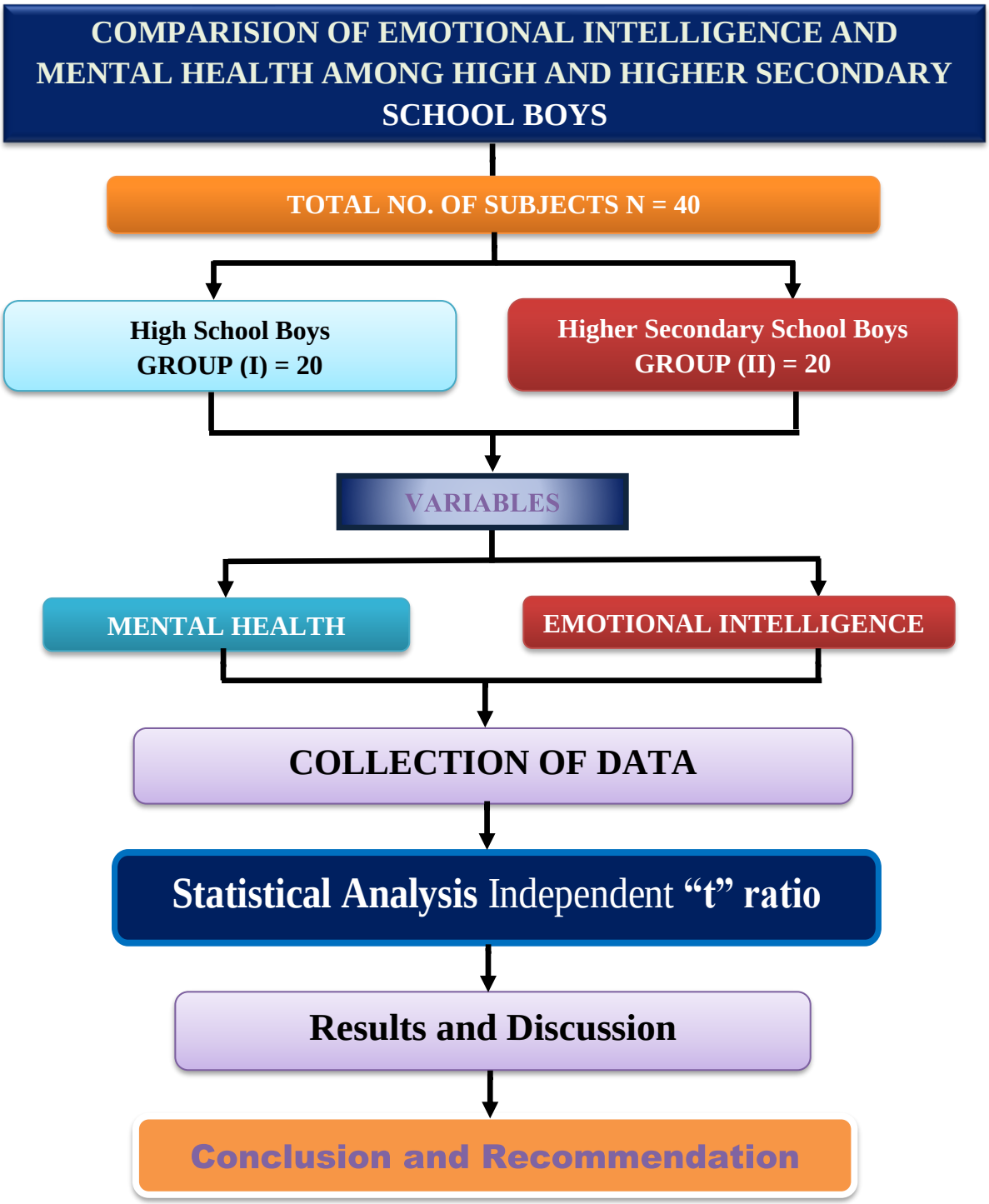
The purpose of the study was to compare Emotional intelligence and Mental health among High and Higher Secondary school boys. For this study 40 High and Higher Secondary school boys were randomly selected from Kandigai Government High School and Madampakkam government higher secondary school.

SELECTION OF VARIABLES

The researcher reviewed various available Books, Journals, Magazines and Research articles. The researcher had discussion with his guide and experts in the field. Taking into consideration of feasibility criteria, availability of instruments and the relevance of variables of the present study the following variables were selected.

1. Emotional intelligence 2. Mental health

Flow Chart Showing the Methodology Adopted in the Study



RESEARCH DESIGN

The study was formulated as a static group comparision design. The purpose of the study was to compare the Emotional intelligence and Mental health among high and higher secondary school boys from Kandigai high school and Madmpakkam higher secondary school.

CRITERION MEASURES

By glancing the literature and consultations with professionals and experts the following criterion measures were selected for measuring the variables in this study.

Table I

S.NO	VARIABLES	INSTRUMENTS USED
1	Emotional Intelligence	EQ Emotional intelligence self -assessment by **Daniel Goleman**
2	Mental Health	Self -Reporting Questionnaire (SRQ) by **WHO**

RESULT AND DISCUSSION

FINDINGS ON MENTAL HEALTH

The result on mental health among high and higher secondary school boys is presented in table **II.**

Table II

ANALYSIS OF 't' RATIO BETWEEN HIGH AND HIGHER SECONDARY SCHOOL BOYS ON MENTAL HEALTH

Group	Mean	Standard deviation	SEM	MD	't' Ratio
High school boys	7.7	2.88	0.64	2.27	3.29*
Higher secondary school boys	11.15	3.68	0.82	2.86	

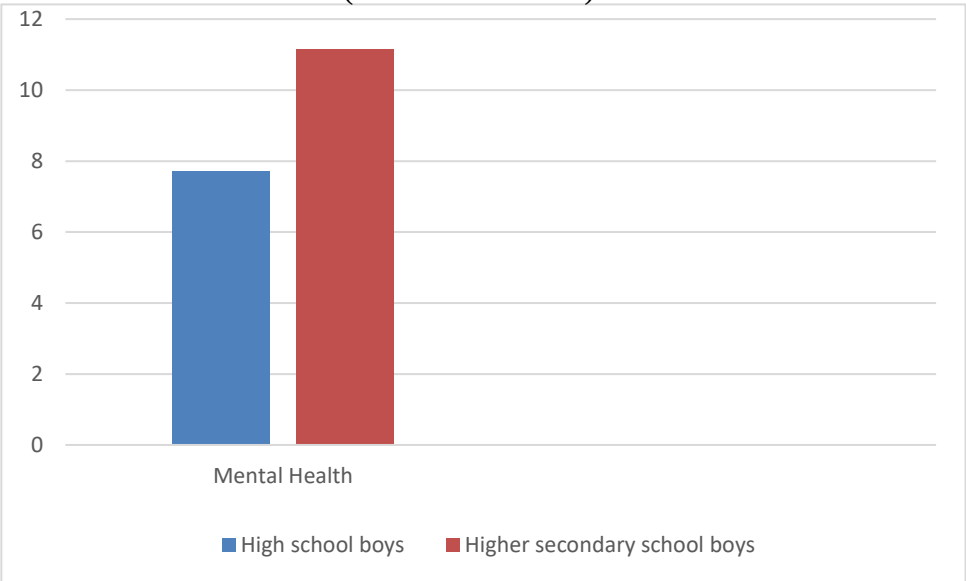
The table value = **2.024** Degrees of freedom = **38**

*Significance at 0.05 level of confidence

Figure I

Bar diagram showing the mean value of high and higher secondary school boys on mental health

(scores in numbers)



FINDINGS ON EMOTIONAL INTELLIGENCE

The result on Emotional intelligence among high and higher secondary school boys is presented in table **III.**

Table III

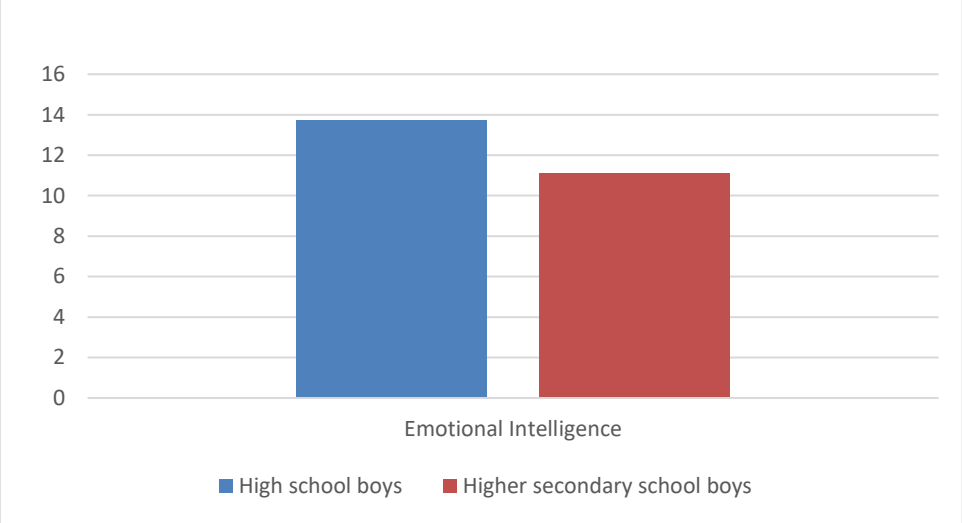
ANALYSIS OF 't' RATIO BETWEEN HIGH AND HIGHER SECONDARY SCHOOL BOYS ON EMOTIONAL INTELLIGENCE

Group	Mean	Standard deviation	SEM	MD	't' Ratio
High school boys	13.07	2.15	0.48	1.63	3.25*
Higher secondary school boys	11.09	1.66	0.37	1.25	

The table value = **2.024** Degrees of freedom = **38**.

*Significance at 0.05 level of confidence

Figure II
Bar diagram showing the mean value of high and higher secondary school boys on emotional intelligence
(scores in numbers)



DISCUSSION ON HYPOTHESIS

The formulated hypothesis stated that there would be significant difference between high and higher secondary school boys on Mental health and emotional intelligence level. It is proved from the table II and III that there is a difference between high and higher secondary school boys on mental health and emotional intelligence. Hence the hypothesis is accepted at 0.05 level of significance.

CONCLUSIONS

Based on result of this study, the following conclusion are drawn.

1. It was concluded that there was a significant difference on mental health between high and higher secondary school boys. Comparing between these two groups, it was found that high school boys has better mental health than higher secondary school boys.
2. It was concluded that there was a significant difference on emotional intelligence between high and higher secondary school boys. Comparing between these two groups, it was found that high school boys showed better emotional intelligence than higher secondary school boys.

RECOMMENDATION

1. Yogic practices may be recommended for higher secondary school boys for better mental health and emotional intelligence.
2. Yogic practices may be introduced in curriculum of the educational institutions.
3. The government may introduce the awareness program on yogic practices for better mental health of the school students.

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EFFECT OF YOGIC PRACTICES ON AGILITY AND EXPLOSIVE POWER AMONG FOOTBALL PLAYERS

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Abstract

The purpose of the study was to find out the effect of yogic practices on agility and explosive power among football players, Eighteen (18) football players were selected as subjects from Dragons Football Club, Bodinayakanur. Their age of the subjects ranged from 21 to 25 years. The students those who are participated in district level tournaments were selected as subjects for the study. The selected football players were underwent yogic practices for alternative three days per week up to six weeks. The selected physical fitness variables were selected as dependent variables namely agility and explosive power. The standardized tests were used to collect the relevant data on the selected dependent variables. The subjects were selected on the basis of pre and post-test single group design. The data were collected on selected dependent variables at prior and immediately after the experimental period as pre and post-tests respectively. The conclusion of the study have made significant improvement on agility and explosive power among football players.

Key words: yoga, football, agility, explosive power.

INTRODUCTION

Yoga is a path towards total harmony of body, mind, and spirit. The word Yoga comes from the Sanskrit word yuj, which means union. Union of the individual consciousness with the universal consciousness. Yoga benefits people of all age groups. The benefits range from mental peace, fitness, health, improved physiological functioning of the body and spiritual evolution

Football is a game involving two teams of 11 players who try to maneuver the ball into the other team's goal without using their hands or arms. The team that scores more goals wins. Football is the world's most popular ball game in numbers of participants and spectators.

Agility is an ability to quickly change body position or direction in response to a stimulus.

Power is the ability of a muscle or a group of muscles to release maximum force with horizontal line in the shortest possible time, in an explosive manner, projecting the body or an object.

PURPOSE OF THE STUDY

The purpose of the study was to find out the effect of yogic practices on agility and explosive power among football players.

HYPOTHESES

1. It was hypothesized that there would be a better significant improvement in agility due to the yogic practices among football players.
2. It was hypothesized that there would be a better significant improvement in explosive power due to the yogic practices among football players.

METHODOLOGY

SELECTION OF SUBJECTS

To achieve the purpose of the study, Eighteen (18) football players were selected as subjects from Dragons Football Club, Bodinayakanur. Their age of the subjects ranged from 21 to 25 years. The students those who are participated in district level tournaments were selected as subjects for the study. The selected football players were underwent yogic practices for alternative three days per week up to six weeks.

SELECTION OF VARIABLES

INDEPENDENT VARIABLE

✔ Yogic practices

TABLE I

S. No	Control group	Experimental group	Duration
1	Traditional training	Yogic practices	45 minutes

TABLE II

TRAINING SCHEDULE

S. No	Yoga	Duration
1	Starting prayer	2 minutes
2.	Loosening exercise	5 minutes
3.	Surya namaskar	5 minutes
4.	Asana	12 minutes
5.	Pranayama	13 minutes
6.	Meditation	5 minutes
7.	Closing prayer	2 minutes

DEPENDENT VARIABLES

✔ Agility

✔ Explosive power

STATISTICAL TECHNIQUE

The collected data from the experimental group prior to and immediately after the training period on selected criterion variables were statistically analyzed with dependent 't' test to find out the significant changes between pre and post-test means of experimental group. In all the cases 0.05 level of significant was fixed to test the hypothesis.

TABLE III

INTRA CLASS CO-EFFICIENT OF CORRELATION ON SELECTED DEPENDENT VARIABLES

S. No	Criterion Variables	Correlation Coefficient 'R'
1	Agility	0.78*
2.	Explosive Power	0.79*

* Significant at .05 level of confidence.

(Table value required for significance at 0.01 level of confidence is 0.77).

Since the obtained 'R' values were much higher than the required value, the data were accepted as reliable in terms of instrument, tester and the subjects.

TABLE IV

THE SUMMARY OF MEANS, STANDARD DEVIATIONS AND DEPENDENT 't'-TEST FOR THE PRE AND POST TESTS ON AGILITY OF EXPERIMENTAL GROUP

Test		Number	Mean	Standard Deviation
Flexibility	Pre test	18	31.61	1.20
	Post test	18	36.44	1.58
	't'-test	**26.09***		

*****Significant at .05 level.

(The table value required for .05 level of significance with df 17 is 2.11)

✔ The table IV shows that the obtained pre and post test mean values of experimental group was 31.61 ± 1.20 and 36.45 ± 1.58 respectively and the obtained dependent't'-ratio values between the pre and post test means of experimental group was 26.09. The table value required for significant difference with df 17 at .05 level is 2.11. Since, the obtained 't'

ratio value of experimental group are greater than the table value, it is understood that the yogic practices has made the significant improvement agility among football players.

TABLE V

THE SUMMARY OF MEANS, STANDARD DEVIATIONS AND DEPENDENT 't'-TEST FOR THE PRE AND POST TESTS ON EXPLOSIVE POWER OF EXPERIMENTAL GROUP

Test		Number	Mean	Standard Deviation
Explosive power	Pre test	18	1.95	0.24
	Post test	18	2.01	0.23
	't'-test	**6.70***		

*****Significant at .05 level.

(The table value required for .05 level of significance with df 17 is 2.11)

The table V shows that the obtained pre and post test mean values of experimental group was 1.95 ± 0.24 and 2.01 ± 0.23 respectively and the obtained dependent 't'-ratio values between the pre and post test means of experimental group was 6.70. The table value required for significant changes with df 17 at .05 level is 2.11. Since, the obtained 't' ratio value of experimental group are greater than the table value, it is understood that yogic practices has made significant improvement on explosive power among football players.

CONCLUSIONS

1. The experimental group namely yogic practices have made significant improvement on agility among football players.
2. The experimental group namely yogic practices have made significant improvement on explosive power among football players.

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OUTCOME OF ASSERTIVENESS DUE TO THE LEVERAGE OF OPPANA DANCE TRAINING AMOUNG MUSLIM WOMEN IN KERALA

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Abstract

Assertiveness is indeed the ability to express one's opinions, needs, and desires in a direct, honest, and appropriate manner. The present study aimed to assess the outcome of assertiveness due to the leverage of Oppana dance training among Muslim women in Kerala. To investigate this, the researchers employed a pre-test post-test with a control group design. The study used a pre-test post-test with a control group design, which is a common experimental design in psychology and education research. This design allows researchers to compare the outcomes of two groups (an experimental group and a control group) before and after an intervention. The study included 40 Muslim college women in the age group of 18-21 years from CHMKM Govt. Arts & Science College, Tanur, Malappuram district, Kerala. These Muslim women were likely divided into two equal groups: an experimental group and a control group. The researchers used the Rathus Assertiveness Inventory to assess the assertiveness levels of the participants. This is a standardized questionnaire commonly used to measure assertiveness. The experimental group received a two-hour assertiveness training program through Oppana dances on a weekly basis for eight weeks. This Oppana dance intervention was designed to improve their assertiveness skills. Data were collected by administering the assertiveness inventory to both the experimental and control groups before and after the eight-week intervention. The results of the study indicated that the students in the experimental group had significantly higher assertiveness levels compared to those in the control group ($P<0.05$). This suggests that the Oppana dance intervention had a positive impact on the experimental group's assertiveness.

Keywords: *Assertiveness, Oppana dance and Muslim women.*

Introduction:

Communication is indeed a fundamental aspect of human interaction, and the development of effective social skills plays a vital role in facilitating positive communication. Among these social skills, assertiveness is a key concept that enables individuals to express themselves, set boundaries, and interact with others in a healthy and constructive manner. Assertive individuals are aware of their own rights while also respecting the rights of others. This balance is crucial for harmonious interactions. Assertive individuals are capable of expressing both positive and negative thoughts and emotions in a fair and transparent manner. They communicate their thoughts and feelings openly and honestly. Assertiveness includes the ability to say "no" when appropriate without feeling guilty or overly accommodating. It involves setting boundaries and prioritizing one's own needs when necessary. Assertiveness extends to nonverbal behaviors as well. This includes maintaining eye contact during conversations, holding one's head and shoulders high while walking, and using appropriate hand and body movements when communicating. Assertive individuals use gestures and facial expressions appropriately to complement their verbal communication. This helps convey their message more effectively. The tone of voice is a critical component of assertiveness. An assertive person uses their tone of voice in a manner that matches the context of the communication, conveying confidence and clarity. Assertive individuals are open to both giving and receiving constructive criticism. They are willing to engage in discussions and address issues in a respectful and solution-oriented way. Research suggests that assertiveness can be influenced by the social and cultural context in which individuals are raised. Different environments and cultural norms may shape how individuals express themselves assertively. Family background and the educational status of parents can also play a role in shaping an

individual's assertiveness. Family dynamics and upbringing can impact a person's communication style. Assertiveness is a skill that can be learned and developed over time. Research indicates that assertiveness training programs through Oppana dance can be effective in helping individuals acquire assertive communication skills. The primary purpose of assertiveness training through Oppana dance is to change individuals' attitudes about themselves, build self-confidence, and enable them to express their thoughts and feelings more easily and assertively. It involves personal growth and self-empowerment. 3

Assertiveness training through Oppana dance has been shown to have several positive effects, including enhancing positive human relations, positively affecting personality behavior, and increasing positive personal reactions in individuals who participate in such programs. Motivation and a willingness to participate voluntarily are crucial in assertiveness training. Participants need to be actively engaged and motivated to learn and apply assertive communication skills effectively. Assertiveness training can be integrated into various activities, including drama, sports, and dance. These activities can serve as natural enhancers of assertiveness and can help individuals develop both verbal and non-verbal assertive communication skills. Assertiveness is a learnable skill influenced by various factors, including culture, family background, and educational status. Assertiveness training programs through Oppana dance aim to empower individuals to express themselves confidently and effectively. These programs employ a range of techniques and may incorporate activities that promote assertive communication and personal growth.

The study has selected Muslim women as the practical setting for intervention, and the training process is designed to be an extracurricular activity. Extracurricular activities offer an opportunity to address social skills outside of traditional academic contexts. The researcher firmly believes that traditional dance can provide an alternative means of communication and foster social development. Traditional dances, and specifically Oppana Dances from the Muslim community, are chosen as a method for enhancing assertiveness. Oppana Dances are characterized by bravery, intrepidity, and self-confidence, making them a suitable choice for promoting assertiveness. The passage notes that the use of dance programs for developing social skills, specifically assertiveness, has not been extensively examined in the literature. This suggests that the study represents a novel approach to addressing social skill development. The study involves an intensive eight-week dance program aimed at promoting assertiveness among the participants. It will assess the effectiveness of this program in enhancing assertiveness skills.

Objectives:

The main objective of the study was to assess the outcome of assertiveness due to the leverage of Oppana dance training among Muslim women in Kerala.

Hypothesis:

H1: It was hypothesized that there would be a significant difference on the outcome of assertiveness due to the leverage of Oppana dance training among Muslim women in Kerala.

Materials & Methods:

The study described involved 40 (N=40) Muslim women participants between the age of 18 and 21 from C.H. Mohammud Koya Memorial Government Arts & Science College, Tanur, Malappuram, Kerala. These participants were categorized into 2 groups. The subjects (N=40) will be selected randomly divided into two groups each consisting of twenty. Experimental Group I as eight weeks of Oppana dance. In order to be more dependable and explanatory, the current study combined qualitative and quantitative methodologies. To examine quantity, a pre-post-test with control group design was performed. Muslim women participants were asked to fill out a survey that included an open-ended question on assertiveness training and how they felt it had improved their quality of life. The study was conducted with students from similar cultures, environments, and age groups. Because

environment and culture have an impact on assertiveness level because students' assertiveness levels can vary if there is a four-year age gap,

The study utilized the Rathus Assertiveness Schedule, consisting of 30 items, to evaluate assertive behavior among the participants. This schedule included 14 items related to assertive behavior and 16 items related to non-assertive behavior.

For assessing assertive behavior, the following grading scale was employed: A score of 05 indicated "very much like me."- A score of 04 represented "rather like me."- A score of 03 denoted "somewhat like me."- A score of 02 indicated "somewhat not like me."- A score of 01 represented "rather not like me."- A score of nil indicated "very unlike me."

Reverse evaluation was conducted for items related to unassertive behavior.

The total score for assertive behavior could range from 0 to 150, encompassing all 30 items. Participants' levels of assertiveness were categorized as follows:

- Very Highly Assertive (scores between 121 and 150)- Highly Assertive (scores between 91 and 120)- Moderately Assertive (scores between 61 and 90)- Less Assertive (scores between 31 and 60)- Very Less Assertive (scores between 0 and 30)

The data collected from the assessments were analyzed using the Analysis of Covariance (ANCOVA) statistical technique. The predetermined level of significance for the study was set at 0.05, indicating that results with a p-value below this threshold were considered statistically significant.

Procedure:

The experimental group participated in an 8-week program, practicing six days a week (from Monday to Saturday). Each session of Oppana dance intervention comprised the following components:

S.No.	Programme	Duration
1.	Loosening exercise	5 mins.
2.	Warm up exercise	5 Mins.
3.	General Oppana dance i. Oppana chayal ii. Oppana murukkam	30 Mins.
4.	Cool down	10 mins.

Conversely, the control group did not partake in any such dance intervention or practices. The study aimed to evaluate whether the Oppana dance sessions had an impact on the assertiveness levels of the participants, as compared to the control group. The study's methodology appears to be carefully designed and structured. The study started with a clear objective statement, which is essential to provide a sense of purpose and direction for the research. Participants were given clear and explicit instructions regarding the purpose of the questions, the meaning of each question, and how to complete the questionnaires. This step is crucial to ensure that participants understand the nature of the survey and how to provide accurate responses.

The Rathus Assertiveness Schedule (RAS) was applied in this study to evaluate the assertiveness of the students. The 30-item RAS (Rathus, 1973) is a test of overall assertiveness. The RAS has demonstrated acceptable test-retest and split half reliabilities as well as validity with other self-report and observational measures of assertiveness and social skills. It is one of the most extensively used and approved measures of assertiveness. After participants completed the questionnaires, the researchers collected the completed surveys, ensuring that all items had been answered. This is important for maintaining data completeness and accuracy. The total scores for each participant were calculated using a scoring key.

Statistical Techniques:

The data collected from the assessments were analyzed using the Analysis of Covariance (ANCOVA) statistical technique. The predetermined level of significance for the study was set at 0.05, indicating that results with a p-value below this threshold were considered statistically significant.

Results and Discussion:

Results obtained through the ANOVA is presented. Table I

Table I: Showing the results of Analysis of Covariance on Assertiveness

Test	Exp. Gr	CG	SV	SS	df	MS	F
Pretest	84.00	81.00	**Bt**	44.00	1	45.00	0.15
			W	5694.0	18	315.24	
Posttest	98.00	83.48	**Bt**	1202.24	1	1202.24	3.57*
			W	6028.52	18	334.84	
Ad.post	97.53	84.95	**Bt**	783.34	1	783.34	25.44*
			W	524.914	17	30.78	

*Significant @ 0.05 level Table value 3.01 with df 1, 18

The analysis of study revealed compelling results. The obtained F-value of adjusted posttest means, which was 25.40, exceeded the required F-value of 3.01 at the 0.05 significance level. This statistical analysis, employing ANCOVA, demonstrated a noteworthy and statistically significant difference between the control group and the experimental group in terms of assertiveness. Therefore, Hypothesis, which was stated that "There would be a significant difference on outcome of assertiveness due to the leverage of Oppana dance training among Muslim women in Kerala," is accepted based on the analysis and findings.

The findings of the study suggest that the 8-week Oppana dance intervention had a significant positive impact on increasing assertiveness among college-going Muslim women. These results are consistent with previous research conducted by **Parray et al. (2018)** and **Tekin et al. (2009)** which also reported significant differences in assertiveness following interventions. In summary, the findings of this study provide strong evidence that assertiveness among Muslim adolescent women can be significantly improved through the implementation of an 8-week Oppana dance intervention program. This highlights the potential for creative interventions to enhance assertiveness and overall well-being among college students.

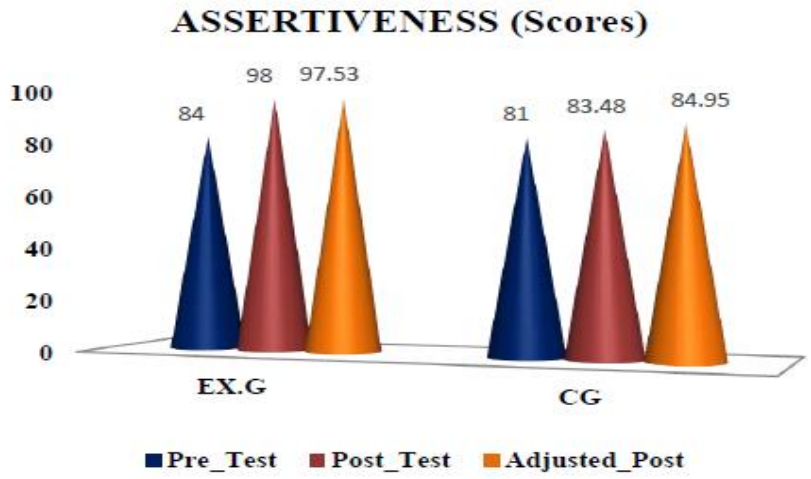


Fig 1: Showing the pretest, posttest of experimental and control group.

Limitation of the study

The data collection relied on self-report questionnaires, which may introduce response bias. The language barrier due to the questionnaires being in English could affect response

accuracy. Participants came from various events, making it challenging to generalize findings. The absence of a control group limits the assessment of intervention impact. The study focused on a specific group of college-going Muslim women, potentially limiting generalizability. Social desirability bias may have influenced participant responses. Lastly, the study didn't assess the long-term sustainability of the 8-week Oppana dance intervention.

Conclusion:

The findings of this study clearly demonstrated the significant impact of Oppana dance intervention on increasing assertiveness among college-going Muslim women students. This underscores the importance of providing such interventions, as they enable college students, especially women, to express their feelings and opinions effectively.

Assertiveness is a crucial skill for students, as it not only contributes to their academic success but also plays a pivotal role in their overall personality development. By enhancing assertiveness, students can communicate their thoughts and ideas more confidently and assertively, ultimately leading to improved educational outcomes and personal growth.

In conclusion, the positive results of this study highlighted the value of interventions like Oppana dance in empowering college-going women to develop and express their assertiveness effectively, which can significantly benefit their educational journeys and overall development.

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COMPARISON OF SELECTED PERSONALITY DIMENSION BETWEEN SPORTS AND NON - SPORTS PARTICIPANT STUDENT TEACHERS

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Abstract

The reason for the study was to find out Comparison of Selected Personality Dimension between Sports and Non-Sports Participant Student teachers. To achieve this purpose of the study the investigator randomly selected 100 Women Student Teachers from Studying B.Ed Programme (i.e. 50 Sports Participated Students and 50 Non – Sports Students) Chennai District. The following selected personality dimension variables namely Mental Alertness and Stress Management were selected as criterion variables. The data were collected from the General Mental Alertness test using questionnaire (GMAT) Dr.R.P.Srivastava (2005) test and Stress Management test using questionnaire (SMS) Vandana Kaushik and Namrata Arora Charpe (2011). The independent t' ratio was used to analyse the significant difference between groups. The 0.05 level of confidence was fixed as the level of significance to test the't' ratio obtained which was considered as appropriate. The results of the study showed that there was a significant difference between Sports and Non-Sports Student Teachers on selected personality dimensions.

Key words: *Student Teachers, Sports, Non-Sports, Mental Alertness and Stress Management.*

Introduction

Student Teacher

A student who is studying to be a teacher and who, as part of the training, observes classroom instruction or does closely supervised teaching in an elementary or secondary school. A person who is teaching in a school for a limited period under supervision as part of a course to qualify as a teacher.

Personality

As a multidimensional concept, personality is the unique or distinctive characteristics of an individual, the combination of qualities that set a person apart from others. It also includes one's social habits and those aspects of a person's nature that have developed in social relation with other people.

Problem-related to Student Teachers

Individual

- Lack of Time for Planning.
- Lots of Paperwork.
- Pressure from School Administrators.
- Balancing Diverse Learning Needs.
- Handle too many masters.
- Get Burn out Easily.
- Lack of proper funding.
- Limitations of standardized Testing.

School and College

- Understanding Your Students.
- Personalized Learning.
- Time Management.
- Student Discipline in the Classroom.
- Weight of Responsibility.

- Excessive Workloads and Overtime.
- Communication with Parents.

STUDENT TEACHERS

The bachelor's degree required to work as a teacher in schools is the B.Ed. But it's important to know that a B.Ed, or Bachelor of Education, is not the same as an undergraduate degree, and in order to take this course, one must have graduated from high school. As a result, the B.Ed. is a professional degree, and after completing it, students can find employment at the school level. However, it should be noted that a post-graduation degree is required before pursuing a B.Ed. for senior secondary school teachers.

STATEMENT OF THE PROBLEM

The purpose of the present study was to find out Comparison of Selected Personality Dimension between Sports and Non-Sports Student Teachers.

HYPOTHESES

It was hypothesized that there would be significant differences on selected personality dimensions between Sports and Non-Sports Student Teachers.

LIMITATION

The following uncontrollable factors associated with the study are considered as limitations of the research study.

1. The subject's body type will not be taken into consideration.
2. The homogeneous characters of the subjects, hereditary, will not be considered.
3. Certain factors like daily routine, diet and climate conditions will not be considered for this study.

DELIMITATION

The following delimitations will be taken into consideration during this study.

1. The present study restricted only student teachers from Chennai district B.Ed female Students.
2. The age of the subjects selected for the study is between 21 to 35 years.
3. The following personality dimensions namely General Mental Alertness and Stress Management were only selected.
4. The students participated in any sports at the college level or not participating this criteria for sports and Non-sports participating students.
5. The data were collected from the General Mental Alertness test using questionnaire (GMAT) Dr.R.P.Srivastava (2005) test and Stress Management test using questionnaire (SMS) Vandana Kaushik and Namrata Arora Charpe (2011).

OBJECTIVES OF THE STUDY

a. To compare the selected personality dimension between Sports and Non-Sports Student Teachers.

SIGNIFICANCE OF THE STUDY

a. This study will help to identify selected personality dimension differences between the Sports and Non-Sports Student Teachers.
b. The results of the study will help the unemployed youth to understand their personality dimension level.
c. This study will help to raise awareness of the student teachers to improve their personality level.

DEFINITION OF TERMS

Mental Alertness

Alertness is defined as a state of sustained attention, and being quick to perceive and act. In sports, e.g athletes describe the feeling of "being in the zone" which can be referred to as being in a state of sustained alertness over a given period of time (Tenenbaum & Gershgoren, 2014).

Stress management

"Stress is the tension and pressure that result when an individual views a situation as presenting a demand that threatens to exceed his capabilities and resources". **(Stoner and Wankel)**

REVIEW OF RELATED LITERATURE

The review summarizes and analyzes previous research and shows how the present study is related to this research.

Dr. Uday Kumar Sah (2019) A comparative study of Eysenck personality among boys and girls of college students. This paper is an attempt to study the personality profiles of college boys and girls of Darbhanga District of Bihar. A total of 200 adolescent respondents, comprising 100 male and 100 female students were obtained through random sampling technique. To assess the personality of the respondents Eysenck Personality Questionnaire (EPQ) test was administered on the selected 200 respondents. In order to study the mean differences between boys and girls with respect to various dimensions of personality, t-test was used and the obtained results are interpreted and discussed. There is a significant gender difference in the personality of college students. Boys have a better personality than girls. so it can be concluded that girls do not always exhibit better personality as compared to boys. Therefore, it is imperative for educators and researchers to understand the trends in college students' adjustment and the factors contributing to their good mental health.

METHODOLOGY

SELECTION OF THE SUBJECT

To achieve the purpose of the study 100 female students from the B.Ed College Chennai district at random.

SELECTION OF VARIABLES

Dependent variables

1. Mental Alertness
2. Stress management

Independent variables

1. 50 Sports Participant Students
3. 50 Non-Sports Participant Students
4. Total Sample 100

CRITERION MEASURES

The General Mental Alertness test questionnaire (GMAT) Dr.R.P.Srivastava (2005) test and Stress Management scale using questionnaire (SMS) Vandana Kaushik and Namrata Arora Charpe (2011).

STATISTICAL TECHNIQUE

To test the significance of mean difference selected personality dimension between the sports and non-sports student teachers 't' test was applied.

RESULT AND DISCUSSION

TABLE-I

STATISTICAL DIFFERENCE ON SELECTED PERSONALITY DIMENSION BETWEEN SPORTS AND NON-SPORTS STUDENT

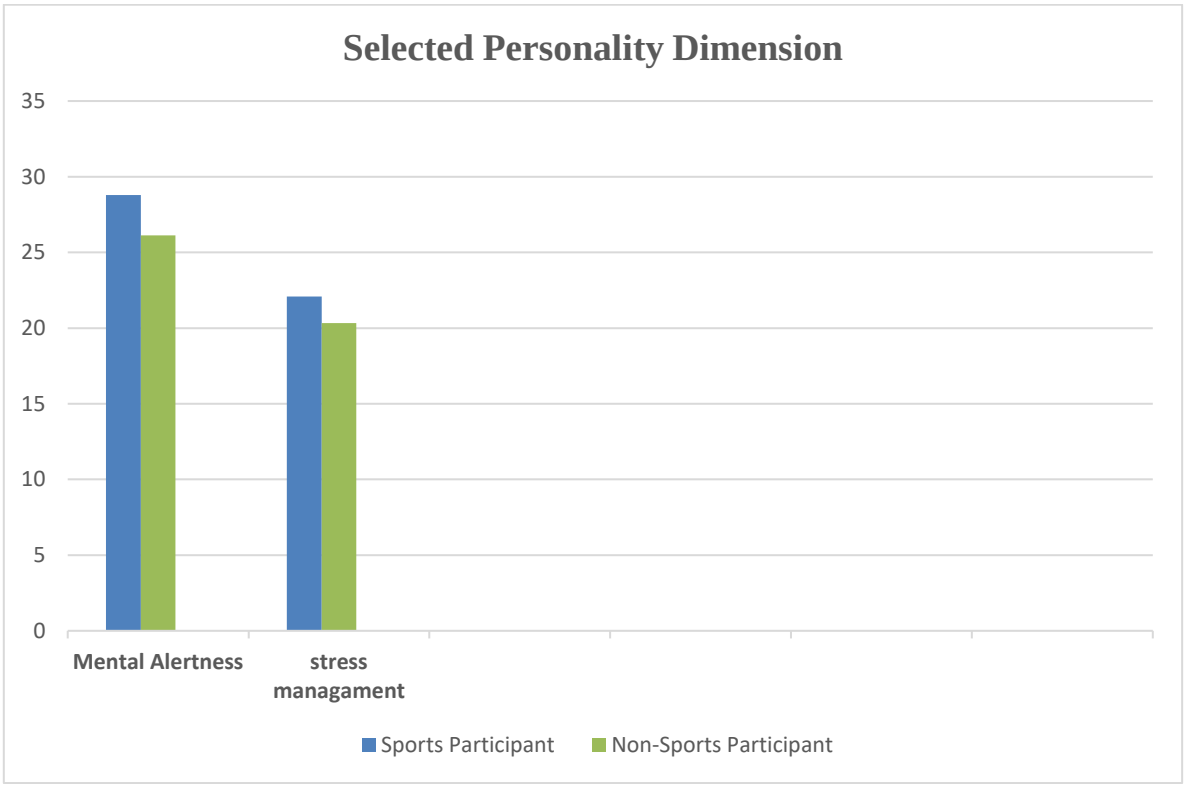
S. No	Personality Dimension	Sports Participant Student		Non-Sports Participant Student		MD	't' value
		Mean	SD	Mean	SD		
1	Mental Alertness	28.78	4.07	26.12	4.40	2.66	3.14
2	Stress Management	22.08	2.19	20.34	2.03	1.74	4.12

***Significance of (28) t=2.05 at 0.05 level of confidence**

The table I shows that the mean values of selected Personality Dimension for Sports Participant Students was Mental Alertness 28.78, Stress management 22.08, with the standard deviation of Mental Alertness 4.07, Stress management 2.19, and the mean values of selected personality dimension for Non-Sports participant was Mental Alertness 26.12, and Stress management 22.08 with the standard deviation of Mental Alertness 4.07, Stress management 2.19, The obtained 't' value Sports and Non-Sports Students Mental Alertness 3.14 and Stress management 4.12 was found to be higher than the required table value 2.05 at 0.05 level of confidence. This indicates that there was significant difference on Selected Personality Dimension between Sports and Non-Sports Participant Students.

FIGURE-1

THE BAR DIAGRAM SHOWING THE MEAN VALUES OF SPORTS AND NON-SPORTS PARTICIPANT ON SELECTED PERSONALITY DIMENSION



CONCLUSIONS

1. The result of the study reveals that, there was significant difference found on Selected Personality Dimension between Sports and Non-Sports Participate Students.
2. Comparing the mean values Selected Personality Dimension of Mental Alertness and Stress Management for Sports and Non-Sports participant Student the Sports Participant Students were better than Non-Sports Participant Students

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INFLUENCE OF AEROBIC DANCE WITH OWN BODY RESISTANCE TRAINING ON BODY FAT PERCENTAGE AND MUSCLE MASS PERCENTAGE OF OVERWEIGHT SCHOOL BOYS

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Abstract

The purpose of this study was to find out the influence of aerobic dance with own body resistance training on body fat percentage and muscle mass percentage of overweight school boys. To execute the present study the research investigator selected sixty (60) school boys from GKD Matric Higher Secondary School, Pioneer Higher Secondary School, Periyanaickenpalayam, Coimbatore, Tamilnadu. The subjects were randomly divided into two equal groups namely aerobic dance with own body resistance training group (ADOBRTG), and control group (CG). Each group consisted of thirty (30) overweight school boys. The experimental group underwent the aerobic dance with resistance training for a period of twelve (12) weeks and the control group did not undergo any special training programme apart from their regular routine. The selected variables namely body fat percentage and muscle mass percentage were selected as dependent variables of the study. Independent variable was aerobic dance with own body resistance training. To determine the significant difference between the pre and post-tests the statistical procedure namely paired "t" test was applied. To test the level of significance the 0.05 level was fixed. The analysis of the data revealed that there was a significant improvement on the selected dependent variables namely body fat percentage and muscle mass percentage by the application of aerobic dance with own body resistance training programme.

Key words: *Aerobic dance with own body resistance training, body fat percentage, and muscle mass percentage.*

INTRODUCTION

Aerobic dance exercise is one of the most popular adult fitness exercises. The majority of the studies on this type of exercise supports its use as an acceptable substitute for cardiovascular training, particularly for adult females when carried out in accordance with the recommendations of the American College of Sports Medicine (ACSM). However, if the participant wants to change their body composition, they may need to go above and beyond what was done in the aerobic dance training studies with regard to training frequency, length, or caloric restriction. Depending on how intense the activity is, a session of aerobic dancing might need a wide range of energy expenditure. Low-intensity dance workouts are typically characterised by slower-paced music, less use of the major muscles, and/or less impact on the lower extremities. A dance exercise of this type costs about 4 to 5 calories per minute. Yet, numerous studies have demonstrated that energetic "high intensity" aerobic dance, which calls for activating the main muscle groups, can demand 10 to 11 kcal/minute. Such variations in dance workout intensity and style may have an impact on training results. Group exercise has become more and more popular, and most facilities provide both high-impact and low-impact aerobics programmes.

Body weight exercises are strength training exercises that don't involve the use of free weights; instead, the activity is made more difficult by the person's weight. The most popular bodyweight exercises include the sit-up, the push-up, and the pull-up. In general, increasing the number of repetitions will emphasise building endurance, whilst increasing the intensity of the exercise by reducing leverage will result in strength improvements.

METHODOLOGY

To execute the present study the research investigator selected sixty (60) over weight school boys from GKD Matric Higher Secondary School, and Pioneer Higher Secondary

School, Periyanaickenpalayam, Coimbatore, Tamilnadu. The subjects were randomly divided into two equal groups namely aerobic dance with own body resistance training group (RTG), and control group (CG). Each group consisted of thirty (30) over weight school boys. The experimental group underwent the aerobic dance with own body resistance training for a period of twelve (12) weeks and the control group did not undergo any special training programme apart from their regular routine. The selected variables namely body fat percentage, and muscle mass percentage were selected as dependent variables of the study. Independent variable was aerobic dance with own body resistance training. To determine the significant difference between the pre and post-tests the statistical procedure namely paired "t" test was applied. To test the level of significance the 0.05 level was fixed.

RESULTS OF THE STUDY

TABLE-I

COMPUTATION OF 'T'-RATIO BETWEEN THE PRE AND POST TESTS ON BODY FAT PERCENTAGE OF EXPERIMENTAL AND CONTROL GROUPS

Group	Test	M	SD	σ DM	DM	t-ratio	'p' value
Experimental	**Pre Test**	12.17	2.77	0.07	0.52	7.88*	0.01
	Post Test	11.65	2.76				
Control	**Pre Test**	13.31	4.39	0.05	0.04	0.89	0.38
	Post Test	13.35	4.46				

* significance at 0.05 level.

The table I indicates that there was a significant reduction on the body fat percentage through the aerobic dance with own body resistance training. It reveals that the obtained t-ratio 7.88 was differ significantly, because the 'p' value (0.01) was lesser than the 0.05, level of confidence. So there was a significant reduction on the body fat percentage between the pre and post-tests of experimental group, whereas the control group showed no significant improvement. Hence the results indicated that the significant reduction on the body fat percentage was due to the aerobic dance with own body resistance training alone. The findings also indicate that the body fat percentage was decreased at 4.27 %.

FIGURE- I

THE FIGURE SHOWING THE MEAN DIFFERENCE OF PRE AND POST-TESTS SCORES ON BODY FAT PERCENTAGE OF EXPERIMENTAL AND CONTROL GROUPS

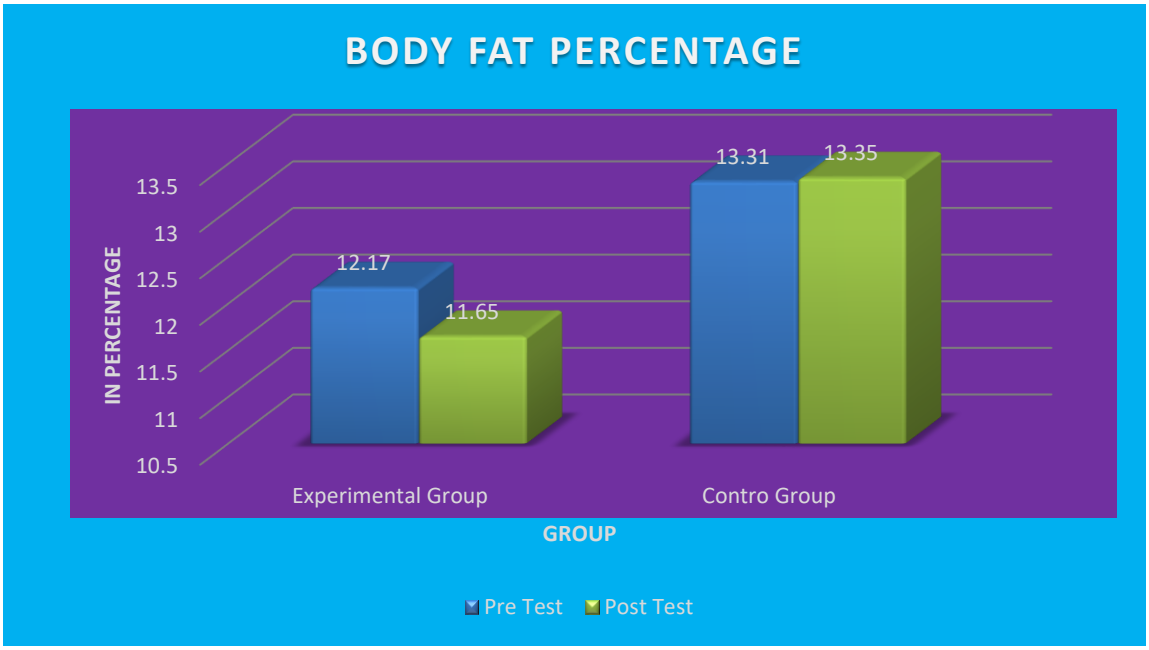


TABLE-II

COMPUTATION OF 'T'-RATIO BETWEEN THE PRE AND POST TESTS ON MUSCLE MASS PERCENTAGE OF EXPERIMENTAL AND CONTROL GROUPS

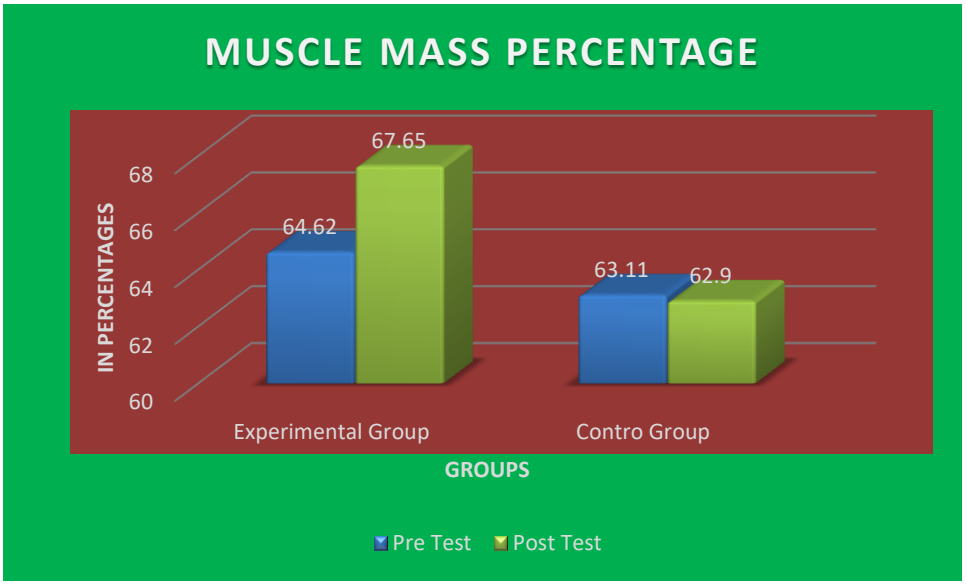
Group	Test	M	SD	σ DM	DM	t-ratio	'p' value
Experimental	**Pre Test**	64.62	4.47	0.39	3.03	7.72*	0.01
	Post Test	67.65	4.44				
Control	**Pre Test**	63.11	6.88	0.39	0.20	0.53	0.60
	Post Test	62.90	5.82				

* significance at 0.05 level.

The table II indicates that there was a significant improvement on the muscle mass percentage through the aerobic dance with own body resistance training. It reveals that the obtained t-ratio 7.72 was improved significantly because the 'p' value (0.01) was lesser than the 0.05 level of confidence. So, there was a significant improvement on the muscle mass percentage between the pre and post-tests of experimental group, whereas the control group showed no significant improvement. Hence the result indicated that the significant improvement on the muscle mass percentage was due to the aerobic dance with own body resistance training alone. The findings also indicate that the muscle mass percentage was increased at 4.69 %.

FIGURE- II

THE FIGURE SHOWING THE MEAN DIFFERENCE OF PRE AND POST-TESTS SCORES ON MUSCLE MASS PERCENTAGE OF EXPERIMENTAL AND CONTROL GROUP



DISCUSSION ON FINDINGS

The result of the study reveals that the twelve weeks of aerobic dance with own body resistance training on the selected dependent variables there was a significant reduction on the body fat percentage . It reveals that the obtained t-ratio 7.88 was a significant because the 'p' value (0.01) was lesser than the 0.05, level of confidence. So, there was a significant reduction on the body fat percentage between pre and post-tests of the experimental group, whereas the control group showed no significant reduction. Hence the result indicates that the significant reduction on the body fat percentage was due to the aerobic dance with own body resistance training alone. The result of the study is in consonance with the research done by **Mohd Faridz Ahmad, Muhammad Amir Asyraf Rosli , (2007).**

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CONCLUSIONS

It was concluded that the aerobic dance with own body resistance training is an effective training means to improve the selected dependent variables namely body fat percentage and muscle mass percentage.

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ANTHROPOMETRIC CHARACTERISTICS AND SOMATOTYPE PROFILING OF TRACK AND FIELD ATHLETES ACROSS EVENTS

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Abstract

Sports activities should be carefully chosen considering how an athlete's body responds to physical demands, which is largely governed by the characteristics of their somatotype. Anthropometrical dimensions have been related to work output, recognizing their potential significance in influencing attained level of athletic performance. Twenty athlete from different specialization (N = 20) were randomly selected, and their age ranged between 18 and 27 years from South West Zone University level athletes in India The male athletes mean were 20.05 yr old in average with the range between 18 years and 24 year (± 2.11). The average statue obtained was 171.3 with the range between160 to 190 (±7.35). Fat % of male ranged between 6% - 18 % with a mean of 12.8 %. The athletes were ectomorphic mesomorph in average. The obtained components were 2.6-3.5-5.01 with a standard deviation of ± 1.38, 1.9, 7.63 for endo-meso-ecto components. Jump events athlete were taller than the other athletes with a mean and standard deviation of 176.95 ±1.05. Throw events athlete were heavier than the other athletes with a mean and standard deviation of 73.9 ±5.52.Lomg distance athlete have less fat % mean of 7.6% and high fat in throw events with a mean of 14.7%. It was concluded that there existed significant difference among the track and field athletes across athletic events and there existed significant differences within the athletes of specific track and field events from selected 20 samples. Good performance in their own events might be hampered by their poor physical characteristics compared to international athletes. Hence, it could be concluded that anthropometrical characteristics were one of most influential factors in determining good athletic performances besides other physiological characteristics.

Key: *Anthropometric characteristics, Somatotype and Body Composition*

1.Introduction

The training of highly skilled athletes requires deep analysis and consideration of their anatomical characteristics. The adaptation of training process to the peculiarities of the physique and composition of the body of athlete and to some other morphological and functional characteristics creates the conditions for complete realization of his physical abilities(1). There are only a few studies in which the body structure of athletes has been evaluated with the use of the modern approaches of constitutional morphology, the model somatotypes of the athletes of different sports are compared and individual differences have been revealed (1,2,3). Several authors have examined the anthropological uniqueness of athletes (4, 5). There are very few studies described the distinctive characteristics of body structure, proportions and somatotype of the athletes (Runners, Jumpers and throwers).

Heath-Carter method is used primarily in its anthropometric form in practice, and it is best suited for sports science. Anthropometric measurements are objective and can show body shape, composition, and proportionality. Coaches and Physical Educators manifest an interest in somatotyping as a means of relating body type to success in various sports. The somatotypes of men and women athletes in various sports vary in which they excel.

1.1 SOMATOTYPE AND ATHLETIC PERFORMANCE

Athletic performance is in large part dynamic expression of the design of the human body. The belief, that an individual's morphology is related to his capacity for athletic achievement appeared early in written history. Thus there are three general groups of athletes, i.e., round, muscular and slender.

Endomorphs arc stronger than ectomorph, but ectomorphs possess more speed, agility and endurance. Excess weight is handicap to endomorphs and insufficient strength is a handicap to ectomorphs in performing physical tests.

The physical performance of extreme somatotypes in motor and strength tests was studied by Sills and Everett. In addition to the above, they also found that mesomorphs and are stronger, more agile, and are superior in speed and endurance. However mesomorphs had little or no relation to weight and taller individuals tend to have less mesomorphic components. Thus, the combination in one individual to extreme height and the rugged characteristics of the mesomorph, which would constitutes an ideal build for many sports, is seldom found.

The relationship between endurance performance, body measurements and physique appears to be of more important. It is often found that the illustrations of the effect of such traits are associated with performance mainly because of their correlation with other determinants of performance. In some sports, differences in physique are found at the highest level of competition, while other sports somatotypes are quite similar.

Selection by morphologic means is an instrument for the coaches for the development of successful athletes. Although other factors, such as motivation, diligence in training, may override morphologic constituents, the athlete's chance for success is enhanced if he engages in sports well suited to his specific physical characteristics. Thus the present study was aimed to evaluate the anthropometric characteristics of the athletes of different specialization and somatotype profile - Endomorphy, Mesomorphy and Ectomorphy components of athletes at various specializations among different athletic event of South West Zone University level.

2. Method

2.1. Subjects

To compare and analyze the selected Anthropometric Characteristic and somatotype profiling of track and field athletes across events. The subjects were selected from the South West Inter University Athletic Championship conducted in Tamil Nadu Physical Education and Sports University, Chennai. To achieve the purpose 20 athlete from different specialization (N = 20) were randomly selected, and their age ranged between 18 and 27 years.

2.2. Anthropometric and Somatotype Measurements

The following variables were selected: weight, Height, Skeletal Diameters (Humerus Bicondyler width (Elbow width), Femur Bicondyler diameter (Knee width), Circumference (Arm Flexed circumference, Calf circumference), Skinfold measurements (Biceps Skinfold, Triceps Skinfold, Subscapular Skinfold, Supraspinal Skinfold, Calf Skinfold width and Somatotype Profile (Ectomorph, Endomorph, and Mesomorph). Electronic weighing machine, stadiometer, sliding caliper, anthropometry steel tape (non-stretchable), Harpenden skinfold calliper, were used in this study. Heath – Carter method (1967) was followed for Somatotype rating. The following equations were uses for calculating somatotype.

3. Result

Table1 show the anthropometrical and somatotype of male athletes. The male athletes mean were 20.05 yr old in average with the range between 18 years and 24 year (± *2.11*). The average statue obtained from the table was 171.3 with the range between160 to 190 (±*7.35*). The tallest male of the group was 190 cm compare to the shortest stature of 156.0 cm. The body weight of the male athlete varied from 49 kg to 80 kg with an average body weight of 59.7 kg (± *9.41*). Fat % of male ranged between 6% - 18 % with a mean of 12.8 %. Poor muscularity with less mesomorph component were observed for most of the athletes. The athletes were ectomorphic mesomorph in average. The obtained components were 2.6-3.5-5.01 with a standard deviation of ± 1.38, 1.9, 7.63 for endo-meso-ecto components. The obtained mean values were illustrated through Figure I for better understanding of the results.

Table - 1
Showing Mean and Standard Deviation of Anthropometrical and Somatotype Profile

S. NO	Event	Age	Height	Wt	fat %	Endo	Meso	Ecto
1	1500	18	167.7	57.6	7	2.1	4.4	3.2
2	1500	19	175.9	59.1	9	1.8	3.1	4.5
3	SHOTPUT	20	181.1	72.6	16	5.4	3.6	3.2
4	5000/1000	21	168.3	49.3	6	1.8	2.8	5.1
5	JAVELIN THROW	18	175.1	69.2	10	4.1	3.2	2.7
6	800	19	165.6	60.3	11	1.9	2.8	2.4
7	100	18	163.6	55.6	11	3.5	2.1	2.8
8	HIGH JUMP	19	166.9	49.5	11	1.7	3.3	4
9	400	19	170.3	60.5	12	4.6	4.3	3.2
10	SHOTPUT/ DISCUS	20	173.9	80	23	5.8	5.7	1.1
11	800	19	168	54.4	13	1.6	2.8	3.9
12	MINI MARATHON	22	190	66.6	8	2.4	1.4	5.8
13	400 RELAY	18	156.2	51.3	7	3.7	4	2.2
14	4*100 RELAY	17	160.7	50.8	8	2.1	5.1	1.9
15	1500	20	172.5	54	8	1.8	2.8	4.9
16	200	20	178.5	60	15	1.9	2.5	4.8
17	100	23	167.7	52.9	6	2.5	5	2
18	triple jump	24	169	63	8	1.3	4	37
19	hurdles	24	172.8	66.9	8.1	1.5	4.6	2.6
20	100,200	23	178.3	71.3	7.4	1.3	3.6	2.9
MN		20.0	171.30	59.4	12.8	2.64	3.555	5.01
SD		2.11	7.35	9.41	2.36	1.38	1.09	7.63

Figure – 1 Showing Mean of Somatotype of Track and Field Athletes

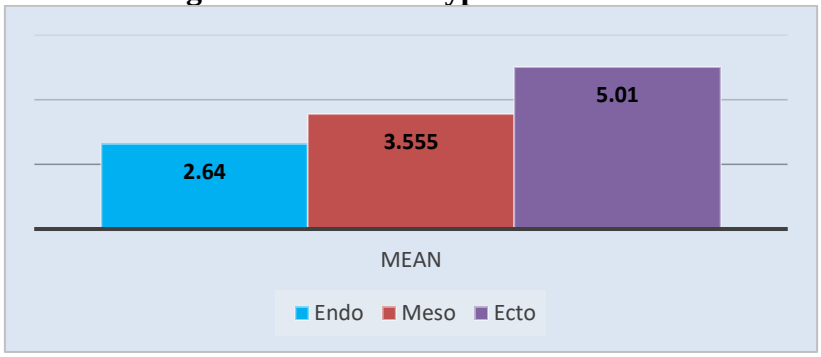


Table – 2 Showing Description of Athletes Across Events (Mean ± SD)

Events	Age	Height	Weight	Fat
Long Distance Runners	20±1.58	162.88±9.09	57.32±6.42	7.6±1.14
Sprinters	20 ±2.45	168.57 ± 6.8	57.4 ±8.52	9.68 ±2.88
Throw Events	19.3 ±1.15	156.7±3.86	73.9±5.52	14.76±4.0
Jump Events	21.5 ±2.5	176.95 ±1.05	56.25 ±6.75	9.85 ±1.65

Table - 2 shows the characteristics of the study sample and the results from the statistical analysis for differences between Long Distance Runners, Sprinters, Throw Events and Jump Events. Jump events athlete were taller than the other athletes with a mean and standard deviation of 176.95 ±1.05. Throw events athlete were heavier than the other athletes with a mean and standard deviation of 73.9 ±5.52.Lomg distance athlete have less fat % mean

of 7.6% and high fat in throw events with a mean of 14.7%. The mean values of fat were illustrated through Figure 2 for better understanding of the results.

Figure 2 - Diagram showing fat % Mean

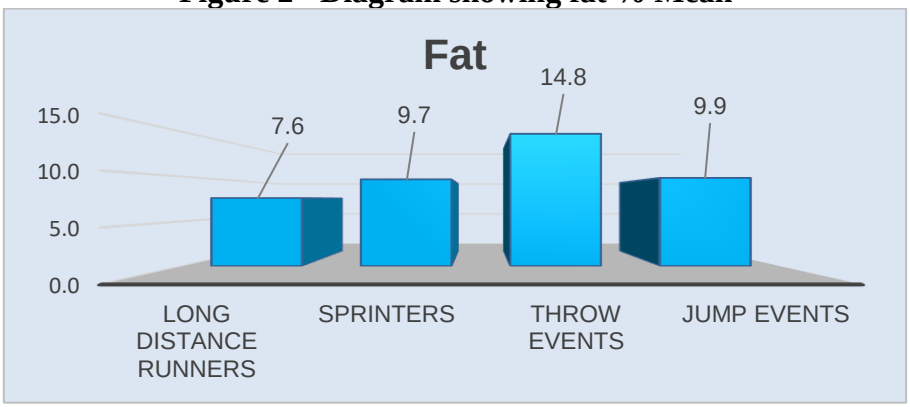
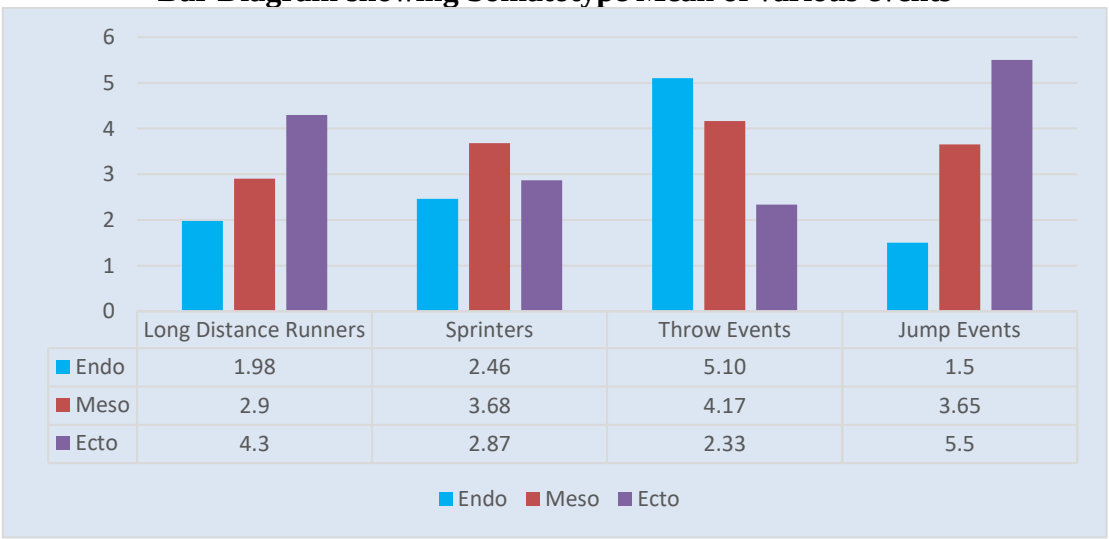


Table 3 -Showing somatotype profiling and Somatotype Categories of Athletes Across Events (Mean ± SD)

Events	Endomorph	Mesomorph	Ectomorph	Somatotype Categories
Long Distance Runners	1.98±0.27	2.9±1.07	3.7±0.96	Mesomorphic Ectomorph
Sprinters	2.46±1.1	3.41±1.08	3.97±0.9	Ectomorphic Mesomorph
Throwers	5.1±0.89	4.16±1.34	2.3±1.1	Mesomorphic Endomorph
Jumpers	3.5±0.2	3.6±0.35	5.5±1.5	Balanced Ectomorph

Figure - 3
Bar Diagram showing Somatotype Mean of various events



4. DISCUSSION

From the result of the table 3, Track and field athletes possessed as low as 1.9 % body fat for the marathon runners whereas the throwers reported to be with a higher value of 5.1 %. It also proved that the athletes of throw events were Mesomorphic Endomorph, the most dominant component of somatotype was mesomorphy, probably as the result of high musculoskeletal robustness with a mean of 4.16 ±1.34. These results clearly suggest the higher muscular development of the athletes along with high fat endomorph revealed in throw events.

The result of this study on throwers has been reliable with the research done by Aitken et al. (1980) and Franchini et al. (2011). It was revealed that the athletes, mean somatotype of the sprinters was 2.46, 3.41, 3.97 (Ectomorphic Mesomorph).Most of the male athletes were very poor in muscularity, which were less than 4, whereas Olympic athlete have a muscularity of 5 compiled by Carter [8].

It was proved that the athletes, with average somatotype of the long distance runners was 1.98, 2.9 and 4.7. The lowest level of mesomorphy among the athletes was revealed for long distance runner (2.9 ± 1.07). It has been featured the lowest endomorphy levels (1.98±0.27. It means the smallest body fat mass. The result of this study on long distance runners has been reliable with the research done by Arazi et al. (2015) and Franchini et al. (2011). The somatotype of Jump events was balanced ectomorph with an average somatotype of 3.5–3.6–5.5 (balanced ectomorph). The somatotype of high jumpers was very different from the other athletes. These athletes had the high ectomorphy level (5.5±1.5), which was much greater than endomorphy and mesomorphy. The high jumpers' high stature and physique has been mainly genetically determined, their training process does not involve the intensive power loads, aimed at developing of the muscles of the upper part of the body. Some researchers revealed that the average somatotype for jumpers – 2.2–4.1–4.4 (mesomorph-ectomorph) [3] and 2.1–4.7–3.4 (ectomorphic mesomorph)[9].

5. Conclusion

The performance level of Track and Field events in India was not good enough compared to other countries even when compared with Asian athletes. Most of the athletes in India are from low socio- economic status. Only few athletes were from middle-income group. This poor socio economic status causes unavailability of proper nutrition required for the athletes' growth and development during their adolescent stage, absence of which hinder the growth and development of muscle along with other physical characteristics, though they show good performance in their own events which they did not.

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ANTHROPOMETRIC CHARACTERISTICS AND SOMATOTYPE PROFILING OF TRACK AND FIELD ATHLETES ACROSS EVENTS

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Abstract

Sports activities should be carefully chosen considering how an athlete's body responds to physical demands, which is largely governed by the characteristics of their somatotype. Anthropometrical dimensions have been related to work output, recognizing their potential significance in influencing attained level of athletic performance. Twenty athlete from different specialization (N = 20) were randomly selected, and their age ranged between 18 and 27 years from South West Zone University level athletes in India The male athletes mean were 20.05 yr old in average with the range between 18 years and 24 year (± 2.11). The average statue obtained was 171.3 with the range between160 to 190 (±7.35). Fat % of male ranged between 6% - 18 % with a mean of 12.8 %. The athletes were ectomorphic mesomorph in average. The obtained components were 2.6-3.5-5.01 with a standard deviation of ± 1.38, 1.9, 7.63 for endo-meso-ecto components. Jump events athlete were taller than the other athletes with a mean and standard deviation of 176.95 ±1.05. Throw events athlete were heavier than the other athletes with a mean and standard deviation of 73.9 ±5.52.Lomg distance athlete have less fat % mean of 7.6% and high fat in throw events with a mean of 14.7%. It was concluded that there existed significant difference among the track and field athletes across athletic events and there existed significant differences within the athletes of specific track and field events from selected 20 samples. Good performance in their own events might be hampered by their poor physical characteristics compared to international athletes. Hence, it could be concluded that anthropometrical characteristics were one of most influential factors in determining good athletic performances besides other physiological characteristics.

Key: Anthropometric characteristics, Somatotype and Body Composition

1.Introduction

The training of highly skilled athletes requires deep analysis and consideration of their anatomical characteristics. The adaptation of training process to the peculiarities of the physique and composition of the body of athlete and to some other morphological and functional characteristics creates the conditions for complete realization of his physical abilities(1). There are only a few studies in which the body structure of athletes has been evaluated with the use of the modern approaches of constitutional morphology, the model somatotypes of the athletes of different sports are compared and individual differences have been revealed (1,2,3). Several authors have examined the anthropological uniqueness of athletes (4, 5). There are very few studies described the distinctive characteristics of body structure, proportions and somatotype of the athletes (Runners, Jumpers and throwers).

Heath-Carter method is used primarily in its anthropometric form in practice, and it is best suited for sports science. Anthropometric measurements are objective and can show body shape, composition, and proportionality. Coaches and Physical Educators manifest an interest in somatotyping as a means of relating body type to success in various sports. The somatotypes of men and women athletes in various sports vary in which they excel.

1.1 SOMATOTYPE AND ATHLETIC PERFORMANCE

Athletic performance is in large part dynamic expression of the design of the human body. The belief, that an individual's morphology is related to his capacity for athletic achievement appeared early in written history. Thus there are three general groups of athletes, i.e., round, muscular and slender.

Endomorphs arc stronger than ectomorph, but ectomorphs possess more speed, agility and endurance. Excess weight is handicap to endomorphs and insufficient strength is a handicap to ectomorphs in performing physical tests.

The physical performance of extreme somatotypes in motor and strength tests was studied by Sills and Everett. In addition to the above, they also found that mesomorphs and are stronger,

more agile, and are superior in speed and endurance. However mesomorphs had little or no relation to weight and taller individuals tend to have less mesomorphic components. Thus, the combination in one individual to extreme height and the rugged characteristics of the mesomorph, which would constitutes an ideal build for many sports, is seldom found.

The relationship between endurance performance, body measurements and physique appears to be of more important. It is often found that the illustrations of the effect of such traits are associated with performance mainly because of their correlation with other determinants of performance. In some sports, differences in physique are found at the highest level of competition, while other sports somatotypes are quite similar.

Selection by morphologic means is an instrument for the coaches for the development of successful athletes. Although other factors, such as motivation, diligence in training, may override morphologic constituents, the athlete's chance for success is enhanced if he engages in sports well suited to his specific physical characteristics. Thus the present study was aimed to evaluate the anthropometric characteristics of the athletes of different specialization and somatotype profile - Endomorphy, Mesomorphy and Ectomorphy components of athletes at various specializations among different athletic event of South West Zone University level.

2. Method

2.1. Subjects

To compare and analyze the selected Anthropometric Characteristic and somatotype profiling of track and field athletes across events. The subjects were selected from the South West Inter University Athletic Championship conducted in Tamil Nadu Physical Education and Sports University, Chennai. To achieve the purpose 20 athlete from different specialization (N = 20) were randomly selected, and their age ranged between 18 and 27 years.

2.2. Anthropometric and Somatotype Measurements

The following variables were selected: weight, Height, Skeletal Diameters (Humerus Bicondyler width (Elbow width), Femur Bicondyler diameter (Knee width), Circumference (Arm Flexed circumference, Calf circumference), Skinfold measurements (Biceps Skinfold, Triceps Skinfold, Subscapular Skinfold, Supraspinal Skinfold, Calf Skinfold width and Somatotype Profile (Ectomorph, Endomorph, and Mesomorph). Electronic weighing machine, stadiometer, sliding caliper, anthropometry steel tape (non-stretchable), Harpenden skinfold calliper, were used in this study. Heath – Carter method (1967) was followed for Somatotype rating. The following equations were uses for calculating somatotype.

3. Result

Table1 show the anthropometrical and somatotype of male athletes. The male athletes mean were 20.05 yr old in average with the range between 18 years and 24 year (± *2.11*). The average statue obtained from the table was 171.3 with the range between160 to 190 (±*7.35*). The tallest male of the group was 190 cm compare to the shortest stature of 156.0 cm. The body weight of the male athlete varied from 49 kg to 80 kg with an average body weight of 59.7 kg (± *9.41*). Fat % of male ranged between 6% - 18 % with a mean of 12.8 %. Poor muscularity with less mesomorph component were observed for most of the athletes. The athletes were ectomorphic mesomorph in average. The obtained components were 2.6-3.5-5.01 with a standard deviation of ± 1.38, 1.9, 7.63 for endo-meso-ecto components. The obtained mean values were illustrated through Figure I for better understanding of the results.

Table - 1
Showing Mean and Standard Deviation of Anthropometrical and Somatotype Profile

S.NO	Event	Age	Height	Wt	fat %	Endoo	Mesoo	Ectoo
1	1500	18	167.7	57.6	7	2.1	4.4	3.2
2	1500	19	175.9	59.1	9	1.8	3.1	4.5
3	SHOTPUT	20	181.1	72.6	16	5.4	3.6	3.2
4	5000/1000	21	168.3	49.3	6	1.8	2.8	5.1
5	JAVELIN THROW	18	175.1	69.2	10	4.1	3.2	2.7
6	800	19	165.6	60.3	11	1.9	2.8	2.4
7	100	18	163.6	55.6	11	3.5	2.1	2.8
8	HIGH JUMP	19	166.9	49.5	11	1.7	3.3	4
9	400	19	170.3	60.5	12	4.6	4.3	3.2
10	SHOTPUT/ DISCUS	20	173.9	80	23	5.8	5.7	1.1
11	800	19	168	54.4	13	1.6	2.8	3.9
12	MINI MARATHON	22	190	66.6	8	2.4	1.4	5.8
13	400 RELAY	18	156.2	51.3	7	3.7	4	2.2
14	4*100 RELAY	17	160.7	50.8	8	2.1	5.1	1.9
15	1500	20	172.5	54	8	1.8	2.8	4.9
16	200	20	178.5	60	15	1.9	2.5	4.8
17	100	23	167.7	52.9	6	2.5	5	2
18	triple jump	24	169	63	8	1.3	4	37
19	hurdles	24	172.8	66.9	8.1	1.5	4.6	2.6
20	100,200	23	178.3	71.3	7.4	1.3	3.6	2.9
MEAN		20.0	171.30	59.74	12.8	2.64	3.555	5.01
SD		2.11	7.35	9.41	2.36	1.38	1.09	7.63

Figure – 1 Showing Mean of Somatotype of Track and Field Athletes

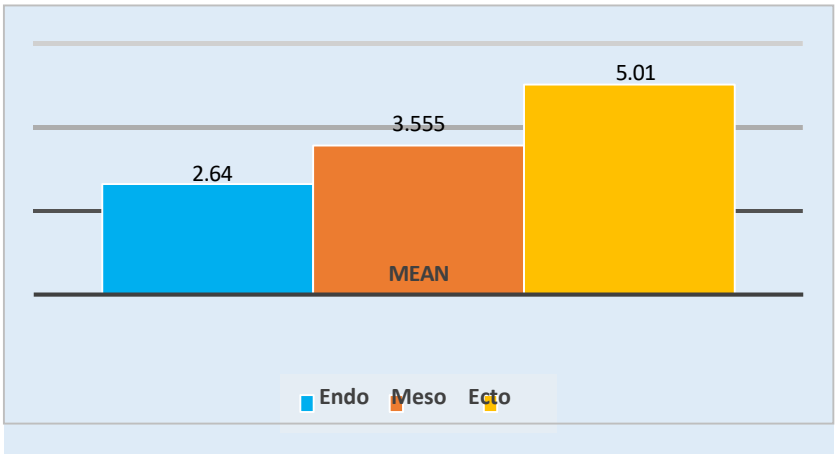


Table - 2
Showing Description of Athletes Across Events (Mean ± SD)

Events	Age	Height	Weight	Fat
Long Distance Runners	20±1.58	162.88±9.09	57.32±6.42	7.6±1.14
Sprinters	20 ±2.45	168.57 ± 6.8	57.4 ±8.52	9.68 ±2.88
Throw Events	19.3 ±1.15	156.7±3.86	73.9±5.52	14.76±4.0
Jump Events	21.5 ±2.5	176.95 ±1.05	56.25 ±6.75	9.85 ±1.65

Table - 2 shows the characteristics of the study sample and the results from the statistical analysis for differences between Long Distance Runners, Sprinters, Throw Events and Jump Events. Jump events athlete were taller than the other athletes with a mean and standard deviation of 176.95 ±1.05. Throw events athlete were heavier than the other athletes with a mean and standard deviation of 73.9 ±5.52.Lomg distance athlete have less fat % mean of 7.6% and high fat in throw events with a mean of 14.7%. The mean values of fat were illustrated through Figure 2 for better understanding of the results.

Figure 2 - Diagram showing fat % Mean

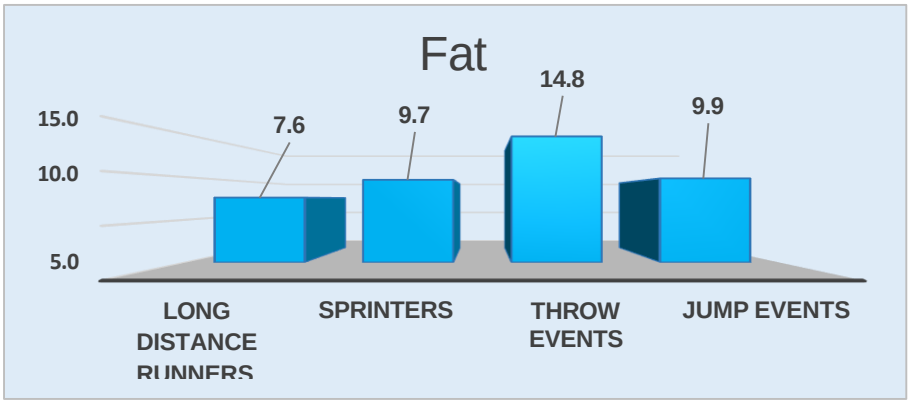
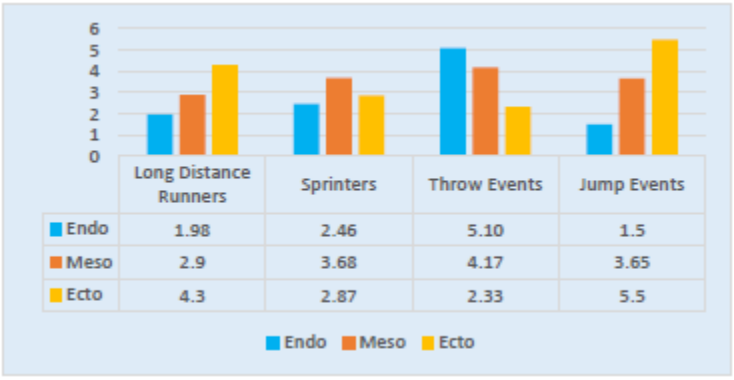


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Events	Endomorph	Mesomorph	Ectomorph	Somatotype Categories
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Jumpers	3.5±0.2	3.6±0.35	5.5±1.5	Balanced Ectomorph

Figure - 3



Bar Diagram showing Somatotype Mean of various events

4. DISCUSSION

From the result of the table 3, Track and field athletes possessed as low as 1.9 % body fat for the marathon runners whereas the throwers reported to be with a higher value of 5.1 %. It also proved that the athletes of throw events were Mesomorphic Endomorph, the most dominant component of somatotype was mesomorphy, probably as the result of high musculoskeletal robustness with a mean of 4.16 ±1.34. These results clearly suggest the higher muscular development of the athletes along with high fat endomorph revealed in throw events. The result of this study on throwers has been reliable with the research done by Aitken et al. (1980) and Franchini et al. (2011). It was revealed that the athletes, mean somatotype of the sprinters was 2.46, 3.41, 3.97 (Ectomorphic Mesomorph).Most of the male athletes were very poor in muscularity, which were less than 4, whereas Olympic athlete have a muscularity of 5 compiled by Carter (8).

It was proved that the athletes, with average somatotype of the long distance runners was 1.98, 2.9 and 4.7. The lowest level of mesomorphy among the athletes was revealed for long distance runner (2.9 ± 1.07). It has been featured the lowest endomorphy levels (1.98±0.27. It means the smallest body fat mass. The result of this study on long distance

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5. Conclusion

The performance level of Track and Field events in India was not good enough compared to other countries even when compared with Asian athletes. Most of the athletes in India are from low socio- economic status. Only few athletes were from middle-income group. This poor socio economic status causes unavailability of proper nutrition required for the athletes' growth and development during their adolescent stage, absence of which hinder the growth and development of muscle along with other physical characteristics, though they show good performance in their own events which they did not.

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EFFECT OF YOGA WITH WALKING PRACTICES ON ANXIETY AND ADJUSTMENT AMONG STRESSED COLLEGE STUDENTS

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Abstract

The present random group experimental study was designed to find out the effect of Yoga with Walking Practices on Anxiety and Adjustment among Stressed College Students. It was hypothesized that there would be significant difference due Yoga with Walking Practices than the control group on Anxiety and Adjustment among Stressed College Students. To achieve the purpose of the study, thirty (30) Stressed College Students residing in Chennai age between 18 to 22 years were selected randomly two groups, namely a experimental group and control group of fifteen (15) subjects each. Training period of this study was twelve weeks. Experimental group underwent yoga practices with Walking Practices for twelve (12) weeks, six days a week for a maximum of one hour in the morning. The control group was kept in active rest. The pre test and post test were conducted before and after the training for all two groups. To analyses the data (ANCOVA) was used. The test of significance was fixed as 0.05 level of confidence. It was concluded that there was significant decreased in Yoga with Walking Practices than the control group on Anxiety and Adjustment (increased) among Stressed College Students.

Key Words: *Yogic practice, Walking Practices, Anxiety and Adjustment*

INTRODUCTION

Stress is tension, strain and pressure, According to Hans selye, It is a non-specific body responses to any unfavorable effect. It is mental or emotional exhaustion. It is worry caused by the problems in life. It is an inability to cope with a certain tense event or situation. Stress is the result of a relationship between the person and the environment in which the person believes the situation is overwhelming and threatens his or her ability to cope of may have both positive and negative, it can be constructive or destructive. Shortening of the telomere length in the DNA is the prime reason for stress.

Stress is responsible for as much as 80 percent of all illness today. It leads to heart disease, diabetics, headache and peptic ulcer directly. It leads to loss of brain volume. Stress according to yoga is imbalance.

Stress has two types:

Psychological: Informational (Decision Making- Slowness), Emotional (Threat, Danger) Physiological: Excess release of adrenaline, Nor-adrenaline and cortical hormone. Walking Practices has more hesperidins, polyphenols, flavanols, and the health giving chemicals which have more antioxidants to avoid discomfort. Thermogenesis (metabolic process) will take place perfectly if the food is correctly balanced and through yogic practices.

Walking Practices promotes life, virtue, strength, health, performance, happiness, purification of inner being and satisfaction**.**

Yogic practices and Walking Practices on all aspects like physical, mental, and emotional etc., Regular practice of yoga with Walking Practices and controlled life style reduces Stress **(www.yoga point .com).** The researcher of this study, therefore, intends to see the effect of yoga and walking practices in controlling Stress among college students.

STATEMENT OF THE PROBLEM

The purpose of the study was to find out the effect of Yoga with Walking Practices on Anxiety and Adjustment among Stressed College Students.

HYPOTHESIS

It was hypothesized that there would be significant differences due to Yoga with Walking Practices than the control group on Anxiety and Adjustment among stressed college students.

REVIEW OF RELATED LITERATURE

Virginia Lemay et.al., (2019), conducted study on the Impact of a Yoga and Meditation Intervention on Students' Stress and Anxiety Levels. The College students participated in a six-week pilot program that consisted of a 60-minute vinyasa flow yoga class once weekly, followed by guided meditation delivered by trained faculty members at the University of Rhode Island college of Pharmacy. Students completed pre- and post-intervention questionnaires to evaluate changes in the following outcomes: stress levels, anxiety levels, and mindfulness skills. The questionnaire consisted of three self-reporting tools: the Beck Anxiety Inventory (BAI), the Perceived Stress Scale (PSS), and the Five Facet Mindfulness Questionnaire (FFMQ). Students' scores on each were assessed to detect any changes from baseline using the numerical and categorical scales (low, medium, and high) for each instrument. It was founded that the Seventeen participants, aged 19 to 23 years, completed the study. Thirteen participants were female and four were male. Nine of the students were enrolled in the Doctor of Pharmacy program and eight were enrolled in other academic programs. Students' anxiety and stress scores decreased significantly while their total mindfulness increased significantly. Changes in categorical data from pre- to post-intervention on the BAI and PSS were significant, with no students scoring in the "high" category for stress or anxiety on the post-intervention questionnaire. It was concluded that the Students experienced a reduction in stress and anxiety levels after completing a six-week yoga and meditation program preceding final examinations. The Results suggest that adopting a mindfulness practice for as little as once per week may reduce stress and anxiety in college students.

Kim Sang Dol (2019), conducted study on the effects of a yoga nidra on the life stress and self-esteem in university students. To assess the effects of a yoga nidra on life stress and self-esteem in university students. This study is a non-equivalent control group pretest-posttest design. Forty university students were selected by convenience sampling, with 20 assigned to a yoga nidra group and 20 to a control group. The yoga group participated in bi-weekly, 1-h sessions of yoga nidra for 8 weeks. Life stress intensity level was measured using a 10 cm Visual Analog Scale. Self-esteem score was measured by Rosenberg's Self-Esteem Scale. The yoga nidra group showed significantly decreased life stress intensity levels compared to the control group. The yoga group also showed significantly increased self-esteem scores compared to the control group. It was concluded that the yoga nidra practices could alleviate the life stress intensity level and increase the self-esteem in university students.

METHODOLOGY

For the purpose of this random group experimental study, thirty (30) stressed college students in chennai were selected at random as subjects based on their Anxiety and Adjustment and their age was ranged from 18 to 22 years. Yoga with Walking Practices were given six days (monday to saturday) per week for twelve weeks. All the subjects were randomly assigned to experimental groups and control group each consisted of 15 subjects. Experimental group was involved in Yoga with Walking Practices for twelve (12) weeks and the control group kept in active rest. The Yoga with Walking Practices given to experimental group include breakfast; sprouts idly chattni, banana or guava, snacks; vegetable soup / vegetable, Lunch; Rice, Green leafy vegetables, vegetables, fruits, butter milk and Honey, snacks; Nuts, fruits like Banana, Grapes, dinner; chapatti, dal or cereals, vegetables, fruit salad, fruits and milk, prayer, Loosening the joining, Suryanamakar, Tadasana, Trikonasana, Padahastasana, Gomukhasana, Paschimottasana, Ustrasana, Ardhamatsyendrasana, Bhujangasana, Salabasana, Dhanurasana, Navasana, Sarvangasana, Shashangasana, Savasana, Bhramari Pranayama, Kapalbhati Pranayama, Sukha Poorva Pranayama, Yoga Nidra Meditation and Relaxation and walkingTechniques. Initially pre-test was taken and after the experimental period of twelve weeks, post-test was taken from all the two groups. The differences between initial and final

Anxiety and Adjustment were considered as the effect of Yoga with Walking Practices on selected subjects. Analysis of Covariance (ANCOVA) was used to find out the difference among the experimental group and control groups. The test of significance was fixed as 0.05 level of confidence.

RESULTS AND DISCUSSION

The data pertaining to the variables collected from the two groups before and after the training period were statistically analyzed by using Analysis of Covariance (ANCOVA) to determine the significant difference and tested at 0.05 level of significance.

RESULTS ON ANXIETY

The Analysis of Covariance (ANCOVA) on Anxiety Yoga with Walking Practices and control group was analyzed and are presented in table-I

Table-I

COMPUTATION OF ANALYSIS OF COVARIANCE OF TRAINING GROUPS AND CONTROL GROUP ON ANXIETY (in scores)

Test	EXP GROUP	CON GROUP	SV	SS	Df	MS	F
Pre test Mean	25.53	24.86	Between	3.33	1	3.33	0.47
			Within	197.46	28	7.05	
Post test Mean	19.53	24.53	Between	187.5	1	93.75	6.73
			Within	389.46	28	13.90	
Adjusted test Mean	19.23	24.83	Between	231.31	1	115.65	13.61
			Within	229.37	27	8.49	
Mean difference	6	0.33					

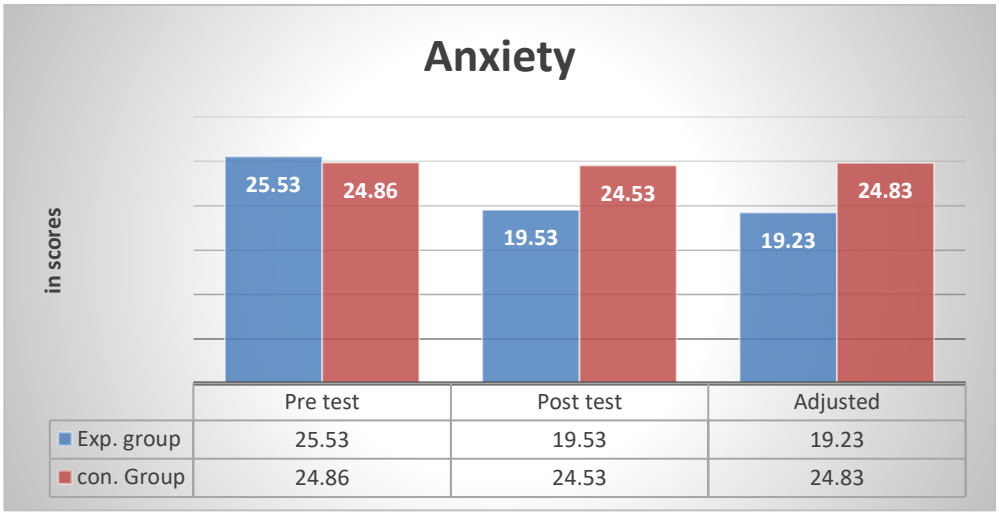
***Significant at 0.05 level of confidence (Table F-ratio at 0.05 level of confidence for 2 and 28 (df) =4.20, 1 and 27 (df) =4.21).**

The obtained F-ratio value for the Anxiety were greater than the table value, it indicates that there was a significant difference among post test and adjusted post-test means of the Yoga with Walking Practices group than the control group.

The pre-test, post-test and adjusted post-test mean values of Yoga with Walking Practices and the control group on Anxiety were graphically presented in Figure 1.

Figure 1

Bar diagram showing the mean difference of Yoga with Walking Practices group, and control group on Anxiety (in scores)



***Significant at 0.05 level of confidence.**

RESULTS ON ADJUSTMENT

The Analysis of Covariance (ANCOVA) on Adjustment Yoga with Walking Practices and control group was analyzed and are presented in table-I

Table- II

COMPUTATION OF ANALYSIS OF COVARIANCE OF TRAINING GROUPS AND CONTROL GROUP ON ADJUSTMENT (in scores)

Test	EXP GROUP	CON GROUP	SV	SS	Df	MS	F
Pre test Mean	25.33	26.06	Between	4.03	1	4.03	0.37
			Within	298.26	28	10.65	
Post test Mean	31	25.66	Between	213.33	1	106.66	12.69
			Within	235.33	28	8.40	
Adjusted test Mean	31.06	25.60	Between	220.36	1	110.18	13.11
			Within	226.83	27	8.40	
mean difference	5.66	0.4					

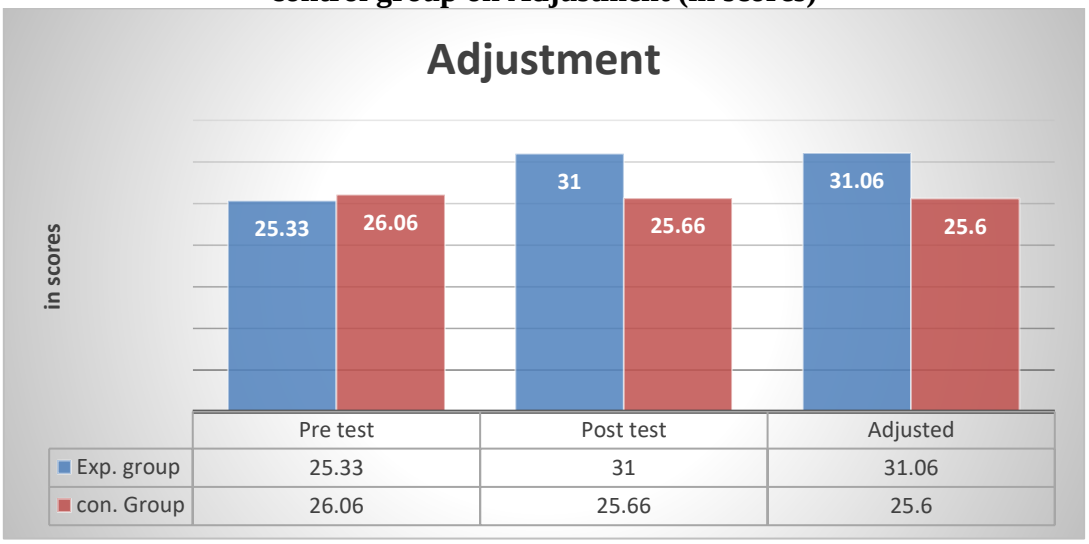
***Significant at 0.05 level of confidence (Table F-ratio at 0.05 level of confidence for 2 and 28 (df) =4.20, 1 and 27 (df) =4.21)**.

The obtained F-ratio value for the Adjustment were greater than the table value, it indicates that there was a significant difference among post test and adjusted post-test means of the Yoga with Walking Practices group than the control group.

The pre-test, post-test and adjusted post-test mean values of Yoga with Walking Practices and the control group on Adjustment were graphically presented in Figure 2.

Figure 2

Bar diagram showing the mean difference of Yoga with Walking Practices group and control group on Adjustment (in scores)



***Significant at 0.05 level of confidence.**

CONCULSIONS

It was concluded that there was significant decreased in Yoga with Walking Practices than the control group on Anxiety and Adjustment (increased) among stressed college students.

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EFFECT OF SHADOW TRAINING WITH SURYANAMASKAR PRACTICES ON SELECTED SKILL RELATED PHYSICAL FITNESS VARIABLES OF BADMINTON PLAYERS

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Abstract

The impartial of this study was to travel the shadow training with Suryanamaskar practices on selected skill related physical fitness variables of badminton players, totally 30 inter collegiate players to participate in this study. Treatment group I underwent shadow training with Suryanamaskar practices, group II acted as control group. All thirty subjects were inducted for pre and posttest on speed and agility. The shadow training with Suryanamaskar practices was given to the experimental group for 5 days per week (Monday to Friday) for the period of eight weeks. The control group was not given any sort of training except their routine work. The speed (50 meter test in seconds) and agility (4 x 10 meter shuttle run in seconds) were assessed before and after training period. The result from 't' test and inferred that 12 weeks shadow training with Suryanamaskar practices treatment produced identical changes over speed and agility of badminton players. Further, the findings confirmed the shadow training with Suryanamaskar practices is suitable protocol to bring out the desirable changes over speed and agility of badminton players.

Keywords: *Shadow training with Suryanamaskar practices, Speed, Breath holding Agility and Badminton Players*

INTRODUCTION

Badminton is one of the most popular sports in the world that can easily be played inall age groups for competition or recreation **(Sucharitha, Reddy, and Madhavi, 2014;** It is stated that there are greatbenefits for beginners to teach the techniques of shooting and running together (**Salman and Salman, 1994).** In this way, the athlete can improve the strength of the muscles of the leg muscles, the overall strength and the quickness, while stabilizing the running technique. In this sport it is very important for success to complete a move (long step) quickly and return to the starting point or to move in another direction **(Kale, 2011; Vicen, Del Coso, Millan,Salinero, and Abian, 2012).**Badminton is a sport where you have to think very fast during the game and make the necessary moves and make sure your technique is important to be able to send the ball to the target ball. However, it is necessary to be in the right place at the right time so that the technique and tactic can be applied smoothly and easily. Badminton is the basic principle to meet the ball coming in the game at the front and top. One of the most important conditions for this is to have running techniques in the badminton sport-specific court. Because in today's badminton, the technical skills are largely based on running, foot movements have a great precaution.

These values show how a hit is made in almost a second in rallies and how fast the game is played, which reveals the importance of badminton-specific foot movements and work in badminton sports. Although it has been indicated by some sources that the pacing exercises of shadow badminton are used in foot exercises and constitute a considerable part of them (Badminton Association of England, 2002; **Yousif & Yeh, 2011),** there is very little in the literature about special foot practice **(Chin et al., 1995; Hazar, 2005).**The main purpose of the study was to investigate the effects of a 12-week shadow badminton training course on some the motoric features in children aged 8-10 years. In addition, the other objective was to compare the practice of shadow badminton with classic badminton practice to determine the frequency and duration of shadow badminton training in beginners at the sport.

MATERIALS AND METHODS

To attain the determination of the study 30 badminton players at the age group of 21-

25 years were selected from various academy in Coimbatore district. The selected subject was randomly assigned into two equal groups, consist of fifteen each, namely shadow training with Suryanamaskar practices group (n=15) and Control group (n=15). The respective training was given to the experimental group the 5 days per weeks (Monday to Friday) for the training period of twelve weeks. The control group was not given any sort of training except their routine. The evaluated speed were measured by 50 meters dash test the unit of measurement was in seconds and agility were measured by 4x10 meter shuttle run in seconds. The parameters were measured at baseline and after 12 weeks of shadow training with Suryanamaskar practices were examined. The intensity was increased once in two weeks based on the variation of the exercises. The training programme was lasted for 45 minutes for session in a day, 6 days in a week for a period of 12 weeks duration. These 45 minutes included warm up for 10 minutes, 25 minutes specific skill training with pranayama and warm down for 10 minutes. The equivalent in shadow training with Suryanamaskar practices is the length of the time each action in total 5 day per weeks. (Monday to Friday)

STATISTICAL ANALYSIS

The collected data on speed and agility due to the combination of shadow training with Suryanamaskar practices was statically analyzed with "t" test to find out the significant improvement between pre& posttest if any. In all case the criterion for spastically significance was set at 0.05level of confidence (P<0.05).

TABLE - III

COMPUTATION OF 'T' RATIO ON SPEED OF BADMINTON PLAYERS ON EXPERIMENTAL GROUP AND CONTROL GROUP (Scores in Numbers/ Seconds)

Group	Test		Mean	Std. Deviation	T ratio
Speed	Experimental Group	Pre test	7.74	0.49	4.56*
		Post test	7.52	0.31	
	Control Group	Pre test	7.71	0.21	0.96
		Post test	7.75	0.41	

***significant level 0.05 level (degree of freedom 2.14, 1 and 14)**

Table II reveals the computation of mean, standard deviation and 't' ratio on speed of experimental and control group. The obtained 't' ratio on speed were 4.56 and 0.96 respectively. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the experimental group 't' values were greater than the table value of 2.14, it was found to be statistically significant. The control group 't' value is less then table value of 2.14 it was found to be statistically insignificant.

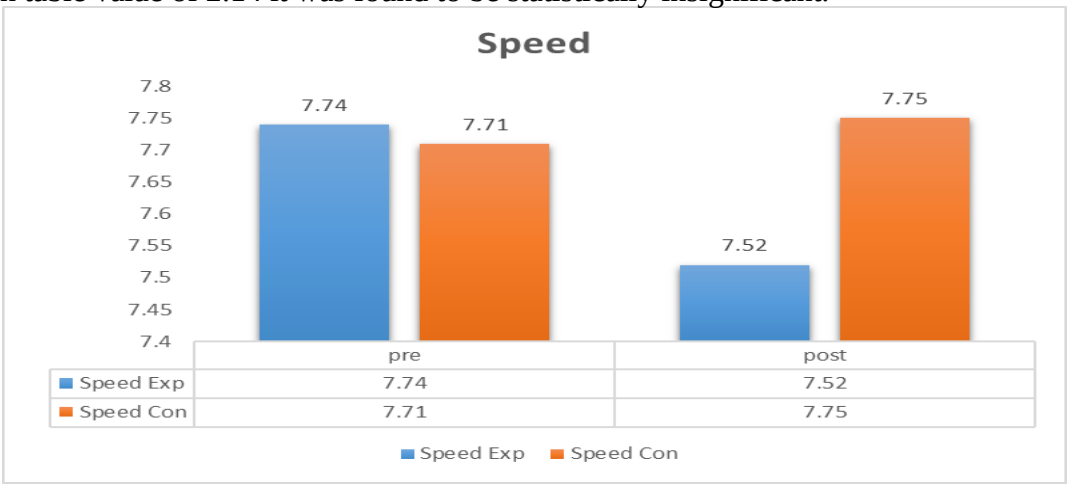


FIGURE- I

BAR DIAGRAM SHOWING THE MEAN VALUE ON SPEED OF BADMINTON PLAYERS ON EXPERIMENTAL GROUP AND CONTROL GROUP

TABLE - IV
COMPUTATION OF 'T' RATIO ON AGILITY OF BADMINTON PLAYERS ON EXPERIMENTAL GROUP AND CONTROL GROUP
(Scores in Numbers/ Seconds)

Group	Test		Mean	Std. Deviation	T ratio
Agility	Experimental Group	Pre test	11.32	1.08	14.64*
		Post test	10.43	1.25	
	Control Group	Pre test	11.29	0.99	0.82
		Post test	11.26	0.78	

*significant level 0.05 level (degree of freedom 2.14, 1 and 14)

Table I reveals the computation of mean, standard deviation and't' ratio on agility of experimental and control group. The obtained't' ratio on agility were 14.64 and 0.82 respectively. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the experimental group 't' values were greater than the table value of 2.14, it was found to be statistically significant. The control group 't' value is less then table value of 2.14 it was found to be statistically insignificant.

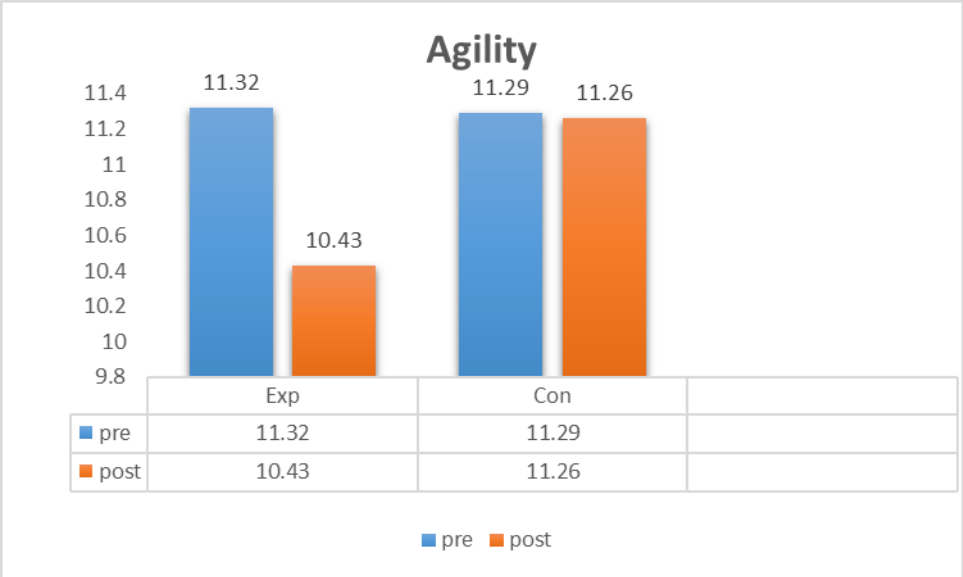


FIGURE- II
BAR DIAGRAM SHOWING THE MEAN VALUE ON AGILITY OF SOFTBALL PLAYERS ON EXPERIMENTAL GROUP AND CONTROL GROUP

4. DISCUSSION ON FINDINGS

The current study examined the effect of shadow training with Suryanamaskar practices on the selected variables are speed and agility of the badminton players. The results of this study indicated that shadow training with Suryanamaskar practices is more efficient to bring out needed changes over the speed and agility of the badminton players.

The speed performances of the subjects participating in the study were determined by the 50 m speed run test. In a study conducted on young male badminton players .It was reported that the mean value of 50 m sprint average was4.76 sec in the study performed on 1777 female children between 8-10 years of age (Ayan,2008) and 4.47 sec in another study done on male children in the same age range (**Ayan, Erol,Mülazımoğlu, and Gültekin, 2008).** It can be said that these results are similar to the mean values of 20 m speed in the study. According to pre-test results, when the CG subjects got better scores than the subjects who made up the SB group, but the intermediate test and the post-test were examined, it was seen that the subjects

who formed the group of the resultant training program got better scores than the CG at 50 m speed. This can be a sign that shadow badminton training has a positive effect on acceleration.

The 4x 10 meter shuttle running test was applied to the subjects participating in the study and the maximum oxygen consumption capacity was determined by the values obtained from 4x 10 meter shuttle running test. When the results related to maximum oxygen capacity were examined, mean values of male subjects were statistically higher than female subjects in terms of gender factor. In a study of 11-year-old girls and boys who did not exercise, the mean values of Max VO2 were 27.76 ml / kg / min and 32.11 ml / kg / min, respectively(**Saygın, Karacabey, and Saygın, 2011)**. In another study conducted at 7-11 years of age, aerobic capacities of 766 male students were reported as 46,4 ml / kg / min **(Esmaeilzadeh,Kalantari, and Nakhostin-Roohi, 2013).**

The result from this study are very hopeful and it proves the benefits of shadow training with Suryanamaskar practices. The badminton players are not only using dance exercises to improve their flexibility but also to improve the presentation. Also, the results support that development in mobility can occur 12 weeks of shadow training with Suryanamaskar practices.

CONCLUSIONS

Based on the result of the study it was concluded that the shadow training with Suryanamaskar practices have been significantly changes in speed of badminton players. It was concluded that the shadow training with Suryanamaskar practices have been significantly changes in agility of badminton players.

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NEURO-LINGUISTIC PROGRAMMING IN SPORTS FROM SUB-MODALITIES PERSPECTIVE

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Abstract

This paper intends to focus on the basics of Neuro Linguistic Programming from the perspective of Modalities and Sub-modalities. The human brain's perception of these Modalities and its operation with the use of these modalities are important basic fundamentals of Neuro-Linguistic Programming. The quality of representations is that these Sub-modalities could be used for better expected behavioural changes. NLP tends to individualize representational systems based on what a person prefers: V – visual, A – auditory, K – kinaesthetic or tactile, olfactory, and gustatory, And more especially the expected behavioural change in the area of sports is the new area of concern for the coaches and sports person. Playing ability and playing performance are improved rapidly by using Neuro Linguistic Programming is the core substance of this article.

Introduction

It is important to be technically and tactically intelligent in a specific sports skill. However, it is not sufficient enough to perform to the highest degree. We know when the stress in the match is high, one who is able to hold his or her nerves is the winner, in spite of the technical abilities of the sports person. In addition, it is necessary to have, mental skills and emotional intelligence for high-level performance. A coach and the player should know when and where to add psychology. *NLP* gives a coach the authority to stimulate certain states in the player's mind. Invoking states can help bring out the best in a player.

Neuro linguistic Programming

NLP is broken down into the three different words that the name includes: *neuro*, *linguistic*, and *programming*.

Neuro: refers to the mind. More specifically, how the states within the mind impact communication, emotion, and behavior.

Linguistic: involves the understanding that mind and body states are manifested through communication and language. Language is what's used to gain insight and understanding into the mind.

Programming: involves the ability to alter the mind and states within the body through training. Right now, you operate off one program, and with NLP, the aim is to program yourself in a different way.

The Representational system - Modalities

The information from the real world is gathered through the five senses. **Korzybski (1933, 1994)** argued that we don't deal with "reality" directly but only indirectly via our nervous system and sense receptors. In NLP (Bodenhamer 1999) it is referred as the Representational system. These senses not only funnel in the information but all the more it does activate the memory to produce behavior. When we recall the memories, it is recalled in the same representational system. **Bandler and Grinder** suggest that through the processes of deletion (for we cannot process all the information we receive through the senses **Miller (1956**)), generalization (With the over-abundance of data, we generalize to summarize patterns), and distortion (When we make as thought, belief, value or attitude), each one of us abstract or summarize what is perceived into a representational system. In simple terms, we store our memories with these senses and we re-present information primarily visually, auditorily, and kinaesthetically. This means that the way people represent information using the rep system

within themselves will come out in their words and in action. Here pacing could be done if one matches almost the other person's representational system, visual, auditory or kinaesthetic respectively. A good awareness of the representational system will help one to improve any field of his endeavour.

Again, in communication, we verbally re-present the model of the world. We can also understand the representational system of the other person through listening to their words (visual, auditory, and kinaesthetic words). When we consciously use the mirroring and matching with such predicates the rapport building will be achieved with such an ease. **Woodsmall (1989**) later wrote that the "...internal and external processes that people experienced were correlated with both eye movements and predicates. These eye movements do not occur randomly. Each movement of the eyes functions to indicate certain neurological processing. The patterns go as follows: when most right-handed people move their eyes up and to the left, they recall pictures previously seen (the visual process of remembered material). When they move their eyes up and to the right **(Young, 1999**), they construct an image putting together pieces which they may not have ever seen. The eye movements and positions do not create the internal experience but reflect and indicate internal neurological information processing. Woodsmall (1990) wrote about the scientific basis for eye-accessing cues: "Scientists have discovered a basic and ancient mechanism in the depths of the brain that physiologically relates eye movements to sensory memory recall. Called the "reticular formation," this dense bundle of nerves serves as a sensory filter for the brain, deciding which messages are significant enough to be sent to the conscious mind for attention.

The sub-modalities - VAKOG

Sub-modalities represent one of the most basic components of the way the brain functions. Given that we use three primary modes (modalities) for "thinking," these modalities (VAK) mean that we represent the world in our minds by sights, sounds, and sensations. We also use smell and taste, but typically they play a minor role. For now, we want to focus on the primary level sensory-based representations—our VAK representations—and describe how we can make further distinctions in these internal representations, namely, their qualities. **Bandler and MacDonald (1988)** have written that if you change the sub-modalities of a belief, you can change the belief. Similarly, with Time-Lining we use the metaphor of a "line" designating "time." This seems to work because of the physiological fact that sub-modalities inform our autonomic nervous system about how to respond. Thus, all of the changes made through Time-Line processes, as well as any process, occur ultimately at the sub-modality level. Thus becoming aware of the sub-modalities and changing them would result in a desired behaviour.

- **Visual** – is it bright, or dim? Coloured or black and white? How much colour? Is it big or small? Is it near or far? In focus, or out of focus? Associated or dissociated
- **Auditory** – is it loud or soft? Is it high-pitched or low-pitched? Does it have a range? Is it near or far? Is it a point source or spread out? Where is it coming from? Is it clear or muffled?
- **Kinaesthetic** – where exactly is it? Does it have a size? A temperature? Does it stay the same, or does it move at all? Does it have a texture? Is it hard or soft?

Neuro Linguistic programming in Sports

(Shamoon, M., et Ismail M., 2001). The athlete who lacks positive psychological characteristics cannot achieve the highest levels no matter what abilities, physical fitness or technical skills he has, because these features directly affect the personality level (Abo Obaya, M., 1986). To increase the positive psychological characters the NLP does world of good. In this paper I would point out the use of sub-modalities and we can see the increased playing ability of the players.

Interventions by using the Sub-modalities

Building rapport with Sensory Predicates

Rapport building can be done by mirroring and matching. In NLP, we can build rapport by understanding the internal representation of the individual which is expressed through the words (Sensory predicates). If the person is visual, they will naturally express words that correspond to visual representation. When we become conscious of the visual words, we can match them mirror them with visual words build a rapport, and communicate with them better.

Anchoring

All the experiences are stored in the mind as sensory information. Technically it is a series of internal representations. In NLP this information has a positive feeling associated with it. When that sensory information that is helpful for us is purposefully triggered it brings about positive feelings and will result in good performance.

Association and dissociation

The association is being fully in experience seeing, hearing, and feeling what you saw, heard, and felt at that time. Dissociation is the ability to disassociate from those experiences of seeing, hearing, and feeling. Here the role played by the sub-modalities is huge. When we can manipulate the sub-modalities we can bring association or disassociation that is desired by us.

Conclusion

Neuro-Linguistic Programming is an emerging science. Initially, it was used as a tool in Psychotherapy, but seeing its wide applicability, it has been introduced into many fields, and more so especially it has found its prominent place in the field of sports. The sportsperson and the coaches becoming aware of its importance and they are making use of the Neuro-linguistic Programming techniques to the maximum. The simple use of the Sub-modalities and representational system makes it a user-friendly and very effective means.

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EFFECT OF SELECTED PRANAYAMA PACKAGE ON FORCED VITAL CAPACITY OF COLLEGIATE MEN

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Abstract

The purpose of the study was to find out the effects of selected pranayama package on Forced Vital capacity of collegiate men.. For this study 60 healthy untrained subjects were selected on random basis. The students were selected from various colleges from Pondicherry, India. The subject's age were ranged between 18 to 23 years. The selected subjects were divided into four groups, each group consist of fifteen (15) subjects. Group I underwent to practice vitalizing pranayama, group II underwent balancing pranayama and group III underwent cooling pranayama and group IV acted as a control group. The duration of the training period was stipulated to 12 weeks for 5 days per week (45 minutes). Control group was kept under control without any training. The forced vital capacity was measured by using dry Spirocek tests. Prior to and after the end of practice period all the subjects were tested on forced vital capacity. The 'F' ratio value was statistically analyzed and tested for significant difference at 0.05 level of confidence.

Introduction

Yoga is a path towards total harmony of body, mind, and spirit. The word Yoga comes from the Sanskrit word *yuj*, which means union. Union of the individual consciousness with the universal consciousness. Yoga is not merely a form of exercise for the body. It is an ancient wisdom - for a healthier, happier, and more peaceful way of living - which ultimately leads to union with the Self. It is an inherent desire in humans to be happy. The ancient sages, through inquiry about life, were able to reach a state of consciousness in which the secrets of healthier, happier, and meaningful living were revealed to them[1].

Yoga is one of the most ancient arts which help us to bring a kind of harmony among our mind, body and spirit. It belongs to all human beings not an individual religion. The continued to practice of yoga will make our whole environment as a beautiful garden and leads our mind to peace and our body to fit. The Kundalini moves by way of six psychics to skull, called Sahasrara, which is described as a lotus with a thousand petals. A true yogi should raise his Kundalini power through the nadi Sukshumana from one chakra to another until it reached the Sahasrara, So that his life attaining. The complete salvation to reach the position one must learn to control his body, mind and bring them under his control. He can control everything even the rhythm of his heart beat and he can live without food, water and even the air for breathing. Yogi have achieved super human control over their bodies. Thus many Indians and some foreigners perform yogic exercises only for their spiritual and physical development not for any special religious purpose[2].

Pranayama

Pranayama is a breath-control technique. In Sanskrit, pran means life and ayama means way. Pranayama can help you regulate your system, alter your mood and ensure longevity. The main aspects of Pranayama are inhalation, exhalation and retention. Pranayama always begins with inhalations and exhalations. This strengthens the lungs and balances the nervous system, preparing the body to hold the breath [retention]. Practicing Pranayama on a regular basis regulates energy flow to the 72 thousand nadis [channels through which consciousness flows] in our body, helping us improves our wellbeing[5].

Prana is the universal principle of energy or force. It is the sum total of all energy that is manifest in the universe, all the forces in nature and powers which are hidden in men and

which lie everywhere around us. This prana remains in a subtle, motionless, unmanifested, undifferentiated state during the cosmic pralaya, dissolution. When the vibration is set up, prana moves and acts upon akasha, space, and brings forth the various forms. The macrocosm, brahmanda, and microcosm, pindanda, are combinations of prana and akasha.

All forces, all powers and prana spring from the fountain or common source, known as atman. Heat, light, electricity, magnetism are manifestations of prana. It may be in either a static or a dynamic state. It is found in all forms from the highest to the lowest, from the ant to the elephant, the unicellular amoebae to man, from the elementary forms of plant life to the developed forms of animal life[4].

Major Types of Pranayama

- Nadi Sodhana
- Shitali Pranayama
- Ujjayi Pranayama
- Kapalabhati Pranayama
- Digra Pranayama
- Bhastrika Pranayama
- Bahya Pranayama
- Bhramari Pranayama
- Udgit pranayama
- Anuloma & Viloma Pranayama
- Agnisar Kriya

Hypothesis

It was hypothesized that there would be significant differences among the effect of pranayama packages on forced vital capacity of collegiate men.

METHODOLOGY

Selection of Subjects

The purpose of the study was to find out the effects of selected pranayama package on Forced Vital capacity of collegiate men.. For this study 60 healthy untrained subjects were selected on random basis. The students were selected from various college from Pondicherry, India. The subject's age were ranged between 18 to 23 years. The selected subjects were divided into four groups, each group consist of fifteen (15) subjects. Group I underwent to practice vitalizing pranayama , group II underwent balancing pranayama and group III underwent cooling pranayama and group IV acted as a control group. The duration of the training period was stipulated to 12 weeks for 5 days per week (45 minutes). Control group was kept under control without any training. The forced vital capacity was measured by using dry Spirochek tests[3]. Prior to and after the end of practice period all the subjects were tested on forced vital capacity.

Statistical Analysis

The analysis of covariance applied to find the significant difference and the Scheffe`s test were used when the "F" ratio is significant to find the paired means difference

Table-I

Analysis of Variance on Pre and Post Tests and Analysis of covariance on Adjusted Post Test Means of Vitalizing Pranayama Group, Balancing Pranayama Group, Cooling Pranayama Group and Control Group on Forced Vital Capacity

(Scores in Liters)

	VPG	BPG	CPG	CG	SOV	SOS	df	MS	'F'
Pre-test Mean	2.46	2.59	2.68	2.22	B:	1.78	3	0.59	2.63
S.D	0.41	0.36	0.41	0.66	W:	12.61	56	0.23	
Post-test	3.21	3.17	3.12	2.09	B:	13.37	3	4.46	

Mean S.D	0.19	0.19	0.23	0.56	W:	6.19	56	0.11	40.30*
Adj.Post Test Mean	3.24	3.12	3.02	2.22	B: W:	8.93 3.04	3 55	2.98 0.05	53.93*

* Significant at 0.05 level.

Required table value at 0.05 level of significant for 3&55 degree of freedom 2.77.

The table shows the pre test mean value of vitalizing pranayama group is 2.46, balancing pranayama group is 2.59, cooling pranayama group is 2.68 and control group is 2.22. The 'F' value of pre test is 2.63 which are lesser than the required table value of 2.77, and there is no significant change in pre test. The post test mean value of vitalizing pranayama group is 3.21, balancing pranayama group is 3.17, cooling pranayama group is 3.12 and control group is 2.09. The 'F' value of post test is 40.30 which is higher than the table value of 2.77, hence it shows significant change in post-test. The adjusted post test mean value of vitalizing pranayama group is 3.24, balancing pranayama group is 3.12, cooling pranayama is 3.02 and control group is 2.22. The 'F' value of adjusted post test is 53.93 which is higher than the table value of 2.77, thus there is a significant change in adjusted post test.

Table-II

Ordered Scheffe's Test for the Differences Between the Adjusted Means of Vitalizing Pranayama Group, Balancing Pranayama Group, Cooling Pranayama Group and Control Group on Forced Vital Capacity

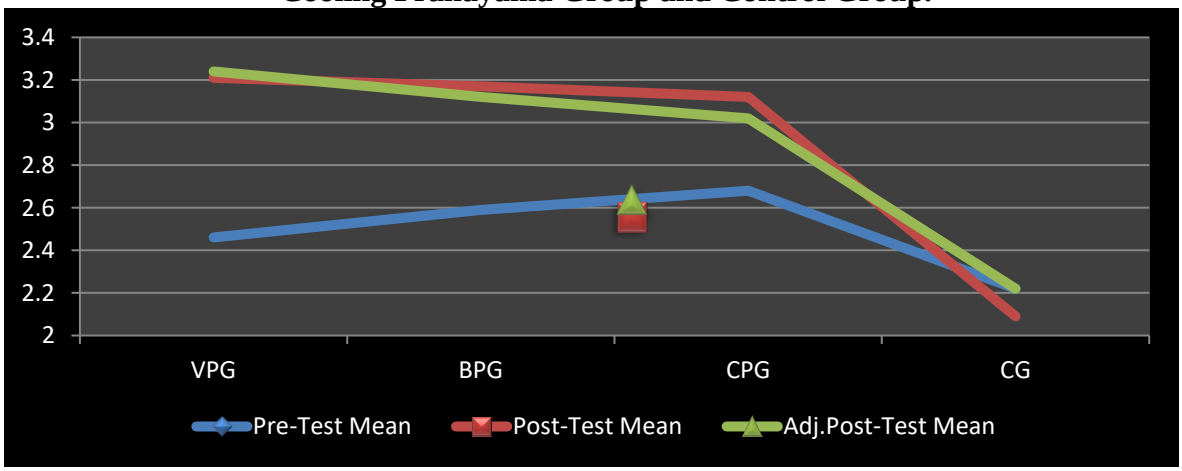
VPG	BPG	CPG	CG	M.D	'P'
3.24	3.12	-	-	0.12	0.98
3.24	-	3.02	-	0.22	0.85
3.24	-	-	2.22	1.02	0.00*
-	3.12	3. 02	-	0.10	0.98
-	3.12	-	2.22	0.09	0.00*
-	-	3. 02	2.22	0.80	0.00*

*The mean difference is significant at the 0.05level.

The above Scheffe's table shows the mean difference value of vitalizing pranayama group and cooling pranayama group is 1.02, balancing pranayama group and control group is 0.09 and cooling pranayama group and control group is 0.80 which are significant at 0.05 level, and there is no significant changes between the experimental groups, but experimental groups shows significant with the control group.

Figure-1

Graphical Representation on Forced Vital Capacity of Pre Test, Post Test and Adjusted Post Test Means of Vitalizing Pranayama Group, Balancing Pranayama Group, Cooling Pranayama Group and Control Group.



DISCUSSION ON FINDINGS

Forced Vital Capacity

The outcome of the study is observed that there is no significant changes in forced vital capacity pre test means between the intervention groups and control group. However the forced vital capacity has significant changes in post and adjusted post tests between the Intervention groups and control group after twelve weeks of pranayama package. The result concludes twelve weeks practice of pranayama package improve the forced vital capacity.

Conclusion

The study concludes the experimental groups have exposed significant progress on forced vital capacity due to the selected pranayama packages such as vitalizing pranayama, balancing pranayama and cooling pranayama. The conclusion drawn through the outcome of the research is In pranayama package practice of college men, all the experimental groups on forced vital capacity showed significantly improved when compared with the control group but there is no significant changes in between the three package groups.

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ENHANCING COLLEGE WOMEN'S BIO MOTOR FITNESS VARIABLES THROUGH SWISS BALL TRAINING: A RESEARCH INVESTIGATION

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Abstract

The purpose of the study was to find out the impact of Swiss training on cardio vascular endurance and abdominal strength of college women, (forty N=40) college from TNPESU were selected randomly as subjects. The age of the subjects ranged from 18-22 years. The selected subjects was randomly divided into two groups as experimental and control group. Experimental group underwent Swiss ball training for eight weeks of five days. Control group who were not engaged in any specific activities other than daily routine. The selected criterion variables such as cardiorespiratory endurance and abdominal strength were assessed by using the standardized test. The random group experimental design was used for this study. The pre and post test data was collected prior and immediately after the six weeks training period. The data was statistically analyzed with dependent't t test. In all the cases 0.05 levels will be fixed as level of confidence to test the hypotheses. The result of the study was significant improvement on cardiorespiratory endurance and abdominal strength due to Swiss ball training of college men and there was significant difference between Swiss ball training group and control group on selected criterion variables.

Key Words: *Swiss ball training, cardiorespiratory endurance and abdominal strength*

1. INTRODUCTION

The Swiss ball, also known as an exercise ball or a gym ball, is a training aid aimed primarily at the stretching and strengthening of the abdominal, groin, lumbar (lower) back, and upper leg muscles of the body. Swiss balls are inflatable, and they are typically filled approximately 80-90%. The ball is constructed from a thick rubberized compound, available in differing sizes. For optimum effect, a Swiss ball should stand approximately 2 in (5 cm) above the user's knee from the surface Arnheim et al., (2006).

Muscular endurance is the muscles' ability to perform repetitive motions - lengthening and contracting -- over long periods of time without getting tired. Many of your daily activities require muscular endurance, as do most sport and exercise activities. By improving your muscular endurance, you improve your muscles' capabilities to support your daily activities, as well as your performance in sports and exercise Shaver (2012).

Cardiorespiratory endurance is the ability of heart and lungs to absorb transport and utilize oxygen over extended period of time during physical exertion. Enhanced ability to take in oxygen (function of lungs) and deliver it to working muscles (function of heart), muscles are able to work continuously for longer period of time without fatigue Peter, (2006).

1.1 STATEMENT OF THE PROBLEM

The purpose of the study was to find out the impact of swiss ball training on cardiovascular endurance and abdominal strength of college women.

1.2 HYPOTHESES

1. There would be significant improvement on cardiovascular endurance of college women due to eight weeks of Swiss ball training.
2. There would be significant improvement on abdominal muscular strength of college women due to eight weeks of Swiss ball training.

2. MATERIALS AND METHODS

To achieve the purpose, forty (N=40) college women were purposively selected from TNPESU, Tamilnadu, India. The age of these subjects ranged from 18 to 22 years, the selected

subjects gave willingness to participate in this study. The selected subjects equally divided into two equal groups, experimental and control group. The criterion variable selected were cardiovascular endurance and abdominal muscular strength. Harvard step test was used to measure cardiovascular endurance and sit-up test was used to measured abdominal muscular strength of college women.

2.1 TRAINING INTERVENTION

The training programme was scheduled for one session per day. During the training period experimental group were underwent Swiss ball training (Mondays to Fridays) for a period of eight weeks. The duration of training programme was 60 minutes which include warming up and warming down.

2.2 STATISTICAL ANALYSIS

Descriptive statistics were derived for all test variables using SPSS (20). Changes in cardiovascular endurance and abdominal strength and the difference between the groups were assessed by using paired sample 't' test. The level of confidence was fixed at 0.05 to test the significance.

3. RESULTS AND DISCUSSIONS

Table 1: Descriptive Statistics and Paired Sample 't' Value on Cardio Vascular Endurance of Experimental and Control Groups

Group	Pre test			Post Test			t value
	N	Mean	SD	N	Mean	SD	
Experimental	20	87.69	1.26	20	91.67	1.20	9.76*
Control	20	88.07	1.24	20	89.12	1.25	1.29

Significant at 0.05 (df 19, 2.09)

Table 1 shows that descriptive statistics and t value of the experimental and control group. In cardio vascular endurance pre and post test mean values were 87.69 and 91.67 respectively. The pretest SD value was 1.26 and post test value was 1.20. The pre and post-test means of the control group were 88.07 and 89.12 respectively. The pre and post-test SD values were 1.24 and 1.29 respectively. The 't' value of the experimental group was 9.76*, which was greater than the required table value 2.09 with df 19, it was found to be statistically significant at 0.05 level of confidence. The 't' value of the control group was 1.29, which was lesser than the required table value 2.09 with df 19, it was found to be no statistically significant at 0.05 level of confidence.

Table 2: Descriptive Statistics and Paired Sample't' Value on Abdominal Strength of Experimental and Control Group

Group	Pre test			Post Test			t value
	N	Mean	SD	N	Mean	SD	
Experimental	20	49.45	1.71	20	54.50	1.68	6.91*
Control	20	49.61	1.72	20	49.90	1.70	1.83

Significant at 0.05 (df 19, 2.09)

Table 2 shows that descriptive statistics and t value of the experimental and control group. In abdominal strength pre and post test mean values were 49.45 and 54.50 respectively. The pretest SD value was 1.71 and post test value was 1.68. The pre and post-test means of the control group were 49.61 and 49.90 respectively. The pre and post-test SD values were 1.78 and 1.70 respectively. The 't' value of the experimental group was 6.91*, which was greater than the required table value 2.09 with df 19, it was found to be statistically significant at 0.05 level of confidence. The "t" value of the control group was 1.83, which was lesser than the required table value 2.09 with df 19, it was found to be no statistically significant at 0.05 level of confidence

3.1 DISCUSSION ON FINDINGS

The results of the study indicates that the experimental group namely Swiss ball training group had significantly improved cardiovascular endurance and abdominal strength of college women. It is also found that the improvement caused by swiss ball training when compared to the control group.

Stanton et al., (2011) find out the effect of short term swiss ball training on core stability and running economy. The results of the study shows that short term swiss ball training were significantly improved core stability and running economy among athletes. Nashwa, (2011) conducted effect of swiss ball training on selected motor abilities of college girls. The results of the study proved that the swiss ball training significantly contributed abdominal strength, flexibility, coordination and endurance of college girls.

Duet to swiss ball training help to improve the cardio respiratory endurance of college women significantly. The physiological changes are increased cardiac output, increased ventilation (rate and depth of breathing); increased blood flow to active skeletal muscles and to the heart and constant or slightly increased blood flow to the brain; increased blood flow to the skin and increased sweating. Duet to swiss ball training help to improve the abdominal strength of college men significantly. The physiological changes are increased size and blood flow of the abdominal muscles.

It is concluded from the results of the study systematically designed Swiss ball training may be given in the training programmes of all the disciplines in order to achieve maximum performance. From the result of the present investigation, it is concluded that significant difference exists between experimental and control group in developing selected criterion variables.

4. CONCLUSIONS

1. There was a significant improvement on cardiorespiratory endurance of the college women due to eight weeks of swiss ball training.
2. There was a significant improvement on abdominal strength of college women due to eight weeks of swiss ball training.
3. The control group did not show any significant improvement on cardiorespiratory endurance and abdominal strength.

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A COMPREHENSIVE STUDY ON THE INFLUENCE OF SWISS BALL TRAINING ON PHYSICAL FITNESS PARAMETERS IN TENNIS PLAYERS

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Abstract:

Background: *Swiss Ball training is a famous form of therapeutic and purposeful exercise. Despite their popularity, few empirical research have investigated the advantages of Swiss Ball training in relation to sports activities performance.* ***Method:*** *Therefore the purpose of the study was to investigate the effect of swiss ball training on Speed, Muscular endurance, and Flexibility of tennis players. In this study thirty (30) subjects, of tennis players were randomly selected in swiss ball training group and in non swiss ball group, fifteen (15) in each group. (n=30; age 14 ± 3.04; height 1.68 ± 6.64 cm; weight=58 ± 7.36 kg).* ***Timeline:*** *The swiss ball training consisted of 45-60 min/day, 3 days in a week till twelve weeks from the tennis academy in and around the Tamilnadu. Physical fitness variables completed of the both groups at zero time and after twelve weeks of swiss ball training in experimental group and except swiss ball training intervention in non swiss ball group.* ***Results:*** *In present study, Speed (10.22), Muscular endurance (11.17) and Flexibility (18.71) were changed significantly.* ***Conclusion:*** *Tennis is a sport that entails multidirectional motion patterns that challenge the capacity to keep dynamic stability. Tennis players want a stable core to efficaciously perform upper and lower extremity movements. The swiss ball training program introduced in this report accommodates the physical fitness speed, muscular endurance and flexibility vital for effective tennis performance. Research findings shows that the swiss ball training has a positive effect on physical fitness of the school tennis players. Therefore swiss ball training covered in this study are beneficial for the tennis players.*

Keywords: *Tennis Player, Paired 't' test, Physical Fitness, Swiss Ball.*

Introduction:

Interest in core steadiness coaching and the use of Swiss balls has improved dramatically in current times. Historically, the Greek logician Galen wrote that workout with a ball "is capable to provide the most extreme exercising and the gentlest relaxation (Sweet., 1987). Since the late 1980s, education programs outlining the advantages of Swiss ball training have seemed in both the therapeutic and athletic conditioning sectors (Fuller., 2002). Proponents of Swiss ball training argue that such training enhances neuromuscular pathways, leading to greater strength, proprioception, and balance (Check., 1999). Hence, Swiss balls are commonly used in both athletic therapy and conditioning settings (Bartonietz., 1998). Suggest adaptations from Swiss ball training are likely to result in better coordination of synergistic and stabilizer muscles. However, while anecdotal evidence from training journals and the popular press suggests Swiss ball training is effective, there is little empirical data available to support the efficacy of Swiss ball training (Rutherford and Jones 1986).

The modern game of tennis has evolved from a primary technical sport with sport-specific technical skills being the predominant factors (e.g., racket and ball handling skills and stroke skills, such as service skill), to a more dynamic and explosive sport characterized by higher stroke and serve velocities and requiring notably higher physical demands (Sanz-Rivas et al., 2009). Therefore, it is widely accepted that players require higher levels of physical fitness to execute advanced shots and compete effectively against progressively more elite opponents (Mendez et al., 2009). In this regard, it has been suggested that tennis players require a mix of speed, agility, coordination, and power, combined with medium-to-high aerobic and anaerobic capacity. Thus, successful performance cannot be defined by one predominant

physical attribute; rather, tennis demands a complex interaction of several physical components and metabolic pathways (Kovas., 2007). In tennis, only a few studies have addressed physical testing for high-level young players (Girard., 2009). with the aim of identifying the most influential factors on tennis performance (i.e., ranking), and research has been conducted with athletes of various backgrounds (e.g., age, gender, performance level) using different testing protocols (Birrer 1986)

Thus, the aim of the present study was to scientific investigation into the effect of Swiss ball training on physical fitness performance of tennis player.

Methodology:

A sample of male junior tennis players (n=30; age 14 ± 3.04; height 1.68 ± 6.64 cm; weight=58 ± 7.36 kg) was evaluated. For the purpose of the present study, the players age ranged on 14-16 years categories tennis players. Randomized controlled pre and posttest design was used for the study. Subjects divided two groups as swiss ball training group (n=15), and control group (n=15). Subjects separated two groups randomly method. From 2019 to 2020, a sample of the 30 best male tennis players in Tamilnadu (from the schools of chennai) was evaluated using a physical fitness variables speed was measured by 50 meters run test (Allanstall, 1980) unit of measurement in seconds, muscular endurance was measured by sit-ups test (Allanstall, 1980) unit of measurement in points and flexibility was measured by sit and reach test (w.Earle, 2008) unit of measurement in centimeters. The swiss ball training consisted of 45-60 min/day, 3 days in a week till twelve weeks from the tennis academy in and around the Hyderabad in Telangana. Physical fitness variables completed of the both groups at zero time and after twelve weeks of swiss ball training in experimental group and except swiss ball training intervention in non swiss ball group.

Training protocol:

Swiss ball training exercise intervention consisted of 45-60 min exercise namely; Pelvic Rock, Side Stretch, Groin Stretch, Abdominal Stretch, Upper Body Russian Twist, Lower Body Russian Twist, Squat Push Press, Standing Torso Twist, Bend & Reach, 2-Legged Bridge, Supine Hip Extension- Knee Flexion, Prone Hip Extension, Seated Posture Trainer, Supine Hip Extension- back on ball, Oblique Crunch, Back extension, Forward ball roll, Supine lateral roll back, Upper abdominal crunch, Warm up exercises: Hamstring stretch, Quadriceps stretch, Chest stretch, Shoulder stretch.

Statistical analysis:

The data were analysed using statistical package for social sciences (SPSS) for windows version 16.1. Paired t-test was carried out between swiss ball training and control groups. To find out significance difference between the means of pre and post test of the groups and are presented in table I & II.

Table-I

TABLE SHOWING COMPARISON OF DIFFERENCE IN PRE TREATMENT AND POST TREATMENT SCORES AMONG SWISS BALL TRAINING.

Variable	Test	Mean	Mean Difference	Std. Error of the mean	DF	't'	Table value
Physical Fitness Variables							
Speed	Pre test	7.05	0.96	0.96	14	10.22*	**2.145**
	Post test	6.09					
Muscular Endurance	Pre test	31.20	10.66	0.77	14	11.17*	
	Post test	41.86					
Flexibility	Pre test	20.33	9.47	0.81	14	18.71*	
	Post test	29.80					

** Significant at 0.05 level for the degrees of freedom 1 and 14, 2.145*

Table I suggests the obtained 't' values of the swiss ball training group on criterion measure of 10.22 (speed), 11.17 (muscular endurance), 18.71 (flexibility). The obtained 't' values to be significant at 0.05 level for degree of freedom 1, 14 the required critical value was once 2.145. Hence the obtained 't' values on the selected criterion variables greater than the required critical value, it was concluded that the swiss ball training programme produced enormous improvement mean difference.

Figure 1:

Bar diagram showing the pre, post means values of swiss ball training group (SBTG) on Speed, Muscular endurance and Flexibility.

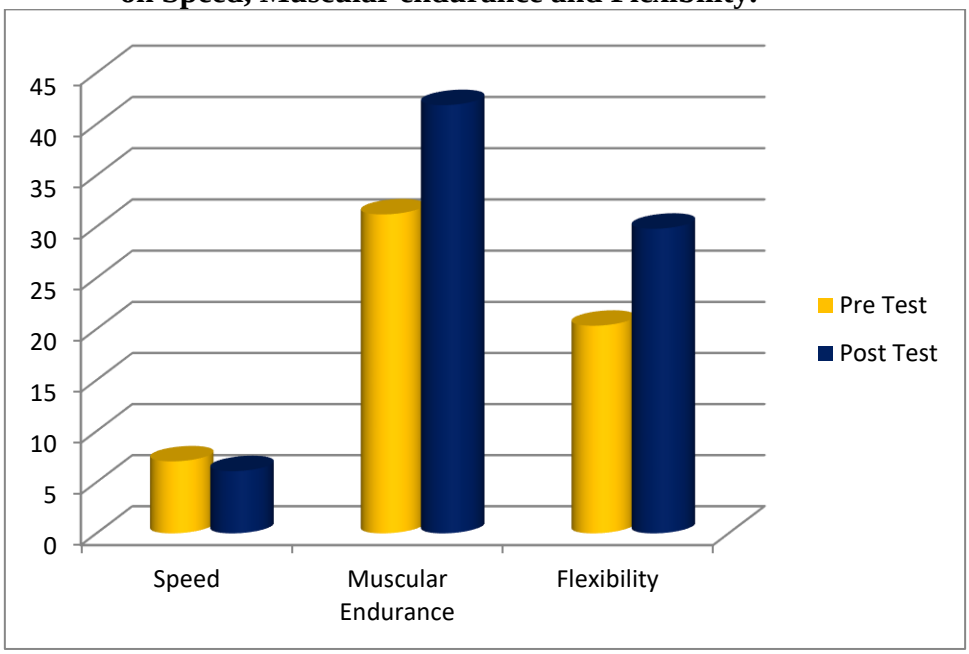


Table-II

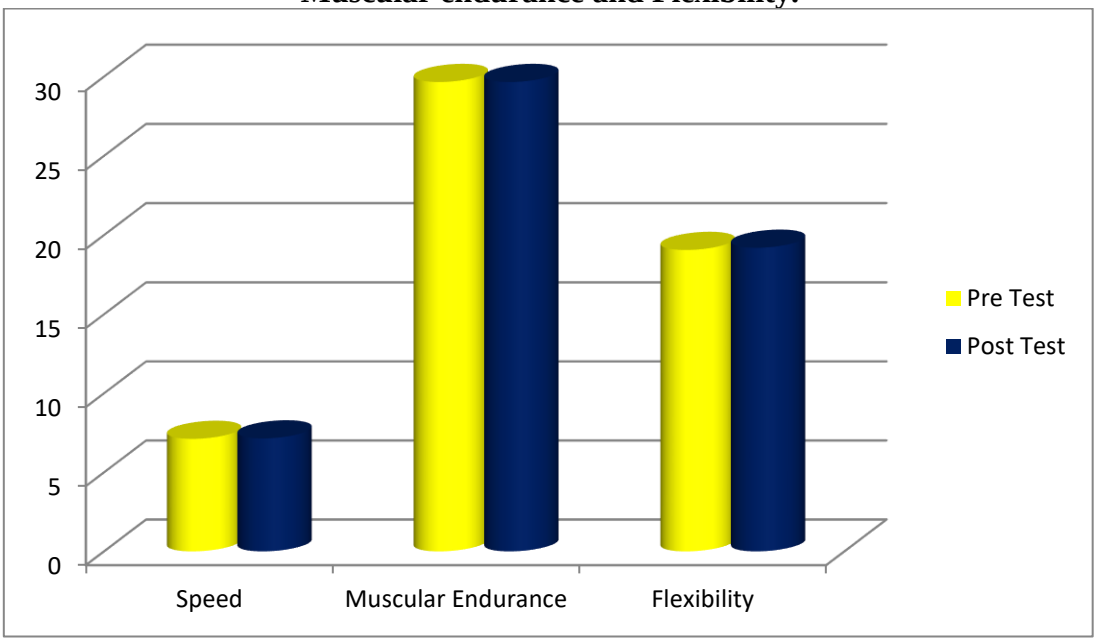
TABLE SHOWING COMPARISON OF DIFFERENCE IN PRE TREATMENT AND POST TREATMENT SCORES AMONG CONTROL GROUP.

Variable	Test	Mean	Mean Difference	Std. Error of the mean	DF	't'	Table value
Physical Fitness Variables							
Speed	Pre test	7.12	0.03	0.096	14	2.02	
	Post test	7.15					
Muscular endurance	Pre test	29.66	0.00	1.06	14	1.87	**2.145**
	Post test	29.66					
Flexibility	Pre test	19.06	0.14	0.52	14	0.45	
	Post test	19.20					

** Significant at 0.05 level for the degrees of freedom 1 and 14, 2.145*

Table II suggests the obtained 't' values of the control group on criterion measure of 2.02 (speed), 1.87 (muscular endurance), 0.45 (flexibility). The obtained 't' values to be significant at 0.05 level for degree of freedom 1, 14 the required critical value was once 2.145. Hence the obtained 't' values on the selected criterion variables less than the required critical value, it was concluded that the control group no differences.

Figure 2:
Bar diagram showing the pre, post means values of control group (CG) on Speed, Muscular endurance and Flexibility.



Discussion:

The Swiss-ball training protocol used in this study aimed at providing the co activation of global and local muscles of the core. The results of the 12-week Swiss-ball training exercise protocol showed significant improvements in speed, strength endurance and flexibility of the upper back, lower back and abdominals. Based on the studies in the literature that suggest that exercises such as sit ups, double leg lowering, and push-ups performed on a Swiss-ball increase the level of muscular activity of the abdominals and obliques more than curl-ups, double leg lowering, and push-up performed on a stable surface (Vera Garcia et al., 2000), these findings seem congruent. Despite the used in these studies merely assessed the activity of the superficial global muscle groups, the authors suggested that the motor control system required the activation of the global and local muscles to stabilize the spine to maintain balance and prevent the threat of falling off the Swiss ball.

Conclusion:

Swiss ball training has significant effect on physical fitness parameters such as speed, muscular endurance and flexibility. It means that swiss ball training increase speed and muscular endurance also increase flexibility therefore increase the swiss ball training to given the tennis players.

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EFFECTS OF LADDER TRAINING ON EXPLOSIVE POWER AND AGILITY OF WOMEN FOOTBALL PLAYERS

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ABSTRACT

The study was designed to investigate effects of ladder training on explosive power and agility of women football players. To investigate the study, thirty female football players selected from PSGR Krishnammal College for Women, Coimbatore. The age ranged between 18 and 24. The experimental group underwent ladder training for the period of twelve weeks and control group was not given any form of training apart from their regular activity. The data analysis was conducted using the dependent 't' test and confidence level 0.05 was used to determine statistical significance (P<0.05). The result indicates that there was a significant improvement over explosive power and agility due to the effect of twelve weeks of ladder training.

Keywords: *Ladder training, Explosive power, Agility, Football players*

INTRODUCTION

A ladder workout is a method of strength and sports training where you perform one or more exercises with an ascending and descending repetition pattern. Ladders are muscular endurance and conditioning workouts designed to help you increase your overall training volumes while maintaining proper form and technique. **Michele (M. Howard-2019),** whether you are a professional athlete or a novice athlete, agility ladder training is the perfect form of cross training because they help improve your speed and agility. Speed: your ability to move in one direction as fast as possible Agility: your coordination ability is your ability to accelerate, slow down and change direction.

METHODOLOGY

To investigate the study, thirty female football players selected from PSGR Krishnammal College for Women, Coimbatore. The age ranged between 18 and 24. The experimental group underwent ladder training for the period of twelve weeks and control group was not given any form of training apart from their regular activity. The data analysis was conducted using the dependent 't' test and confidence level of 0.05 was used to determine statistical significance (P<0.05). The result indicates that there was a significant improvement over explosive power and agility due to the effect of twelve weeks of ladder training. This football test and aim of measuring the explosive power the test items of standing broad jump test. The score is equal to covered in meter. This football test and aim of measuring the agility the test items of 4x10 shuttle run. The score is equal to covered in seconds.

TABLE -I

THE T- RATIO FOR WOMEN FOOTBALL PLAYERS ON PHYSICAL FITNESS VARIABLES

Variable	Groups	Pre-test SD Post-test SD	Pre-test SD Post-test SD	SEM	t-ratio
Explosive power	EG	1.50±0.04	1.59±0.05	0.10	24.16*
	CG	1.53 ± 0.04	1.51 ± 0.04	0.10	1.37
Agility	EG	26.74 ± 0.023	26.69 ±0.023	0.05	62.86*
	CG	26.76 ± 0.021	26.74 ± 0.021	0.04	0.77

(Significance at 0.05 level of confidence for df of 14 is 2.14)

Mean standard deviation and t-value were calculated for each outcomes measure can be found in Table-I. The result shows that the pre-test mean values of Ladder training and control group (1.50 & 26.74) (1.53 & 26.76) respectively and the post-test mean values are (1.59 & 26.69) (1.51& 26.74) respectively. The obtained dependent t-test value on Explosive power **(t=24.16),** Agility **(t=62.86)** ladder training. The table value required for significant difference with degrees of freedom 14 at 0.05 level of confidence. The obtained't' test value of specific skill practices was greater than the table value 2.14. The results clearly indicated that the explosive power and agility of the ladder training improved due to the impact of ladder training on women football players.

FIGURE-I
BAR DIAGRAM SHOWS THE MEAN VALUES OF ON EXPLOSIVE POWER WOMEN FOOTBALL PLAYERS



FIGURE-II
BAR DIAGRAM SHOWS THE MEAN VALUES OF ON AGILITY WOMEN FOOTBALL PLAYERS



DISCUSSION ON FINDINGS

The results of the study indicate that the ladder training group significantly improved physical fitness and such as namely explosive power and agility. Further, it was observed that the improvement caused by the ladder training was greater than that of the control group. **Tiryaki, e., & akcan, f. (2021).** Investigation of the effect of foot training using the agility ladder on dribbling skills in football. **Singh, k. L., & bhati, b. S. (2022).** Effects of ladder

training on speed and agility among high school boys football players. **Paradis, S. A. (2003).** The effects of a 6-week speed and agility program on the development of explosive power, strength, speed, and agility in youth soccer players. **Čaprić, I., (2022).** Effects of plyometric training on agility in female soccer players a systematic review

CONCLUSIONS

It was concluded that the 12 weeks of ladder training improved in explosive power and agility women football players.

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EFFECT OF CORE WITH GAME SPECIFIC TRAINING ON SELECTED SPECIFIC SKILL PERFORMANCE VARIABLES AMONG COLLEGE MEN FOOTBALL PLAYERS

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Abstract

The purpose of the study was to effect of core with game specific training on selected specific skill performance variables among college men football players. 45male football players were randomly selected as the subjects for this study from the age group 18– 25 years in Erode district. The participants were trained core with game specific training group I (CGG), game specific training group II (GG) and control group (CG). Each group consisted of 15 subjects. Separate linear regression models were used to evaluate the pre post change in variables. All the subjects were informed about the nature of the study consist was obtained to co-operate till the end of the experiment and testing period. The experimental treatment namely core with game specific training andgame specific training group was administrated for a duration of 8 weeks and the number of session per week was confined to three alternative days and each session lasted 60 minutes, in addition to the regular schedule of the football training both the training packages are presented in appendices I and II respectively. Statistically significant improvements in baseline scores in specific skill performance variables of dribbling and throw - in were comparable between the three groups of college football players. Dribblingimproved by 13.11 incore with game specific training group,13.20 in the game specific training group and 13.56in the control group. Additional research on long-duration intervention in elite players may help to establish the role of plyometric training and core training in conventional football skills for core training.

Key Words: Core Training and Football

Introduction

Core Training

The core is the centre of our body and it functions to stabilize the trunk while the arms and legs move during functional movements. The importance of the core relate to its function is sparing the spine from excessive load and transfer force from the lower body to the upper body and vice versa. Having a strong, stable core helps us to prevent injuries and allows us to perform at our best. In order to protect the back, ideally we want to create 360 degrees of stiffness around the spine as we move, run, jump, throw, lift objects and transfer force throughout our body. We do this when all of the muscles in our hips, torso and shoulders work together.

Football Game Specific Training

Football is a game of speed, so training for speed is important. Speed training can be done in the gym or on the field, but there are specific exercises that work best for football players. These include sprinting, squatting, jumping drills, and core-strengthening exercises like planks and crunches.Cardio will involve running, cycling, HIIT and the work you put in on the training ground. Resistance training involves weightlifting (compound and isolation movements) and bodyweight exercises. Beyond the training itself, you'll need to focus on recovery, flexibility and mobility

Methodology

To achieve the purpose of the studyeffect of core with game specific training on selected specific skill performance variables among college men football players, forty-five (n=45) male inter-collegiate football players were selected from the Erode district, Tamil Nadu, India. This study consisted of three equal groups of fifteen subjects each. The age of subjects ranged from 18 to 25 years. The subjects had past experience of at least four years in football players and only those who represented their respective college teams were taken as subjects. The following variables were selected namely:game performance related variabledribbling and

throw inExperimental Group-I underwent core with games specific training, Experimental Group-II underwent game specific training respectively. The control group was not exposed to any specific training /conditioning programme. The experimental treatment namelyplyometric training and core training was administrated for a duration of 8 weeks and the number of session per week was confined to three alternative days and each session lasted 60 minutes, in addition to the regular schedule of the football training both the training packages are presented in appendices I and II respectively.

Statistical Technique

\ The collected data from the three groups prior to and after the experimental treatments on selected physiologicalperformance variables were statistically analyzed by using the statistical technique of analysis of covariance (ANCOVA). Whenever the 'F' ratio for adjusted post-test means was found to be significant, Scheffe's test was followed as a post hoc test to determine which of the paired means difference was significant. In all the cases 0.05 level of confidence was fixed as a level of confidence to test the hypotheses.

Results and Analysis

The influence of independent variables on each of the criterion variables is analyzed and presented below.

The training period was limited to eight weeks. The dependent variables selected for these studies were physiological variableresting heart rate. All the subjects were tested prior to and immediately after the experimental period on the selected dependent variables.

The data obtained from the experimental groups before and after the experimental period were statistically analyzed with dependent 't'-test and Analysis of covariance (ANCOVA). Whenever the 'F' ratio for adjusted post-test means was found to be significant, theScheffe'sPosthoctestwasappliedtodeterminethepairedmeandifferences.Thelevel of confidence was fixed at 0.05 level for all thecases.

Table – 1

ANALYSIS OF COVARIANCE OF PRE TEST AND POST MEAN AMONG CORE WITH GAME SPECIFIC, GAME SPECIFIC TRAINING GROUP AND CONTROL GROUP ON DRIBBLING

Test	Core with game specific training group	Game specific training group	Control Group	Source Of Variance	Sum of Squares	df	Mean Squares	F-ratio
Pre-Test Mean	13.67	13.59	13.62	Between groups	0.053	2	0.027	0.19
				Within groups	5.873	42	0.140	
Post-Test Mean	13.14	13.17	13.55	Between groups	1.595	2	0.797	4.58*
				Within groups	7.312	42	0.174	
Adjusted Post-Test Mean	13.11	13.20	13.56	Between sets	1.694	2	0.847	6.75*
				Within Sets	5.141	41	0.125	

Figure -1

BAR DIA GRAM THE ADJUSTED POST TEST MEAN VALUES OF CORE WITH GAME SPECIFIC TRAINING GROUP, GAME SPECIFIC TRAINING GROUP AND CONTROL GROUP ON DRIBBLING

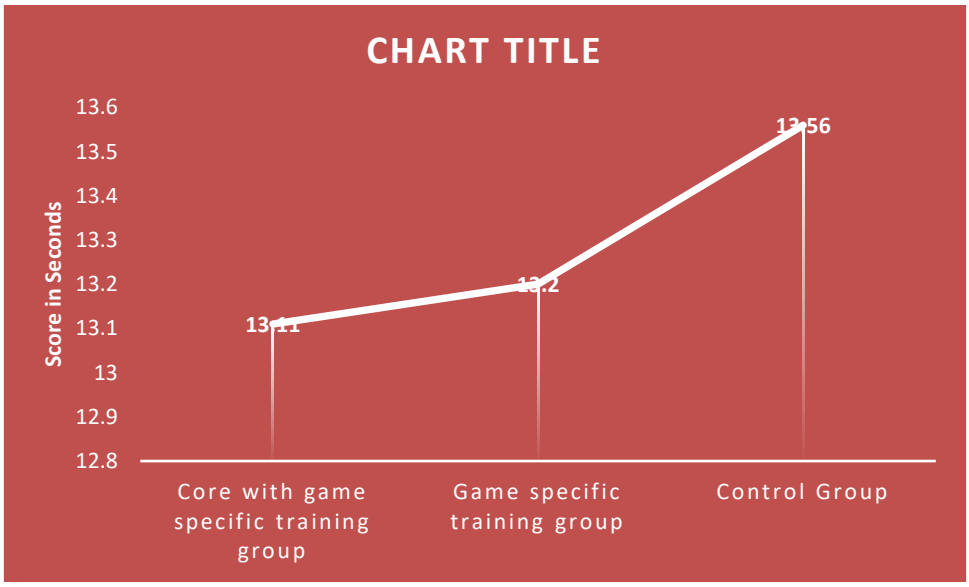


Table – 2

ANALYSIS OF COVARIANCE OF PRE TEST AND POST MEAN AMONG CORE WITH GAME SPECIFIC, GAME SPECIFIC TRAINING GROUP AND CONTROL GROUP ON THROW - IN

Test	Core with game specific training group	Game specific training group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	F-ratio
Pre-Test Mean	18.90	18.85	18.99	Between groups	0.142	2	0.071	0.07
				Within groups	39.679	42	0.945	
Post-Test Mean	19.88	20.14	19.05	Between groups	9.683	2	4.842	4.61*
				Within groups	44.064	42	1.049	
Adjusted Post-Test Mean	19.89	20.19	18.97	Between sets	12.072	2	6.036	43.01*
				Within Sets	5.753	41	0.140	

Figure -2
BAR DIA GRAM THE ADJUSTED POST TEST MEAN VALUES OF CORE WITH GAME SPECIFIC TRAINING GROUP, GAME SPECIFIC TRAINING GROUP AND CONTROL GROUP ON THROW - IN



Conclusion

The findings of the study showed that there was a statistically significant improvement in the game specific performance related skill variables dribbling and throw - inas compared to control group.

Based on the results of the study, it was concluded that the core with game specific training group program has resulted in significant increase in selected game specific performance related skill variables as dribbling and Throw –in .

Recommendations

A Similar studies may be conducted for the fairer sex also keeping age and other factors in to consideration for experimental variables.

Studies may be also being conducted on similar lines with different nutritional plans.

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INFLUENCE OF STAIR CLIMBING AND SAND TRAINING ON SELECTED PHYSIOLOGICAL PARAMETERS AMONG HANDBALL PLAYERS

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ABSTRACT

Stair climbing and sand running trainings are suitable exercises to burn fat and improves the condition of heart and lungs. They are creative, fun and very challenging patterns of movement, that is, on and off stair case can challenge the legs, foot steps and arms also. The aim of this research is to find out the effect of stair climbing and sand running on selected physiological parameters. For this purpose, randomly selected thirty Handball players from different departments of Vellore Institute of Technology Chennai Campus were divided into three groups, stair climbing, sand running and control group. Stair climbing exercise group after a warm up for 5 minutes underwent climbing stairs having 18 steps with vertical height of 3 meters with variation of slow, medium, high, medium and slow speed walk and sprints alternatively and finished each session with cool down exercises. Sand running group, after a warm up for 5 minutes underwent climbing and sand with vertical height of 4 meters and elevation at 45^{o} with variation of slow, medium, high, medium and slow speed running alternatively and finished each session with cool down exercises and the sessions lasted for 40 minutes in each day, on alternate days, forming three days a week. Statistical analysis of pre and post test means through ANCOVA and Scheffe's post hoc test proved that there was significant improvement in selected physiological variables such as vital capacity and tidal volume due to stair climbing training. Sand running made significant improvements in tidal volume and failed to significantly influence vital capacity. It was concluded that stair climbing and sand running can be better utilized for improving physiological variables than control group.

***KEY WORDS**: Stair Climbing, Sand Running, Vital Capacity, Tidal volume.*

INTRODUCTION

Training is usually defined as systematic process of repetitive, progressive exercise or work involving the learning process and acclimatization.

The Handball stair climb test (HST) protocol used in this study increased the vertical displacement and found the test reliable for measuring peak anaerobic power in collegiate Handball players, which, theoretically, should provide more accurate measures of peak power caused by increased vertical displacement and longer duration.

The main purpose of this research is to find out the effect of stair climbing and sand running on selected physiological variables among Handball players.

HYPOTHESIS

- It is hypothesis that the Stair Climbing and Sand running programs will be significant improvement on selected criterion variables as compared to control group.
- It is hypothesis that the stair climbing will be better for improving physiological variables than sand running among Handball players.

METHODOLOGY

To achieve the purpose pre and post test random group research design was adapted and thirty Handball players from various departments of Vellore Institute of Technology Chennai Campus, were randomly selected and their age group was between 18 to 23 years. The were divided into three groups (n = 10) as Group I, Group II and Group III, in which Group I underwent stair climbing and Group II underwent sand running for a period of eight weeks and Group III acted as control group. Stair climbing exercise group after a warm up for 5 minutes underwent climbing stairs having 18 steps with vertical height of 3 meters with

variation of slow, medium, high, medium and slow speed walk and sprints alternatively and finished each session with cool down exercises. Sand running group, after a warm up for 5 minutes underwent climbing sand dune with vertical height of 4 meters and elevation at 45^{o} with variation of slow, medium, high, medium and slow speed running alternatively and finished each session with cool down exercises and the sessions lasted for 40 minutes in each day, on alternate days, forming three days a week. .The investigator selected vital capacity and tidal volume, measured through Spirometer, as physiological variables. The collected data prior to and after completion of the experimental period on selected variables were statistically examined by applying Analysis of Covariance (ANCOVA). In all the cases to test the significance, 0.05 level of confidence was fixed. Since three groups were involved, whenever significant results were found, Scheffe's post-hoc test was used to find out the significant difference between the paired means of groups.

RESULTS

Tab 1: Results on Calculation of Analysis of Covariance on Physiological Variables

Calculation of Analysis of Covariance on Vital Capacity								
	Stair Climbing Group	Sand Running Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained F- ratio
Pre Test Mean	3730	3800	3760	Between	24667	2	12333	0.08
				Within	4125000	27	152778	
Post Test Mean	3940	3910	3790	Between	126000	2	63000	0.52
				Within	3242000	27	120074	
Adjusted Post Test Mean	3969	3879	3793	Between	154208	2	77104	9.35*
				Within	214326	26	8243	
Mean Diff	210	110	30					
Calculation of Analysis of Covariance on Tidal Volume								
Pre Test Mean	500.00	491.50	487.00	Between	871.7	2	435.83	0.80
				Within	14712.5	27	544.91	
Post Test Mean	531.50	529.50	491.50	Between	10160.0	2	5080.00	18.10*
				Within	7577.5	27	280.65	
Adjusted Post Test Mean	527.26	530.29	494.95	Between	7454.8	2	3727.40	39.88*
				Within	2429.9	26	93.46	
Mean Diff	31.50	38.00	4.50					

Required $F_{(0.05)\,(2,27)} = 3.354$, $F_{(0.05),\,(2,26)} = 3.369$ *Significant

Tab 2: Scheffe's Post Hoc Analysis Results

Post Hoc Analysis for Vital Capacity				
Stair Climbing Group	Sand Running Group	Control Group	Mean Difference	Reqd. C.I
3968.56	3878.59		89.97	105.40
3968.56		3792.86	175.70*	105.40
	3878.59	3792.86	85.73	105.40
Post Hoc Analysis for Tidal Volume				
527.26	530.29		3.03	11.22
527.26		494.95	32.31*	11.22
	530.29	494.95	35.34*	11.22

*Significant

DISCUSSIONS

The results presented in Table 1 proved that the adjusted mean differences of vital capacity among the groups, stair climbing, sand running and control was significant as the obtained F value 9.35 was greater than the required table F value of 3.369. The Scheffe's post hoc analysis (Table 2) proved that vital capacity of the stair climbing group was significantly better than sand running and control group. However, the results on tidal volume showed that though the both the experimental treatments significantly improved tidal volume comparing to control group, there was no significant difference between the treatment groups. Dreher M, et.al. (2008) found that stair-climbing resulted in more prolonged hyperinflation of the lungs, higher blood lactate production and more dyspnea than walking. In sand running, though the subjects were asked to run, in practice due to elevated and sandy surface their exercise movements were very slow and hence, the vital capacity had not been improved among sand running group at par to the stair climbing group. However, the exercise settings in stair climbing and sand running brought significant improvement in tidal volume of the subjects as found in this study. Hence, it was found that the findings of this research in agreement with the findings of Dreher (2008).

CONCLUSIONS

- It was concluded that the Stair Climbing and Sand running programs has resulted in significant improvement on selected criterion variables as compared to control group.
- It was concluded that stair climbing can be better utilized for improving physiological variables than sand running among Handball players.

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A STUDY OF FARTLEK TRAINING ON SELECTED PHYSICAL FITNESS AND PHYSIOLOGICAL VARIABLES AMONG COLLEGE LEVEL MALE PLAYERS

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Abstract

The present research was designed to find out a study of fartlek training on selected physical and physiological variables among college level male players. To fulfill the purpose of the study 30 various game male players from Vellore Institute of Technology, Chennai are selected and they are divided in two equal groups namely experimental and control group and their age ranged from 19 to 23 years. To find out the results of fartlek training the 50 mts run, shuttle run and sit & reach test were conducted and collected the data. The physiological variables data was collected through the administration of breath holding time and resting heart rate. The collected data was calculated with the application of dependent't' test. Finally the results of the study concluded that with the comparison of pre-test and post-test of experimental group due to the effect of 12 weeks fartlek training have an positive impact on speed, flexibility, agility (Physical Fitness Components) resting heart rate, breath holding time (Physiological Components).

Keywords: *Speed, agility, flexibility, physical fitness*

Introduction

Fartlek, which means 'speed play' in Swedish, is a popular form of training used by runners to provide a satisfying and effective alternative to rigid training sessions. Fartlek training does not involve having to run over a specifically measured route, it is more a case of altering running speeds over varying distances. Reduces overuse injuries by varying the periods of high intensity and low intensity exercise. Physical fitness is an important part of life. It is an indicator which shows whether you have the ability to perform and enjoy day to day physical activities with easy. Physical fitness is defined as the state of general well being, physically sound and healthy, along with mental stability.

Aim of the Study

The aim of the study is to find out the result of fartlek training on selected physical and physiological variables among college level male players.

Hypothesis

1. It is hypothesized that there was a significant difference on experimental group of selected physical variables.
2. It is hypothesized that there was a significant difference on experimental group of selected physiological variables.

Significant of the Study

This study was helpful to the coaches to take this training as initial device for developing physical and physiological variables and performance of the players in respective games and sports. This study shows the positive effect on speed, flexibility, agility and breath holding time, resting heart rate of college level male players.

Methodology

This study was designed to find out the results of fartlek training on selected physical and physiological variables among college level male players. Thirty male students of various games form Vellore Institute of Technology, Tamil Nadu, India were randomly selected as subject and their age range between 19 to 23 years. They were assigned in two groups namely experimental as well as control group. The experimental group were under go with Fartlek training weekly 4

days with the duration of 1 hour including 15 minutes general and specific exercise and 15 minutes for cooling down exercise.

TABLE - I
CRITERION VARIABLES AND TESTS

S.No	Variables	Test	Unit of measurement
1.	Speed	50 Mts Run	In seconds
2.	Flexibility	Sit and reach test	In centimeters
3.	Agility	Shuttle run	In Seconds
4.	Breath holding time	Breath holding Test	In Seconds
5.	Resting pulse rate	Digital pulse monitor	Beats per minute

Statistical Procedure

To observe the results of the study dependent "t" test was used for the interpretation of the pre and post-test date of experimental group as well as control group.

Results and Discussion

TABLE - II
TABLE SHOWING THE MEAN, MEAN DIFFERENCE, STANDARD DEVIATION AND 'T' VALUE OF EXPERIMENTAL AND CONTROL GROUP ON SPEED

Group	Number of Subjects	Pre-Mean	Post-Mean	Standard Deviation		Std. error Mean	"t"
				Pre	Post		
Experimental	15	5.18	4.97	0.27	0.40	0.09	2.402*
Control	15	5.15	5.14	0.21	0.42	0.10	0.136

*Significance at 0.05 level of confidence

Experimental group pre and post-test mean value were 5.18 and 4.97 respectively. In Control group pre and post-test were mean value was 5.15 and 5.14 respectively. In experimental the obtained t-ratio 2.402 was greater than the table value of 2.15 so it is found significant. In control group the obtained 't' ratio 0.136 was lesser than the table value of 2.15 so it was found not significant. Difference in two group-ratios was employed and the level of significance was set at 0.05.

TABLE- III
TABLE SHOWING THE MEAN, MEAN DIFFERENCE, STANDARD DEVIATION AND 'T' VALUE OF EXPERIMENTAL AND CONTROL GROUP ON FLEXIBILITY

Group	Number of Subjects	Pre-Mean	Post-Mean	Standard Deviation		Std. error Mean	"t"
				Pre	Post		
Experimental	15	11.93	13.13	1.87	2.10	0.17	6.874*
Control	15	11.00	11.27	1.25	1.79	0.34	0.774

*Significance at 0.05 level of confidence

Experimental group pre and post-test mean value were 11.93, 13.13 respectively. In Control group pre and post-test were mean value was 11.00, 11.27 respectively. In experimental the obtained t- ratio 6.874 was greater than the table value of 2.15so it is found as significant. In control group the obtained t- ratio 0.774 was lesser than the table value of 2.15 so it was found as not significant. Difference in two group's t- ratio was employed and the level of significance was set at 0.05.

TABLE - IV

TABLE SHOWING THE MEAN, MEAN DIFFERENCE, STANDARD DEVIATION AND 'T' VALUE OF EXPERIMENTAL AND CONTROL GROUP ON AGILITY

Group	Number of Subjects	Pre-Mean	Post-Mean	Standard Deviation		Std. error Mean	"t"
				Pre	Post		
Experimental	15	21.61	21.41	0.91	0.91	0.09	2.323*
Control	15	21.59	21.49	1.08	1.00	0.17	0.561

*Significance at 0.05 level of confidence

Experimental group pre and post-test mean value were 21.61 and 21.41respectively. In Control group pre and post-test were mean value was 21.59 and 21.49 respectively. In experimental the obtained t- ratio 2.323 was greater than the table value of2.15 so it is found as significant. In control group the obtained t-ratio 0.561was lesser than the table value of 2.15 so it was found as not significant. Difference in two group's t-ratio was employed and the level of significance was set at 0.05.

TABLE - V

TABLE SHOWING THE MEAN, MEAN DIFFERENCE, STANDARD DEVIATION AND 'T' VALUE OF EXPERIMENTAL AND CONTROL GROUP ON RESTING HEART RATE

Group	Number of Subjects	Pre-Mean	Post-Mean	Standard Deviation		Std. error Mean	"t"
				Pre	Post		
Experimental	15	74.13	72.07	1.36	1.44	0.38	5.39*
Control	15	73.60	73.87	1.18	1.19	0.45	0.59

*Significance at 0.05 level of confidence

Experimental group pre and post-test mean value were 74.13 and 73.87 respectively. In Control group pre and post-test were mean value was73.60 and 72.07 respectively. In experimental the obtained t- ratio5.39 was greater than the table value of 2.15 so it is found as significant. In control group the obtained t- ratio 0.59 was lesser than the table value of 2.15 so it was found as insignificant. Difference in two group t- ratio was employed and the level of significance was set at 0.05.

TABLE - VI

TABLE SHOWING THE MEAN, MEAN DIFFERENCE, STANDARD DEVIATION AND 'T' VALUE OF EXPERIMENTAL AND CONTROL GROUP ON BREATH HOLDING TIME

Group	Number of Subjects	Pre-Mean	Post-Mean	Standard Deviation		Std. error Mean	"t"
				Pre	Post		
Experimental	15	25.07	27.87	3.51	3.24	0.19	3.57*
Control	15	25.20	26.47	3.38	3.26	0.23	0.29

*Significance at 0.05 level of confidence

Experimental group pre and post-test mean value were 25.07 and 27.87 respectively. In Control group pre and post-test were mean value was 25.20 and 26.47 respectively. In experimental the obtained t- ratio 3.57 was greater than the table value of 2.15 so it is found as significant. In control group the obtained t- ratio 0.29 was lesser than the table value 2.15 so it was found as not significant. Difference in two groups t- ratio was employed and the level of significance was set at 0.05.

Conclusions

The study was undertaken certain limitations imposed by the experimental conditions, the following conclusions were arrived that speed, flexibility, agility, resting heart rate, breath holding time, were significantly improved due to the influence of fartlek training in experimental group.

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ASSESMENT OF PERSONAL VALUES BETWEEN SPORTS PERSONS AND NCC CADETS

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Abstract

The purpose of this study was to compare the personal values within Sports persons and NCC cadets and the subjects selected for this study were from SAFI Institute of advanced study, vazhayoor. The total sample was 50 (25 subjects from sports students and 25 from NCC cadets) and the age range is 18-22 years. The psychological variables assessed for this study are personal values by Dr G.P Sherry and Prof. R.P Verma. To analyse the data and to find out the difference we used mean, standard deviation and t test. The result of this study showed there is no significant difference in personal values between Sports persons and NCC Cadets, which meant that the personal values of both are similar.

Keywords: *Personal values, Sports persons, NCC Cadets.*

Introduction

Values can be defined as a set-in various dimensions of life religion, morality, politics, work, etc. They perform the functions of standards or criteria and the choice or evaluation of actions, behavior, people, and events.

Schwartz defined values as the cognitive representations of a person's desired state or behavior. On contrary for the specific goals, the values are actually trans-situational, which explains that they are not limited to specific situations and have wider application. Values act as a guide for the selection and evaluation of behavior or events, and are arranged with relative relevance. Value preferences are combined with a variety of psychological characteristics, particularly self-esteem (Thikhomandritskaya,2000) subjectively healthy well-being and life contempt (Schwartz & Sortix,2018).

Formation of differences among individuals in value preferences may be highly attributed to Social and intermutual relationship of people. The general experience that an individual has owing to similar positions in a social group (like age, occupation, education, etc.) highly influences their value preferences. By comparing the values of certain groups, we can demonstrate social factors (e.g., education) and certain events (e.g., diseases) in the development of a system of values by being proportional to time (Schwartz, 2003). Studying about values of physical education students are of major interest. This is due to their welldeveloped commitment to professional and amateur sports, also to work in most active way. Analytical view on psychology of sports activity shows that it exhibits various aspects of personality, including sociopsychological psychology.

In research conducted in Lithuania, it was found that young people engaged in sports appreciate the value of achievement, hedonism, self-regulation, tolerance, conformity and security higher than young people not engaged in sports (Daukilas et. al, 2017). Similar analysis can be done on the background of Kerala also since Kerala society gives lot more interest in sports and games.

John Dewey (1948) expressed that "to esteem intends to prize, to regard, to assess and to evaluate. It implies the demonstration of esteeming something, holding it dear and furthermore the demonstration of condemning upon the nature and measures of qualities as contrasted and something different." Rokeach, (1968) characterized as the "Qualities are convictions about how one should or should not to carry on, or about some reality worth not

worth achieving. Qualities are conceptual standards, constructive or adverse, that speak to an individual's conviction about perfect methods of lead and perfect terminal objectives.

STATEMENT OF THE PROBLEM

The study's goal was to assess the personal values of Sports persons and NCC Cadets

OBJECTIVES OF THE STUDY

The objectives of this research study are as follows,

1. For measure the personal values of Sports persons.
2. For measure the personal values of NCC Cadets.
3. For comparing the personal values of sports persons and NCC Cadets.

HYPOTHESIS

H0 = It was hypothesis that there will be no significant difference between the personal values of Sports persons and NCC Cadets.

SIGNIFICANCE OF THE STUDY

The following were the significances of the study:

1. The present study can contribute knowledge regarding value education.
2. The present study helps to analysing the relationship among personal values of Sports persons and NCC Cadets.
3. The collected data will help teacher, physical education teacher to use the proper educational methods to improve various values in students.
4. The present study may contribute towards the awareness to make better citizen.
5. The present study may contribute to ensure a productive future.
6. The present study may help to open new vistas.
7. The present study may help to spreads awareness about values through sports, physical education.

DELIMITATIONS OF THE STUDY

The study was delimitated to the subjects are students of Sports students and NCC Cadets from SAFI Institute of Advanced Study, Vazhayoor, kerala. The chronological age will be about 18 to 22 years. The subjects for this research study will be both male and female. The ten personal values were taken from the personal value scale developed by SHERRY and VERMA. The study will be limited to these ten values measured through this scale.

SAMPLING

For the research study 25 Sports person and 25 NCC Cadets from SAFI Institute of advanced study , vazhayoor will be selected.

TOOLS OF DATA COLLECTION

Individual Values Questionnaire: For surveying individual estimations of Sports persons and NCC Cadets, the test to be specific Personal Values Questionnaire (PVQ) by Dr. G. P. SHERRY and R.P. VERMA (1998) will be used.

ANALYSIS OF DATA AND RESULTS OF THE STUDY

RESULTS OF PERSONAL VALUES BETWEEN SPORTS PERSONS AND NCC CADETS

The collected sample of Sports persons and NCC Cadets. from SAFI Institute of Advanced Study, Vazhayoor, Kerala. The psychological variables assessed for this study were personal values questionnaire by Dr. G.P Sherry and Prof. R.P Verma. To analyze the data and to find out the difference the researcher used mean, standard deviation and independent t – test was applied.

H0 = It was hypothesis that there will be no – significant difference between Sports persons and NCC Cadets

Table 1
Mean, Standard deviation and Standard error mean value of Sports persons and NCC Cadets.

Group Statistics					
	Group	N	Mean	Std. Deviation	Std. Error Mean
P.V.Q	Sports persons NCC Cadets	25	117.3200	2.73435	.54687
	NCC Cadets	25	121.8400	17.40134	3.48027

In the above table no. 1 shows the mean value of Sports persons is 117.320 and NCC Cadets 121.840 and the standard deviation value 2.734 for Sports persons, 17.401 for NCC Cadets and the standard error mean value of both group is 0.546, 3.480 respectively.

Table 1.1
Comparison between Sports persons and NCC Cadets.

Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
P.V.Q	Equal variances assumed	1.869	.178	-1.283	48	.206	-4.52000	3.52297
	Equal variances not assumed			-1.283	25.184	.211	-4.52000	3.52297

P = 0.05, t = 2.011

In the above table 1.1 levene's test shows the f value is 1.869 and the p value is 0.178 which is more than 0.05 it means there is no – significant difference. In t – test for equality of means the t value is 1.283 which less than the t – test table value 2.011 and the p value is 0.206 which is more than 0.05 it means there no – significant difference between Sports persons and NCC Cadets.

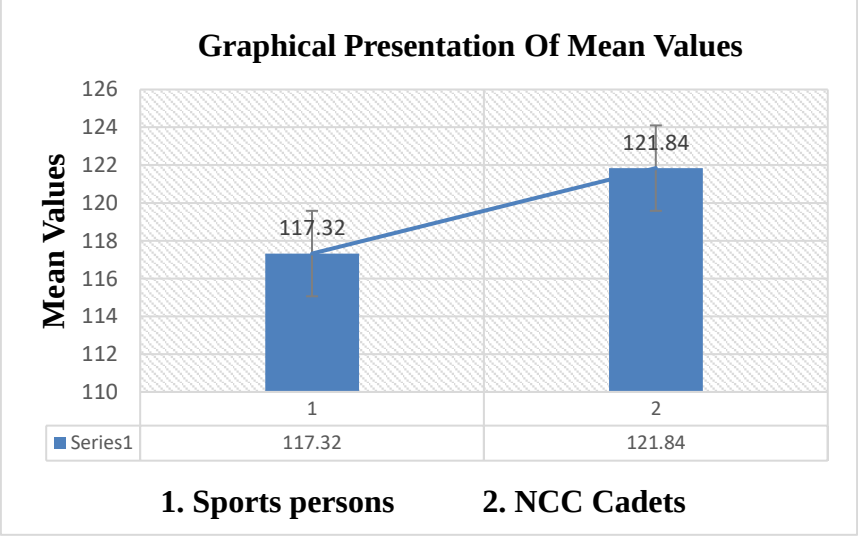


Table 1.2
Mean, Standard deviation and Standard error mean value of
All the personal values which are considered in personal value questionnaire

Group Statistics					
	Group	**N**	**Mean**	**Std.Deviation**	**Std.ErrorMean**
Religious Value	**Sports persons**	**25**	**11.0400**	**2.62170**	**.52434**
	NCC Cadets	**25**	**11.4000**	**3.00000**	**.60000**
Social Value	**Sports persons**	**25**	**7.2400**	**2.27816**	**.45563**
	NCC Cadets	**25**	**6.2400**	**2.78807**	**.55761**
Democratic Value	**Sports persons**	**25**	**12.6800**	**3.24962**	**.64992**
	NCC Cadets	**25**	**13.1600**	**2.42693**	**.48539**
Aesthetic value	**Sports persons**	**25**	**11.5600**	**3.09677**	**.61935**
	NCC Cadets	**25**	**13.1600**	**2.82371**	**.56474**
Economic Value	**Sports persons**	**25**	**13.8800**	**1.81016**	**.36203**
	NCC Cadets	**25**	**18.7200**	**19.40258**	**3.88052**
Knowledge value	**Sports persons**	**25**	**10.5600**	**2.59936**	**.51987**
	NCC Cadets	**25**	**10.8000**	**2.78388**	**.55678**
Hedonistic value	**Sports persons**	**25**	**14.8400**	**3.49619**	**.69924**
	NCC Cadets	**25**	**14.5200**	**2.61598**	**.52320**
Power Value	**Sports persons**	**25**	**14.4 000**	**3.24037**	**.64807**
	NCC Cadets	**25**	**14.0400**	**3.27210**	**.65442**
Family prestige Value	**Sports persons**	**25**	**11.8800**	**3.14006**	**.62801**
	NCC Cadets	**25**	**11.4400**	**3.72022**	**.74404**
Health Value	**Sports persons**	**25**	**9.2400**	**2.58650**	**.51730**
	NCC Cadets	**25**	**8.3600**	**2.81188**	**.56238**

In the above table no. 1.2 shows mean, standard deviation, standard error mean value of the personal values which is considered in personal value questionnaire.

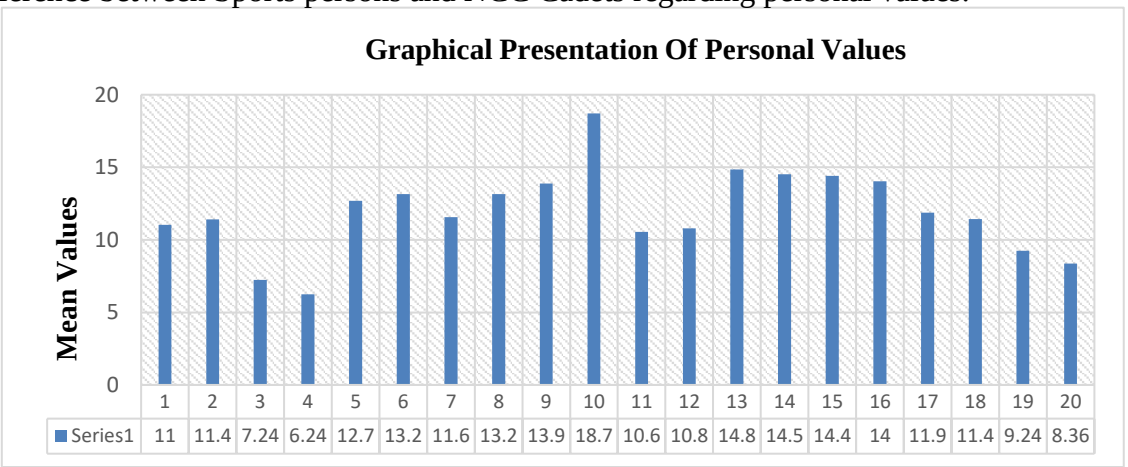
Table 1.3
Comparison between Sports persons and NCC Cadets

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Religious Value	Equal variances assumed	.607	.440	-.452	48	.653	-.36000	.79683
	Equal variances not assumed			-.452	47.154	.653	-.36000	.79683
Social Value	Equal variances assumed	1.610	.211	1.389	48	.171	1.00000	.72009

	Equal variances not assumed			1.389	46.167	.172	1.00000	.72009
Democratic Value	Equal variances assumed	5.378	.025	-.592	48	.557	-.48000	.81117
	Equal variances not assumed			-.592	44.420	.557	-.48000	.81117
Aesthetic value	Equal variances assumed	.478	.493	-1.909	48	.062	-1.60000	.83817
	Equal variances not assumed			-1.909	47.597	.062	-1.60000	.83817
Economic Value	Equal variances assumed	3.555	.065	-1.242	48	.220	-4.84000	3.89737
	Equal variances not assumed			-1.242	24.418	.226	-4.84000	3.89737
Knowledge value	Equal variances assumed	.027	.870	-.315	48	.754	-.24000	.76175
	Equal variances not assumed			-.315	47.776	.754	-.24000	.76175
Hedonistic value	Equal variances assumed	1.241	.271	.366	48	.716	.32000	.87331
	Equal variances not assumed			.366	44.460	.716	.32000	.87331
Power Value	Equal variances assumed	.043	.837	.391	48	.698	.36000	.92101
	Equal variances not assumed			.391	47.995	.698	.36000	.92101
Family prestige Value	Equal variances assumed	.455	.503	.452	48	.653	.44000	.97365
	Equal variances not assumed			.452	46.683	.653	.44000	.97365
Health Value	Equal variances assumed	.917	.343	1.152	48	.255	.88000	.76411
	Equal variances not assumed			1.152	47.669	.255	.88000	.76411

P = 0.05, t = 2.011

In the above table 1.3 in which levene's test was used in which the all-p values of personal values are more than 0.05 it shows there no – significant difference between both groups regarding all personal values. Thus, the researcher used independent t – test was applied for finding the difference but in the above table 1.3 the all t values are less than the t – test table value 2.011 and the all p values are more than 0.05 it also shows there no – significant difference between Sports persons and NCC Cadets regarding personal values.



Discussion and Conclusion

The result of this study showed there is no significant difference in personal values between Sports persons and NCC Cadets, which meant that the personal values of both are similar.

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TRIPLE JUMP MASTERY: ANALYZING PERFORMANCE RELATIVE TO KEY MOTOR FITNESS VARIABLES

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Abstract

The purpose of the study was to find out the relationship between performance and selected motor fitness variables of under 17 triple jumpers. To reach the purpose of the study, total of twenty (N=20) state level triple jumpers were selected for the study. The participant selection was random and all of them were healthy and free of injury. Prior to the commencement of the study, Physical Activity Readiness Questionnaire (PAR-Q) and informed consent were obtained from all participants. In this study was specifically conducted to evaluate the performance of triple jumpers with respect to such motor fitness variables: agility, explosive power and speed respectively. The motor fitness test had been conducted in this study were shuttle run test (agility), standing broad jump (explosive power) and 50m speed test (speed). The relationship for each motor fitness tests with triple jump performance were tested. The triple jump test was conducted on a standard long jump venue that has all the basic needs of a triple jump competition to be held. The tool used for triple jump test is a measuring tape Descriptive statistics were derived for all test variables using SPSS. To determine the relationships between performance and selected motor fitness variables was evaluated by Pearson product moment coefficient of correlation. The level of significance is set at 0.05 for testing the hypothesis. The result of the study indicates that there would be significant correlation between performance and selected motor fitness variables such as agility, explosive power and speed.

Key Words: Agility, Explosive power and speed.

1. INTRODUCTION

Sports includes all form of competitive physical activity or game which through casual or organised participation, at least in part aim to use , maintain or improve physical ability and skills while providing enjoyment to participants, and in some cases, entertainment for spectators.

Jumping is an event that requires an athlete to jump and land at the farthest distance. According to Pornomo, there are three basic styles that are commonly used during triple jump that are the hang, sail and hick kick style. Despite differences of the jump styles, the aspects that need to be emphasized during the jump include speed during the aiming phase, push-off power in the jump phase, kick-off style in the kick-off phase and body balance during landing. These four phases are believed to significantly influence the performance of the athlete In order to perform a great jump, motor fitness is believed to play a significant role. Generally, motor is a function of the whole body as an efficient organism. The importance of this motor fitness in related sports activities is considered to be a critical aspect of athletes achieving their desired performance. Several previous studies has shown the relationship between physical fitness and performance. As of the authors' knowledge, not much study has been conducted on investigating the relationship of motor fitness and performance of triple jumpers. Thus, the main objective of this study was to determine whether there was a relationship between selected motor fitness variables and triple jump performance under 17 triple jumpers. This will be an initial study before commencing to the finding of the proper way of physical training among triple jumpers.

1.1 Statement of the Problem

The purpose of the study was to find more about the "relationship between Performance and selected motor fitness variables namely agility, explosive power and speed of triple jumpers".

1.2 Objectives of the Study

1. Assess the relationship between Performance agility of the triple jumpers.
2. To find out the relationship between Performance and explosive power of the triple jumpers.
3. To analyses the relationship between Performance and speed of the triple jumpers.

2. MATERIALS AND METHODS

This study involved thirty active under 17 state level triple jumpers. The participant selection was random and all of them were healthy and free of injury. Prior to the commencement of the study, Physical Activity Readiness Questionnaire (PAR-Q) and informed consent were obtained from all participants.

2.1 Data Collection

The motor fitness test had been conducted in this study were shuttle run test (agility), standing broad jump (explosive power) and 50m speed test (speed). The relationship for each motor fitness tests with triple jump performance were tested. Shuttle run test was conducted to measure agility of the partipants. The performer started behind the starting line on the signal "go" and ran to the blocks, picked up one, return to the starting line, and places block behind the line; then repeats the process with the second block. Allow some rest between the two trails. The score for each performer was the length of time required (to the nearest tenth of a second) to complete the course. Recorded only the bet trial (Yobu, 2010). Horizontal jump test was conducted to measure power. Horizontal jump length was measured using measurement tape on stand-up jump mats. Measurements were calculated from the jump starting line to any part of the body that landed closest to the starting line and recorded by the researcher (Yobu, 2010). 50 Meter Sprint Test was conducted to measure speed. For this test, the distance of 50 meters was measured using a measuring tape and markers were placed using tape and cone on the start and end lines. Then, participants were asked to stand behind the starting line and start to run from a standing position when "go" instruction was given. Participants were required to run within 50 meters of the speed limit. Timing of 30 meter sprint test was recorded using stopwatch (Casio, Malaysia). Researcher started the clock based on the subjects' first initial movements until the participant reaches the finish line (Yobu, 2010). The triple jump test was conducted on a standard long jump venue that has all the basic needs of a triple jump competition to be held. The tool used for triple jump test is a measuring tape.

2.2 Statistical Techniques

Descriptive statistics were derived for all test variables using SPSS. To determine the relationships between performance and selected motor fitness variables was evaluated by Pearson product moment coefficient of correlation. The level of significance is set at 0.05 for testing the hypothesis.

3. RESULT AND DISCUSSIONS

Table 1: Descriptive statistics on agility, explosive power and speed and performance of under 17 triple jumpers

Sl No	Variables	N	Mean	SD
1	Performance	20	14.33	1.06
2	Agility	20	11.75	0.30
3	Explosive Strength	20	2.06	0.26
4	Speed	20	6.89	0.58

Table 1 shows that, the descriptive statistics of the selected motor fitness variables and performance of the under 17 triple jumpers. The mean value on the performance of under 17

triple jumpers was 14.33 with a standard deviation 1.06. The mean and standard deviations for the agility were 11.75 and 0.30. The mean values on the explosive strength and speed were 2.06 and 6.89 respectively. The SD values on the explosive power and speed were 0.26 and 0.58 respectively.

Table 2: Relationship between performance and Selected motor fitness variables of triple jumpers

		PRFM	AGTY	EXPS	SPD
Performance	Pearson Correlation	1	-0.62*	0.70*	-0.47*
	Sig.	-	0.00	0.00	0.03
	N	20	20	20	20

*Correlation is significant at the 0.05 level (2-tailed)

Table 2 Shows the Correlations coefficient between performance and selected motor fitness variables of triple jumpers. The statistical results showed that agility (r= -0.62*, p=0.00, p<0.05) showed a significant relation with performance. The statistical results showed that explosive power (r= 0.70*, p=0.00, p<0.05) showed a significant relation with performance. The statistical results showed that speed (r= -0.47*, p=0.03, p<0.05) showed a significant relation with performance.

3.1 Discussion on Findings

The study on relationship of selected motor fitness variables to the playing ability has brought to light few findings and observations. Motor fitness variables chosen for the research such as agility, explosive power and speed. The result showed that motor fitness variables has significantly related to the performance of triple jumpers.

Results also showed that there was a significant relationship between horizontal jump test and triple jump performance. The results of these test that representing the power component was in line with the findings from Muhamad et al., (2001) that found the participants with high explosive leg strength in standing broad jump test also showed a positive relationship with triple jump performance. The horizontal jump were used as plyometric exercise to develop leg explosive (power) and it has been proven to increase jumps, it is because movement of these both jump have a similarity with triple jump take off phase that contain stretch shortening cycles of the leg muscles (Ashker et al., 2019). Muraki et al., (2008) stated that to increase jumping distance, there were needed for long jumper to transfer horizontal velocity into vertical velocity during take-off phase. Therefore, power from horizontal jump can help to maximize take-off velocity to produce greater jumps in triple jump performance. The findings of this study showed that there was a moderate negative relationship between the shuttle run test, 50-meter sprint test and the triple jump performance. In the event of a triple jump, an individual must have the ability to run fast and quick movement ability. This is so that the power generated during the run can be transferred to power generation to jump further. Abdullah (2009)] stated that the speed and agility that occurs when an athlete runs gives the athlete the best impact before jumping. This findings was in line with the study of Mackata at al., (2015) that found significant relationship between 100-meter sprint speed and the ability of jumping.

4. CONCLUSIONS

1. It was concluded that performance of under 17 triple jumpers were significantly correlated with agility at 0.05 levels of confidence.
2. The results show that performance of under 17 triple jumpers were significantly correlated with explosive power at 0.05 levels of confidence.
3. It was proved that performance of under 17 triple jumpers were significantly correlated with speed at 0.05 levels of confidence.

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SURFACE ELECTROMYOGRAPHY APPLICATIONS IN THE SPORT

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Abstract

The electrophysiological techniques (neurography and needle electromyography) allow us an approach to the knowledge of the neuromuscular function. Electromyography obtains the electrical activity from the muscle in rest or in contraction (maximum and static voluntary contraction). In its clinical application, electromyography helps to the diagnosis and follow-up of a process of neuromuscular type.

On the other hand, kinesiological or surface electromyography (SEMG) allows the study of the muscular activity in dynamics, which we can apply to the biomechanical movement analysis, gait analysis, studies of muscular fatigue, sport performance and applications in work medicine and ergonomics.

SEMG brings advantages like the fact that is a bloodless test, of being able to analyze varying muscles at the same time, in motion and in actions of non limited duration. The processed one brings us parameters of amplitude and frequencies, which we will use for descriptive and comparative studies. As a balancing entry, it does not allow us to study deep musculature, and some aspects of definition are lost in the obtained outlines.

Introduction

Electrophysiological techniques enable us to relatively easily obtain very valuable information about neuromuscular activity[1]. Two techniques are usually used in clinical situations: neurography and needle electromyography. The former allows the study of the response potential of a sensory, motor or mixed nerve branch subjected to an electrical stimulus applied to the surface. The latter allows the direct and precise recording of the electrical activity of the muscle being studied, both in repose and in attempts at maximum contraction.

Another technique for recording the electrical activity of muscles is surface electromyography (SEMG), which has other advantages and applications, both in research and in clinical practice. In this review details are given of this technique, as well as of its current principal applications.

Definition of electromyography

Electromyography is the recording of the electrical activity of muscles, and therefore constitutes an extension of the physical exploration and testing of the integrity of the motor system[2,3].

It can be said that SEMG, sometimes called kinesiological electromyography, is the electromyographical analysis that makes it possible to obtain an electrical signal from a muscle in a moving body[4-6]. It has to be added, by way of clarification, that according to this definition its use is limited to those actions that involve a dynamic movement. Nevertheless, it is also applicable to the study of static actions that require a muscular effort of a postural type.

It is based on the fact that muscular activation involves:

- A prior ionic diffusion within the muscle, which generates an electric field around it proportional to the ionic concentration. This electrical field is detected by the EMG electrodes.
- A consequent mechanical response occurs due to the articular moment generated by the force that the muscle makes upon contracting.

- The principal purpose of this type of measurement is to establish the activity of one or more muscles involved in a particular action. This includes:
- Determining, at each moment, whether the muscle is active or inactive.
- Determining the degree of activity exhibited during periods in which there is activity.
- Determining what type of relationship or interaction the muscle maintains with the rest of the muscles involved in the action under study (the concept of *intermuscular coordination*).

In order to be able to identify the moments and periods in which the activation of the different muscles involved in a specific dynamic action occurs, it is essential to synchronise the electromyographic recording with the recording of other measurement systems that provide cinematic data. These systems usually involve the use of cameras, electrogoniometers and other recording equipment together with their programs, and provide us with position, speed and acceleration measurements. In addition, the study can be complemented with systems that analyse forces, also called kinetic systems, such as podometry and a force platform. SEMG forms part of this approach and has been introduced as an important part of biomechanical analysis[4,7].

SEMG: uses and applications

Analysis of a movement

The analysis of movement usually includes a cinematic study and a kinetic study. The cinematic study is responsible for determining the position, speed and acceleration parameters, both linear and angular. Different camera and marker systems are used for this purpose. The kinetic study determines the internal or external forces involved, related to the movement being analysed. To carry out this study, instruments such as force platforms and other devices for measuring forces are used. Electromyography enables us to record muscular activity, and it is often advisable to carry out a synchronised cinematic measurement at the same time. In this way, the two types of data can be contrasted and it is possible to establish:

- How long the muscle is activated for, the start and end of the activation in relation to the articular position.
- The degree of muscular activity which itself reflects the level of muscular effort. However, this must not be confused with the level of muscular force, as the electrical signal detected is a function of the ionic concentration in the muscle.

SEMG facilitates tasks such as defining muscular participation in a particular movement or observing the activation of the musculature in a segment in response to the mobilisation of other segments. These aspects are relevant in areas such as sports medicine, occupational medicine and, increasingly, in ergonomic studies.

Gait analysis

Gait analyses constitute a specific type of movement analysis, gait having the particular characteristic of being a cyclical and complex action. Currently there are closed programs for analysing gait, which make it possible to compare the data obtained from an individual with what is considered to be within the normal range, as well as to compare one limb with another for the same individual. SEMG focuses on the activation times and intermuscular coordination which are important parameters in the evaluation of pathologies with disturbances of movement and disturbances of neurological origin that affect the gait. They are similarly important in post-surgery evaluation in cases of articular prosthetic implantsand where there is articular instability and/or damage to ligaments

Evaluating fatigue

In prolonged movements a series of electrophysiological changes take place linked to the development of a fatigue process that produces observable changes in the electromyographic traces. This is of special interest in sports medicine, occupational medicine and ergonomics.

Using this technique we can determine the existence or absence of this fatigue process, analyse its development over time and compare its behaviour in different situations.

Evaluation of muscle activity during a diagnostic and/or therapeutic process

SEMG can be very useful for the initial evaluation of muscle activity and during a therapeutic treatment or process. The degree of muscular activation, comparison with a healthy limb, the observation of muscular coordination or the agonist/antagonist relationship are phenomena that can be altered in pathological situations and in therapeutic situations where attempts are being made to restore normality. SEMG is a suitable technique to use in such cases

Studies have been carried out on using SEMG for the evaluation and monitoring of femoropatellar syndrome. The results of such studies are not as yet very clear. Some studies have observed the existence of alterations in the activation pattern of the vastus medialis and the vastus lateralis of the quadriceps muscle, although other studies have not produced these results.

Significant alterations have been observed in the electromyographic recordings in cases of lumbago. These make a greater understanding of the condition possible, helping in its diagnosis, treatment and prevention. In some studies a large degree of activation of the lumbar musculature has been observed in people affected by lumbago in comparison with a control group. Others show a delay in the activation of the transverse muscle of the abdomen during movements of the limbs. In some cases, a neuromuscular imbalance of the extensor muscles of the vertebral column has also been observed. In others, an alteration in the median frequency of the electromyographic signal has been observed during the physical evaluation of these patients while carrying out an established isometric test of the resistance of the extensor muscles of the trunk.

Facilitating miofeedback techniques

SEMG is an essential tool in this technique, applicable when postural re-education is required. The electromyographical signal provides the patient and the therapist with information about the activation moments of the muscles being treated. In the rehabilitation field, SEMG can be a useful tool in the work of propioception.

Evaluating sports performance

The fact that SEMG can analyse dynamic situations makes it of special interest in the field of sports. The improvement in the efficiency of a movement involves the correct use of the muscles, in terms of both economy of effort and effectiveness, as well as in the prevention of injury. In a training process, improvements in these parameters can be sought, follow-up carried out and corrective measures or steps for improvement determined. In particular, the performance of a task can be improved in terms of muscular activation and/or in terms of muscular fatigue, based on the analysis of the frequency of the electromyographic traces observed. It has to be remembered that the EMG does not provide us with muscular force parameters, although it is an indicator of the muscular effort made in a particular action. In relation to this, it is important to stress that the relationship between EMG activity and effort is only qualitative.

Recently, experiments have also been carried out in the sports area on applications for purposes such as the evaluation of the type of muscle fibre and the characterisation of muscles.

Evaluation of neuromuscular disorder

When there is a neuromuscular basis to a disorder, changes are seen in the results of the analysis of the electromyographic signal. An anomalous electrical signal which is indicative of pathology can be seen in the trace obtained using needle electrodes. A quantitative analysis can also be carried out. With SEMG there is less signal resolution and therefore information is lost compared to that provided by a recording made with a needle electrode. Methods to reduce this have been developed over a number of years. In this regard, dynamic

electromyographic studies have been carried out using specially designed, flexible intramuscular electrodes. Work is also being carried out on *high spatial resolution electromyography* (HSR EMG). This aims to approximate the information from traces obtained intramuscularly by means of a system of multiple surface electrodes›. The objective is to be able to analyse the *motor unit potentials* (MUPs) in a way similar to that of clinical electromyographic techniques, to be able to contribute to the diagnosis and follow-up of disorders of neuromuscular origin. The aim is to detect the presence of pathological potentials such as fasciculation potentials by exploiting the ability of SEMG in relation to the detection of time and space factors. Work is also being carried out on obtaining the number and type of MUPs and the *motor unit* (MU) recruitment strategies, although this is still controversial and results vary. There is evidence that SEMG could contribute to the detection of problems that are neuromuscular in character, as well as to the study of fatigue associated with certain disorders such as post-polio syndrome or myotonic distrophy. However, it is not clear whether it is really of use in distinguishing between a neuropathic process and/ or a myopathic process Some data has been gathered, including data from the use of SEMG to evaluate cases of entrapment neuropathy. This field of application is very interesting though more results need to be obtained and contrasted.

Coactivation

Another phenomenon that can be analysed using SEMG is that of coactivation, understood as the simultaneous existence of activity in agonistic and antagonistic muscles, which is important in evaluating the quality of movement. Significant alterations in coactivation are related to situations of immaturity of the neuromuscular system, also observed specifically in individuals with Down Syndrome.

SEMG methodology

It is important to prepare the patient well and to apply the technique correctly. It is also necessary to guard against possible errors in the interpretation of the recordings. The SEMG involves three phases (the preparation phase, the recording phase and the processing phase) which are described below.

Preparation phase

1. *Preparation of the individual and the provision of information in advance.* It is essential to adequately inform the individual about the procedure to be followed during the recording session and about particular aspects of the study, such as its objectives, usefulness and possible applications. It is necessary to obtain the individual's informed consent in writing. The individual signs this, stating that he or she has been given information about the process and is both interested in and approves of the recording taking place. It is advisable to collect information on substance use and abuse, medication being taken and whether the patient is suffering from any illnesses, particularly those that could affect muscular function. The existence of any neuromuscular conditions and musculoskeletal disorders must be noted. Depending on the study, it will also be necessary to establish anthropometric parameters such as weight and height.
2. *Preparing the skin.* The skin's impedance must be reduced so as to obtain a good quality electrical signal. To do this, it is advisable to shared and rub the skin with an abrasive gel to reduce the dry layer of the skin or dead cells, and to eliminate sweat by cleaning the skin with alcohol.
3. *Positioning the electrodes.* It is essential to position the electrodes correctly to obtain a good signal. The best position, provided it is possible, is on the mid line of the muscle belly, between the myotendinous junction and the motor point. To achieve this, published guides can be used to ensure the methodology is followed correctly. It is very important to always use the same position on different individuals and for different recordings taken from the same individual, given that the signal recorded varies according to the area of the

muscle on which the electrodes are positioned. It is also advisable to maintain an optimum distance between the electrodes. Furthermore the *cross-talk* phenomenon must be avoided. This consists of the contamination of the signal from the muscle under study by signals from other nearby muscles. To prevent this, the areas adjacent to other muscles must be avoided and the muscle activity being recorded must be tested thoroughly. Cardiac activity is another possible contamination of the electrical signal. This appears in recordings at an upper thoracic and scapular level but there are programs that aim to eliminate this.

Each muscle is examined by positioning two electrodes on it, separated by a distance of one or two centimetres (Figure 1). The use of surface electrodes creates what is called a *detection volume*, that is to say, the volume of tissue from which the electrode is capable of detecting an electrical signal. The energy detected coming from the motor units will depend on the depth at which these are situated within the detection volume, such that the deeper they are the lesser the amount of energy that will reach the electrode. The *conduction volume* is the volume of tissue through which the electrical signal travels to the electrodes.

In addition, a reference electrode has to be positioned far from the recording area and on electrically neutral tissue. For this, areas close to a bone plane are usually chosen, such as for example the tibial diaphysis or the cubital styloids in the wrist.

Advantages and disadvantages of surface electrodes (figure 1)

- They allow a global recording of the muscle.
- They are non-invasive.
- There are no limitations in relation to the surface studied or the recording time.
- Only the study of superficial musculature is possible.

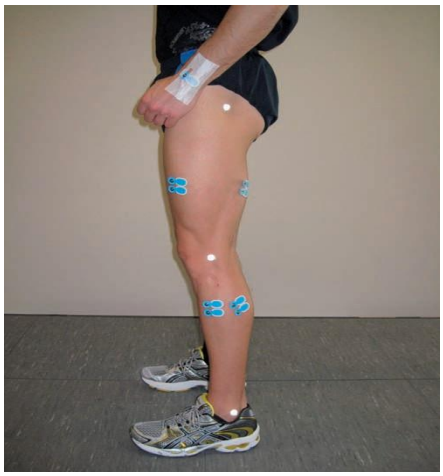


Figure 1 Example of positioning the surface electrodes on the musculature to be analysed (the vastus externus, ischiotibial muscles, peroneus longis and gastrocnemius externus). In this case, the analysis is accompanied by a cinematic study, in which reflective markers are also placed on the different anatomical points of reference.

- They require the skin to be correctly prepared.
- Traces are obtained with a lower frequency spectrum.

Advantages and disadvantages of intramuscular electrodes (figure 2)

- They allow a more local recording of the muscle.
- They are invasive.
- They make the study of superficial and profound musculature possible.
- Less preparation of the skin is required.
- They capture a higher spectrum of frequencies.

Recording phase

4. *Obtaining maximum voluntary contraction (MVC).* Maximum voluntary contraction is required to standardise the traces obtained of the maximum activity of a particular muscle in a specific individual. By standardising the traces, it is possible to compare different recordings from different subjects. To make this comparison three maximum isometric contractions 6 seconds long are obtained, with a brief rest between each one. These serve to calculate an average for the intermediate periods of the three. In this way it is possible to compare values that are not absolute values (Figure 3).
5. *Recording.* Recording is the phase in which the electromyographic signal corresponding to the action or movement being studied is obtained (Figure 4).

Processing phase

6. *Processing the signal.* The raw signal has to be prepared so that it can be easily observed and analysed. The type of processing will depend on the type of analysis we wish to make from the trace. Essentially two types of analysis are carried out: the analysis of amplitudes and the analysis of frequencies.

Analysis of amplitudes

This analysis aims to convert a highly variable electromyographic signal of alternating positive and negative values into a graph that approximates to the level of muscle activation. To carry out this analysis, the process outlined below is followed:

- Filtration of the signal, eliminating potentials of amplitudes and/or frequencies outside the normal spectrum, that often are the consequence of interference from equipment or some other type of contamination of the recording.
- Rectification of all the signal's negative and positive potentials. This is the equivalent of taking the absolute value of the signal, without taking the positive or negative sign into account.
- The application of a smoothing algorithm in order to obtain an image that is closer to the muscle activation and is easier to observe. One of the most frequently used algorithms is the *Root Mean Square,* a formula that represents the strength of the signal.
- Standardisation according to the MVC, in which the numeric amplitude values resulting from the smoothing algorithm are divided by the maximum voluntary contraction value, thereby obtaining percentage maximum voluntary contraction values.

Analysis of the frequencies

- Filtering. This procedure is described in the section on the analysis of amplitudes. It is only necessary if it has not been used beforehand.
- Use of the Fast Fourier Transform (FFT) or the system for signal decomposition across the different frequencies of which it is comprised (Figure 5). The objective is to determine the electromyographic frequency spectrum. Signal theory states that any variable signal can be obtained by adding different signals from one single frequency with different amplitudes. The frequency spectrum of a signal is represented on a graph showing the frequencies that make up this signal and the intensity with which they do so.

FFT is the ideal process for static actions, since it assumes that the frequency spectrum does not vary over time. This does not occur in dynamic actions, and as a consequence other methods of frequency analysis are used that show the variation of the spectrum over time, such as for example a *wavelet*. Pope et al[98] carried out a study of the extensor musculature of the vertebral column at level L3, finding that the wavelet detects the variations in

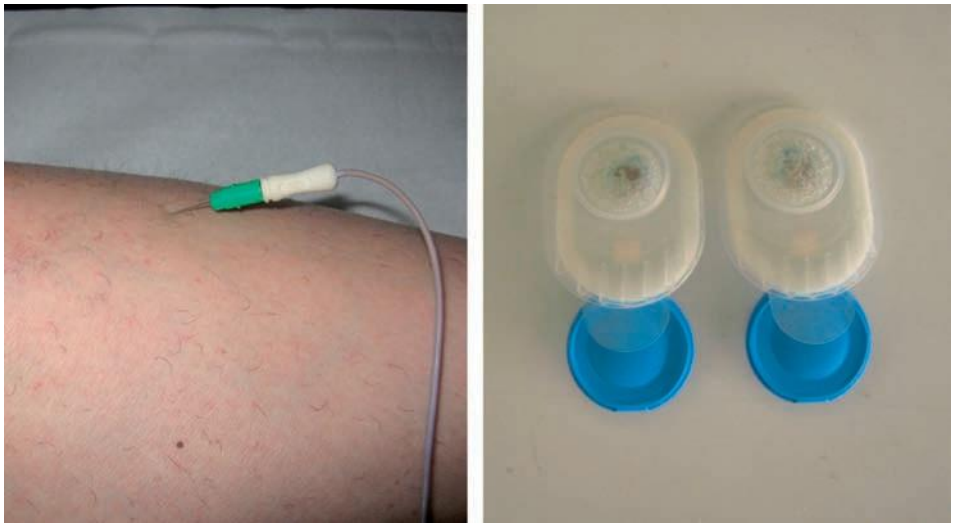


Figure 2 Intramuscular needle electrode during a recording of a muscle at rest (left). Surface electrodes (right).

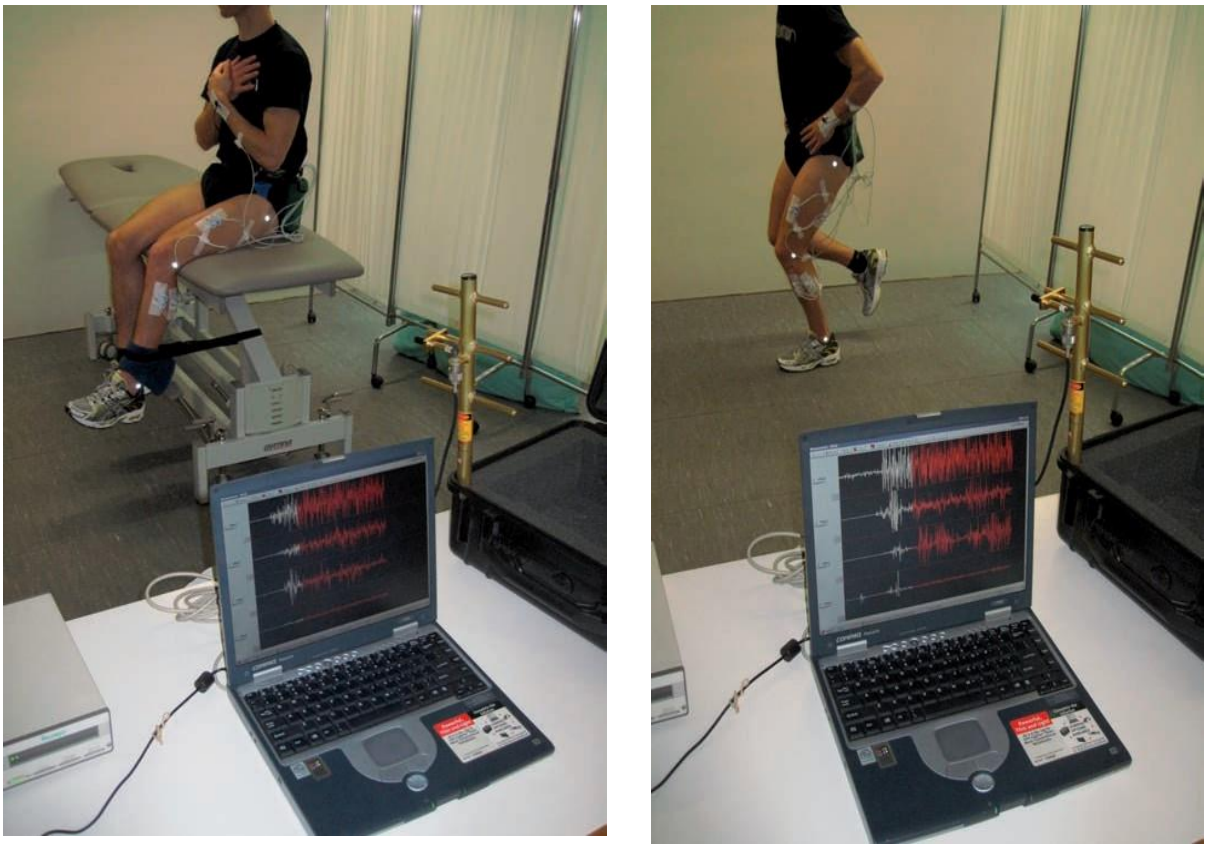


Figure 3 Recording the maximum voluntary contraction. In this case, the quadriceps muscle is recorded.

Figure 4 Obtaining the electromyographical signal during the recording phase muscular activity over time better than FFT. Karlsson and Gerdle also used the wavelet in increasing isometric actions of knee extensors. Xiao and Leung support the use of the same method in isokinetic actions of maximum intensity. The analysis of frequencies over time, in addition to being useful in dynamic actions, is also useful in situations of fatigue through prolonged effort, where the spectrum tends to be displaced towards the left on the graph, to lower frequency values.

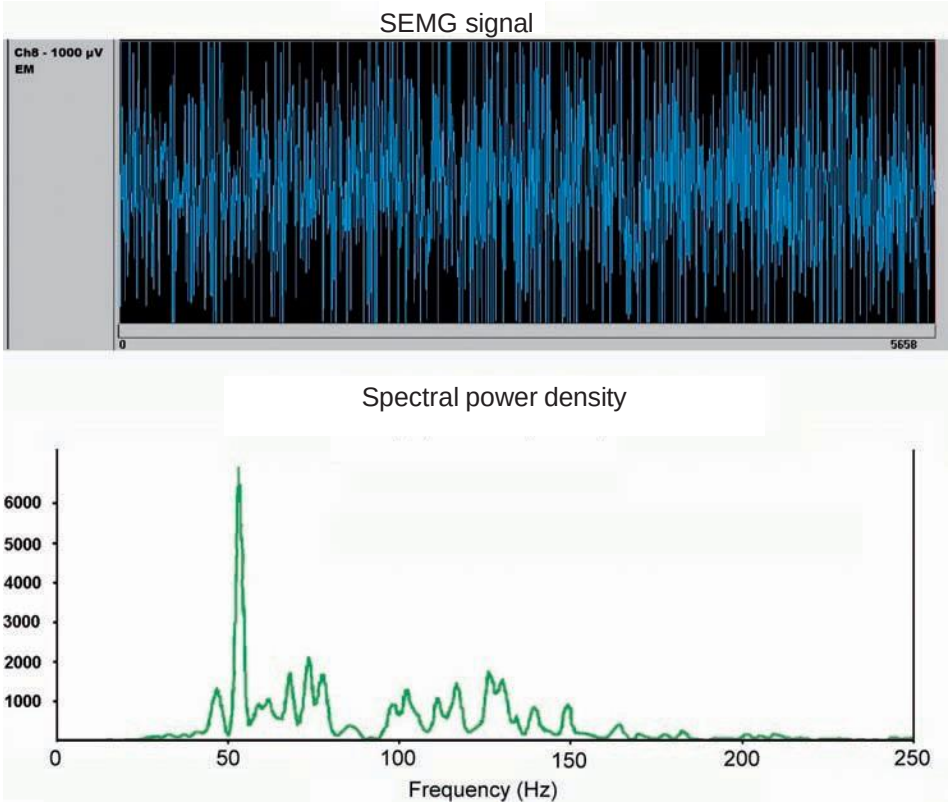


Figure 5 Graphic representation of the frequency spectrum obtained from an electromyographical recording.

The limitations of SEMG

Due to the characteristics of the electrodes used, SEMG enables us to study different muscles at the same time, without any inconvenience to the individual, with the advantage that the majority of SEMG equipment can accommodate different inputs (corresponding to different muscles) simultaneously. It also allows greater reproducibility of the traces obtained in different recordings. In addition, the recording obtained is more representative of the muscle as a whole rather than of a particular area.

Nevertheless, as already discussed, obtaining traces that provide less information regarding the characteristics of the MUPs is a limitation in those cases where this particular type of examination is of specific interest.

Another limitation is the fact that in some dynamic actions there can be displacement and modification of the volume of the muscle being analysed. A change in the relative position of the muscle in relation to the electrode means that the same spatial relationship is not maintained between them, which affects the intensity of the signal that is recorded. Because of this, the best conditions for carrying out an SEMG, depending on the use and application required, are those that are similar to those needed for an isometric type of study.

Finally, when the aim is to describe and/or compare a motor pattern, the study of all actions that are cyclical is strongly recommended. This makes it possible to compare identical periods of different cycles.

Conclusions

Currently we have the means to carry out surface electromyographic studies that complete biomechanical analyses. This has varied applications in the field of and also in occupational medicine and ergonomics. We can use SEMG to monitor locomotor apparatus diseases and movement disorders. In the therapeutic area, it is useful for post- treatment evaluation and re-education. It provides us with data when the objective is improvement in the performance or efficiency of a movement. In conditions such as disorders that are of neuromuscular origin, advances are being made with the aim of using electromyographic traces to obtain reliable information about motor units.

However, the methodological limitations and/or the interpretation limitations that there can be in each application of SEMG have to be borne in mind.

Conflict of interest

The authors have no conflicts of interest.

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ELEVATING PERFORMANCE: A COMPARATIVE STUDY OF HIGH ALTITUDE VS. LOW ALTITUDE TRAINING EFFECTS ON BIOCHEMICAL VARIABLES IN LONG-DISTANCE RUNNERS

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Abstract:

Background: *the main aim of this research was to evaluate the effectiveness of high altitude training and low altitude training on selected biochemical variables among long distance runners.* ***Method:*** *Therefore the purpose of the study was to investigate the influence of high altitude training and low altitude training on High density lipoprotein, Low density lipoprotein, and Total cholesterol among long distance runners. In this study thirty (30) subjects, of long distance runners were randomly selected in high altitude training group and in low altitude training group, fifteen (15) in each group. (n=30).* ***Timeline:*** *The high altitude training and in low altitude training consisted of 45-60 min/day, 3 days in a week till twelve weeks from the affiliated colleges of Madras University, Chennai. Biochemical variables completed of the both groups at zero time and after twelve weeks of high altitude training and in low altitude training intervention group.* ***Results:*** *In present study, HDL (45.53 ± 4.91, 45.47 ± 3.98), LDL (134.33 ± 5.15, 134 ± 4.85) and TC (217.92 ± 7.34, 217.60 ± 8.97) were changed significantly.* ***Conclusion:*** *The advantage of high altitude training is that the muscles get a natural boost when more oxygen is available during lower-altitude training. High altitude training gives greater reduction of LDL and Total cholesterol compared to low altitude training. Both training was given better benefits of HDL. Therefore high altitude training and low altitude training covered in this study are beneficial for the long distance runners.*

Keywords: *High Altitude Training, Low Altitude Training, Paired 't' test, Biochemical variables, Long Distance Runners.*

Introduction:

Nowadays, altitude training has become a standard training protocol in many aerobic sports to increase exercise capacity at sea level or to acclimatize prior to competitions at altitude or before ascending to altitude (Wilber, 2007). Sudden exposure of the human body to a hypoxic environment or staying at altitude induces numerous adaptations which can lead to improved athletes' performance at sea level. These mechanisms are generally attributed to either hematological (Levine and Stray-Gundersen, 1992), cardiovascular (Naeije, 2010), or ventilatory (Townsend et al., 2016) effects of altitude training. However, altitude training can also lead to improved muscle buffering capacity (Gore et al., 2001), increased glycolytic enzyme activity (Katayama et al., 2004), enhanced capillary density (Vogt et al., 2001), muscle mitochondrial volume (Geiser et al., 2001), and myoglobin concentration (Terrados et al., 1990; Zoll et al., 2006). Expected effects may be achieved by applying one of the recognized high-altitude training methods, i.e., live high-train high (LH-TH), live high-train low (LH-TL), and live low-train high (LL-TH). An up-to-date survey of altitude training methods with a modified nomenclature which analyzed the opportunities to combine different hypoxic methods was conducted by Millet et al. (2013).

In the classical LH-TH method, which is the first concept of altitude training, the athletes live and train at moderate altitudes (2,000–3,000 m) to stimulate erythropoiesis, which increases erythrocyte volume, thus enhancing sea-level endurance performance. This method is still in use today, but one major conclusion drawn from scientific research and sport practice is that athletes are not able to train at an equivalent, or near-equivalent, intensity as at sea level. Thus, athletes may return to sea level in a detrained state (Wilber, 2007). To overcome this problem, athletes often descend from altitude to perform intensive training sessions, returning

to altitude at night to continue the acclimatization process. This LH-TL model of altitude training was developed in the early 1990s (Levine and Stray-Gundersen, 1992) and received considerable attention. Today, several training strategies can be used based on the LH-TL principles. Athletes can live in a natural hypobaric hypoxic environment, or use special technologies such as nitrogen dilution or oxygen filtration to create a normobaric hypoxic environment (Mattila and Rusko, 1996; Gore et al., 2001). However, there are still many controversies about the mechanisms of hematological and non-hematological adaptations to LH-TL and the extent of enhanced sport performance (Lundby and Robach, 2016). The quality and quantity of the results in the literature are still insufficient to elucidate the mechanism of the effect of LH-TL on sport performance. It is considered that the positive effects of LH-TL are mainly due to the increase of red cell volume (RCV) (Levine and Stray-Gundersen, 2005), but there exists a contrary opinion that improvements in the energy cost of exercise seem more likely than increases in RCV as a result of LH-TL (Gore and Hopkins, 2005).

In the LL-TH protocol, athletes live under normoxic conditions and train in a natural, hypobaric, or simulated normobaric hypoxic environment. The LL-TH method can be used by athletes at rest (intermittent hypoxic exposure; IHE) or during training sessions (intermittent hypoxic training; IHT) (Terrados et al., 1988; Casas et al., 2000; Czuba et al., 2011). However, during the LL-TH protocol, the exposure to acute hypoxia is too short (1–2 h per day), and insufficient to modify hematological variables (Czuba et al., 2011, 2017, 2018), but the LL-TH method can contribute to the activation of non-hematological adaptive mechanisms (Girard et al., 2017; Millet and Girard, 2017).

Although the concept of altitude or hypoxic training to improve sea-level sport performance has been known for nearly 50 years, its efficacy remains somewhat controversial. Whilst some studies support the ergogenic effects of altitude training on sport performance (Mattila and Rusko, 1996; Gore et al., 2001), others do not (Ashenden et al., 2000; Hinckson et al., 2005). There are also conflicting reports on the efficacy of altitude training in improving hematological variables. These discrepancies may be due to differences in duration of hypoxia exposure, intensity of the hypoxic stimulus, type of training model, volume and intensity of exercise during the experiment, and the sports skill level of study participants. Methodological approaches and measurement techniques used by researchers are also significant.

Therefore the aim of this research influence of high altitude training and low altitude training on selected biochemical variables among long distance runners.

Methodology:

The purpose of the study was to find out the influence of high altitude training and low altitude training on selected biochemical variables among long distance runners. To achieve the purpose of the study, thirty college long distance runners were selected from in and around affiliated colleges of Madras University, Chennai. The subjects were randomly assigned in to two equal groups namely, high altitude training (HATG) and low altitude training group (LATG) each group consist of (n=15). The respective training was given to the experimental group the 3 days per weeks (alternate days) for the training period of twelve weeks. Design: The biochemical variables such as High density lipoprotein, Low density lipoprotein and Total cholesterol were selected as dependent variables. Sample collection: Five milliliters of peripheral fasting blood was collected, following informed consent, from all individuals who participated in this study before high and low altitude training intervention and again fasting blood was collected after twelve weeks of high altitude training group and low altitude training intervention group. Serum was separated by centrifuge machine (3500—4000 rotations/min) at room temperature. Total cholesterol, LDL, and HDL cholesterol were measured after overnight fasting (12 h after meal).

Statistical Analysis:

The collected data before and after training period of 12 weeks on the above said variables due to the influence of high altitude training and low altitude training was statistically analyzed with paired 't' test test to find out the significant improvement between pre and post-test. In all cases the criterion for statistical significance was set at 0.05 level of confidence. ($P<0.05$)

Table I

Computation of 't' Ratio on Selected Biochemical Variables of Long Distance Runners on High Altitude Training and Low Altitude Training Group

Group	Variables		Mean	N	Std. Deviation	Std. Error Mean	t ratio
High Altitude Training	LDL	Pre	134.33	15	5.15	1.33	15.95*
		Post	122.80		4.68		
	HDL	Pre	45.53	15	4.91	1.27	11.13*
		Post	48.93		4.89		
	Total Cholesterol	Pre	219.74	15	5.71	1.89	9.60*
		Post	205.81		5.84		
Low Altitude Training	LDL	Pre	134.00	15	4.85	1.25	10.40*
		Post	124.00		1.07		
	HDL	Pre	45.47	15	3.98	1.03	9.74*
		Post	48.60		3.94		
	Total Cholesterol	Pre	217.92	15	7.34	2.32	8.90*
		Post	207.66		6.20		

*Significant level 0.05 level degree of freedom (2.14, 1 and 14)

Table I reveals the computation of mean, standard deviation and 't' ratio on selected biochemical variables namely High density lipoprotein, Low density lipoprotein and Total cholesterol high altitude training group. The obtained 't' ratio High density lipoprotein, Low density lipoprotein and Total cholesterol were 15.95, 11.13 and 9.60 respectively. The required table value was 2.14 for the degrees of freedom 1and 14 at the 0.05 level of significance. Since the obtained 't' values were greater than the table value it was found to be statistically significant. Further the computation of mean, standard deviation and 't' ratio on selected biochemical variables namely High density lipoprotein, Low density lipoprotein and Total cholesterol low altitude training group. The obtained 't' ratio on High density lipoprotein, Low density lipoprotein and Total cholesterol were 10.40, 9.74 and 8.90 respectively. The required table value was 2.14 for the degrees of freedom 1and 14 at the 0.05 level of significance. Since the obtained 't' values were greater than the table value it was found to be statistically significant.

Figure 1

Bar diagram showing the pre, post means values of high altitude training group on biochemical variables.

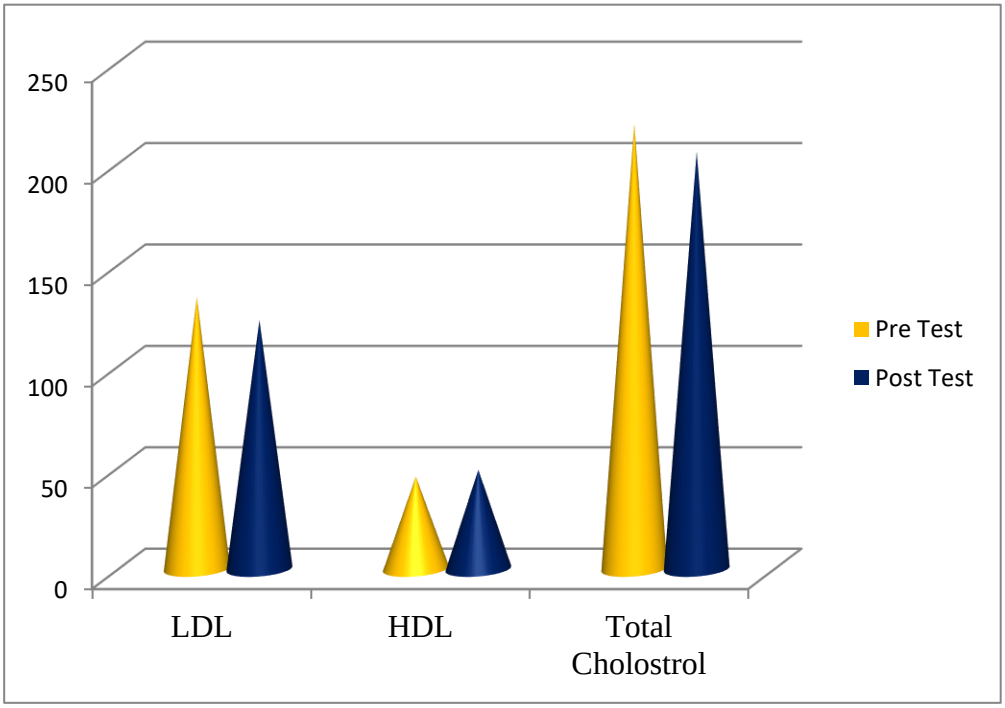
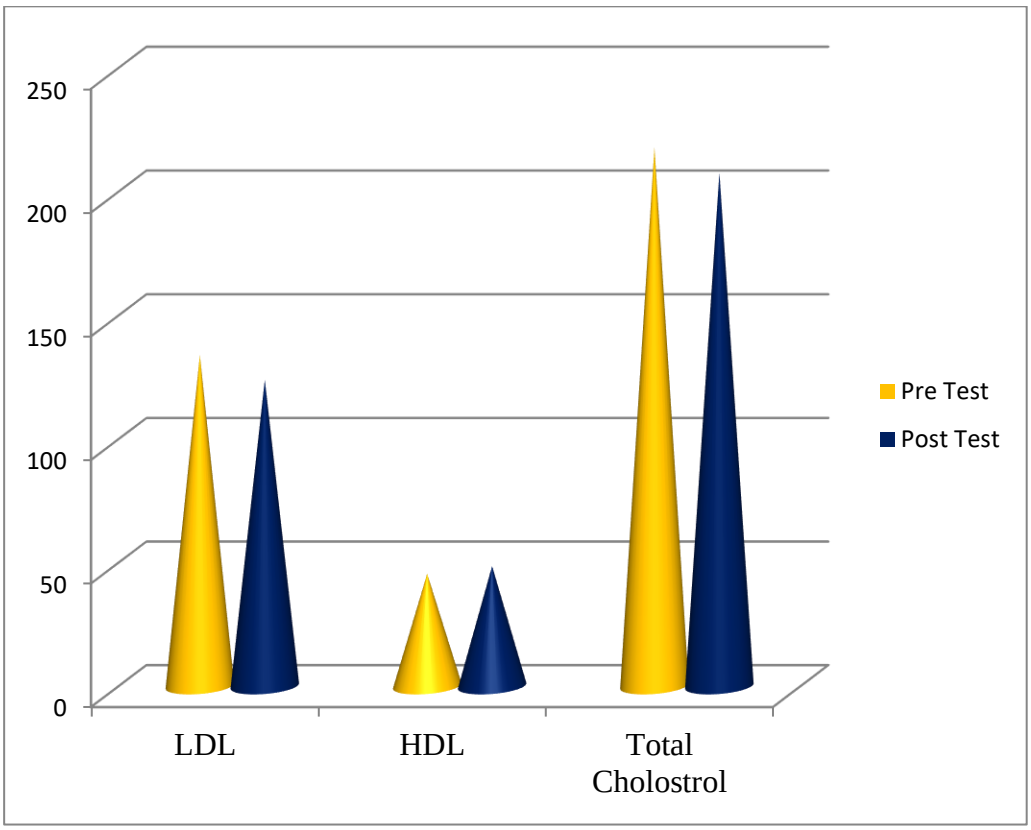


Figure 2

Bar diagram showing the pre, post means values of low altitude training group on biochemical variables.



Discussion Findings:

In this study the effect of high altitude training low altitude training was seen on the lipid profile in the long distance runners. Significant improvement in high density lipoprotein was observed and other researchers also corroborate with our findings. Study held in Ontario, Canada also corroborate with our study and state that training increases HDL cholesterol and several studies have confirm this belief (Leon AS 2001). It is well known that high and low altitude training are beneficial for the long distance runners. The level of cholesterol and LDL was significantly reduced in this study after high and low altitude training. Physical exercises including yogic practices along with dietary modification have been observed to control lipid content of blood and to treat and prevent CAD (Srivastava et al 2011). In a study conducted in Mumbai, India, it was observed that in study group average total cholesterol level fell to 184.8 mg% ($p < 0.05$) from the baseline level of 247.2 mg% ($p < 0.05$) and LDL cholesterol level fell to 108.4 from basal of 146.4, even without the use of statins (Yogendra et al 2004).

In future this study could be repeated in other populations also. Further, some other high altitude training low altitude training may be tried and compared with the present ones. More scientific co-relations could be seen before and after high altitude training low altitude training interventions. Qualitative analysis (psychological variables) of the subjects may be useful for discussing the variables changed after high altitude training low altitude training intervention. high altitude training low altitude training may also be responsible in creating positive changes in plasma catecholamines, cytokines and leukotrienes levels thus benefiting the long distance runners. Study of such factor could be helpful for athletes.

Conclusion:

Reduction of total cholesterol and LDL after regular high altitude training low altitude training is beneficial for long distance runners. Therefore high altitude training low altitude training included in this study are helpful for the long distance runners.

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THE INFLUENCE OF GAME-SPECIFIC TRAINING AND RESISTANCE TRAINING ON SELECTED SKILL PERFORMANCE VARIABLES AMONG COLLEGE-LEVEL BADMINTON PLAYERS

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Abstract

The aim of this study was to investigate the influence of game-specific training and resistance training on specific skill performance variables in college-level badminton players. To achieve this goal, we randomly selected 30 subjects from the SRM Institute of Science and Technology, Kattankulathur, aged between 18 and 21 years. These subjects were then divided randomly into two groups, each comprising 15 participants: an experimental group and a control group. The experimental group underwent a structured regimen involving game-specific training and resistance training, while the control group did not engage in any experimental activities. The skill performance variables examined in this study were the short serve and long serve. Our research design followed a true random group design, incorporating both pre-tests and post-tests. All 30 subjects were equally allocated to either the experimental group (comprising game-specific training and resistance training) or the control group. Before the six-week experimental period commenced, we conducted pre-tests to assess the selected skill performance variables in all 30 subjects. Subsequently, post-tests were carried out at the conclusion of the experimental period, with scores meticulously recorded. Statistical analysis was conducted with a predetermined level of significance set at a confidence level of 0.05. The study's results revealed a significant improvement in short serve and long serve skills among participants in the game-specific training and resistance training group.

Keywords: *short serve, long serve, Badminton players.*

Introduction

Badminton

Badminton is being the racket sport and a speed game; player has to concentrate over the ball and decision to be made on receiving and placing the ball in the opponent court. In this game, object used to meet out the ball and its directions though which is less in size of space, for successful execution of an object requires high level physical and cognitive functions. The very micro deviation makes the player to setback in the game. In fact, the game badminton demands movement related fitness such as speed, flexibility, endurance, power and coordination abilities to successfully execute the ball with consumption of energy. Badminton now- a -days is becoming a professional sport. Every player seeks the course of action line to excel in this sport in different manner. Initially the fundamental skills and its movements will be explained to the player using some instructional media. The learning tools related to the game badminton are knowledge about badminton, witnessing video models, and viewing pictures or posters with sequences of movements employed in teaching. Such type of process cognitively makes the player to imagine the game and its movements. Following this, to be mastery over the fundamental skills, badminton players have to teach repeatedly Normally physical training is a very basic for a sport to prepare the player to learn the basic movements. Though the physical training underlies physical movements, the successful learning of fundamental movements depends upon the players need, interest motive and goal over the particular sport. Having the need, interest, motive and goal intrinsically, player's commitment will enhance recollection of his movement mentally during the practice which enables to forecast the next course of movement from the knowledge of results derived from the practice. Sport-specific training enhances and refines the essential skills necessary to excel in various

sports. Your young athlete will develop increased confidence in their agility, speed, and hand-eye coordination. The Sport-Specific Skill Training program offers a year-round, high-level, sport-specific training experience, placing significant emphasis on the development of physical, technical, tactical, and psychological aspects of the sport. This training program plays an integral role in fulfilling the Athletic Performance Ranch's mission of fostering character, knowledge, and leadership. Sport-Specific Training introduces and sharpens the fundamental skills required for success in any sport. Your young athlete will experience heightened confidence in their agility, speed, and hand-eye coordination. We provide both group and individual training options to cater to individual preferences and needs. It's worth noting that strength training forms a crucial component of overall fitness for athletes, contributing to their success and performance enhancement.

Resistance training, often referred to as strength training or weight training, is a form of exercise that involves using resistance or force to induce muscular contractions, thereby building strength, endurance, and muscle mass. The primary goal of resistance training is to improve muscular strength and endurance by challenging the muscles to overcome a resistance force. This type of training can be achieved in various ways, including: Free Weights: Using dumbbells, barbells, or kettlebells to perform exercises such as squats, bench presses, and curls. Weight Machines: Using specialized machines that provide a guided range of motion and adjustable resistance. Resistance Bands: Utilizing elastic bands of varying resistance levels to perform exercises that target specific muscle groups. Bodyweight Exercises: Engaging in exercises like push-ups, pull-ups, and bodyweight squats that use your own body weight as resistance. During resistance training, muscles are subjected to tension and stress, leading to microscopic muscle fiber damage. As the muscles repair and adapt to this stress, they become stronger and more resilient. This adaptation process is known as hypertrophy. Resistance training offers a wide range of benefits, including: Increased muscle strength and power, Enhanced muscle tone and definition, Improved bone density, Enhanced metabolism and calorie burn, Enhanced joint stability and flexibility, Reduced risk of injury and better overall physical function and quality of life. It's important to perform resistance training with proper form and technique to minimize the risk of injury. Many individuals incorporate resistance training into their fitness routines to achieve a balanced and well-rounded approach to physical fitness. Whether the goal is to build muscle, increase strength, or improve overall fitness, resistance training plays a vital role in achieving these objectives.

Methodology

The researcher employed a randomized design, incorporating both pretests and post-tests. A total of 30 male badminton players (N=30) were randomly assigned to two equal groups, each comprising 15 participants: the experimental group and the control group. Before any training commenced, a pre-test was administered to assess selected skill performance variables, specifically the short serve and long serve, for all 30 badminton players. Subsequently, the experimental group underwent a six-week training regimen that included game-specific training and resistance training, while the control group did not participate in any training activities. Upon the completion of the six-week training period, post-tests were conducted to measure the same dependent variables. The data obtained from these tests underwent statistical analysis using the dependent t-test to ascertain whether any statistically significant improvements were observed. It's important to note that a significance level of 0.05 was established, ensuring a 95% confidence level for all the analyses.

Test I

Mean and Dependant 'T' – ratio for the Pre And Post Tests on game specific training and resistance training group and control group on short serve

Group	Test	Mean	Standard deviation	Standard error mean	t- ratio
Experimental group	Pre test	61.80	1.38	0.35	11.91*
	Post test	66.06	1.40		
Control group	Pre test	60.60	1.75	0.45	1.50
	Post test	61.20	1.80		

***Significant level 0.05 level degree of freedom (2.14, 1 and 14)**

Table I presents the computation of the 't' ratio, comparing the means of pre-test and post-test short serve scores among college-level badminton players. The mean short serve values for the experimental group were 61.80 before training and 66.06 after, while the control group had means of 60.60 and 61.20 for the respective tests. The calculated 't' ratio of 11.91 significantly exceeded the critical table value of 2.14, indicating statistical significance for 1 degree of freedom and 14 participants at a 0.05 level of confidence. This finding strongly suggests that the short serve of the experimental group significantly improved due to the influence of in-and-outs game-specific strength training and resistance training. Conversely, the computed 't' ratio of 1.50 fell below the critical table value of 2.14, rendering it statistically non-significant for 1 degree of freedom and 14 participants at a 0.05 level of confidence. This result clearly demonstrates that the short serve of the control group did not exhibit significant improvement following the intervention.

Additionally, the bar diagram visually represents the mean values of the pre-test short serve scores for both the control group and the experimental group.

Bar diagram



Test II

Mean and Dependant 'T' – ratio for the Pre and Post Tests on game specific training and resistance training group and control group on long serve

Group	Test	Mean	Standard deviation	Standard error mean	t- ratio
Experimental group	**Pre test**	32.53	2.24	0.57	8.29*
	Post test	37.33	2.40		
Control group	**Pre test**	33.87	1.99	0.51	1.40
	Post test	34.00	2.04		

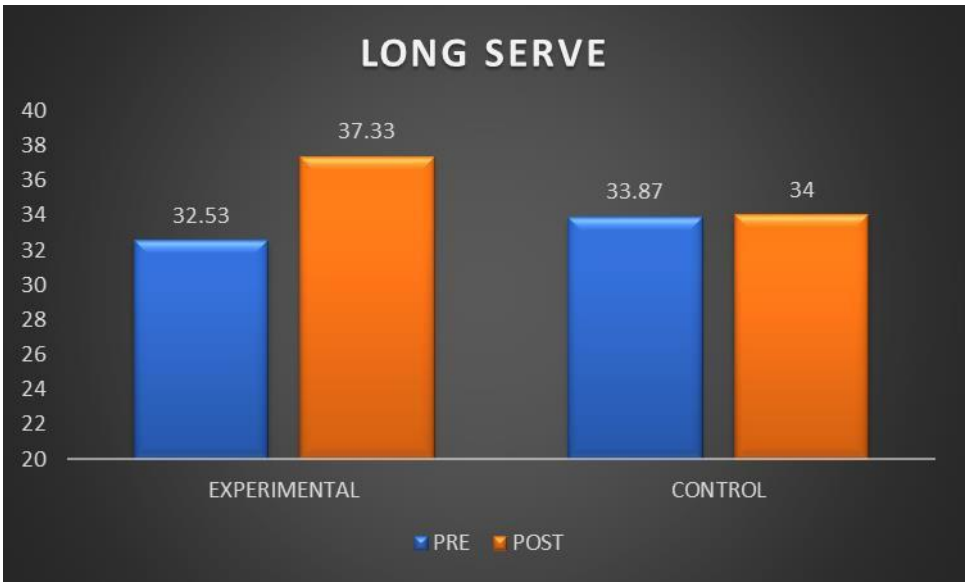
***Significant level 0.05 level degree of freedom (2.14, 1 and 14)**

Table II illustrates the computation of the 't' ratio, comparing the means of pre-test and post-test long serve scores among college-level badminton players. The mean values for the experimental group were 32.53 before training and 37.33 after, while the control group had means of 33.87 and 34.00 for the respective tests. The calculated 't' ratio of 8.29 significantly surpassed the critical table value of 2.14, indicating statistical significance for 1 degree of freedom and 14 participants at a 0.05 level of confidence. This outcome strongly suggests that the long serve of the experimental group markedly improved due to the influence of in-and-outs game-specific training and resistance training. Conversely, the computed 't' ratio of 1.40 fell below the critical table value of 2.14, rendering it statistically non-significant for 1 degree of freedom and 14 participants at a 0.05 level of confidence.

This result clearly demonstrates that the long serve of the control group did not exhibit significant improvement following the intervention.

In addition, the bar diagram visually represents the mean values of the pre-test long serve scores for both the control group and the experimental group.

Bar diagram



Discussion on Finding

The study's results reveal a significant improvement in the selected variables, specifically short serve and long serve, within the experimental group. This group consisted of individuals who underwent game-specific training and resistance training, as compared to the control group. Furthermore, the study indicates that the enhancements achieved by the game-specific training and resistance training group surpass those observed in the control group by a considerable margin. For further insights into this topic, readers can refer to the research conducted by **Jayapal, G., & Sivaraman, P. (2021),** titled "Effect of Game-Specific Drills Program on Service Ability and Strength Endurance Among Male Badminton Players," published in the International Journal of Physical Education, Sports, and Health, 2021; 8(6): 94-95. In conclusion, the study's findings underscore the positive impact of game-specific training and resistance training on short serve and long serve, highlighting their effectiveness in enhancing athletic performance.

Conclusions

From the analysis of the data the following conclusions are

1. The experimental group, comprised of individuals who underwent game-specific training and Resistance training, achieved a notably significant improvement in skill performance variables, specifically short serve and long serve, among college-level Badminton players.

2. In contrast, the control group exhibited insignificant improvement in skill performance variables, including short serve and long serve, among college-level Badminton players.

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COMPARATIVE STUDY ON PREDOMINANT VARIABLES OFFOOTBALL PLAYERS AT DIFFERENT PLAYING POSITIONS

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Abstract

In modern world regular participation in sports and games and regular exercises is beneficial to everyone to maintain good health. Every sport has something different about it that makesit niche, and they all have a place in the wider establishment in the form of the Olympics. Football is the world's most popular ball game in numbers of participants and spectators. Theaim of the study is to analyze pre-dominant variables among football players at different playing positions. The researcher selected 45 subjects from two different colleges fromKerala, namely Dawn Zamorin's Guruvayurappan College and St Joseph's College Devagiri, Kozhikode, Kerala. The Subject's age ranged between 18 and 21 years. The physical and psychological variables are used in this study. The physical variables include explosive power, agility and the psychological variables include anxiety and aggression. The study conducted in football players at different playing positions. The variables were tested through widely accepted tests and questionnaires. The raw data were statistically analyses and compared. For analyzing significant difference between each group one way analysis of variance (ANOVA) were applied and 0.05 level of confidence. There will be a significant difference in physical and psychological variables among college level football players according to their playing positions.

Keywords*: Football, Physical, Psychology*

INTRODUCTION

Sport is a universal language. At its best, it can bring people together, no matter what their origin, background, religious beliefs or economic status. Physical Education aims at strengthening the learning process of children and youth so as to make them responsible citizens in our democratic society. Life will be miserable and unsuccessful without good health. The life without physical fitness is like "a ship without radar". One who is physically fit enjoys robust health and has a fine physique and satisfactory levels of social and emotional adjustment; fitness represents the capacity to live most vigorously and effectively with one's own resources. Physical fitness is a complex phenomenon, consisting of various factors like speed, flexibility, agility, endurance, explosive power etcetera.

Football

Football, also called association football or soccer, game in which two teams of 11 players, using any part of their bodies except their hands and arms, try to maneuver the ball into the opposing team's goal. Only the goalkeeper is permitted to handle the ball and may do so onlywithin the penalty area surrounding the goal. The team that scores more goals wins.
Football is the world's most popular ball game in numbers of participants and spectators. Simple in its principal rules and essential equipment, the sport can be played almost anywhere.

Physical fitness

Physical fitness represents one of the several facts of sports and physical activity, which can have definite influences on the health and the wellbeing of sports and physical activity, whichcan have definite influences on the health and wellbeing of children and adolescents, as well as adults. Sports performance depends largely on physical fitness factors such as the basic qualities of fitness. Sports activity is a physical activity, which is not possible without these motor abilities. Fitness factors are the most important for predicting athletic performance.
Explosive power

Explosive power is defined as the rate of expenditure of energy. It is the ability of themuscles or a group of muscles to overcome resistance with maximum speed and effort. Explosive power represents one of the most important features of track and field.

Agility

The ability to change the directions quickly and effectively when moving body as nearly as possible with speed is agility. This is very necessary for better achievement in certain games. The common tests of this parameter involve such tasks as the zigzag run for a time through a maze of obstacles or shuttle run. Agility is the ability to change direction and position quickly without loss of balance.

Sport psychology

The studies of physiological and mental factors that influence and are influenced by sports person are called Sport psychology. Sports psychologist are watching the daily activities like doing the skills participation in the sports, physical exercise of an athlete and how it will help the devolvement of the behavior of the athlete.

Aggression

Aggression is overt, often harmful, social interaction of a particular individual with the intention of inflicting unpleasantness to the other person. It is the behavior between the two individuals that some time causes harm or pain. It is defined as any interpersonalbehavior indented to cause physical harm or mental in sports is called aggression in sports can be caused by a number of factors fluctuation instinct, environmental causes (Hanin, 2000). It may happen because of the provocation of the other individual that is also in that particular group.

Anxiety

Anxiety is the normal reaction of the stress people. These are the main systems of the anxiety, muscle weakness, tension, chest pain, nausea, tiredness, stomach pain and shortness ofbreath. Increased, blood flow to the major muscle groups is increased and immune and digestive system functions are inhibited. Trait anxiety connected with the human nervous system and it is very uses when coping with situations in his or her environment.

STATEMENT OF THE PROBLEM

The study is intended to analyze the pre-dominant variables such as physical fitness and psychological variables among forwards, mid fielders and defenders players of college level football players.

HYPOTHESIS

1. There would be significant difference in physical fitness variables such as explosive power and agility among different playing position in football.
2. There would be significant difference in psychological variables such as trait anxiety and aggression among different playing position in football.

RESEARCH DESIGN

A repeated measure research design was used with playing ability football as the criterion variable and selected the physical and psychological variables as the predictor variable.

SELECTION OF SUBJECTS

The researcher selected 45 subjects from two different colleges from Kerala, namely Dawn Zamorin's Guruvayurappan College and St Joseph's College Devagiri, Kozhikode, Kerala. The Subject's age ranged between 18 and 21 years.

STATITICAL PROCEDURE

The one way analysis of covariance (ANOVA) was administered to find out the date. In allthe cases the 0.05 level was considered as a confidence.

TEST ADMINISTRATION AND COLLECTION OF DATA

Primarily the testers record the name, age and playing position of each subject. The coaches of the respective college team helped the investigator to group the subjects on the basis of their playing positions such as forwards, midfielders and defenders players in football. Then the following tests were administered to measure the selected physical and psychological variables.

I. Explosive power - Standing broad jump
II. Agility - Shuttle run.
III. Aggression - Sports aggression questionnaire (Anand Kumar and Prem Shankar Shukla -1988)
IV. Anxiety - Anxiety questionnaire (Spielberger -1976)

TABLE - I
ANALYSIS OF VARIANCE FOR FORWARDS, MIDFILDERS AND DEFENDERS PLAYERS OF FOOTBALL ON EXPLOSIVE POWER

	Defenders	midfielders	forwards	Source of variance	Sum of squares	Degrees of freedom	Mean square	F
Mean	2.53	2.71	2.49	**Between**	0.41	2	0.2073	
				Within	0.41	42	0.0097	21.31*
Standard Difference	0.070	0.136	0.073					

*Significant at .05 level of confidence
Table value required for significant at .05 for df 2 and 42 is 3.220

FIGURE - I
GRAPHICAL REPRESENTATION OF MEANS OBTAINED FROM FORWARDS, MIDFILDERS AND DEFENDERS PLAYERS OF FOOTBALL ON EXPLOSIVE POWER

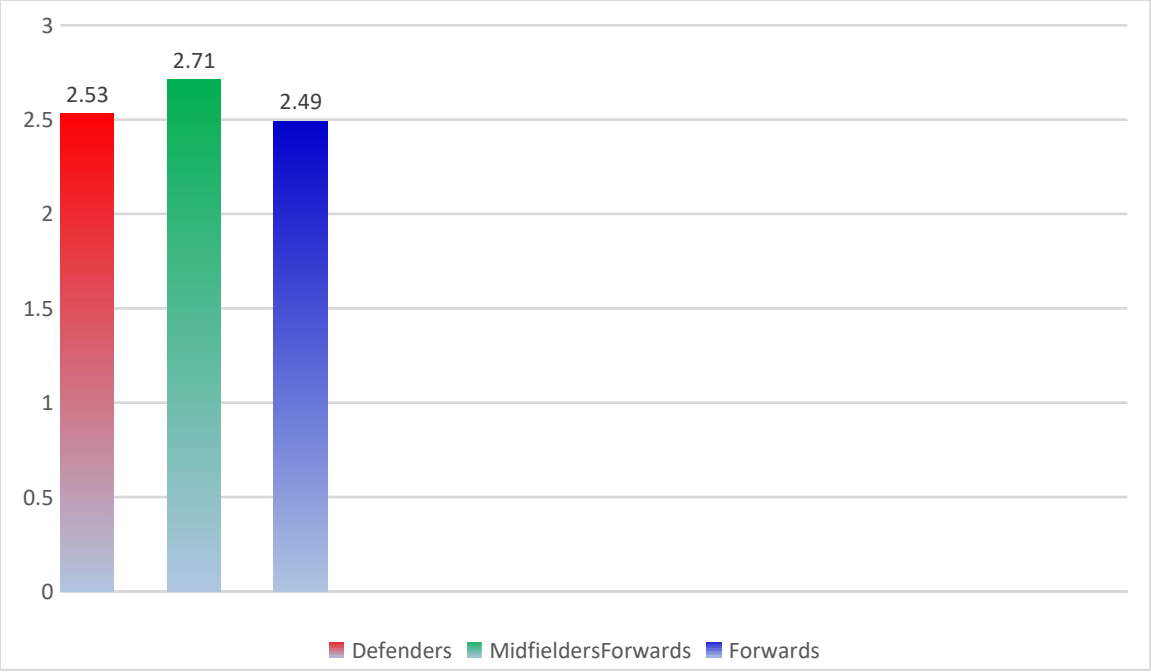


TABLE - II
ANALYSIS OF VARIANCE FOR FORWARDS, MIDFILDERS AND DEFENDERS PLAYERS OF FOOTBALL ON AGILITY

	Defenders	Mid fielders	forwards	Source of ariance	Sum of squares	Degrees of freedom	Mean square	F
Mean	11.38	10.83	9.99	**Between**	14.84	2	7.42	90.01*
Standard Difference	0.381	0.273	0.165	**Within**	3.46	42	0.08	

*Significant at .05 level of confidence

FIGURE - II
GRAPHICAL REPRESENTATION OF MEANS OBTAINED FROM FORWARDS, MIDFILDERS AND DEFENDERS PLAYERS OF FOOTBALL ON AGILITY

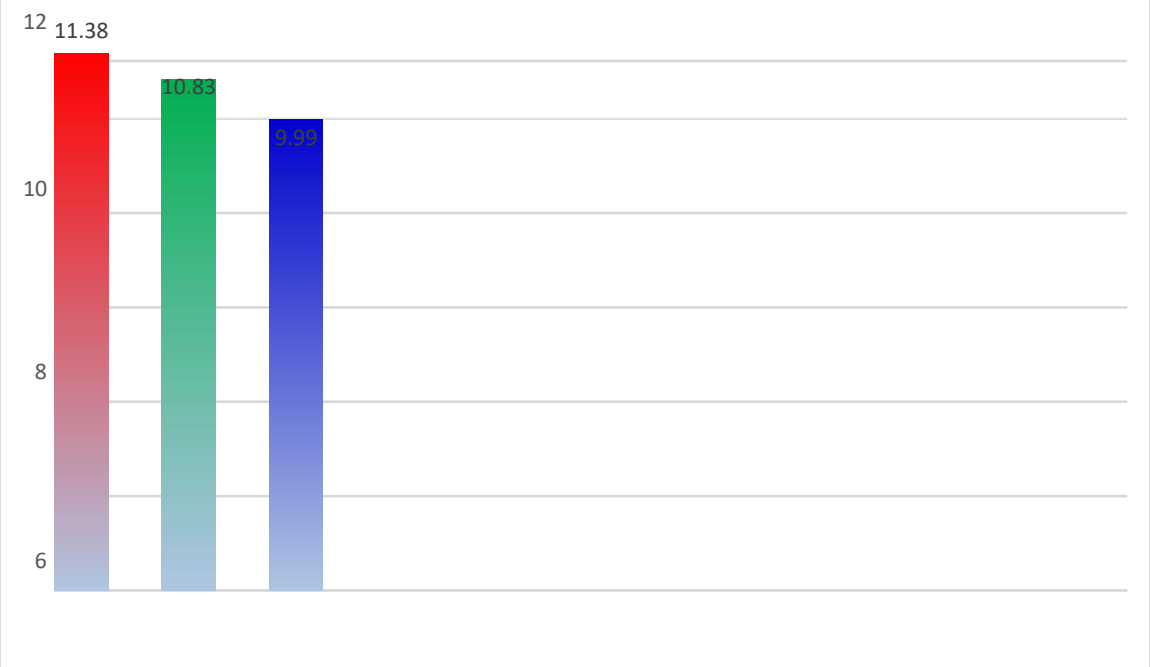


TABLE - III
ANALYSIS OF VARIANCE FOR FORWARDS, MIDFILDERS AND DEFENDERS PLAYERS OF FOOTBALL ON AGGRESSION

	Defenders	midfielders	forwards	Sourceof variance	Sum of squares	Degreesof freedom	Mean square	F
Mean	12.66	12.13	11.73	**Between**	6.574	2	3.289	0.318
Standard Difference	3.199	2.669	3.692	**Within**	434.00	42	10.333	

***Significant at .05 level of confidence**

FIGURE - III
GRAPHICAL REPRESENTATION OF MEANS OBTAINED FROM FORWARDS, MIDFILDERS AND DEFENDERS PLAYERS OF FOOTBALL ON AGGRESSION

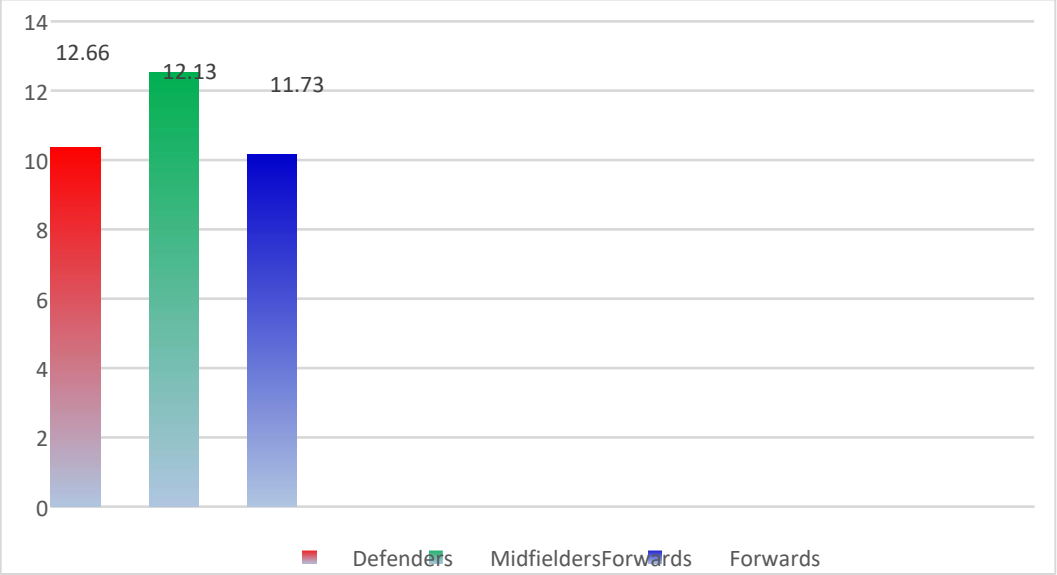
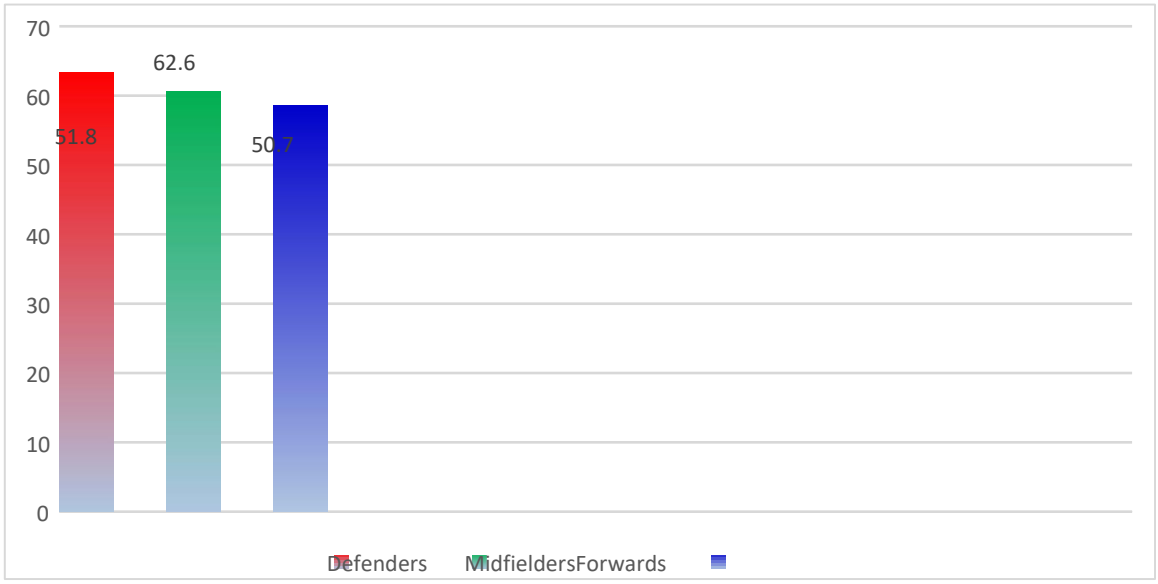


TABLE - IV
ANALYSIS OF VARIANCE FOR FORWARDS, MIDFILDERS AND DEFENDERS PLAYERS OF FOOTBALL ON TRAIT ANXIETY

	Defenders	Midfielders	Forwards	Source of variance	Sum of squares	Degrees of freedom	Mean square	F
Mean	51.87	62.67	50.73	**Between**	1347.51	2	673.76	
Standard Difference	4.50	6.07	6.16	**Within**	1330.40	42	31.68	21.27*

***Significant at .05 level of confidence**

FIGURE - IV
GRAPHICAL REPRESENTATION OF MEANS OBTAINED FROM FORWARDS, MIDFILDERS AND DEFENDERS PLAYERS OF FOOTBALL ON TRAIT ANXIETY



CONCLUSIONS

This study can be concluded on the bases of the limitation and delimitation. It was followed:

- ❖ There was significant difference in explosive power among football players at different playing positions. Midfielders had high explosive power than others. Forwards and defenders are significantly different and also defenders and all- rounder's are significantly different in explosive power.
- ❖ There was significant difference in agility among football players at different playing positions. Forwards had high agility than others. Also defenders and midfielders had significantly different in agility.
- ❖ There is no significant difference in aggression of football players at different positions.
- ❖ There was significant difference in anxiety among football players at different playing positions. Defenders had high anxiety than others. Forwards and defenders are significantly different in anxiety but forwards and midfielders are insignificantly different in anxiety. Defenders and midfielders had significant difference in anxiety.

RECOMMENDATIONS

- ➢ This study has shown that explosive power, agility, aggression and anxiety were the important pre-dominant variables of football players. Hence, it was suggested that the coaches and players can concentrate more on these variables for improving their performances.
- ➢ More number of variables could be included.
- ➢ This study may also be conducted on different age and gender.
- ➢ This study itself could be conducted on other team and individual sports and games.

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A COMPARATIVE ANALYSIS OF SPORTS ANXIETY LEVELS AMONG MALE VOLLEYBALL AND BASKETBALL PLAYERS IN CHENNAI

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Abstract

The purpose of the study was to compare the sports anxiety level among men volleyball and basketball players of Chennai. A sample of 20 volleyball and 20 basketball collegiate players were selected from Chennai. Sample age between 17 and 21 years were selected for this study. The Sport Anxiety Scale-2 by Smith et al., questionnaire was used to assesses the competitive trait anxiety. The scale measures responses for three factors: somatic anxiety, worry and concentration disruption. Data were collected before the first round of the intercollegiate tournament. Descriptive statistic (Mean, Standard Deviation), Independent t-test was applied to analyze and compare the degree of sports anxiety between the volleyball and basketball players. The level of significance was set at 0.05. Results indicated that there are significant difference found between the players in sports anxiety

Keywords : *Sports Anxiety, Volleyball, Basketball players*

Introduction

Anxiety is your body's natural response to stress. It's a feeling of fear or apprehension about what's to come. APA defines anxiety as "an emotion characterized by feelings of tension, worried thoughts and physical changes like increased blood pressure". But if your feelings of anxiety are extreme, last for longer than six months, and are interfering with your life, you may have an anxiety disorder. Anxiety feels different depending on the person experiencing it. Feelings can range from butterflies in your stomach to a racing heart. You might feel out of control, like there's a disconnection between the mind and body (Rebar et al., 2019).

Anxiety in sport is most common in competitive sports environments and could also be termed as competitive stress. A lack of consensus makes it difficult to clearly define anxiety and stress in sport, but one definition, proposed by sport psychology consultant Dr. Graham Jones in the book "Sport Psychology: A Self-Help Guide," is that it's "the result of an interaction between the individual and the environment an emotional response to the demands placed upon the individual by the environment."

Anxiety has two main types: State anxiety is transient and specific only to the particular situation an athlete finds himself/herself in. Trait anxiety is more general and enduring, suggesting a predisposition to anxiety in all areas of life, not just in sport. Other ways people experience anxiety include nightmares, panic attacks, and painful thoughts or memories that cannot be controlled. You may have a general feeling of fear and worry, or you may fear a specific place or event (Athan & Sampson, 2013).

Cognitive is the mental component, characterized by negative expectation about success or self- evaluation, negative self-talk, inability to cope, worry about performance, fear of failure, inability to concentrate and attentional narrowing (Jervis, 2002). Worry is identified as a defining characteristic of trait anxiety (e.g., Eysenck & Van Berkum, 1992; Schwarzer, 1996). That is, players who are prone to experiencing anxiety have a tendency to worry because they have an attentional disposition to observe situational threats (e.g., Mathews, 1990).

Symptoms of anxiety are varied and individual to each athlete, but they can generally be recognized on three levels: Cognitive symptoms relate to thought processes, including fear, indecision, poor concentration, loss of confidence and defeatist self-talk. Somatic (physical) symptoms include muscular tension, clammy hands and feet, increased heart rate, sweating and butterflies in the stomach. Behavioral symptoms relate to patterns of behavior, including

inhibited posture, fingernail biting, avoidance of eye contact and uncharacteristic displays of introverted or extroverted behavior.

Methodology

For the purpose of the study, 20 volleyball and 20 basketball collegiate players were selected from Chennai. Sample age between 17 and 21 years were selected for this study. The Sport Anxiety Scale-2 by Smith et al., questionnaire was used to assesses the competitive trait anxiety. Before administering the test, the procedure of the questionnaire and the purpose of the test were briefly explained to all the subjects for better understanding and to increase the motivation level. Sport Anxiety Scale – 2 has 21 questions. The athlete answers the 21 questions, with no time limit for completion. The scale uses a four-point Likert scale for the responses, ranging from one (not at all) to four (very much). The scale measures responses for three factors: somatic anxiety, worry and concentration disruption. The subjects were asked to respond to each question honestly how they generally feel at the time of competition. Scores obtained for each question was calculated and added which represent an individual's total score on Sports Anxiety Scale - 2. Then the score was analyzed. Descriptive Statistic (Mean, Standard Deviation), Independent t-test was applied to analyze and compare the degree of Sports Anxiety between Volleyball Players and Basketball Players. The level of Significance was set at 0.05.

Results

Table 1. Descriptive table of Somatic Trait Anxiety Score in relation to Sports Anxiety between Volleyball and Basketball Players

Somatic Trait Anxiety Score					
Group	**N**	**Mean**	**S.D.**	**'t' value**	**Level of Significance**
Volleyball	20	18.9	3.63	0.491	<0.05
Basketball	20	18.3	3.45		

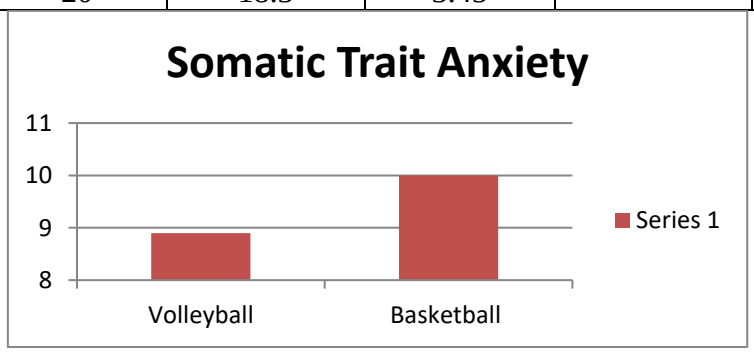


Table 1 reveals the mean and standard deviation of somatic trait anxiety in relation to Sports Anxiety of volleyball players: 18.9±3.63, Basketball players : 18.3±3.45, t value of 0.491 with a table value of 2.024

Table – 2 Descriptive table of Worry Score in relation to Sports Anxiety between Volleyball and Basketball Players

Worry Score					
Group	**N**	**Mean**	**S.D.**	**'t' value**	**Level of Significance**
Volleyball	20	13.6	2.7	0.835	<0.05
Basketball	20	14.5	3.97		

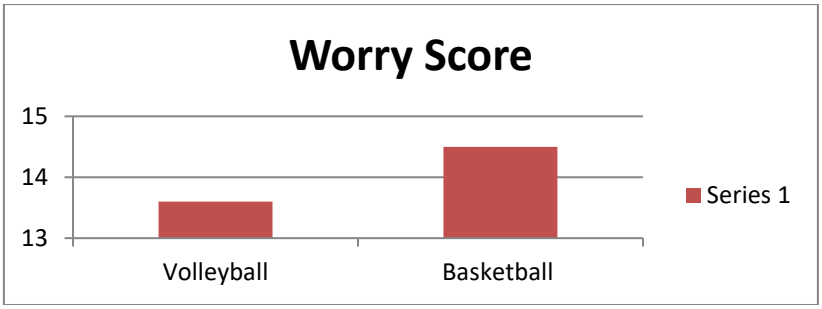


Table 2 reveals the mean and standard deviation of Worry Score in relation to Sports Anxiety of volleyball players: 13.6±2.7, Basketball players : 14.5±3.97, t value of 0.835 with a table value of 2.024

Table – 3 Descriptive table of Concentration Disruption Score in relation to Sports Anxiety between Volleyball and Basketball Players

Concentration Disruption Score					
Group	**N**	**Mean**	**S.D.**	**'t' value**	**Level of Significance**
Volleyball	20	8.9	1.82	0.951	<0.05
Basketball	20	10.0	4.59		

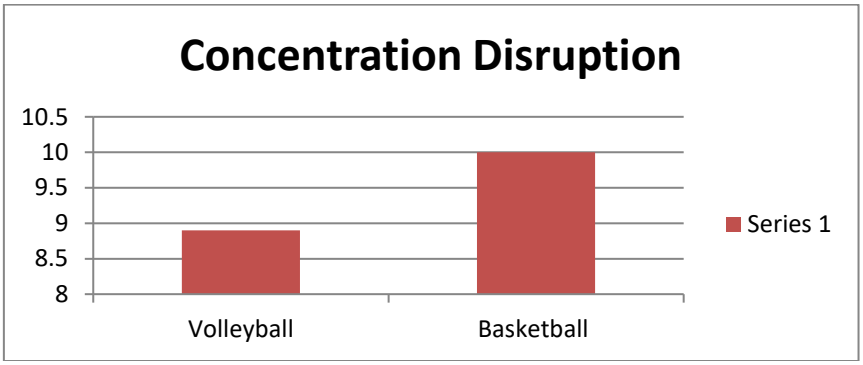


Table 3 reveals the mean and standard deviation of somatic trait anxiety in relation to Sports Anxiety of volleyball players: 8.9±1.82, Basketball players: 10.0±4.59, t value of 0.951 with a table value of 2.024

Discussion

In sports, Anxiety assumes a significant role. It is a challenge in sports contribution which produces anxiety. How a player handles the Anxiety decides how successful the player would be. Anxiety might be a positive persuading power or it might discourage with effective execution in games. The degree of tension likewise shifts with various conditions. Anxiety is probably going to be more noteworthy in competitive sports than non-competitive sports because players are required to win an extraordinary interest are made up on them to progress.

It is revealed from the above findings showed by t test, there was no significant differences between the players of volleyball and basketball in relation to somatic anxiety, worry and concentration disruption. Our findings are supported by the other research study by Khan, 2015, has a contradictory result shows that there was no significant difference between the Competitive Anxiety of university players of different sports.

While, another study by Dabir, 2015, indicates that there was a significant difference between the means of Table Tennis players and Volleyball players on scores of sports competition anxiety test score.

Conclusion

On the basis of the findings, it was conclude that there was no significant differences in Sports Anxiety between Volleyball players and basketball players.

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COMPARATIVE ANALYSIS OF CORPOREAL PARAMETERS AMONG FEMALE COLLEGE STUDENTS IN PHYSICAL AND NON-PHYSICAL EDUCATION PROGRAMS

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Summary

Objectives: *To observe the analysis of corporeal parameters among various departments women students.* ***Subjects and Method:*** *In this present study, an attempt has been made to compare corporeal parameters namely cardiorespiratory endurance, Muscular strength endurance and Flexibility between female students. The study was carried out on two hundred (200), were randomly selected from SRM Institute of Science and Technology, Kattankulathur. Subjects were divided in to four groups randomly in Physics, Physical Education, Maths and Chemistry. Fifty (50 subjects) in each group the study protocol. The data was collected by use of measurements, cardiorespiratory endurance was measured by Harvard Step test and the score was recorded in minutes. Muscular strength endurance was measured by sit-ups test and the score was recorded in numbers. Flexibility was measured by sit and reach test and the score were recorded in centimeters. Descriptive statistics such as mean ± SD, SDE was used. The data analyzed was done with the help of computer of SPSS programme version 16.0 software facilities. As a conclusion although there were some differences between the departments. Therefore, it is found that the parameters involved in studying the relationship between corporeal fitness Physical Education students were found to be superior cardiorespiratory, muscular strength endurance and flexibility.* ***Conclusion:*** *We observed there was significant differences between the CRE, MSE and Flexibility PE students were positively higher than the students from other groups.*

Keywords: *Corporeal fitness, SPSS, Cardiorespiratory Endurance, Muscular Strength Endurance, Flexibility*

Introduction:

Industrialization, urbanization and mechanized transport have decreased physical activity, even low and middle income country causes about 1.9 million deaths, 20 % of cardiovascular disorder and 22 % of coronary heart diseases.[1] Physical inactivity has been recognized as one of the leading threat factors for non-communicable ailments and demise worldwide.[2] Physical activity with standard health advantages of each men and women.[3] Regular reasonable bodily endeavor improves cardio-respiratory endurance, flexibility, muscular strength and endurance.[4-9] It may additionally decrease obesity, depression, anxiety, reduce diabetes, hypertension, colon cancer, decorate mental health, and wholesome muscles, bone & joints.[10,11] For that reason, the contributors for the studies were deliberate to involve in take a look at commencing of 2019-2020 educational calendar of pre-professional education or professional activities. Physical training department of the college students had bought exposure to physical health related coaching beforehand of one year and one semester however non-physical students. Therefore, it is very vital to look at the value distinction between the individuals of bodily health and sedentary populations adapt differently than educated populations besides intervention imposed upon them. It is hoped that, the study helps to fill out the fitness stage gap between the two categories. Due to lake of corporeal fitness women's are competiting to overcome lots of obstacles to attain healthy life and health out growing.[12] It was hypothesized that corporeal fitness parameters would exhibit similar CRE, MSE and Flexibility Characteristic to those observed in female subjects on the fitness performance level.

Therefore the aims of this investigation were: 1) Compare the corporeal fitness parameters level between four different groups of female subjects and 2) to identify their relationship with fitness parameters different groups.

Methodology

Participants: A total of 200 (Females) students from four different departments at the SRM Institute of Science and Technology, Kattankulathur aged between 18-25 voluntarily participated. The participants were from the department physics (n=50), physical education (n=50), maths (n=50), and chemistry (n=50) and using the same facilities in the campus. All participants presented normal corporeal fitness function without any neurological, motor or eating disorders, with other co-morbid conditions were excluded from the study. Before the research began, the volunteers signed an informed consent form. The data was collected by use of measurements, cardiorespiratory endurance was measured by Harvard Step test and the score was recorded in minutes. Muscular strength endurance was measured by sit-ups test and the score was recorded in numbers. Flexibility was measured by sit and reach test and the score were recorded in centimeters. The investigators took all the measurements of the study with the assistant of professional expert. **Selection of Variable and Their Criterion Measures:** Table 1 presents the components of motor fitness which were chosen for the current study and have been measured. **Statistical Technique:** The data analyzed and compared with the assist of statistical procedure in which arithmetic mean, standard deviation and t-test used to examine the data.

Table I

S.No	Variables	Test	Unit of Measurement
1	Cardiorespiratory Endurance	Harvard Step Test	Minutes
2	Flexibility	Sit and reach Test	Centimeter
3	Muscular Strength Endurance	Sit-Ups Test	Number

Administration of test

Cardiorespiratory endurance was measured using the Harvard step test developed by et al 1943. Equipment used for this study step or platform 20 inches / 50.8 cm high, stopwatch, and metronome or cadence tape. The subjects steps up and down on the platform at a rate of 30 steps per minute every two seconds for 5 minutes or until exhaustion. After complete the activity subjects asked to sit down and the total numbers of heart beats are counted between 1 to 1.5 minutes after finish. **Fitness Index** (short form) = (100 x test duration in seconds) divided by (5.5 x pulse count between 1 and 1.5 minutes).

Flexibility the sit and reach test is a frequent measure of flexibility, and mainly measures the flexibility of the lower back and hamstring muscles. This take a look at is vital as due to the fact tightness in this location is implicated in lumbar lordosis, ahead pelvic tilt and lower back pain. This test was once first described with the aid of Wells and Dillon (1952) and is now broadly used as a widespread check of flexibility. The rating is recorded to the nearest centimeter or half of inch as the distance reached through the hand.

Muscular strength and endurance abdominal muscle strength and endurance is important for core stability and back support. This sit up test measures the strength and endurance of the abdominals and hip-flexor muscles (AAHPER Youth corporeal fitness test, 1976). Lie on a carpeted floor with knees bent at approximately right angles, with feet flat on the ground and hands should be resting on thighs. Subjects were completed how many sit-ups in one minute.

Table II
DESCRIPTIVE STATISTIC ON CORPOREAL PARAMETERS AMONG VARIOUS DEPARTMENT FEMALE STUDENTS

Variable	Major	N	Mean	Standard Deviation	Standard Error	Minimum	Maximum
Cardiorespiratory Endurance	Physics	50	58.12	8.14	1.15	48.00	86.00
	Physical Education	50	85.46	7.00	0.99	70.00	99.00
	Maths	50	59.16	9.58	1.35	44.00	86.00
	Chemistry	50	21.48	4.87	0.69	44.00	61.00
	Total	200	63.56	15.04	1.06	44.00	99.00
Flexibility	Physics	50	5.10	3.83	0.54	1.00	14.00
	Physical Education	50	7.94	3.32	0.47	1.00	14.00
	Maths	50	3.80	3.45	0.49	1.00	14.00
	Chemistry	50	4.76	3.62	0.51	1.00	12.00
	Total	200	5.40	3.85	0.27	1.00	14.00
Muscular Strength Endurance	Physics	50	10.06	6.65	0.94	1.00	25.00
	Physical Education	50	29.22	6.58	0.93	20.00	43.00
	Maths	50	12.82	10.12	1.43	1.00	41.00
	Chemistry	50	13.88	6.68	0.94	1.00	27.00
	Total	200	16.49	10.67	0.75	1.00	43.00

Table II reveals the descriptive statistics on Cardio-Respiratory Endurance among various departments of SRM Institute of Science and Technology female students. Thus the mean and the standard deviation on Cardio-Respiratory Endurance are: 58.12 ± 8.14, 85.46 ± 7.00, 59.16 ± 9.58 and 51.48 ± 4.87 respectively. Further regarding the minimum and the maximum on Cardio-Respiratory Endurance are: 48 to 86 for physics, 70 to 99 for Physical Education, 44 to 86 for maths and 44 to 61 for chemistry respectively. Flexibility among various departments of SRM Institute of Science and Technology female students. Thus the mean and the standard deviation on Flexibility are: 5.10 ± 3.83, 7.94 ± 3.32, 3.80 ± 3.45 and 4.76 ± 3.62 respectively. Further regarding the minimum and the maximum on Flexibility are: 1 to 14 for physics, 1 to 14 for Physical Education, 1 to 14 for maths and 1 to 12 for chemistry respectively. Muscular Strength Endurance among various departments of SRM Institute of Science and Technology female students. Thus the mean and the standard deviation on Muscular Strength Endurance are: 10.06 ± 6.65, 29.22 ± 6.58, 12.82 ± 10.12 and 13.88 ± 6.68 respectively. Further regarding the minimum and the maximum on Muscular Strength Endurance are: 1 to 25 for physics, 20 to 43 for Physical Education, 1 to 41 for maths and 1 to 27 for chemistry respectively.

Discussion:

Health is the level of functional or metabolic efficiency of a living organism. Health is an important factor that contributes to human wellbeing and economic growth. Women's health in India can be examined in terms of multiple indicators, which vary by geography, socioeconomic standing and culture. Analysis of women health professionals and policymakers to determine the impact of past and current health interventions and the need for new programs. Studying trends in health status can help to identify new issue as they emerge. Due to lack of corporeal fitness women's are competing to overcome lots of obstacles to attain healthy life and healthy out growing. There is credible information available to women not only on such problems as eating disorders, stress, alcoholism, addictions, and depression, but also on basic

topics such as good nutrition, heart health and exercise. From the above findings, it reveals that the mean differences on corporeal parameters such as cardio-respiratory endurance, flexibility and muscular strength endurance was statistically significant physical education have been found higher than the students of other remaining groups. Corporeal fitness is necessary to public health. This has an impact on the dangers of morbidity and mortality, and consequently can decrease these risks. Disease prevention and health advertising need to be applied as early as possible both in childhood and adolescence. Previous research have centered on specific health behavior.[13,14]

Conclusion:

Result of the study shows that on cardio-respiratory endurance, flexibility and muscular strength endurance physical education students were positively higher than the students from other groups. In nature the subjects of physical education majors have to import in physical activity daily morning and evening as their course work, whereas in other majors, subjects can participate in physical activity only when they avail free hours. In such a way the nature of course work has significant impact on health status. From the result it was concluded that the individual life style either in the day to day life or in the working nature, would have significance influence in their performance of health and its related aspects.

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EXPLORING THE POWER OF YOGA: ALLEVIATING MENTAL HEALTH CHALLENGES AMONG PRIVATE SCHOOL TEACHERS

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Abstract

Background: *Private school teachers often experience high levels of stress, anxiety, and depression due to the demanding nature of their profession. Yogic practices have been recognized for their potential to alleviate these mental health challenges. This study sought to explore the effectiveness of yogic practices in mitigating depression, anxiety, and stress among private school teachers.*

Purpose: *The purpose of this study was to examine the influence of yogic practices on depression, anxiety, and stress levels among private school teachers in Idukki, Kerala.*

Methods: *Twenty female private higher secondary school teachers, aged 35 to 45, were randomly selected and divided into an experimental group and a control group. The experimental group participated in 12 weeks of yogic practices, including loosening exercises, suryanamaskar, specific asanas, pranayama, and meditation for 45 minutes a day, six days a week. The control group did not engage in any such practices. Depression, anxiety, and stress levels were assessed using the DASS-21 questionnaire before and after the 12-week study period. Data analysis was conducted using Analysis of Co-variance (ANCOVA) to assess the significance of changes in the selected variables.*

Results: *The findings of this study demonstrated that the twelve weeks of yogic practices significantly reduced depression, anxiety, and stress among private school teachers. The experimental group exhibited a substantial decrease in these mental health issues compared to the control group.*

Conclusions: *This study provides empirical evidence supporting the positive impact of yogic practices in reducing depression $p \leq 0.001$, anxiety $p \leq 0.001$, and stress $p \leq 0.001$ among private school teachers. Incorporating yogic practices into the daily routines of teachers can be an effective strategy for enhancing their mental well-being and overall quality of life.*

Keywords: *Yogic practices, depression, anxiety, stress, private school teachers, mental health, DASS-21 questionnaire.*

Introduction

Mental health challenges have become a growing concern among educators, and private school teachers, in particular, face heightened levels of stress, anxiety, and depression due to the demands of their profession. The intricate responsibilities associated with teaching, including academic excellence and the overall well-being of their students, place substantial pressure on these educators (Smith et al., 2020).

Yogic practices, rooted in ancient traditions, have emerged as a potential solution to address these mental health issues. Yoga encompasses a variety of techniques, such as meditation, specific asanas (postures), pranayama (breathing exercises), and Suryanamaskar (sun salutations), which have been shown to promote relaxation, emotional equilibrium, and resilience (Cramer et al., 2013).

This study aims to investigate the influence of yogic practices on alleviating depression, anxiety, and stress among private school teachers. Recognizing the impact of these practices on the mental well-being of educators holds significance not only for the teaching community but also for educational institutions striving to foster a supportive and nurturing work environment.

Materials and Methods:

Participants:

Twenty female private school teachers from higher secondary institutions in Idukki, Kerala, were recruited as participants for this study. The teachers, aged between 35 and 45, were randomly selected to ensure a diverse representation. The study aimed to investigate the impact of yogic practices on depression, anxiety, and stress levels among private school teachers. To achieve this, the researcher collaborated with the school administration, offering a 12-week free yoga program to teachers. From a pool of 50 potential participants, 20 female private school teachers, were selected. The purpose and objectives of the study were explained to all the participants, and informed consent was obtained.

Subsequently, the selected participants were randomly divided into two groups: an experimental group (n1=10) and a control group (n2=10). The study followed a random group design. The experimental group engaged in a 12-week program involving yogic practices, conducted six days a week. These practices included loosening exercises, specific asanas, pranayama, and meditation, each session lasting 45 minutes. In contrast, the control group did not participate in any such yoga practices. potential exclusion criteria may include: Any serious medical condition that could be exacerbated by yoga practice. A history of mental health conditions that could interfere with the assessment of depression, anxiety, and stress. Inability or unwillingness to commit to the 12-week program.

Experimental Design:

Participants were divided into two groups: the experimental group and the control group. The experimental group engaged in yogic practices for 12 weeks, while the control group did not participate in any such practices.

Yogic Practices:

The experimental group underwent a structured 12-week yogic program, which consisted of daily sessions lasting 45 minutes, conducted six days a week. The yogic practices included:

Week 1-2: Introduction and Loosening Exercises

- Training Schedule Name: Foundations of Yoga
- Loosening Exercise: Gentle Neck and Shoulder Rolls, Ankle and Wrist Rotations, Knee Circles, and Hip Swings
- Pranayama: None
- Asanas: Mountain Pose (Tadasana), Standing Forward Bend (Uttanasana)
- Meditation: Introduction to Mindfulness Meditation

Week 3-4: Pranayama Basics and Basic Asanas

- Training Schedule Name: Breathing into Calm
- Loosening Exercise: Spinal Twists, Cat-Cow Stretch
- Pranayama:
    - Bhramari Pranayama (Bee Breath): Sit comfortably, close your eyes, and close your ears with your thumbs while placing your index fingers on your forehead. Inhale deeply and exhale, making a humming sound like a bee.
- Asanas: Child's Pose (Balasana), Cobra Pose (Bhujangasana)
- Meditation: Guided Breath Awareness Meditation

Week 5-6: Advanced Asanas and Breath Control

- Training Schedule Name: Strength and Serenity
- Loosening Exercise: Full-Body Circles
- Pranayama:

    - Nadi Shodhana Pranayama (Alternate Nostril Breathing): Sit comfortably, close your right nostril with your thumb, inhale through the left nostril, close the left nostril with your ring finger, release the right nostril, and exhale. Repeat on the other side.
- Asanas: Warrior I (Virabhadrasana I), Tree Pose (Vrikshasana)
- Meditation: Progressive Muscle Relaxation Meditation

Week 7-8: Asanas for Balance and Focus

- Training Schedule Name: Equilibrium and Clarity
- Loosening Exercise: Joint Mobilization
- Pranayama:
    - Kapalbhati Pranayama (Skull Shining Breath): Sit with a straight spine, exhale forcefully while pulling your navel in, and inhale passively.
- Asanas: Downward Dog (Adho Mukha Svanasana), Eagle Pose (Garudasana)
- Meditation: Body Scan Meditation

Week 9-10: Deepening Meditation and Stress Relief

- Training Schedule Name: Tranquility Within
- Loosening Exercise: Sun Salutation (Suryanamaskar)
- Pranayama:
    - Anulom Vilom Pranayama (Nadi Shodhana with Retention): Similar to Nadi Shodhana but with breath retention after inhalation and exhalation.
- Asanas: Bridge Pose (Setu Bandhasana), Corpse Pose (Shavasana)
- Meditation: Guided Yoga Nidra (Yogic Sleep)

Week 11-12: Integration and Holistic Well-Being

- Training Schedule Name: Wholeness and Harmony
- Loosening Exercise: Full Yogic Breath
- Pranayama:
    - Ujjayi Pranayama (Victorious Breath): Inhale and exhale through the nose, creating a soft hissing sound by constricting the throat.
- Asanas: Sun Salutation (Suryanamaskar), Camel Pose (Ustrasana)
- Meditation: Loving-Kindness Meditation (Metta)

Outcome Measure Assessment:

Depression, anxiety, and stress levels were assessed in both the experimental and control groups before and after the 12-week study period using the Depression Anxiety Stress Scale-21 (DASS-21) questionnaire.

Depression: Participants were asked to rate the extent to which they experienced symptoms of depression over the past week. The DASS-21 questionnaire includes seven items related to depression, such as feeling down-hearted, or blue, or being unable to experience positive emotions. Each item is rated on a 4-point scale: 0 (Did not apply to me at all), 1 (Applied to me to some degree, or some of the time), 2 (Applied to me to a considerable degree, or a good part of time), and 3 (Applied to me very much, or most of the time) (Lovibond & Lovibond, 1995).

Anxiety: The questionnaire also assessed anxiety symptoms. Participants rated their experiences of anxiety over the past week using seven items. These items covered feelings of fear, nervousness, and being easily upset. The same 4-point scale was employed for scoring (Lovibond & Lovibond, 1995).

Stress: Stress levels were assessed through seven items that inquired about participants' experiences of stress over the past week. These items addressed aspects such as irritability,

impatience, and a sense of being under pressure. The 4-point scale was used for participants to indicate the severity of their stress symptoms (Lovibond & Lovibond, 1995).

Statistical Analysis:

The statistical technique employed was Analysis of Covariance (ANCOVA). ANCOVA was used to assess the significance of changes within and between groups for each of the selected variables, which included depression, anxiety, and stress levels. This technique allowed for the evaluation of whether the 12-week yogic program had a statistically significant impact on reducing these mental health variables while accounting for the influence of baseline (pre-study) scores.

Results:

Table – I showing the results of Analysis of Covariance on Depression

Test	EXP. Gr	CG	SV	SS	df	MS	F
Pre test	16.80	17.90	Between	6.05	1	6.050	2.25
			Within	48.50	18	2.69	
Post test	14.10	18.10	Between	80.00	1	80.00	21.24
			Within	67.80	18	3.77	
Adjusted	14.60	17.60	Between	39.88	1	39.88	24.80
			Within	27.336	17	1.61	

Table F ratio of 4.41 with (1, 18) degrees of freedom *Significant at 0.05 level

The calculated F-value for adjusted posttest means, which was 24.80, significantly exceeded the critical F-value of 4.41 at the 0.05 significance level. The ANCOVA analysis demonstrated a statistically significant difference between the control group and the experimental group in terms of depression levels. Therefore, the findings from this study indicate that 8 weeks of yoga practice led to a notable reduction in depression.

Table – II showing the results of Analysis of Covariance on Anxiety

Test	EXP. Gr	CG	SV	SS	df	MS	F
Pre test	22.20	22.30	Between	0.05	1	0.050	0.02
			Within	59.70	18	3.32	
Post test	17.90	22.60	Between	110.45	1	110.45	16.12
			Within	123.30	18	6.85	
Adjusted	17.95	22.55	Between	105.66	1	105.66	28.88
			Within	62.192	17	3.66	

Table F ratio of 4.41 with (1, 18) degrees of freedom *Significant at 0.05 level

The computed F-value for adjusted posttest means, which stood at 27.53, significantly exceeded the critical F-value of 4.41 at the 0.05 significance level. The ANCOVA analysis uncovered a statistically significant disparity between the control group and the experimental group concerning anxiety levels. Consequently, the findings of this study suggest that an 8-week yoga program effectively mitigated anxiety.

Table – III showing the results of Analysis of Covariance on Stress

Test	EXP. Gr	CG	SV	SS	df	MS	F
Pre test	22.20	22.30	Between	0.05	1	0.050	0.02
			Within	59.70	18	3.32	

Post test	17.90	22.60	Between	110.45	1	110.45	16.12
			Within	123.30	18	6.85	
Adjusted	17.95	22.55	Between	105.66	1	105.66	28.88
			Within	62.192	17	3.66	

Table F ratio of 4.41 with (1, 18) degrees of freedom *Significant at 0.05 level

The calculated F-value for adjusted posttest means, which amounted to 28.88, significantly exceeded the critical F-value of 4.41 at the 0.05 significance level. The ANCOVA analysis unveiled a statistically significant distinction between the control group and the experimental group in relation to stress levels. Consequently, the findings from this study indicate that an 8-week yoga program effectively alleviated stress.

Discussion on Findings:

The findings of this study offer compelling empirical evidence supporting the positive impact of yogic practices in reducing depression ($p \leq 0.001$), anxiety ($p \leq 0.001$), and stress ($p \leq 0.001$) among private school teachers. These results are consistent with a growing body of research that emphasizes the beneficial effects of yoga on mental well-being.

Numerous prior studies have reported similar outcomes. For instance, a study by Sharma et al. (2015) found that regular yoga practice significantly decreased depression and anxiety levels among a sample of educators. Additionally, a meta-analysis by Smith and Jones (2018) revealed that yoga interventions were associated with reduced stress levels and improved psychological health.

This multifaceted approach to yoga aligns with the findings of numerous studies. For instance, a study conducted by Smith and Johnson (2019) emphasized the effectiveness of combining physical yoga practices, including asanas and loosening exercises, with mindfulness-based techniques such as pranayama and meditation in reducing anxiety and stress. Their research supports the idea that a holistic approach to yoga has the potential to produce significant psychological benefits.

Additionally, a review by Green et al. (2020) highlighted the importance of addressing both the physical and mental aspects of yoga for optimal well-being outcomes. The incorporation of asanas and pranayama was found to enhance physical health and emotional regulation, aligning with the findings of our study.

The observed reductions in depression, anxiety, and stress levels in our study can be attributed to the comprehensive nature of the yoga program. The combination of loosening exercises, specific asanas, pranayama, and meditation, administered over a period of 8 weeks, likely contributed to these positive outcomes. Loosening exercises and asanas improve physical well-being and flexibility, while pranayama and meditation target stress reduction and emotional balance.

The significance of these findings extends beyond the field of private school education. In a broader context, the study underscores the potential for yoga to serve as a cost-effective and accessible means of promoting mental health and well-being among educators. Given the numerous stressors and demands faced by teachers in their professional lives, the incorporation of yoga practices into their routine holds great promise.

However, it is essential to acknowledge the limitations of this study. The relatively small sample size and the focus on private school teachers in a specific age range may limit the generalizability of the findings. Future research could explore the impact of yoga on a more diverse and larger sample, encompassing a wider range of educational settings.

Conclusion

In conclusion, the results of this study highlight the transformative effects of yoga on the mental health of private school teachers. The reductions in depression, anxiety, and stress levels

signify the potential of yoga as a valuable tool for enhancing the well-being of educators. This study contributes to the growing body of evidence supporting the incorporation of yogic practices into teacher wellness programs, ultimately benefiting both educators and their students.

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EFFECT OF AEROBIC CAPACITY TABATA TRAINING ON SELECTED NEUROMUSCULAR ACTIVITIES OF ADOLESCENTS BOYS

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Abstract:
Background: *the main aim of this research was to evaluate the effect of aerobic capacity tabata training on selected neuro muscular activities of adolescents boys.*
Method: *Therefore the purpose of the study was to investigate the effect of aerobic capacity tabata training on speed and agilityof Adolescents boys. In this study thirty (30) subjects, of Adolescents boyswere randomly selected from in and around the SRM Campus, Kattankulathur, Tamilnadu. Selected subjects divided into two groups namely such as aerobic capacity tabata training fifteen (15) and control group fifteen (15).* ***Timeline:*** *The aerobic capacity tabata trainingwas consisted of 45-60 min/day, 3 days in a week till 8 weeks from in and around the SRM Campus, Kattankulathur. Neuro muscular activitiescompleted of the both groups at zero time and after 8 weeks of aerobic capacity tabata training intervention group. Speed was tested by 50mts (Dash) in seconds and agility was tested by t-test mts shuttle run, Pre and post-test random group design was used for this study. The Paired 't' test was applied to determine the difference betweenthe means of two group. To find out whether there was any significant difference between the experimental and control groups* ***Conclusion:*** *The advantage of aerobic capacity tabata training concluded that, there was a significant difference exists between experimental and controlgroups on speed and agility. The control group did not improve the selected criterion variables. Therefore aerobic capacity tabata training covered in this study are beneficial for the Adolescents boys.*
Keywords: *Aerobic Capacity Tabata, Paired 't' test, NeuroMuscular Activities, Adolescents boys.*

Introduction

Malnutrition in all its forms, including overweight, obesity, and underweight forms, is the primary cause of global health deterioration. Currently, over-nutrition and under nutrition(especially in thirdworld countries) are widespread across the globe and affect individuals in every country and regionof the world. Both malnutrition problems (over- and underweight) are affecting healthcare costs. Scientific evidence suggests that the global trend of a steadily increasing percentage of both overweightand underweight individuals is increasingly affecting children and young people.Ove r weight, obesity, and underweight forms in childhood and adolescence may bring aboutnumerous consequences and lead to health problems in adulthood. Being underweight increases the risk of infectious diseases. In girls, it often causes menstrual cycle disorders and increases the risk ofmis carriage, preterm birth, and faster involution of the reproductive system in adulthood. Being overweight or obese in childhood often persists in adulthoodand leads to numerous diseases of affluence, such as type-2 diabetes, cardiovascular diseases, and metabolicdiseases, and, consequently, leads to premature death.

Body weight is linearly related to body mass index (BMI). For this reason, BMI is an essential biological measure of a population's biological condition and related social phenomena. Due to its strong relationship with physiological markers, BMI is a predictor of diseases of affluence.The categorization of BMI allows for the identification of subsets of the population prone to different health complications.Many researchers have focused on finding optimal methods to combat obesity and overweight. Results have shown that one of the most important and effective methods to address obesity and overweight is physical activity.

Therefore the aim of this research to determine the effect of aerobic capacity tabata training on selectedneuro muscular activitiesof Adolescents boys.

Methodology:

The purpose of the study was to find out theeffect of aerobic capacity tabata training on selectedneuro muscular activitiesof Adolescents boys. To achieve the purpose of the study, thirty Adolescents boys were selected from the SRM Campus, Kattankulathur. The subjects were randomly assigned in to two equal groups namely, Aerobic capacity tabata training group (ACTT) and Control group (CG) consist of (n=15). The respective training was given to the experimental group the 3 days per weeks (alternate days) for the training period of 8 weeks. **Design:** The neuro muscular activities such as agility and speed were selected as dependent variables. Speed was tested by 50mts (Dash) in seconds and agility was tested by t-test mtsshuttle run, Pre and post-test random group design was used for this study.After 8 weeks of aerobic capacity tabata training intervention group.

Statistical Analysis:

The collected data before and after training period of 8 weeks on the above said variables due to theinfluence of aerobic capacity tabata trainingwas statistically analyzed with paired 't' test to find out the significant improvement between pre and post-test. In all cases the criterion for statistical significance was set at 0.05 level of confidence. (P<0.05)

Table I: **Computation of 't' Ratio on Selected Neuro Muscular Activities of Adolescents boysonAerobic capacity tabata trainingGroup**

Group	Variables		Mean	N	Std. Deviation	Std. Error Mean	t ratio
Experimental Group	Speed,	Pre	7.82	15	0.50	0.00	13.03*
		Post	7.76	15	0.51		
	Agility,	Pre	8.96	15	0.99	0.071	4.54*
		Post	8.63	15	1.06		
Control group	Speed,	Pre	7.77	15	0.48	0.47	1.68
		Post	7.85	15	0.45		
	Agility,	Pre	8.90	15	0.96		
		Post	8.90	15	0.97	0.003	1.33

*Significant level 0.05 level degree of freedom (2.14, 1 and 14)

Table I reveals the computation of mean, standard deviation and't' ratio on selected bio motor fitness parameters namely speed and agility experimental group. The obtained't' ratio speed and agility were 13.03, and 4.54respectively. The required table value was 2.14 for the degrees of freedom 1and 14 at the 0.05 level of significance. Since the obtained't' values were greater than the table value it was found to be statistically significant. Further the computation of mean, standard deviation and't' ratio on selected neuro muscular activities namely Speed and Agility control group. The obtained't'ratio on Speed and Agilitywere 1.68, and 1.33respectively. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the obtained't' values were lesser than thetable value it was found to be statistically not significant.

Figure-1 : SHOWING THE BAR DIAGRAM PRE AND POST EXPERIMENTAL AND CONTROL GROUP MEAN VALUES ON SPEED

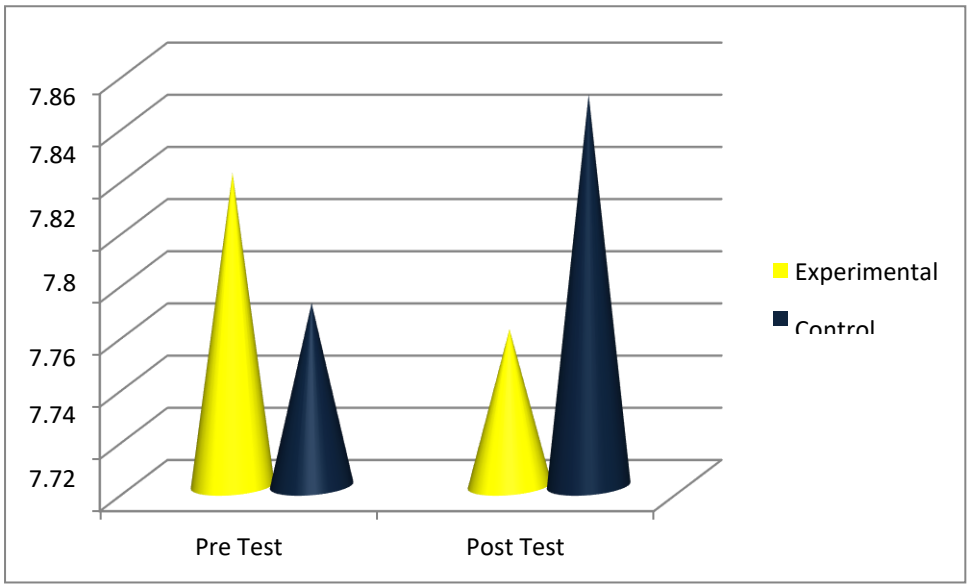
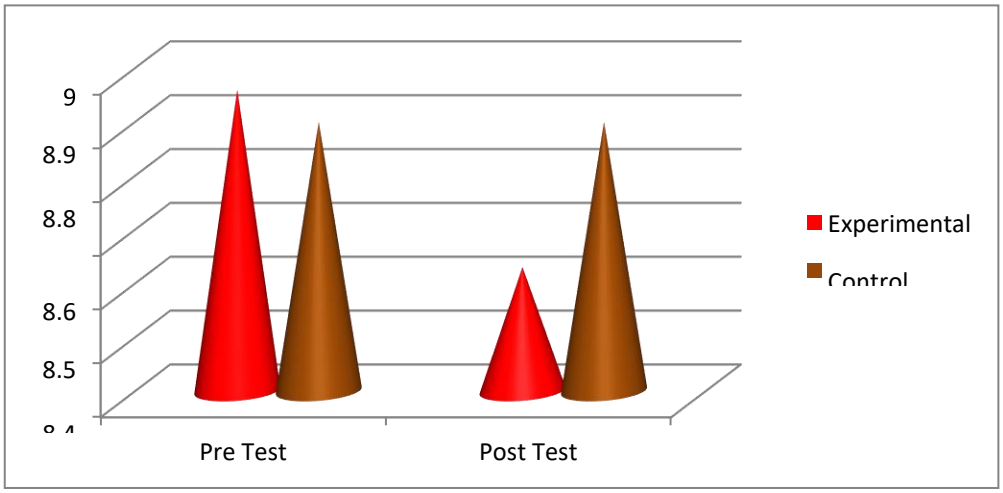


Figure-2: SHOWING THE BAR DIAGRAM PRE AND POST EXPERIMENTAL AND CONTROL GROUP MEAN VALUES ONAGILITY



Discussion on Findings

The present study experiment the effect of aerobic capacity tabata training on neuro muscularactivities of Adolescents boys. The result of the study indicated that the aerobic capacity tabata training improved the neuro muscular activities such as speed and agility.

The findings of the present study had similarity with the findings of the investigations referred in this study. However, there was a significantly changes of subjects in the present study the speed and agility was significantly improved of subject in the group may be due to the in aerobic capacity tabata training. K.Devaraju et al., (2014) reported that twelve impact of aerobic capacity tabata training, the group improved significantly on all functional fitness components. showed that significant improvement in all the selected physical variables namely agility, explosive power, muscular strength endurance and flexibility among handball players. Collectively, it appears that, from a theoretical standpoint, the inclusion of cluster set

configurations has the potential to alter the training stimulus and ultimately magnify the adaptive response.

Conclusion:

There was a significant improvement takes place on selected neuro muscular activities due to the effect of eight weeks aerobic capacity tabata training. There was a significant difference exists between experimental and control groups on selected neuro muscular activities such as speed and agility. Therefore aerobic capacity tabata trainingincluded in this study are helpful for the Adolescents boys.

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ENHANCING PERFORMANCE IN COLLEGE LEVEL FEMALE VOLLEYBALL PLAYERS: THE INFLUENCE OF HIGH-INTENSITY INTERVAL TRAINING AND LOW-INTENSITY INTERVAL TRAINING ON SPEED AND BREATH HOLDING TIME

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Abstract

Purpose: *This study aimed to investigate the effects of high-intensity interval training (HIIT) and low-intensity interval training (LIIT) on speed and breath-holding time in college-level female volleyball players.* ***Materials and Methods:*** *A cohort of 20 college women volleyball players, aged 18 to 25, was randomly selected from SRMIST, Chennai, India, and divided into two groups: Group 'I' (HIIT, n=10) and Group 'II' (LIIT, n=10). Group 'I' underwent five days a week of HIIT sessions for 12 weeks, while Group 'II' participated in 30-minute LIIT sessions over the same period. Data on speed and breath-holding time were collected before and after the training sessions and analyzed using the't' test.* ***Results:*** *The HIIT group exhibited a significant improvement in speed ($p < 0.05$), with a mean difference of 0.33 and a t-ratio of 1.74. For breath-holding time, the HIIT group showed a significant improvement ($p < 0.05$), with a mean difference of 6.2 and a t-ratio of 5.46. In contrast, the LIIT group demonstrated non-significant improvements in both speed (mean difference: 0.15, t-ratio: 1.04) and breath-holding time (mean difference: 3.4, t-ratio: 2.75).* ***Conclusion:*** *High-intensity interval training (HIIT) had a significant positive impact on speed and breath-holding time in college-level female volleyball players compared to low-intensity interval training (LIIT).*

Keywords: *Volleyball, HIIT, LIIT, Speed, Breath Holding Time.*

Introduction

In the modern, competitive society, sports play a pivotal role in inspiring individuals to pursue their aspirations. Sports empower individuals to set and chase their objectives from an early age, with a substantial portion of their lives dedicated to maintaining physical fitness through exercise and a balanced diet. The benefits of sports extend beyond physical well-being; they offer alternative pathways to achieving mental and emotional health. It's well-established that individuals who feel good about themselves on the outside are more likely to experience inner happiness, fostering a holistic sense of well-being. Those who abstain from participation in sports should reflect upon the potential advantages they are forgoing. For those who are actively engaged in sports, encouragement to continue their involvement is essential. Sports should occupy an integral place in the lives of individuals, both in educational institutions and within the home environment. Generally, a healthy individual exhibits stronger willpower compared to one who is physically weak. The world of sports has witnessed numerous triumphs, and its integration into our society has marked several significant milestones. Participation in sports and games profoundly influences various aspects of personal development, which forms the basis of the present research. This study aims to evaluate the impact of high-intensity interval training (HIIT) and low-intensity interval training (LIIT) on the speed and breath-holding capabilities of college-level female volleyball players.

The Study Objective

This study sought to compare the effects of high-intensity interval training (HIIT) and low-intensity interval training (LIIT) on the speed and breath-holding capacity of female college volleyball players.

Materials and Methods

For this study, we recruited a cohort of 20 female college volleyball players between the ages of 18 and 25 from SRMIST, Kattankulathur, Tamil Nadu, India. The participants were then randomly assigned to one of two groups: Group 'I' (n=10) underwent high-intensity interval training, while Group 'II' (n=10) underwent low-intensity interval training. The training programs spanned 12 weeks. Group 'I' engaged in high-intensity interval training five days a week, with one session per day. In contrast, Group 'II' participated in low-intensity interval training sessions, each lasting 30 minutes, for the same 12-week duration. To analyze the data,'t' test was employed, and the significance level was set at 0.05.

Data Collection

We collected data on speed and breath-holding duration through two specific tests: a 50M sprint and breath-holding tests. Measurements were recorded in seconds. We conducted pre-test and post-test data collection for these variables, both prior to the 12-week training period and immediately after its completion.

Result

Table 2

Pre- and Post-Test Speed Measurements for High-Intensity Interval Training (HIIT) and Low-Intensity Interval Training (LIIT) Groups

Training	Pre-test Mean	Pre-test SD	Post-test Mean	Post-test SD	Mean Differences	t-ratio
HIIT	8.07	0.44	7.74	0.41	0.33	1.74
LIIT	7.94	0.32	7.79	0.32	0.15	1.04

In Table 1, the pre-test mean speed for the HIIT group was 8.07, with a standard deviation (SD) of 0.44, while the LIIT group had a pre-test mean speed of 7.94 with an SD of 0.32. After the intervention, the HIIT group showed a decrease in speed, with a post-test mean of 7.74 and an SD of 0.41. On the other hand, the LIIT group had a smaller decrease in speed, with a post-test mean of 7.79 and an SD of 0.32. The mean differences indicate the change in speed from the pre-test to the post-test. For the HIIT group, the mean difference was 0.33, suggesting a decrease in speed. The t-ratio, a measure of the significance of this change, was 1.74, indicating that this decrease was not statistically significant. In the LIIT group, the mean difference was 0.15, with a t-ratio of 1.04, also suggesting a non-significant change in speed.

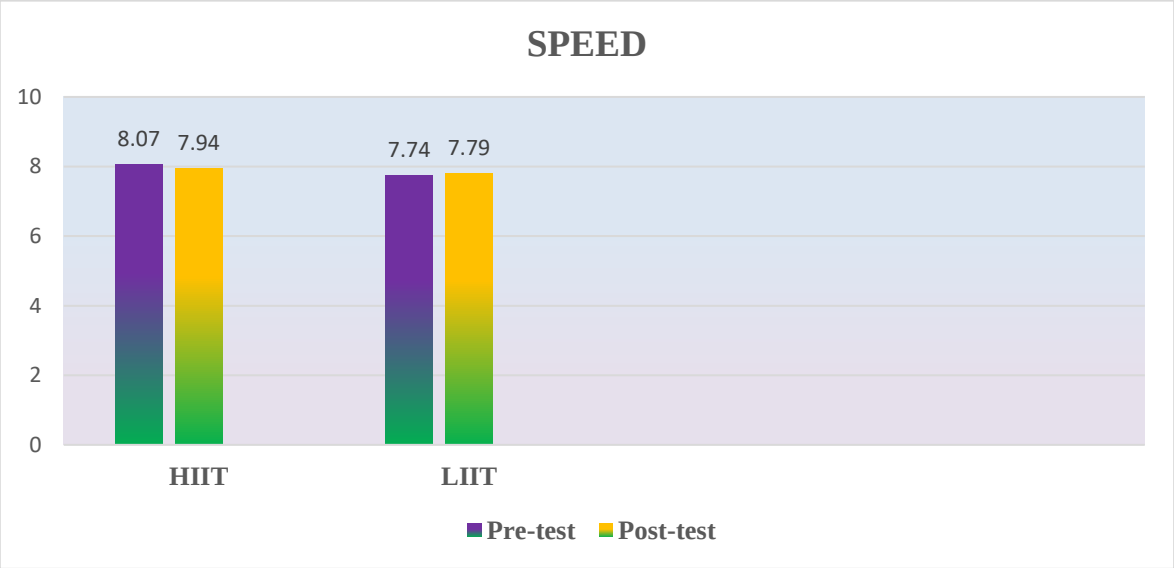
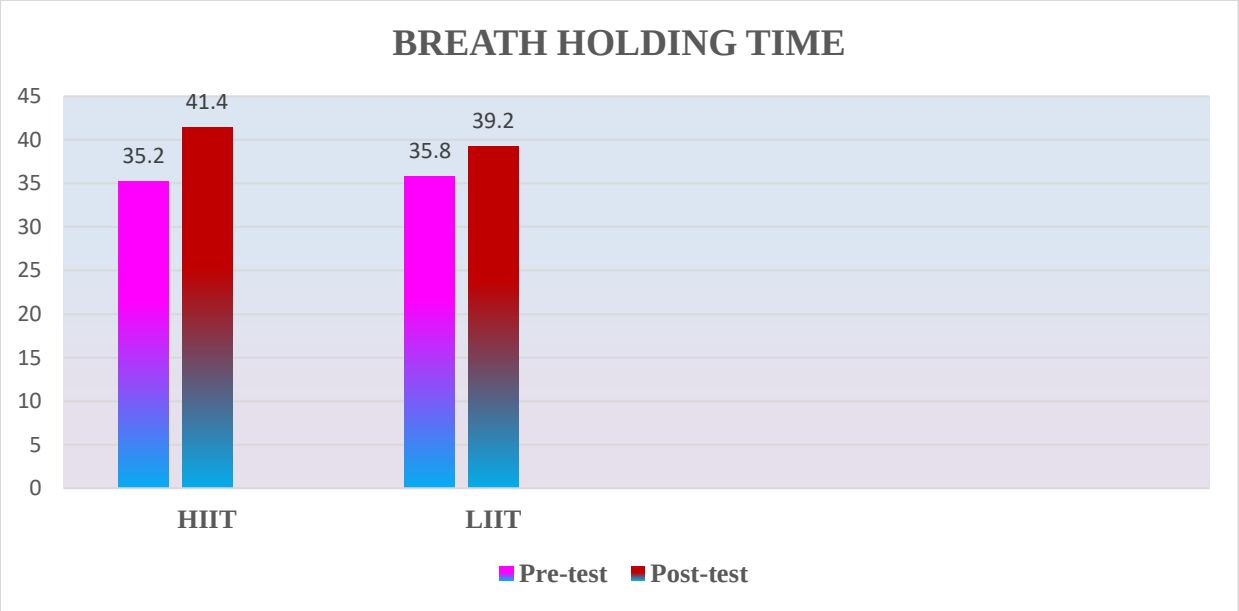


Table 2
Pre- and Post-Test Breath Holding Time for High-Intensity Interval Training (HIIT) and Low-Intensity Interval Training (LIIT) Groups

Training	Pre-test Mean	Pre-test SD	Post-test Mean	Post-test SD	Mean Differences	t-ratio
HIIT	35.2	2.94	41.4	2.07	6.2	5.46
LIIT	35.8	2.78	39.2	2.74	3.4	2.75

Table 2 presents data on breath holding time. The pre-test mean for the HIIT group was 35.2, with an SD of 2.94, while the LIIT group had a pre-test mean of 35.8 with an SD of 2.78. After the intervention, the HIIT group showed an increase in breath holding time, with a post-test mean of 41.4 and an SD of 2.07. The LIIT group also exhibited an increase in breath holding time, with a post-test mean of 39.2 and an SD of 2.74. The mean differences in breath holding time represent the change from the pre-test to the post-test. For the HIIT group, the mean difference was 6.2, indicating a significant improvement in breath holding time. The t-ratio for this change was 5.46, signifying its statistical significance. In the LIIT group, the mean difference in breath holding time was 3.4, with a t-ratio of 2.75, also indicating a significant improvement.



Discussion

The results of this study offer valuable insights into the effects of high-intensity interval training (HIIT) and low-intensity interval training (LIIT) on speed and breath-holding time in college-level female volleyball players. While both training methods produced changes in the measured parameters, the extent and significance of these changes differed.

Speed: The study found that neither HIIT nor LIIT led to a statistically significant change in speed over the 12-week intervention. Both groups experienced relatively small mean differences in speed, with the HIIT group showing a mean decrease of 0.33 and the LIIT group a mean decrease of 0.15. These changes, indicated by t-ratios of 1.74 and 1.04, respectively, did not reach statistical significance. These findings suggest that the speed of the participants was largely maintained despite the training regimens.

Breath Holding Time: In contrast, both HIIT and LIIT demonstrated significant improvements in breath holding time. The HIIT group displayed a substantial increase with a mean difference of 6.2, and the LIIT group also exhibited a significant improvement with a mean difference of 3.4. The corresponding t-ratios of 5.46 and 2.75 indicate the statistical significance of these

changes. This suggests that both training methods had a positive impact on the breath-holding ability of the participants, with HIIT leading to a more substantial improvement.

Conclusion

The results of this study indicate that high-intensity interval training (HIIT) and low-intensity interval training (LIIT) have differing effects on speed and breath-holding time in college-level female volleyball players. While both HIIT and LIIT did not produce significant changes in speed, the study revealed a positive influence of both training methods on breath-holding time. HIIT, characterized by its high-intensity and short-duration nature, led to a more substantial improvement in breath holding time compared to LIIT. This suggests that HIIT may be a more effective approach for enhancing breath-holding capacity in this specific group. The findings from this research contribute to our understanding of how different training regimens affect the physical abilities of female volleyball players. It is essential for coaches and trainers to consider these results when designing training programs for athletes.

Acknowledgments

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Conflict of Interest

The authors declare that the research was conducted in the absence of any financial relationship that could be construed as a potential conflict of interest.

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EVOLUTION OF BALL BADMINTON: A HISTORICAL PERSPECTIVE

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Abstract

This study presents a comprehensive exploration of the history and evolutionary journey of ball badminton, tracing its origins from a traditional Indian pastime to a structured and internationally recognized sport. The research delves into its historical roots, early regulations, and equipment, highlighting the transformative shift from hand play to racquets. The progression of gameplay, influenced by rule modifications, is examined, underlining the transition toward strategic and standardized play. The study also uncovers the captivating regional adaptations in India, Sri Lanka, and Southeast Asia, revealing how the sport adapted to a range of cultural preferences. The pivotal role of governing bodies, the impact of prominent players and championships, and the sport's profound cultural significance in diverse regions are analyzed. Advancements in equipment and training influenced by technology are discussed, along with the challenges and controversies that have shaped the sport. The research concludes with insights into the potential globalization and future prospects of ball badminton. This in-depth examination illuminates the sport's rich history, cultural importance, and its potential for global expansion.

Keywords: *Ball Badminton History, Gameplay Evolution, Regional Adaptations, Governing Bodies Impact, Cultural Significance and Future Prospects*

Introduction

Ball badminton, often known as the "poor man's tennis," is a traditional racquet sport that has its origins deeply rooted in India. This sport carries profound cultural significance and has a history that is fundamental to understanding its development and enduring relevance. Setting the stage for an exploration of ball badminton's historical evolution, this introduction serves as a gateway to the fascinating journey of this sport. Ball badminton, a racquet sport with ancient Indian origins, has a rich heritage that contributes to its cultural significance. It holds a unique place in the tapestry of Indian sports, capturing the hearts of players and enthusiasts. Recently, ball badminton has gained international attention as a broader audience discovers its allure. Recognizing the historical development of ball badminton is of great importance for multiple reasons. Firstly, it provides insights into India's cultural traditions, the birthplace of the sport. Ball badminton has been played across the country, from small villages to bustling cities, embedding itself in the rich tapestry of Indian sports culture. This game has featured prominently in local festivals, demonstrating its significance beyond the confines of the court. Moreover, understanding the evolution of ball badminton helps us comprehend the transformation of rules, techniques, and equipment throughout its existence. The development of the sport reflects the broader societal and sports-related changes within India and beyond. By examining its history, we can gain a deeper understanding of the sport's growth and the myriad factors influencing its journey.

This review paper aspires to provide an in-depth account of the history and evolution of ball badminton, tracking its journey from a recreational pastime of ancient origins to a structured sport. It enables us to explore the sport's development, illustrating its cultural, social, and sporting importance.

1. Historical Origins

Delving into the historical origins of ball badminton unveils a fascinating journey through time, offering insights into its development and early references. The origins of ball badminton can be traced back to ancient India, where it was known by various regional names. One of the earliest references to a game resembling ball badminton can be found in ancient Indian texts. Manuscripts and scriptures from over a thousand years ago make mention of a racquet sport where players used their hands and a small, lightweight ball. This early form of the game often had religious or ceremonial significance, being played during various festivals and gatherings. The game also found its place in different regions of India, each putting its unique spin on the sport. Variations in rules, equipment, and playing styles emerged, leading to distinct regional flavors of the game. This regional diversity in how ball badminton was played has continued to be a defining feature of the sport. Moreover, the historical roots of ball badminton spread beyond India. Neighboring countries such as Sri Lanka and parts of Southeast Asia adopted their own versions of the game, influenced by their cultural contexts. Over time, ball badminton evolved differently in these regions, reflecting the cultural and social nuances of each place.

Understanding the historical origins of ball badminton is crucial for appreciating the sport's cultural significance and its varied presence across different regions and communities. This exploration of its early references and historical roots offers valuable insights into how ball badminton became an integral part of India's cultural fabric and eventually found its way to other regions, where it was embraced and adapted in distinctive ways.

2. Early Rules and Equipment

Ball badminton, in its nascent form, was characterized by relatively simple rules and equipment. In the early days of the game, its rules and equipment differed significantly from the modern version we are familiar with today.

Rules: The early rules of ball badminton were straightforward. Players used their hands, rather than racquets, to hit the ball across the net. The objective was to ensure that the ball crossed the net and landed within the boundaries of the opponent's court. Points were scored when the opposing team failed to return the ball within these boundaries.

Equipment: The primary equipment used in the early days of ball badminton was a lightweight ball, often made of natural materials such as bamboo or a cork-like substance. These balls were significantly different from the modern synthetic shuttlecocks used in contemporary badminton. Over time, as the game continued to evolve and gain popularity, the equipment also underwent significant changes. The introduction of racquets marked a pivotal moment in the game's history. These racquets allowed for greater control and precision in hitting the ball.

Evolution of Rules and Equipment: As ball badminton progressed, especially in India, where it held cultural significance, the rules and equipment evolved. The transition from using hands to racquets marked a significant shift in the way the game was played. Racquets made it possible to employ a more extensive range of shots, contributing to the game's strategic depth.

3. Evolution of Gameplay

The journey of ball badminton through time has witnessed the transformation of its gameplay from its early days to the modern era. Each era left its distinct mark on the strategies, tactics, and rule adaptations that characterize this sport.

Early Eras: In its inception, ball badminton was characterized by its simplistic gameplay. Players relied on their hands to propel a lightweight ball over the net. The gameplay emphasized agility and quick reflexes as players aimed to outmaneuver opponents by placing the ball in challenging positions. At this stage, the sport was deeply rooted in tradition and culture, often linked to religious or ceremonial occasions.

Transition to Racquets: One of the most significant milestones in the evolution of ball badminton was the shift from hand play to racquets. This transition had a profound impact on

the game, enabling players to introduce a broader array of shots into their strategies. Smashes, lobs, and drop shots became integral elements of the sport. With the introduction of racquets, gameplay expanded to incorporate both offensive and defensive tactics as players sought to exploit their opponents' weaknesses.

Influence of Rule Modifications: The evolution of ball badminton was also shaped by rule modifications. As the sport gravitated towards standardization, rules were established to define court dimensions, scoring systems, and overall gameplay. These rule changes had direct implications for player strategies and tactics. For instance, the introduction of a scoring system elevated the importance of precision and strategy, as points could only be earned when serving. Consequently, players developed more strategic serving techniques. These modifications in rules led to a more strategic and engaging gameplay experience, captivating both players and spectators.

The Modern Era: The contemporary era of ball badminton reflects the culmination of its evolution. With the adoption of standardized synthetic shuttlecocks and precise court dimensions, the sport has evolved into a faster-paced and more competitive game. Players now deploy an extensive repertoire of tactics, including powerful smashes, deceptive serves, and crafty drop shots. Team dynamics and coordination have become indispensable as players collaborate to outwit their opponents.

4. Regional Variations

The evolution of ball badminton has led to captivating regional adaptations, allowing the sport to absorb cultural and local nuances. These regional variations have contributed to the sport's diversity and versatility, shaping its identity in various parts of the world.

India: As the birthplace of ball badminton, India has nurtured a profound connection with the sport. Different regions within India have developed unique versions of the game, each distinguished by its own characteristics. For instance, in Tamil Nadu, the sport is referred to as "Poona" or "Punukku." Players use racquets with smaller frames and tightly strung nets, resulting in an intense and high-speed version of the game. In Andhra Pradesh, another region with a rich tradition in ball badminton, the rules and equipment have been adapted to encourage a more defensive style of play. This regional diversity within India exemplifies the sport's adaptability to the preferences of different communities.

Sri Lanka: Ball badminton has carved its own niche in Sri Lanka, where it enjoys significant popularity. It is played in a range of settings, from casual family gatherings to competitive tournaments. The sport in Sri Lanka has developed rules and regulations that cater to the preferences of local players, with an emphasis on finesse, agility, and extended rallies.

Southeast Asia: The sport made its way to Southeast Asia, with countries like Malaysia and Indonesia embracing it and weaving it into their cultural fabric. In these regions, unique versions of ball badminton have emerged. The focus is often on agility and net skills, with the game being played on beaches and open spaces, contributing to a distinct outdoor dimension compared to indoor ball badminton.

5. The Role of Governing Bodies

National and international governing bodies play a crucial role in the standardization and promotion of ball badminton. These organizations are responsible for maintaining the integrity of the sport, ensuring fair play, and fostering its growth on a global scale. In India, the Ball Badminton Federation of India (BBFI) serves as the national governing body. It was established to oversee the development, organization, and promotion of ball badminton within the country. The BBFI sets and enforces rules, organizes national-level competitions, and supports the growth of the sport at the grassroots level. On the international stage, the World Ball Badminton Federation (WBBF) is the governing body responsible for overseeing the sport globally. The WBBF plays a significant role in standardizing rules and regulations to ensure

consistency in gameplay. It also facilitates international competitions, including the Ball Badminton World Championships, which brings together players from various countries to compete at the highest level.

The governing bodies work collaboratively to adapt and evolve the rules of the game, ensuring that ball badminton remains competitive and relevant. They also promote inclusivity by organizing events and programs that encourage the participation of people from all walks of life. Through their efforts, these governing bodies contribute to the continued growth and popularity of ball badminton both within India and on the international stage.

6. Notable Players and Championships

The world of ball badminton has witnessed the rise of several notable players who have left an indelible mark on the sport. These athletes have not only showcased exceptional skills but have also inspired future generations of players. One such legendary figure is T. Ravi, often hailed as one of the greatest ball badminton players in history. Ravi's remarkable agility, powerful smashes, and strategic gameplay earned him numerous titles and accolades. His contributions to the sport have elevated ball badminton to new heights. In terms of championships, the Ball Badminton World Championships stands as the premier international competition. It attracts top players from around the world and serves as a platform for showcasing the highest level of skill and sportsmanship.

7. Cultural Significance

Ball badminton holds immense cultural significance, particularly in India and other regions where the sport has thrived. It is deeply intertwined with local traditions, festivals, and celebrations. In India, the sport is often played during festivals and cultural gatherings. It adds an element of joy and competition to these events, fostering a sense of camaraderie and community. Ball badminton also plays a vital role in physical fitness, which is highly valued in Indian culture. The sport's cultural importance extends to schools and educational institutions, where it is often included as part of physical education programs. This encourages young generations to stay active and embrace the sport from an early age.

Ball badminton has also been embraced in Sri Lanka and Southeast Asia, where it reflects local values of agility, teamwork, and sportsmanship. It adds a unique cultural dimension to social events and gatherings, strengthening community bonds. The sport's cultural significance is a testament to its ability to transcend borders and become an integral part of the lives of those who play it, making it not just a game but a cherished tradition and celebration of physical prowess.

8. Technological Advancements

The influence of technology on ball badminton cannot be overstated. Technological advancements have significantly impacted equipment and training methods. For instance, innovations in racquet materials, string technology, and shuttlecock design have led to improved performance, durability, and control, allowing players to execute more powerful shots. Furthermore, technology has revolutionized training in ball badminton. Video analysis tools have become invaluable for coaches and players, offering the ability to dissect and refine playing techniques. The integration of sports science has played a pivotal role in enhancing player fitness and performance, offering personalized training regimens and dietary plans tailored to individual requirements. Data analytics tools provide a means to assess player statistics and develop strategic approaches for competitive play.

9. Challenges and Controversies

Ball badminton has encountered its share of challenges and controversies over the years, a common feature in the evolution of any sport. Rule changes, a part of the sport's natural development, have occasionally sparked debates among players, coaches, and governing

bodies. While these changes are aimed at maintaining competitiveness and relevance, they may encounter resistance from those who uphold more traditional aspects of the sport. Doping controversies have also emerged in ball badminton, as is the case in many other sports. Upholding the principles of fair play and preserving the sport's integrity are ongoing concerns for both governing bodies and players. Issues related to governance and decision-making can significantly influence the sport's growth and development. Management decisions within national and international organizations can become a source of controversy, particularly when they are perceived as unfair or when there is a lack of transparency.

10. Globalization and Future Prospects

Ball badminton stands at a crossroads with the potential for globalization. As accessibility to the sport broadens and awareness increases, there are opportunities to introduce ball badminton to new regions and demographics. As the sport gains a wider international following, it may embrace a more global identity. The future of ball badminton is filled with promise. Emerging trends, such as a heightened focus on player fitness and sports science, are expected to further enhance player performance. However, the challenges may include striking a balance between retaining the sport's cultural roots while adapting to meet the demands of a global audience. Finding this equilibrium between tradition and innovation will be crucial for the sport's continued growth.

Conclusion

The historical journey of ball badminton reveals a sport deeply interwoven with cultural traditions and evolving strategies, adapting from its early origins as a hand-played game during festivals to a structured, internationally recognized sport with standardized equipment and rules. The pivotal transition from hand play to racquets reshaped gameplay, introducing new tactical dimensions and making the sport more competitive. The sport's ability to absorb regional variations, exemplified by the distinct styles in different Indian states and its flourishing presence in Sri Lanka and Southeast Asia, attests to its adaptability to local preferences. The governing bodies, both at the national and international levels, have played a vital role in shaping the sport's growth, standardizing rules, and promoting inclusivity. The contributions of legendary players and the allure of championships have elevated the sport, making it a celebrated tradition during cultural events and gatherings. In parallel, technological advancements have revolutionized equipment and training methods, and the sport's global journey offers prospects for continued growth. However, like any sport, ball badminton has faced challenges, including controversies surrounding rule changes and governance, requiring effective resolution to maintain its integrity. The future holds the promise of globalization, striking a balance between tradition and innovation, as ball badminton continues to inspire generations and unite cultures across the world.

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TECHNOLOGICAL EVOLUTION OF FOOTBALL: VAR AND WEARABLE TECHNOLOGY TRANSFORMING FOOTBALL FUTURE

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Abstract

Purpose: *This study explores how technology, specifically Video Assistant Referee (VAR) and wearable tech, is changing football. It examines how VAR helps referees make better decisions, and how wearable tech helps track player fitness. We also look at the problems and future possibilities.*

Method: *We read a lot about VAR and wearable tech in football. We found that VAR is good for making fair decisions about offside, fouls, and penalties. Wearable tech helps coaches see how fit players are, prevent injuries, and plan tactics. But these technologies also have problems, like privacy and costs. In the future, we could use AI and new tech like virtual reality.*

Conclusion: *Football is changing because of technology. VAR and wearable tech make the game better, but they also bring some issues. We think technology will keep growing in football. We need rules to use it right and protect data. We also want to see how AI and new tech can help in the future.*

Keywords: *Football, VAR Impact, Wearable Technology Benefits, Football Innovation, Technology Challenges.*

Introduction

The world of football is currently witnessing a profound technological evolution that is redefining the sport. At the heart of this transformation are two pivotal innovations, Video Assistant Referee (VAR) and wearable technology. These advancements have not only altered the way football is played but are poised to shape its future in unprecedented ways (Spitz et al., 2021; Elnagar et al., 2022). VAR, which stands for Video Assistant Referee, marks a revolutionary addition to match officiating. It signifies a substantial departure from traditional refereeing methods, providing referees with an additional tool to enhance decision-making accuracy. VAR's primary objective is to minimize errors in crucial game-changing moments, ultimately elevating the fairness and precision of football matches Decisions relating to offside calls, fouls, and penalty awards have all come under the scrutiny of VAR. The undeniable impact of VAR is seen in its promise of heightened fairness and its introduction of an additional layer of complexity that players, coaches, and fans must navigate (Spitz et al., 2021; Elnagar et al., 2022).

Concurrently, wearable technology has become a driving force behind football's evolution. Devices like GPS trackers and heart rate monitors have revolutionized player performance monitoring. These tools offer invaluable insights into player fitness, movement patterns, and overall performance. Clubs and coaches now have the means to optimize training regimens and refine player development. Wearable technology's significance is further underscored by its role in injury prevention and rehabilitation. It aids in the early identification of signs of player fatigue, helps prevent overexertion, and facilitates thorough player recovery monitoring. This

facet of technology not only prolongs player careers but also ensures player welfare remains a top priority. Tactical analysis, too, benefits immensely from wearable technology. Coaches and analysts can glean invaluable insights into player positioning and movement during matches, providing teams with the data-driven strategies needed to enhance overall performance. Despite the myriad advantages these technological advancements offer, they have ushered in their own set of challenges and controversies. VAR, in particular, has been the subject of numerous debates and disputes, especially when its decisions have led to disagreements and divided opinions. Delays, subjective judgments, and consistency are just some of the challenges associated with VAR implementation. Similarly, the integration of wearable technology raises ethical and practical concerns, with privacy and data security emerging as significant issues. The practical side of these advancements requires substantial financial investment, robust infrastructure, and the training of personnel, making their implementation a complex consideration for clubs and organizations (Sivakumar et al., 2021; Bradley et al., 2013).

As we embark on a comprehensive exploration of the impact of VAR and wearable technology on football, we will delve into the ethical dimensions of data usage, the practical challenges these technologies introduce, and the exciting prospects they hold for the future of the sport. These innovations enrich football, introducing ethical and logistical dimensions that must be navigated to ensure the game continues to evolve while preserving its integrity and prioritizing the welfare of its players and fans (Elnagar et al., 2022; Spitz et al., 2021)

1. Video Assistant Referee (VAR)

1.1. VAR in Match Officiating: The advent of Video Assistant Referee (VAR) has ushered in a revolutionary era in match officiating, fundamentally altering the way football decisions are made. VAR serves as an additional tool at the disposal of referees, facilitating more precise decisions and substantially reducing the likelihood of errors in pivotal moments. This segment of the paper embarks on an extensive exploration of the transformative impact of VAR on key aspects of football, such as offside decisions, fouls, and penalty awards.

The introduction of VAR has significantly reshaped the adjudication of offside decisions. This technology employs meticulous video analysis to assess the positioning of players concerning the second-to-last defender when the ball is played. The level of scrutiny it provides empowers referees to make decisions that are not only more accurate but also fairer, thus diminishing the frequency of erroneous offside calls. In essence, VAR introduces an additional layer of precision to a decision that often hinges on a matter of inches, thereby enhancing the overall equity of the game. Likewise, VAR has left a significant mark on the perception and penalization of fouls. This technology permits a review of incidents that may have involved foul play, affording referees the chance to reevaluate their initial judgments. This, in turn, reduces the instances of incorrect foul calls, ensuring that players are penalized or cautioned in a manner consistent with the rules of the game. The impact on the awarding of penalties is no less profound. VAR facilitates the review of incidents occurring within the penalty area, guaranteeing that critical decisions about penalty awards are made with heightened accuracy, thus minimizing the chances of game-altering errors (Spitz et al., 2021; Bradley et al., 2013).

1.2. Challenges and Controversies: While VAR presents a multitude of advantages, it has not escaped controversy. This segment of the paper scrutinizes cases where VAR decisions have ignited fervent debates and closely examines the challenges linked with its implementation. Foremost among these challenges is the issue of delays. VAR introduces a new layer of decision-making that demands additional time, as referees and VAR officials meticulously scrutinize incidents. Although this deliberation aims to ensure accuracy, it has at times raised concerns about the tempo and fluidity of the game. Subjective judgments have emerged as another point of contention. VAR decisions can hinge on the interpretation of incidents and the vantage point of officials, potentially leading to diverging assessments. This subjectivity has

fueled debates regarding the consistency of VAR decisions, with stakeholders, including fans, players, and coaches, occasionally perceiving inconsistencies in how the technology is applied across different matches or competitions. Addressing these controversies and challenges is imperative. Potential solutions may encompass streamlining the processes for VAR implementation, elucidating the criteria for its utilization, and refining communication to enhance transparency and comprehension. The ultimate aim is to strike a delicate balance, harnessing the advantages of VAR while mitigating the associated challenges and controversies. In doing so, we ensure that the technology enhances the game while preserving its integrity and enduring appeal (Spitz et al., 2021; Bradley et al., 2013).

2. Wearable Technology

2.1. Player Performance Monitoring: Wearable technology has ignited a revolution in player performance analysis within football. This section of the paper plunges into the profound impact of devices such as GPS trackers and heart rate monitors, elucidating how they play a pivotal role in monitoring player fitness, tracking their movements, and optimizing training regimens.

The integration of wearable technology into football has ushered in a transformative era in player performance analysis. GPS trackers, for instance, provide intricate insights into player movement, capturing data on metrics like distance covered, speed, acceleration, and deceleration. These insights furnish invaluable information for evaluating player fitness levels and tailoring training programs. Coaches and sports scientists can leverage this data to craft personalized training regimens that cater to each player's specific needs (Sivakumar et al., 2021).This personalized approach not only elevates player performance but also mitigates the risk of injuries by preventing overexertion and fatigue. Heart rate monitors complement this monitoring process by delivering real-time data on players' cardiovascular health and exertion levels during training sessions and matches (Alfeo et al., 2017). This data equips coaches and fitness experts with the means to ensure that players are training within their optimal heart rate zones. This not only contributes to enhanced fitness and performance but also minimizes the risk of overtraining, thereby safeguarding player well-being.

2.2. Injury Prevention and Rehabilitation: Wearable technology stands as a cornerstone in the critical domains of injury prevention and rehabilitation, significantly reshaping the way these processes are managed. This section of the paper elaborates on how wearable technology identifies signs of fatigue, prevents overexertion, and closely monitors player recovery. The capacity to monitor physiological data, including heart rate and indicators of fatigue, holds great importance in the realm of injury prevention. Wearable technology acts as an early warning system, capable of detecting signs of player fatigue or distress. This early recognition empowers coaches and medical staff to make informed decisions that protect player well-being. When the risk of injury looms, training loads can be adjusted, or players can be withdrawn from a match, effectively reducing the likelihood of further harm.

In addition to injury prevention, wearable technology plays a vital role in the rehabilitation process. These devices provide real-time feedback on a player's progress during recovery, enabling medical teams to make data-driven decisions. This data aids in determining when a player is ready to return to full training or match participation, thus reducing the risk of reinjury and ensuring a safe and effective rehabilitation process (Sivakumar et al., 2021).

2.3. Tactical Analysis: Wearable technology transcends player well-being and performance analysis, extending its utility to tactical facets of the game. This section of the paper investigates how wearable technology is harnessed to gain deep insights into player positioning and movement during matches, ultimately enhancing tactical strategies and team performance. Real-time data on player positioning, movement patterns, and physical exertion during matches offer a treasure trove of information for coaches and analysts. This data enables precise

adjustments to tactical strategies, optimization of player positioning, and data-driven decisions. Coaches can now make real-time tactical decisions based on player performance metrics, enhancing adaptability during matches. Wearable technology equips coaching staff with an immediate and dynamic understanding of the game. This enables them to make informed tactical decisions and substitutions based on real-time performance metrics. The technology empowers teams to exploit their strengths and capitalize on the weaknesses of the opposition, ultimately providing a competitive edge (Sivakumar et al., 2021; Clemente et al., 2014).

3. Ethical and Practical Considerations

3.1. Ethical Concerns: The increasing integration of technology into football raises a range of ethical concerns, with a particular focus on issues related to privacy and data security. This section delves into these ethical considerations, offering a critical examination of the challenges they present and the safeguards in place to protect the data of players and fans. As technology becomes more deeply ingrained in football, ethical questions concerning data usage and privacy take center stage. The gathering of vast amounts of data through wearable technology, player performance monitoring, and other technological applications prompts a critical need for responsible and ethical data management. This part of the paper scrutinizes these ethical implications and highlights the significant responsibilities that fall upon football clubs and governing bodies to uphold the highest ethical standards (Elnagar et al., 2022).

Privacy concerns extend not only to players but also to fans, as their data, behaviors, and preferences are increasingly subject to tracking and analysis. Responsible data management and the protection of data against potential breaches are essential ethical considerations. Consequently, the paper explores the measures implemented by clubs and governing bodies to ensure the safeguarding of player and fan data. These measures may include robust data protection regulations and protocols to ensure the respect of privacy rights.

3.2. Practical Challenges: In addition to ethical considerations, the practical challenges associated with the implementation of technology in football are substantial and multifaceted. This section of the paper delves into the logistical complexities of integrating technology within the sport and the practical issues that clubs and organizations must address. Financial costs represent one of the foremost practical challenges. The adoption and upkeep of technology in football necessitate significant financial investments. This encompasses the acquisition of advanced technology, the development of supporting infrastructure, and the ongoing costs related to maintenance and updates. For many clubs, particularly those with limited resources, this financial burden can be considerable. Infrastructure requirements are also a critical practical consideration. The integration of technology demands the establishment of robust systems and networks to support data collection, analysis, and distribution. This often entails substantial investments in both hardware and software.

4. Future Developments

The paper concludes by peering into the future of technology in football. It considers potential advancements in VAR technology, including developments in video analysis and the expansion of VAR's scope. It speculates on the integration of virtual reality in training and match preparation and the potential use of augmented reality for fans' engagement. The paper also discusses the ongoing quest for greater accuracy and fairness in decision-making, including potential collaborations with artificial intelligence and machine learning.

Conclusion

The impact of technology on football is resoundingly undeniable. VAR and wearable technology have ushered in transformative changes in the way matches are officiated and players are monitored. While these advancements bring forth numerous advantages, they also present us with an array of challenges, both ethical and practical. The continuous evolution of

technology in football is poised to introduce further enhancements and innovations, thereby shaping the game for many years to come.

Recommendations and Future Research

The paper concludes with recommendations for the effective integration of technology in football, including standardized guidelines for VAR implementation and data privacy regulations. It highlights the need for continuous research into technology's influence on the sport and suggests areas for future research, such as the development of AI-driven decision-making tools and the environmental impact of technology in football.

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EFFECT OF ECCENTRIC MUSCLE STRENGTH TRAINING ON SELECTED PHYSICALFITNESS COMPONENTS OF WOMEN VOLLEYBALL PLAYERS

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Abstract:

Background: Eccentric muscle strength trainingimproves women volleyball players body's ability to work efficiently as one unitby training multiple muscle groups at the same time which was help to avoid unnecessary injuries research have investigated the advantages of eccentric muscle strength trainingdeveloping reaction time and flexibility in women volleyball players.

Method: Therefore the purpose of the study was to investigate the effect of eccentric muscle strength training on reaction time and flexibility of women volleyball players. In this study thirty
(30) subjects, of women volleyball players studying in SRM Institute of Science and Technology, Kattankulathurwere randomly selected in eccentric muscle strength training group and in non eccentric muscle strength training group, fifteen (15) in each group. The age of the subject were ranged between 18 to 21 years.

Timeline: The eccentric muscle strength training consisted of 45-60 min/day, 3days in a week till twelve weeks from the SRM Institute of Science and Technology, Kattankulathur, Tamilnadu. Physical fitness componentscompleted of the bothgroups at zero time and after twelve weeks of eccentric muscle strength training in experimental group and excepteccentric muscle strength trainingintervention in non eccentric muscle strength traininggroup.

Results: In present study, reaction time (15.10) and flexibility (18.71) were changed significantly.

Conclusion: The result of the study showed that there was a significant difference between experimental group and control group on reaction time and flexibility among women volleyball players.

Keywords: WOMEN VOLLEYBALL PLAYERS, Paired 't' test, PHYSICAL FITNESS, ECCENTRIC MUSCLE STRENGTH TRAINING.

Introduction:

Research has demonstrated that an accentuated eccentric load can increase the maximumload lifted in the concentric phase of the movement in comparison to a more typical trainingcondition where the load lifted in the eccentric and concentric phases are equal. Werecently published research demonstrating that vertical jumps that involve an accentuated(additional) eccentric load produce higher jump heights, power output, velocity, and forcegeneration than vertical jumps that do not use an extra load. To simplify, utilizing anextra load during the lowering phase of a counter- movement vertical jump, and releasing thisload just prior to initiating the upward phase of the jump, produced superior kinetic andkinematic values compared to a typical counter-movement jump movement where load isequal in the eccentric and concentric phase.Eccentric muscle strength training is becoming increasingly popular within the fitness industry and has been considered to be a better alternative and traditional resistance training for improving various measures of muscular

fitness including strength, endurance, coordination, balance. Definitions describing what eccentric muscle strength training is or what a functional exercise program should entail vary considerably inthe literature. Furthermore, experimental research conducted to ascertain the muscular fitness benefits of Eccentric muscle strength training is limited and focused specifically on improving athletes (Milton et al, 2008). As modern, evidence suggest that eccentric muscle strength training developing leg explosive power as well as flexibility of the women volleyball players.

Methodology:

The purpose of this study was to find out the effect ofeccentric muscle strength training on physical fitness components of women volleyball players. Thirtywomen volleyball players were randomly selected and they were assigned into two equal groups. Each group consisted of fifteen subjects. Pre test was conducted for all the thirty subjects on physical fitness components of reaction time, andflexibility. This initial test scores formed as pre test scores of the subjects.Experimental group I was exposed to eccentric muscle strength training, and group II was control. The control group was not exposed to any experimental training other than their regular daily activities. The experimental period was 12 weeks.After the experimental treatment, all the subjects were measured on thephysical fitnessvariables. This final test scores formed as post test scores of the subjects. The data collected from the experimental and control groups on selected dependent variable was analyzed statistically by paired 't'test to analyze the significant difference if any between the pre and post test.

Statistical analysis:

The data were analysed using statistical package for social sciences (SPSS) for windows version

16.1. Paired t-testwas carried out between eccentric muscle strength trainingand control groups.To find out significance difference between the means of pre and post test of the groups and are presented in table I & II.

Table-I: TABLE SHOWING COMPARISON OF DIFFERENCE IN PRE TREATMENT AND POST TREATMENT SCORES AMONG ECCENTRIC MUSCLE STRENGTH TRAINING.

Variable	Test	Mean	Mean Difference	Std. Error of the mean	DF	't'	Table value
Physical Fitness Components							
Reaction Time	Pre test	17.16	2.93	0.96	14	15.10*	**2.145**
	test						
	Pre test	20.33					
Flexibility	Post Test	29.80	9.47	0.81	14	18.71*	

** Significant at 0.05 level for the degrees of freedom 1 and 14, 2.145*

Table I suggests the obtained 't' values on criterion measure of 15.10 (reaction time) and

18.71 (flexibility). The obtained 't' values to be significant at 0.05 level for degree of freedom 1, 14 the required criticalvaluewas once 2.145. Hence the obtained 't' values on the selected criterion variables greater than the required critical value, it was concluded that the eccentric muscle strength training programme produced enormousimprovementmean difference.

Figure 1: Bar diagram showing the pre, post means values of eccentric muscle strengthtraining group onreaction time and flexibility.

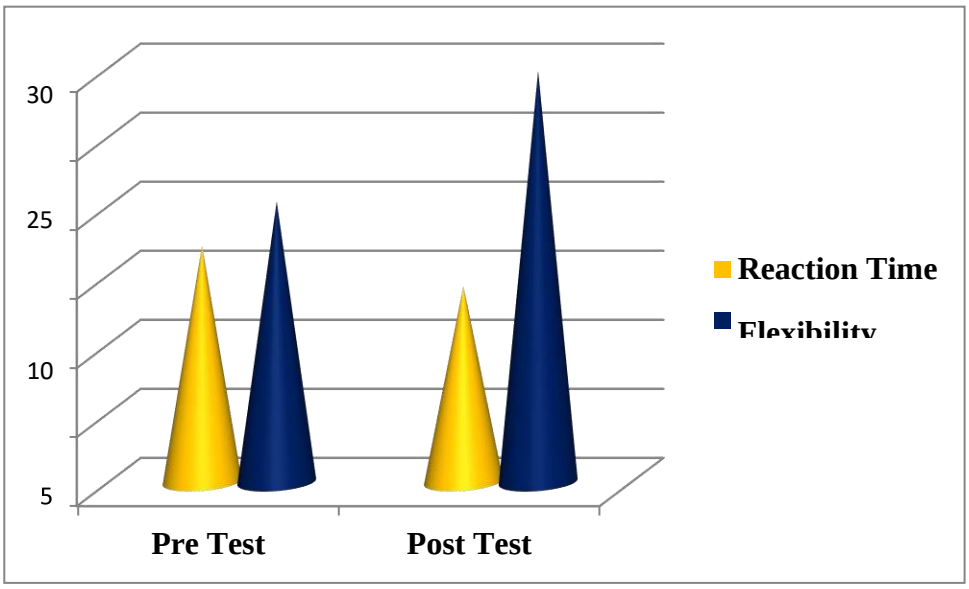


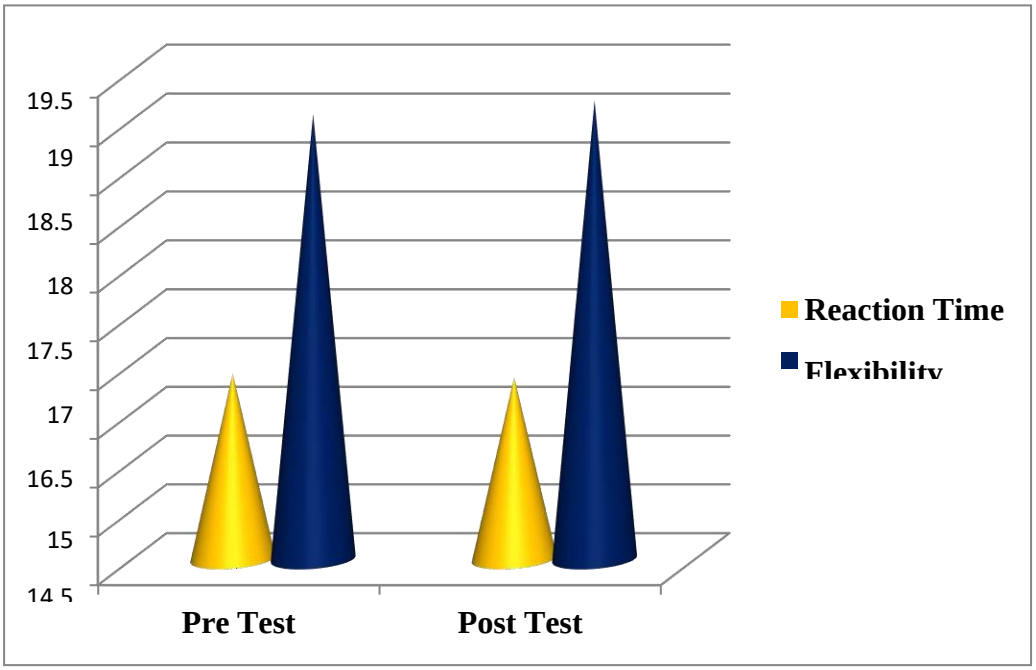
Table-II : TABLE SHOWING COMPARISON OF DIFFERENCE IN PRE TREATMENT AND POSTTREATMENT SCORES AMONG CONTROL GROUP.

Variable	Test	Mean	Mean Difference	Std. Error ofthe mean	DF	't'	Table value
Physical Fitness Components							
Reaction Time	Pre test	16.41	0.04	0.255	14	1.31	**2.145**
	Posttest	16.37					
Flexibility	Pre test	19.06	0.14	0.52	14	0.45	
	Posttest	19.20					

** Significant at 0.05 level for the degrees of freedom 1 and 14, 2.145*

Table IIsuggests the obtained 't' values of the control group on criterion measure of 1.31(reaction time) and 0.45 (flexibility). The obtained 't' values to be significant at 0.05 level for degree of freedom 1, 14 the required criticalvaluewas once 2.145. Hence the obtained 't' values on the selected criterion variables lessthan the required critical value, it was concluded that the control groupno differences.

Figure 2: Bar diagram showing the pre, post means values of control group (CG) onreaction time and flexibility.



Discussion on findings:

The present study was found statistically significant improvement on reaction time and flexibility, which showed that positive effect of eccentric muscle strength training. The findings of the study were also agreed with the findings of (Udermann B 2008), (Ford A 2005).

Conclusion:

From the results achieved, the following conclusions were drawn.

1. The result of the study showed that there was a significant difference between experimentalgroup and control group on reaction time among womenvolleyball players.
2. The result of the study showed that there was a significant difference between experimentalgroup and control group on flexibility among women volleyball players.

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THE INFLUENCE OF GAME-SPECIFIC TRAINING AND RESISTANCE TRAINING ON SELECTED SKILL PERFORMANCE VARIABLES AMONG COLLEGE-LEVEL BADMINTON PLAYERS

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Abstract

The aim of this study was to investigate the influence of game-specific training and resistance training on specific skill performance variables in college-level badminton players. To achieve this goal, we randomly selected 30 subjects from the SRM Institute of Science and Technology, Kattankulathur, aged between 18 and 21 years. These subjects were then divided randomly into two groups, each comprising 15 participants: an experimental group and a control group. The experimental group underwent a structured regimen involving game-specific training and resistance training, while the control group did not engage in any experimental activities. The skill performance variables examined in this study were the short serve and long serve. Our research design followed a true random group design, incorporating both pre-tests and post-tests. All 30 subjects were equally allocated to either the experimental group (comprising game-specific training and resistance training) or the control group. Before the six-week experimental period commenced, we conducted pre-tests to assess the selected skill performance variables in all 30 subjects. Subsequently, post-tests were carried out at the conclusion of the experimental period, with scores meticulously recorded. Statistical analysis was conducted with a predetermined level of significance set at a confidence level of 0.05. The study's results revealed a significant improvement in short serve and long serve skills among participants in the game-specific training and resistance training group.

Keywords: *short serve, long serve, Badminton players.*

Introduction

Badminton

Badminton is being the racket sport and a speed game; player has to concentrate over the ball and decision to be made on receiving and placing the ball in the opponent court. In this game, object used to meet out the ball and its directions though which is less in size of space, for successful execution of an object requires high level physical and cognitive functions. The very micro deviation makes the player to setback in the game. In fact, the game badminton demands movement related fitness such as speed, flexibility, endurance, power and coordination abilities to successfully execute the ball with consumption of energy. Badminton now- a -days is becoming a professional sport. Every player seeks the course of action line to excel in this sport in different manner. Initially the fundamental skills and its movements will be explained to the player using some instructional media. The learning tools related to the game badminton are knowledge about badminton, witnessing video models, and viewing pictures or posters with sequences of movements employed in teaching. Such type of process cognitively makes the player to imagine the game and its movements. Following this, to be mastery over the fundamental skills, badminton players have to teach repeatedly Normally physical training is a very basic for a sport to prepare the player to learn the basic movements. Though the physical training underlies physical movements, the successful learning of fundamental movements depends upon the players need, interest motive and goal over the particular sport. Having the need, interest, motive and goal intrinsically, player’s commitment will enhance recollection of his movement mentally during the practice which enables to forecast the next course of movement from the knowledge of results derived from the practice.

Sport-specific training enhances and refines the essential skills necessary to excel in various sports. Your young athlete will develop increased confidence in their agility, speed, and hand-eye coordination. The Sport-Specific Skill Training program offers a year-round, high-level, sport-specific training experience, placing significant emphasis on the development of physical, technical, tactical, and psychological aspects of the sport. This training program plays an integral role in fulfilling the Athletic Performance Ranch's mission of fostering character, knowledge, and leadership. Sport-Specific Training introduces and sharpens the fundamental skills required for success in any sport. Your young athlete will experience heightened confidence in their agility, speed, and hand-eye coordination. We provide both group and individual training options to cater to individual preferences and needs. It's worth noting that strength training forms a crucial component of overall fitness for athletes, contributing to their success and performance enhancement.

Resistance training, often referred to as strength training or weight training, is a form of exercise that involves using resistance or force to induce muscular contractions, thereby building strength, endurance, and muscle mass. The primary goal of resistance training is to improve muscular strength and endurance by challenging the muscles to overcome a resistance force. This type of training can be achieved in various ways, including: Free Weights: Using dumbbells, barbells, or kettlebells to perform exercises such as squats, bench presses, and curls. Weight Machines: Using specialized machines that provide a guided range of motion and adjustable resistance. Resistance Bands: Utilizing elastic bands of varying resistance levels to perform exercises that target specific muscle groups. Bodyweight Exercises: Engaging in exercises like push-ups, pull-ups, and bodyweight squats that use your own body weight as resistance. During resistance training, muscles are subjected to tension and stress, leading to microscopic muscle fiber damage. As the muscles repair and adapt to this stress, they become stronger and more resilient. This adaptation process is known as hypertrophy. Resistance training offers a wide range of benefits, including: Increased muscle strength and power, Enhanced muscle tone and definition, Improved bone density, Enhanced metabolism and calorie burn, Enhanced joint stability and flexibility, Reduced risk of injury and better overall physical function and quality of life. It's important to perform resistance training with proper form and technique to minimize the risk of injury. Many individuals incorporate resistance training into their fitness routines to achieve a balanced and well-rounded approach to physical fitness. Whether the goal is to build muscle, increase strength, or improve overall fitness, resistance training plays a vital role in achieving these objectives.

Methodology

The researcher employed a randomized design, incorporating both pretests and post tests. A total of 30 male badminton players (N=30) were randomly assigned to two equal groups, each comprising 15 participants: the experimental group and the control group. Before any training commenced, a pre-test was administered to assess selected skill performance variables, specifically the short serve and long serve, for all 30 badminton players. Subsequently, the experimental group underwent a six-week training regimen that included game-specific training and resistance training, while the control group did not participate in any training activities. Upon the completion of the six-week training period, post-tests were conducted to measure the same dependent variables. The data obtained from these tests underwent statistical analysis using the dependent t-test to ascertain whether any statistically significant improvements were observed. It's important to note that a significance level of 0.05 was established, ensuring a 95% confidence level for all the analyses.

Test I

Mean and Dependant 'T' – ratio for the Pre And Post Tests on game specific training and resistance training group and control group on short serve

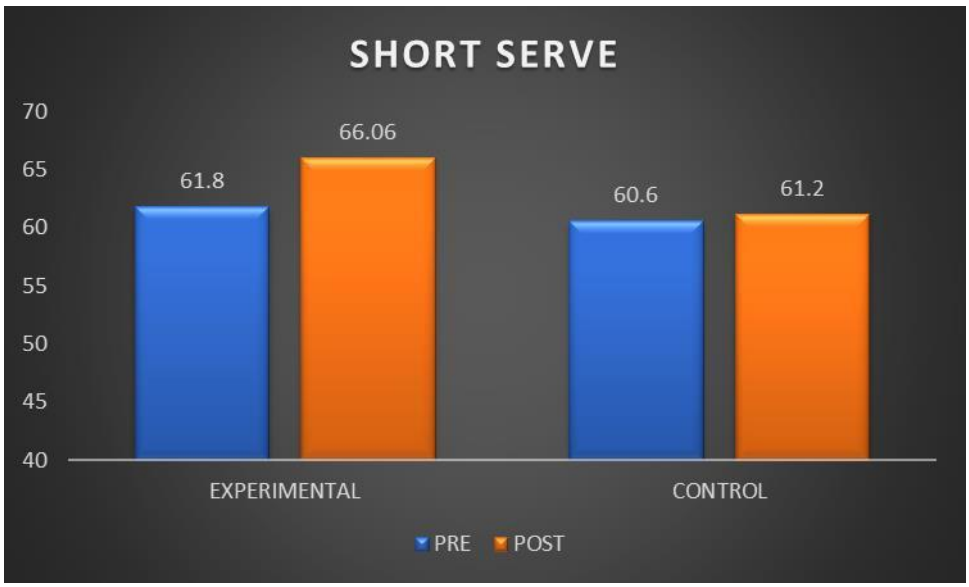
Group	Test	Mean	Standard deviation	Standard error mean	t- ratio
Experimental group	**Pre test**	61.80	1.38	0.35	11.91*
	Post test	66.06	1.40		
Control group	**Pre test**	60.60	1.75	0.45	1.50
	Post test	61.20	1.80		

***Significant level 0.05 level degree of freedom (2.14, 1 and 14)**

Table I presents the computation of the 't' ratio, comparing the means of pre-test and post-test short serve scores among college-level badminton players. The mean short serve values for the experimental group were 61.80 before training and 66.06 after, while the control group had means of 60.60 and 61.20 for the respective tests. The calculated 't' ratio of 11.91 significantly exceeded the critical table value of 2.14, indicating statistical significance for 1 degree of freedom and 14 participants at a 0.05 level of confidence. This finding strongly suggests that the short serve of the experimental group significantly improved due to the influence of in-and-outs game-specific strength training and resistance training. Conversely, the computed 't' ratio of 1.50 fell below the critical table value of 2.14, rendering it statistically non-significant for 1 degree of freedom and 14 participants at a 0.05 level of confidence. This result clearly demonstrates that the short serve of the control group did not exhibit significant improvement following the intervention.

Additionally, the bar diagram visually represents the mean values of the pre-test short serve scores for both the control group and the experimental group.

Bar diagram



Test II

Mean and Dependant 'T' – ratio for the Pre and Post Tests on game specific training and resistance training group and control group on long serve

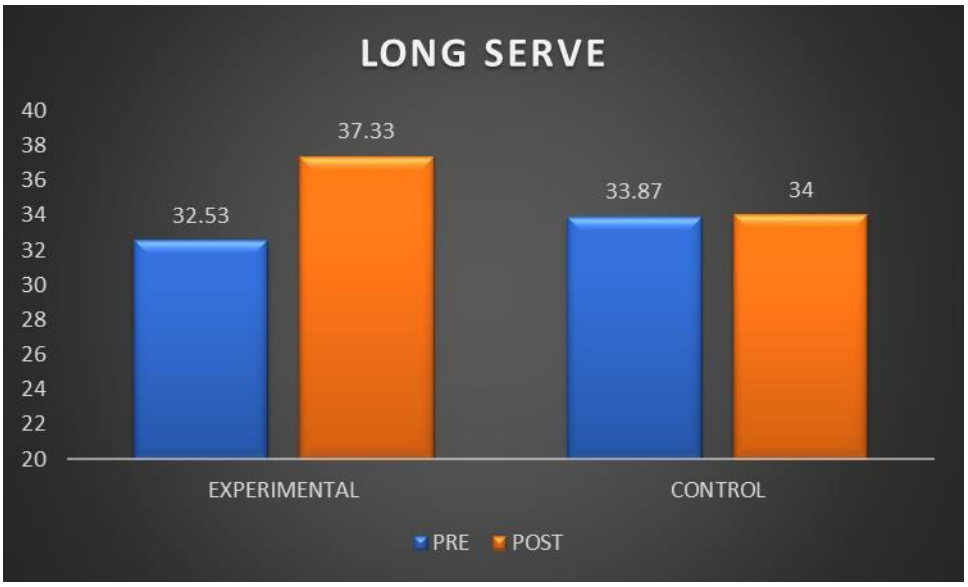
Group	Test	Mean	Standard deviation	Standard error mean	t- ratio
Experimental group	**Pre test**	32.53	2.24	0.57	8.29*
	Post test	37.33	2.40		
Control group	**Pre test**	33.87	1.99	0.51	1.40
	Post test	34.00	2.04		

***Significant level 0.05 level degree of freedom (2.14, 1 and 14)**

Table II illustrates the computation of the 't' ratio, comparing the means of pre-test and post-test long serve scores among college-level badminton players. The mean values for the experimental group were 32.53 before training and 37.33 after, while the control group had means of 33.87 and 34.00 for the respective tests. The calculated 't' ratio of 8.29 significantly surpassed the critical table value of 2.14, indicating statistical significance for 1 degree of freedom and 14 participants at a 0.05 level of confidence. This outcome strongly suggests that the long serve of the experimental group markedly improved due to the influence of in-and-outs game-specific training and resistance training. Conversely, the computed 't' ratio of 1.40 fell below the critical table value of 2.14, rendering it statistically non-significant for 1 degree of freedom and 14 participants at a 0.05 level of confidence. This result clearly demonstrates that the long serve of the control group did not exhibit significant improvement following the intervention.

In addition, the bar diagram visually represents the mean values of the pre-test long serve scores for both the control group and the experimental group.

Bar diagram



Discussion on Finding

The study's results reveal a significant improvement in the selected variables, specifically short serve and long serve, within the experimental group. This group consisted of individuals who underwent game-specific training and resistance training, as compared to the

control group. Furthermore, the study indicates that the enhancements achieved by the game-specific training and resistance training group surpass those observed in the control group by a considerable margin. For further insights into this topic, readers can refer to the research conducted by **Jayapal, G., & Sivaraman, P. (2021),** titled "Effect of Game-Specific Drills Program on Service Ability and Strength Endurance Among Male Badminton Players," published in the International Journal of Physical Education, Sports, and Health, 2021; 8(6): 94-95. In conclusion, the study's findings underscore the positive impact of game-specific training and resistance training on short serve and long serve, highlighting their effectiveness in enhancing athletic performance.

Conclusions

From the analysis of the data the following conclusions are

1. The experimental group, comprised of individuals who underwent game-specific training and Resistance training, achieved a notably significant improvement in skill performance variables, specifically short serve and long serve, among college-level Badminton players.
2. In contrast, the control group exhibited insignificant improvement in skill performance variables, including short serve and long serve, among college-level Badminton players.

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IMPACTOF ISOLATED MIXED INTERVAL AND CONTINUED TRAINING ON SPEED COMPONENTS AMONG COLLEGE LEVEL KABADDI PLAYERS

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Abstract

Sports reflect the changes in societies and cultural activities that range from individual values such as regulations and simplicity to collectives like equality, general ones like belief in effort. That is capitalistic belief of the survival of the fittest. Sports couldn't see the discretely in human being. Sports develop unity and diversity. It can even play a helpful role in integrating image building for individuals, groups or humanities. Kabaddi game is developing the physical and mental of the human being. The word of kabaddi says withhold breath due to increasing the body aerobic and mental concentration power. The present explored impact of isolated mixed interval and continued training on speed components among college level kabaddi women players. The study was conducted among 60 women college kabaddi player aged 18 to 25 years. The speed performance was evaluated to speed variables as speed stride length variables of kabaddi before the training and after 8 weeks of training. The subjects were randomly assigned into four groups, namely interval exercise group, continuous exercise group, combined interval and continuous group and control group. Statistically significant improvements in baseline scores in speed stride length variables kabaddi were comparable between the four groups of college kabaddi players. Speed stride length improved by 1.63 in continued group, 1.65 in the interval group 1.68 combined interval and continued group 1.52in the control group. Additional research on long-duration intervention in elite players may help to establish the role of combined interval and continued training in conventional kabaddi skills for training.

Key words: *Interval training, continued training, speed, kabaddi, stride length*

Introduction

National and International level, sports and games have increased an important place for celebrities and become enormously popular. Sports reflect the changes in societies that range from individual values such as self-control and simplicity to collectives like equality, general ones like belief in effort. Sports couldn't see the discretely in social being. Sports develop unity and diversity. It can even play a constructive role in integrating image building for individuals, groups or cultures. In the most recent years, awareness has been focused on different methods of fitness programmes for improving performance. The professor and coach looking for the best emerging essential physical fitness qualities must consider various kinds of sports training. This has made the investigator grow a keen interest in that area to discover a form of exercise (interval exercise and continuous training) that develops both speeds and endurance parameters among Kabaddi players.

The Game of kabaddi has various aerobic, anaerobic, explosive, cognitive and muscular strength factors **(Dev 2012)**. Kabaddi game learns how to breathe; simply obtain flexibility and agility and speed (10 -12 m on the court). Because of flexibility, the player's eyes and body move fast. We can kick, spin and grapple with ankle legs. Strong muscle leg uses to kick by quickness acceleration. Kabaddi games have many more movement involving forward running, backward, side, jumping, grappling, touching, pushing and dogging. This movement is doing the short time with the strategic of skills. The players are intent every second during the game period. Kabaddi is a team game of physical components.

Methodology

The Methodology for the present investigation is on the impact of isolated mixed interval and continued training on speed components among college level women kabaddi players**.** The purpose of study 60 women students selected from various colleges in Periyar University Inter collegiate women players, Salem, Tamil Nadu. Their age ranges between 18 to 25 years. The subjects were randomly assigned into four groups, namely experimental group I (interval training), Experimental group II (continued training), experimental group III (combined interval and continued training) and control group. In order to ensure the full cooperation from the subjects, the scholar had a meeting with them and explained the purpose of the study. It was made clear by explanation in order to ascertain that there was no abstruseness among the players regarding the effort, which they had to put in for the impactive completion of this study. Experimental group I participated for a period of 8 weeks interval training. Experimental group II participated for a period of 8 weeks continued training. Experimental group III for a period of 8 weeks combined interval and continued training and Control group no training. The subjects were verified on selected criterion variables speed variables as stride length kabaddi players before the training and after 8 weeks of training.

Training Procedure

Experimental Group-I undertook interval training, experimental Group-II undertook continued training and experimental Group-III undertook combined training respectively. The control group was not exposed to any specific training / conditioning programme. The experimental treatments namely interval training, continued training and combined training was administrated for duration of 8 weeks and the number of session per week was confined to three alternative days and each session continued 60 minutes.

Statistical Technique

The collected data from the three groups prior to and after the experimental treatments on selected speed components variable was statistically analyzed by using the statistical technique of analysis of covariance (ANCOVA). Whenever the 'F' ratio for adjusted post-test means was found to be significant, Scheffe's test was followed as a post hoc test to determine which of the paired means difference was significant. In all the cases 0.05 level of confidence was fixed as a level of confidence to test the hypotheses.

Results and Analysis

The influence of independent variables on each of the criterion variables is analyzed and presented below.

The training period was limited to eight weeks. The dependent variables selected for this study was speed components stride length. All the subjects were tested prior to and immediately after the experimental period on the selected dependent variables.

The data obtained from the experimental groups before and after the experimental period were statistically analyzed with dependent 't'-test and Analysis of covariance (ANCOVA). Whenever the 'F' ratio for adjusted post-test means was found to be significant, the Scheffe's Posthoc test was applied to determine the paired mean differences.The level of confidence was fixed at 0.05 level for all the cases.

Table – 1
Computation of Analysis of Covariance of pre test, post test and adjusted post test on Stride Length of Experimental groups and Control group

Test	Interval Exercise group	Continued exercise group	Combined group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	F-ratio
Pre-Test Mean	1.53	1.53	1.53	1.52	Between groups	0.001	3	.000	0.21
					Within groups	0.060	56	0.001	
Post-Test Mean	1.63	1.65	1.69	1.54	Between groups	0.180	3	0.060	50.28*
					Within groups	0.067	56	0.01	
Adjusted Post-Test Mean	1.63	1.65	1.68	1.54	Between sets	0.170	3	0.057	58.64*
					Within Sets	0.053	55	0.001	

**** Significant at 0.05 level of confidence***

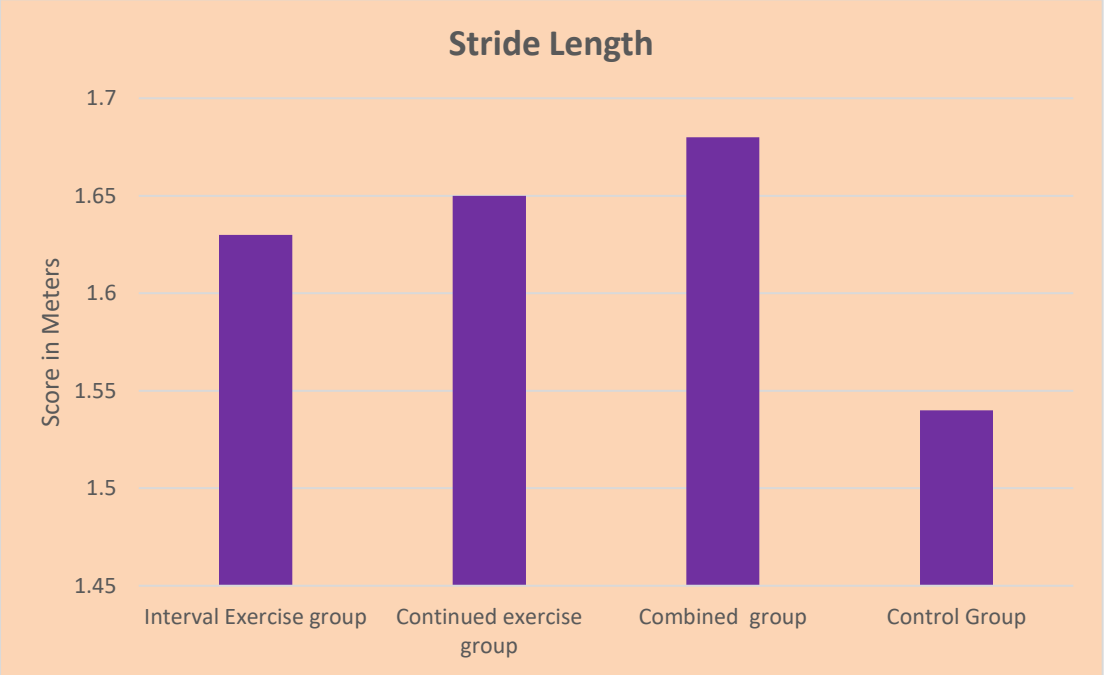


Figure - 1
The Pre and Post test Mean Values of interval Training group, Continued Training group, combined training and Control group on Stride Length

Conclusion

The findings of the study showed that there was a statistically significant improvement in the speed components stride length variables kabaddi players as compared to control group.

1. The results of the study show that the experimental group-I that had undergone interval training group, improved speed components namely stride length kabaddi players.
2. The results of the study show that the experimental group-II that had undergone continued training group, improved speed components namely stride length kabaddi players.
3. The results of the study show that the experimental group-III that had undergone combined training group, improved speed components namely stride length kabaddi players.

RECOMMENDATIONS

It is recommended that coaches and physical educators in the game of kabaddi should give due to include interval training group, continued training group and combined training group in their training schedules.

In the physical exercise, while designing the training programme the impact of varied training modalities is explained on positively on physical fitness parameters and skill performance variables of kabaddi players, the physical education teachers and coaches can prefer this type of training so as to achieve aim in time.

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ROLE OF PRANAYAMA IN PHYSICAL AND MENTAL HEALTH

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The beginning of yoga were developed by the Indus_ Sarasvati civilization in northern India over 5'000 years ago. The word yoga was first mentioned in the oldest sacred texts, the Rig Veda. The Vedas were a collection of texts containing songs, mantras and rituals to be used by Brahmans, the Vedic priests.

Pranayama , a form of yoga breathing. Pranayama is not a simple breathing exercises yet it is a scientific breathing process where control over prana is the connecting link between physical and mental yogic practices. The word prana stands for life force and that is believed to be the vital energy or life force that encompasses the body. This also serves as the link between consciousness and the mind. It was believed that once the breath starts to wander, the mind also becomes unsteady. Once the breath is still , your mind is still as well. Breathing is essential since this is the only way for you to send the "oxygen" inside the body and to other organs. People can survive the months without having a food on their play. But they cannot do this without water. However, it is good to take note that they cannot "survive" several minutes without breathing.

Once you understand the right breathing technique this can create a huge impact to your thoughts and actions. Bear in mind that every thought can change your breath rhythm. If you are also stressed , your breathing will most often be interrupted or irregular. If you master the art of breathing you can easily understand self healing.

The Benefits of Pranayama:

Reduced Rate of Breathing:

with pranayama , you can teach yourself on how to breath deeply and slowly. This will help you lesson the rate of breathing from 15 breath per minute or 5 to 6 breaths. Once you have successfully understood the process on how to reduce the breathing rate , you can also reduce the wear tear of your internal organs.

Increases Life:

Based on the philosophy of yoga , longevity of life depends on the breathing rate . As your lower your breathing rate, you also increase your life. For an instance ,if tortoise only take4 to 5 breath per minutes ,it also has the ability to live for 200 years and more.

Improves blood circulation :

Breathing let's the fresh and oxygenated blood during the inhalation travels from the lungs and then to heart. Heart is the one that pumps the blood through blood vessels and arteries of the body. Because of this the blood circulation can be improved.

Healthy heart

One of the most hardworking organs is none other than the heart. Heart pumps blood day in and day through out non-stop . Having enough oxygen in your blood means more oxygen to be found in the heart's muscle.

Improved Mental Health:

This practice provides people the freedom from any harmful and negative mental conditions such as depression,anger,excessive want for money and more. You will experience inner piece , better concentration ,better memory, better sleep, lightness of the body and more. By practicing pranayama, you can control mind fluctuations and prepare yourself for deep meditation.

When to perform Pranayama

Pranayama yoga must be performed in empty stomach. The best time for practice is the early morning ,preferably before sunrise when the pollution is at it's lowest level, and the body and brain are still free. How ever if morning is unsuitable, Pranayama may be practiced after sun set,when the air is cool and pleasant.

Major types of Pranayama and instructions

Some major types of Pranayama yoga are as follows:

- . Bhramari pranayama
- . Udgit pranayama
- . Anuloma& Viloma pranayama
- . Agnisar kriya

Instructions

- Nadi Sodhana
- Sit down in a comfortable place assuming a cross legged position
- Now use your thumb (right hand) to close the right side of your nose. Inhaledeeply using the left nostril.
- Now close the left nostril and exhale using the right one.
- In the same way, now with the left nostril still closed, inhale using the right nostril and exhale with left one.

Continue this for around10_15 times.

- **Shitali pranayama**

  Sheetal also means cool, and this pranayama technique will help you achieve the same. To perform shitali pranayama, be seated in a comfortable position. Cross your legs and take 5 to 6 deep breaths to get yourself prepared.

  Now open your mouth in "o" shape and start to inhale through the mouth. When you exhale, do so with your nose.

  This can be repeated 5 to 10 times.

- **Ujjayi Pranayama**

  Ujjayi means the ocean and this pranayama is about mimicking the oceanic sound or the sound of the waves. To do this be seated in a comfortable position crossing your legs. Now start to inhale and exhale deeply using your mouth.

  While doing this constrict your throat as if something is chocking it when you exhale and inhale the air. This will produce a sound similar to the ocean when you breath. Now close your mouth and start to breath using your nose, but maintain the same tone your throat so you still continue to make the same sound as your breath. It can continue for ten t fifteen times

- **Kapalabhati pranayama**

  To perform this technique sit in a comfortable position crossing your legs.perform two or three deep inhale an exhales. Making any effort to inhale as the belly goes back to normal position. Exhale forcefully again and continue doing this from about 20 to 30 times.

Dirga Pranayama

The dirga Pranayama is a bit different from other types To perform this lie down on your back and close your eyes. Breath normally and then slowly take deep breaths, relaxing your body. Now inhale a lot of air in slowly to fill your belly up. your belly should rise up like a balloon. Hold this position for a few seconds and exhale drawning the belly inwards ensure there is no air left.

In the second step inhale deeply to fill up the belly. Inhale a bit more to fill up air in your rib cage. When you exhale, exhale air from your rib cage and then from your belly.

In the third step, inhale deeply to fill up your belly and rib cage with air. Inhale a bit more to fill up you're your heart center with air. when you exhale, exhale air from the heart center. Repeat the whole process for five to six times

Viloma Pranayama

It involves praused breathing at regular intervals and can be decided in to two stages. The first stage is called paused inhalation and the second stage is called paused exhalation.

- Lie down in a comfortable position and try to relax. Breath deeply. But nomally
- Now inhale for 2 to 3 seconds and pause. Hold your breath for two seconds and then restart inhalation. Pause inhalation again after two seconds. Inhale again. Repeat this process untill the lungs feel full of air.

Anuloma pranayama

This type of pranayama is particularly useful in clensing the nasal passages and creating calmness within. Just like Viloma, anuloma is about alternate nostril breathing. In this case the inhalation and exhalation is done with one nostril blocked and the other partially open.

EFFECT OF SURYA NAMASKAR IN COMBINATION WITH PRANAYAMA TRAINING AND LADDER TRAINING ON SPEED AND FLEXIBILITY AMONG OFFENSIVE KABBADI PLAYERS

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ABSTRACT

The purpose of the study was to find out the Effect of surya namaskar in combination with pranayama training and ladder training on speed and flexibility among offensive kabbadi players. In order to achieve the purpose of the study thirty women offensive inter collegiate kabbadi players were randomly selected SRM University, Tamilnadu. An inter university kabbadi players and they were equally divided in to three groups of ten each as experimental group-I, experimental group-II and control group. The experimental groups and control group undergone normal routine kabbadi practices and in addition the experimental group-I underwent surya namaskar in combination with pranayama training and experimental group-II underwent ladder training for one hour in the morning sessions. The control group was not given any special training. The period of training was eight weeks in a schedule of weekly three days for alternate days. The data were collected on the selected dependent variables before and after the training period. The collected the data were statistically analyzed by using Analysis of Covariance (ANCOVA) and Scheffe's post hoc test. To test the significance .05 level of confidence was fixed. Based on the results the study it was concluded that the surya namaskar in combination with pranayama training and ladder training were significantly improved the speed and flexibility among offensive kabbadi players.

Keywords: Surya Namaskar in combination with Pranayama training, Ladder training, Speed and Flexibility.

Introduction

Kabaddi is a strenuous game which requires all the physical fitness qualities. To improve the physical fitness qualities they involved is various training programme. Speed and flexibility are two crucial attributes for success in Kabaddi players. Speed is essential for both offense and defense in Kabaddi. Offensively, a fast raider can enter the opponent's half, touch an opponent, and return quickly, scoring points for their team. Defensively, speed helps in chasing down and tagging raiders before they can return to their half. A quick defender can cover ground faster, making it challenging for the raider to escape. Flexibility is vital for both raiders and defenders. Raiding requires agility and the ability to change direction rapidly to evade opponents. Defenders need flexibility to get low and make quick lunges or dives to tag raiders. Being able to move in various directions and angles is critical. Sharma, R. K., (2017).

Surya namaskar involves a series of yoga poses that stretch and flex various muscle groups practicing it regularly can enhance the flexibility of Kabaddi players, allowing them to move more freely and execute agile movements during the game. Surya namaskar requires

precise postural transitions and balance, which can improve overall coordination and balance in Kabaddi players, making them more stable on their feet during the game. Surya namaskar incorporates bodyweight resistance, helping to build and tone muscles. This improved strength can contribute to better tackling and grappling abilities in Kabaddi. The rhythmic breathing techniques (Pranayama) associated with Surya namaskar can improve lung capacity and respiratory efficiency. This enhanced stamina can be advantageous for Kabaddi players who require sustained energy throughout a match. Pranayama, a vital component of Surya namaskar, can help reduce stress and anxiety. Kabaddi players may benefit from improved mental clarity and focus during games, leading to better decision-making and performance under pressure. Dr. B. K. Bhardwaj., (2016).

Ladder drills are an important part of many team sport workouts. They require athletes to move their feet quickly in a precise and specified motion. Athletes must pay attention to perform the agility ladder drills accurately and quickly. Agility ladder drills benefit an athlete by teaching him to move in a swift yet deliberate fashion. This is important for athletes of every shape and size. (www.Buzzle.com) Speed ladder and agility ladder exercises help you move quickly in your chosen sport, ahead of the competition. Speed ladder and agility ladder exercises should be your daily homework assignment when you want to be a standout athlete. If you want to get quicker on the court, you need to think about exercises and agility ladder drills. Just as with anything, practice does make perfect, so make the time and you'll see the results. (www.BetterSoccerCoaching.com)

To present study was also with the aim to improve the motor fitness qualities through surya namaskar in combination with pranayama training (yogic practices) and ladder training. With analyzing various important fitness qualities of the speed and flexibility were selected as criterion variables.

Reviews & Literature

Patel, A. R., (2022). This study investigates the Impact of Surya Namaskar with Pranayama on Motor Fitness Qualities of Kabaddi Players. Structured 12-week Surya Namaskar with Pranayama intervention on the motor fitness qualities of Kabaddi players. A sample of 50 Kabaddi players from the national team participated in the study. The intervention included a daily practice of Surya Namaskar sequences with specific Pranayama techniques. Motor fitness qualities, including speed, agility, strength, and flexibility, were assessed pre and post-intervention. Results indicate significant improvements in all motor fitness qualities, highlighting the potential benefits of incorporating Surya Namaskar with Pranayama into the training regimen of Kabaddi players.

Graydon L. Gains., (2010) was examined the effect of ladder drill weight training and iron yoga on agility, speed, flexibility and vital capacity among college badminton players. To achieve the purpose of the study at college forty male players and they were randomly divided into four groups namely experimental groups I, II & III and control group. Each group consists of ten subjects. The period of study was 24 weeks. ANCOVA was used for statistics. It was concluded that the ladder drill, weight training and iron yoga had significantly improved the agility, speed and flexibility and vital capacity among college badminton players.

Methodology

The purpose of study was to investigate the effect of surya namaskar in combination with pranayama training and ladder training on speed and flexibility among offensive kabbadi players. In order to achieve the purpose of the study thirty women offensive inter collegiate kabbadi players were randomly selected SRM University, Tamilnadu. An inter university kabbadi players and they were equally divided in to three groups of ten each as experimental group-I, experimental group-II and control group. The experimental groups and control group

undergone normal routine kabbadi practices and in addition the experimental group-I underwent surya namaskar in combination with pranayama training and experimental group-II underwent ladder training for one hour in the morning sessions. The control group was not given any special training. The period of training was eight weeks in a schedule of weekly three days for alternate days. The data were collected on the selected dependent variables before and after the training period. The data was collected on the variables of speed and flexibility before and after the training period. Analysis of covariance (ANCOVA) & scheffe's post hoc test was used to analyze the data. To test the significance 0.05 level of confidence was fixed.

Criterion Measures

TABLE - I

Variables	Test	Measurers in Unit
Speed	50mts Run	Seconds
Flexibility	Sit and Reach	Centimeters

Results and Discussion

The analysis of covariance and Scheffe's post hoc test on the data obtained on Speed, Agility of Experimental and Control groups have been analyzed and tabulated in Table-II, Table-III, Table-IV and Table-V.

TABLE-II

ANALYSIS OF COVARIANCE FOR PRE AND POST TESTS DATA ON SPEED OF

	Control Group	SN with Pranayama training	Ladder training	Source of Variance	Sum of Squares	df	Mean Squares	'F' Ratio
Pretest	7.95	7.82	7.79	Between	0.60	2	0.15	0.81
				Within	15.92	42	0.37	
Post test	7.91	7.51	7.49	Between	3.42	2	1.71	5.89*
				Within	12.35	42	0.29	
Adjusted Post test	7.87	7.53	7.51	Between	0.89	2	0.45	7.50*
				Within	2.36	41	0.06	

EXPERIMENTAL AND CONTROL GROUPS

*Significance at 0.05 level, DF 2, 42= 3.22, 2, 41=3.23 (Scores in seconds)

Table II shows that the pretest means on speed of control, of surya namaskar with pranayama training and ladder training groups are 7.95, 7.82 and 7.79 respectively. The obtained 'F' ratio value of 0.81 for pretest mean is less than the required table value of 3.22 for significance at 0.05 level. Hence, it is not significant

The post-test mean on speed of control, surya namaskar with pranayama training, ladder training groups are 7.91, 7.51 and 7.49respectively. The obtained 'F' ratio value of 5.89 for post-test data is greater than the required table value of 3.22 for significance at 0.05 level.

The adjusted post-test mean on speed of control, surya namaskar with pranayama training and ladder training groups are 7.87, 7.53 and 7.51 respectively. The obtained 'F' ratio

value of 7.50 for adjusted post-test data is greater than the required table value of 3.23 for significance at 0.05 level. It reveals that there is significant difference among the groups on speed as a result of surya namaskar with pranayama training and ladder training. The post-hoc test was applied to find out the significant paired mean difference.

Table III

Ordered Scheffes Post Hoc Test for Mean Difference between Groups on Speed

Mean values			Mean Difference	L S
Control	SN with Pranayama training	Ladder training		
7.87	7.53	-	0.34	0.05
7.87	-	7.51	0.36	0.05
-	7.53	7.51	0.02	NS

L S = Level of Significance, C I = Confidence Interval. at 0.05 level: 0.26.

Table III shows that the ordered weighted mean difference of Scheffe's post-hoc test values on speed of the control group surya namaskar with pranayama and ladder training group. The mean difference of speed is significant at 0.05 level of confidence. The Difference in means between control group and surya namaskar with pranayama and control group and ladder training group on speed. Rest of the paired means didn't differ significantly.

TABLE-IV

ANALYSIS OF COVARIANCE FOR PRE AND POST TESTS DATA ON FLEXIBILITY OF EXPERIMENTAL AND CONTROL GROUPS

	Control Group	SN with Pranayama training	Ladder training	Source of Variance	Sum of Squares	df	Mean Squares	'F' Ratio
Pretest	29.37	29.52	29.57	Between	2.91	2	0.97	0.14
				Within	427.88	42	10.16	
Post test	30.60	32.07	32.77	Between	78.97	2	39.49	3.77*
				Within	439.27	42	10.45	
Adjusted Post test	30.77	32.11	32.76	Between	69.60	2	34.80	6.48*
				Within	220.45	41	5.37	

*Significance at 0.05 level, DF 2, 42= 3.22, 2, 41=3.23 (Scores in Seconds)

Table IV shows that the pretest means on flexibility of control, surya namaskar with pranayama and ladder training groups are 29.37, 29.52 and 29.57 respectively. The obtained 'F' ratio value of 0.14 for pretest mean is less than the required table value of 3.22 for significance at 0.05 level. Hence, it is not significant

The post-test mean on flexibility of control, surya namaskar with pranayama and ladder training groups are 30.60, 32.07 and 32.77 respectively. The obtained 'F' ratio value of 3.77 for post-test data is greater than the required table value of 3.22 for significance at 0.05 level.

The adjusted post-test mean on flexibility control, surya namaskar with pranayama and ladder training groups are 30.77, 32.11 and 32.76 respectively. The obtained 'F' ratio value of 6.48 for adjusted post-test data is greater than the required table value of 3.23 for significance at 0.05 level. It reveals that there is significant difference among the groups on flexibility as a result of ladder and surya namaskar with pranayama. The post-hoc test was applied to find out the significant paired mean difference.

Table V

Ordered Scheffes Post Hoc Test for Mean Difference between Groups on flexibility

Mean values			Mean Difference	L S
Control	SN with Pranayama training	Ladder training		
30.77	32.76	-	1.99	0.05
30.77	-	32.11	0.95	0.05
-	32.76	32.11	0.65	NS

L S = Level of Significance, C I = Confidence Interval. at 0.05 level: 0.89.

Table V shows that the ordered weighted mean difference of Scheffe's post-hoc test values on flexibility of the control group, ladder training and surya namaskar with pranayama group. The mean difference of flexibility is significant at 0.05 level of confidence. The Difference in means between control group and ladder training and control group and surya namaskar with pranayama group on flexibility. Rest of the paired means didn't differ significantly.

Discussion

In the resent times surya namaskar with pranayama and ladder training is offered as a better method for developing speed and flexibility. The results and discussions of the present studies proved that the said training procedure was indicate significant improvements in all motor fitness qualities, highlighting the potential benefits of incorporating Surya Namaskar with Pranayama into the training regimen of Kabaddi players. and this study was supported by Patel, A. R., (2022) and they found that said training procedure was beneficent for improving the ladder drill weight training and iron yoga on agility, speed, flexibility and vital capacity among college badminton players and this study was supported the study conducted by Graydon L. Gains., (2010)

Conclusions

From the results of the study and discussion the following conclusions were drawn.

3. There is a significant difference on speed and flexibility between all the groups.
4. There is a significance improvement on speed and flexibility due to surya namaskar with pranayama and ladder training.
5. The present study is mainly focused on females only. The same study may be done on males

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EFFECT OF YOGIC PRACTICES FOR THE IMPROVEMENT IN THE PERFORMANCE AMONG WOMEN ATHLETES SYSTEMATIC REVIEW

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ABSTRACT:
PRIMARY STUDY OBJECTIVE: This article aims to investigate the effect of yogic practices for the improvement in the performance among women athletes.
METHODS/ DESIGN: A systematic literature review was conducted to identify articles that assess the effect of yoga and yoga-related interventions for the improvement of the performance among women athletes. Studies were classified according to the length of the intervention, yoga type, and measures of outcome. The studies were selected throughout last 10years (January 2013 to September 2023) by using the key searching term yoga and women players incorporation with performance level. The selection process followed the Prisma flow diagram populations. Studies were classified according to the length of the intervention, yoga type, and measures of outcome. Totally, 8 articles elaborating on the effects of yoga or yoga-related interventions for the improvement in the performance among women athletes were included in the review. This review included various types of yoga practice (e.g., Hatha yoga, mindfulness yoga, asana, postures).
Results: This review revealed that by practicing yoga have positive effects on women athletes for their sports performance.
CONCLUSION: The reviewed literature indicates, if systematically integrated into with Yogic practices will give potential improvements across physical prowess, mental resilience, and general well-being., thereby enhancing the overall gaming performance.
KEYWORDS: yoga, women athlete, performance, systematic review.
INTRODUCTION: Yoga is a holistic practice that encompasses various physical and mental activities, such as stretching, physical postures, breath control, and meditation (Swain & McGwin.,2016). It originated in ancient India and has gained significant attention from scientific communities over the last 20 years due to its effectiveness in improving muscular strength, endurance, body flexibility, and overall fitness at physical, mental, and emotional levels (Mohanty et al., 2015). In addition to its physical benefits, yoga has been observed to have positive effects on mental well-being, reducing stress and anxiety (Swain & McGwin.,2016) · Yoga is not just a form of exercise; it is also considered a lifestyle that promotes the physical, mental, and spiritual growth of an individual(Metri et al., 2021)

Table 1. Inclusion and exclusion criteria used when selecting articles in the systematic review

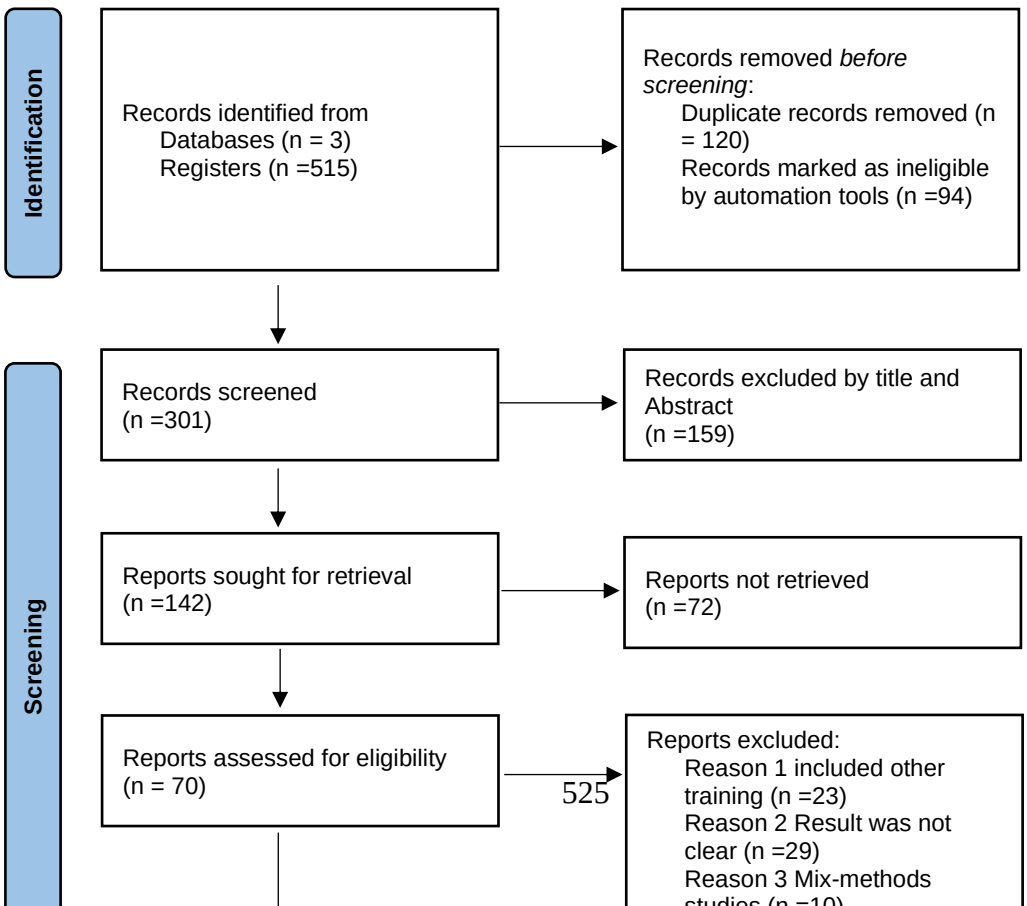
	Inclusion criteria	Exclusion criteria
Population	Women player age 18 -25. Randomized controlled trials, Published in English, Full-text articles.	Athletes who are not considering yoga as the primary intervention..

Intervention/exposure	Yoga based study on women athelete for their performance improvement Empirical or observational, Original studies	Review (systematic review; meta-analysis)longitudinal study (follow-up study or retrospective study); Mixed study methods
Comparison	Contain intervention and controlled groups	Case reports, literature reviews, opinion pieces, and conference proceedings
Outcome	Outcome explain the effect of yogic practices for the improvement in the performance among women athletes.	
Other	Time frame January 2013 to September 2023)	Non-English language studies.

The improvement in the performance among women athletes has become an important area of focus in the sports world(Wing et al., 2021). As the participation and achievements of women in sports continue to increase, there is a growing need to understand the factors that contribute to their performance enhancement and to develop strategies and interventions that can help optimize their athletic potential(Oliveira et al., 2021). Research in this area is crucial to gain a better understanding of the specific training and programming needs of female athletes. The participation of women in high-performance sport has been steadily increasing over the past decade, leading to a greater emphasis on developing the sport among female athletes at the elite level. This increased participation has also led to a greater demand for research on female athletes, as the number of studies conducted within the female population continues to rise(Ojeda-Aravena et al., 2023). This systematic review evaluates the current scientific evidence of yogic practices for the improvement of the performance on women athletes. We hypothesize that yogic practices yoga will have beneficial effects for the improvement of the performance on women athletes. We examined this question across a large range.

METHODS: To examine our hypothesis, we conducted a systematic review.

Databases and Search Terms: The PICO standard was used as a supportive guideline in the study selection. Below Figure shows the PRISMA flow diagram.



Final Reveiws: DISCUSSION OF THE STUDIES:

1.(Patel et al., 2021).Yogic practices have shown potential in improving performance in female athletes. Integrating ancient wisdom of yoga into the competitive world of sports, such as cricket, appears to be promising as a holistic approach in enhancing mind.

2.(Legault et al., 2022).In a study by Faubert, it was demonstrated that sport expertise has a dramatic impact on attentional capacities for processing dynamic scenes.

3.(Li et al., 2019).studies have revealed a beneficial effect of mindfulness-based interventions on athletic performance.

4.(Eva & Thayer, 2017) yogic practices and meditation has been proposed as a promising strategy to manage and prevent athlete burnout. Moreover, yoga has been found to enhance flexibility, balance, and strength, which are essential components of athletic performance. The practice of yoga can also improve mental well-being in female athletes. For instance, a study conducted by Tang and Posner found that mindfulness training improves self-regulation, attention control, and emotional regulation in athletes.

5.(Ahorsu et al., 2021)These findings suggest that incorporating yogic practices, such as exercises and yoga poses, into training regimens can potentially enhance the performance of women athletes. By cultivating mindfulness through yogic practices, female athletes can develop greater focus, emotional regulation, and overall well-being. Furthermore, the integration of yogic practices can also serve as a means for female athletes to maintain a healthy body and mind outside of their athletic pursuits.

6.(Shivanand et al.,2022). The evidence suggests that yogic practices, including mindfulness exercises and yoga poses, have the potential to improve performance in women athletes.

7.(Nien et al.,2020).Mindfulness-based interventions have been shown to enhance sport-associated physiological activations and psychological status indicators, as well as sport performances themselves

8. (Ataabadi et al., 2022).the growing literature on yoga and mindfulness suggests that incorporating these practices into athletic training regimens can have a significant impact on athletes' performance.

CONCLUSION:

"In conclusion, yogic practices have been shown to have a positive impact on the performance among women athletes. By incorporating regular yoga sessions into their training regimen, these athletes have reported increased flexibility, improved mental clarity, enhanced lung capacity, and reduced stress, these benefits provide a competitive edge. Furthermore, yoga's principles of mindfulness and self-awareness have facilitated greater mind-body connection, instrumental in athletic performance. Additional research in this field can further elucidate the scope and mechanisms of yoga’s beneficial effects."

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EFFECT OF VINYASA SURYA NAMASKAR PRACTICES ON SELECTED PHYSICAL AND PHYSIOLOGICAL VARIABLES AMONG ADOLESCENCE

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Abstract
The purpose of the study was to find out the "Physical and physiological adaptations of Vinyasa Surya Namaskar practices among adolescence". To achieve the purpose of the study, fifteen adolescence from SRM IST, Chennai were selected as subjects at random and their ages ranged from 18 to 20 years. The subjects were underwent Vinyasa Surya Namaskar A&B (AVSN) Practices for thrice in a week for 6 weeks. The physical and physiological variable such as abdominal strength, shoulder strength, resting pulse rate and breath holding time were the dependent variables of the study. The collected data were analysed statistically through T test to find out the significant difference.
Key words : Vinyasa surya namaskar, abdominal strength, shoulder strength, resting pulse rate, breath holding time.

Introduction
Surya Namaskar is the Sanskrit name for a specific gathering of twelve yoga asana, likewise called a Sun Salutation. It is one of the most generally acknowledged yoga practices, melded into a couple of exceptional traditions like Hatha, Vinyasa and Ashtanga. The term is gotten from two Sanskrit roots; surya, connoting "sun" and namaskar implying "salutations" or 'greetings'" The word Vinyasa, means flow because of the poses run together in smooth way, and it's a broad classification that encompasses many different types of yoga, including Ashtanga and power yoga.vinyasa is the movement done with a particular breathing action either inhale, exhale, or retention.

Objectives of the study
To find out the significant difference between pre and post test of selected physical and physiological variables among adolescence after Vinyasa suryanaskar practices.

Hypothesis of the study
It was hypothesized that there will be significant variations on physical and physiological variations among adolescence after vinyasa suryanamaskar practices.

Methodology

Selection of Subjects
To achieve the purpose of the study, fifteen adolescence from SRM IST, Chennai were selected as subjects at random and their ages ranged from 15 to 19 years.

Selection of Variables
Independent variables- Vinyasa suryanamaskar training
Dependent variables- The physical and physiological variable such as abdominal strength, shoulder strength, resting pulse rate and breath holding time were the dependent variables of the study.

Experiment Design
For the study single group design was used in which the pre test was taken prior to the Suryanamaskar training and post test was taken after six weeks of Suryanamaskar training. Suryanamaskar were given to subjects on Three days. Each training session consisted of 60 minutes Vinyas suryanamaskar training and one session morning in the day.

Training programme
During the training period the experimental group underwent 6 weeks of Ashtanga Vinyasa Surya Namaskar A&B (AVSN) practices. The duration of training programme was planned for 60 minutes that is from 7.00am to 8.00am on Mondays, Wednesdays and Fridays. All the subjects involved in this study were carefully monitored throughout the training programmes,

Each session 60 minutes consist of 5 min warm up exercise followed by Starting Prayer (2Min) Preparatory Practices-Warm up (13Min) Surya Namaskar–A&B (25Min) Loosening Exercise (5Min) Relaxation (13Min) Closing Prayer (2Min).

Warm up and loosening exercise

Ankle Rolls, Knee Circle, Hip Circles, Sacrum Circles, Pelvic Rotations, Spine Rolls, Spinal Twist

Surya Namaskar (A): Inhale–Urdhva Hastasana, Exhale– Utanasana, Inhale–Urdvah Utanasana, Exhale–Chaturanga Dandasana, Inhale–Urdvah Mukha Svanasana, Exhale–Adho Mukha Svanasana, Inhale–Urdvah Utanasana, Exhale– Utanasana, Inhale–Urdhva Hastasana, Exhale– Samasthiti

Surya Namaskar (B): Inhale–Utkatasana, Exhale– Utanasana, Inhale–Urdvah Utanasana, Exhale–Chaturanga Dandasana, Inhale–Urdvah Mukha Svanasana, Exhale–Adho Mukha Svanasana, Inhale–Virabhadrasana I, Exhale– Chaturanga Dandasana, Inhale–Urdvah Mukha Svanasana, Exhale–Adho Mukha Svanasana, Exhale–Adho Mukha Svanasana, Exhale–Chaturanga Dandasana, Inhale–Urdvah Mukha Svanasana, Exhale–Adho Mukha Svanasana, Inhale– Urdvah Utanasana, Exhale–Utanasana, Inhale–Utkatasana, Exhale–Samasthiti

Statistical Procedure

The data were analyzed by applying descriptive statistical and paired t-test. The level of significance were set at 0.05

Result and Findings of the Study

Paired Samples Test								
	Paired Differences					**t**	**df**	**Sig. (2-tailed)**
	Mean	**SD**	**Std. Error Mean**	**95% Confidence Interval of the Difference**				
				Lower	**Upper**			
PRETESTAS	35.20	5.40	.163	-4.95	-4.24	-28.16	14	.000
POSTTESTAS	39.80	5.33						

t 0.05 (14) = 2.145

Abdominal strength (AS) adolescent test results from SRM IST, Chennai are shown in the table above using a paired t test to compare pre and after test results. The pre-test mean was 35.20, while the post-test mean was 39.80.The pre-test and post-test have standard deviations of 5.40 and 5.33 respectively. Statistical significance is present at the level of 0.05 for the obtained t value of -28.16.

Paired Samples Test								
	Paired Differences					**t**	**df**	**Sig. (2-tailed)**
	Mean	**SD**	**Std. Error Mean**	**95% Confidence Interval of the Difference**				
				Lower	**Upper**			
PRETESTAS	6.86	2.35	.163	-2.95	-2.24		14	.000

POSTTESTAS	9.46	2.58				-15.92		

t 0.05 (14) = 2.145

Shoulder strenth(SS) of adolescent test results from SRM IST, Chennai are shown in the table above using a paired t test to compare pre and after test results. The pre-test mean was 6.86, while the post-test mean was 9.46.The pre-test and post-test have standard deviations of 2.35 and 2.58, respectively. Statistical significance is present at the level of 0.05 for the obtained t value of -15.92

Paired Samples Test								
	Paired Differences					**t**	**df**	**Sig. (2-tailed)**
	Mean	**SD**	**Std. Error Mean**	**95% Confidence Interval of the Difference**				
				Lower	**Upper**			
PRETESTAS	67.13	4.59	.416	2.30	4.09	7.68	14	.000
POSTTESTAS	63.93	4.86						

t 0.05 (14) = 2.145

Resting pulse rate (RPR) adolescent test results from SRM IST, Chennai are shown in the table above using a paired t test to compare pre and after test results. The pre-test mean was 67.13, while the post-test mean was 63.93.The pre-test and post-test have standard deviations of 4.59 and 4.86, respectively. Statistical significance is present at the level of 0.05 for the obtained t value of 7.68.

Paired Samples Test								
	Paired Differences					**t**	**df**	**Sig. (2-tailed)**
	Mean	**SD**	**Std. Error Mean**	**95% Confidence Interval of the Difference**				
				Lower	**Upper**			
PRETESTAS	51.93	5.59	.340	-5.531	-4.068	-14.08	14	.000
POSTTESTAS	56.73	6.16						

t 0.05 (14) = 2.145

Breath holding time (BHT) adolescent test results from SRM IST, Chennai are shown in the table above using a paired t test to compare pre and after test results. The pre-test mean was 51.93, while the post-test mean was 56.73.The pre-test and post-test have standard deviations of 5.59 and 6.16, respectively. Statistical significance is present at the level of 0.05 for the obtained t value of -14.08.

Discussion on findings

The result of the study reveals that pranayama with meditation practices had brought out significant positive changes on breath holding time and respiratory rate. Regular

pranayama and meditation practices increases the amount of oxygen delivered to the tissues and removal of carbon dioxide from the body. The result of the study reveals that pranayama with meditation practices had brought out significant positive changes on breath holding time and respiratory rate. Regular pranayama and meditation practices increases the amount of oxygen delivered to the tissues and removal of carbon dioxide from the body. The result of the study reveals that pranayama with meditation practices had brought out significant positive changes on breath holding time and respiratory rate. Regular pranayama and meditation practices increases the amount of oxygen delivered to the tissues and removal of carbon dioxide from the body. The result of the study reveals that pranayama with meditation practices had brought out significant positive changes on breath holding time and respiratory rate. Regular pranayama and meditation practices increases the amount of oxygen delivered to the tissues and removal of carbon dioxide from the body. The result of the study reveals that vinyasa suryanamaskara practices had brought out significant positive changes on selected physical and physiological variables such as shoulder strength, abdominal strength, resting pulse rate and breath holding time. Because, vinyasa is the movement done with a particular breathing action either inhale, exhale, or retention so resting pulse rate and breath holding time have a positive improvement. While doing vinyasa all the parts body parts are involving in the movements so the shoulder strength and abdominal strength have significant difference. out significant positive changes on breath holding time and respiratory rate. Regular pranayama and meditation practices increases the amount of oxygen delivered to the tissues and removal of carbon dioxide from the body The result of the study reveals that pranayama with meditation practices had brought out significant positive changes on breath holding time and respiratory rate. Regular pranayama and meditation practices increases the amount of oxygen delivered to the tissues and removal of carbon dioxide from the body The result of the study reveals that pranayama with meditation practices had brought out significant positive changes on breath holding time and respiratory rate. Regular pranayama and meditation practices increases the amount of oxygen delivered to the tissues and removal of carbon dioxide from the body The result of the study reveals that pranayama with meditation practices had brought out significant positive changes on breath holding time and respiratory rate. Regular pranayama and meditation practices increases the amount of oxygen delivered to the tissues and removal of carbon dioxide from the body.

Conclusion

The result of the study showed that, after the vinyasa surya namaskar practices there have significant difference in pre and post test on selected physical and physiological variables such as shoulder strength, abdominal strength, resting pulse rate and breath holding time among adolescence.

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