International Federation of
Physical Education, Fitness and
Sports Science Association

IFCSS

ISSN 0975-7732

ASIAN JOURNAL OF PHYSICAL EDUCATION & COMPUTER SCIENCE IN SPORTS

Volume 31, Issue -3
HALF YEARLY
July 2024 to December 2024

A Peer Reviewed (Refereed) International Research Journal

ISRA Journal Impact Factor 5.011
Index Journal of

J-Gate
largest E-Journal Gateway

ISRA JIF

ISSN INTERNATIONAL STANDARD SERIAL NUMBER INTERNATIONAL CENTRE

DRJI

Published by :
Indian Federation of Computer Science in Sports
www.ifcss.in

ABOUT THE JOURNAL

Asian Journal of Physical Education and Computer Science in sports ISSN 0975-7732 (On-line and Print) ISRA Journal Impact factor is 5.011. Journal published Half yearly for the months of March, June, and December. Asian Journal of Physical Education and Computer Science in Sports is multidisciplinary peer reviewed journal, mainly publishes original research articles on Physical Education and Computer Science in Sports, including applied papers on sports sciences and sports engineering, computer and information, health managements, sports medicine etc. The Asian Journal of Physical Education and Computer Science in sports is an open access and print International journal devoted to the promotion of health, fitness, Physical Education and computer sciences involved in sports. The Indian Federation of Computer Science in Sports has been set up the objectives of Dissemination of scientific knowledge concerning computer science in sport and Physical Education. Providing a forum for the exchange of ideas among the Physical Educationists, Coaches, Sports Experts, Sports Science Professionals Etc. It Is a Peer Reviewed (Refereed) International Research Journal. Publisher **Indian Federation of Computer Science in sports, Email:rajesh2sports@gmail.com**

CONTENTS

ISSN 0975--7732
Asian Journal of Physical Education and Computer Science in Sports
Volume No.31, No.3
ISRA Journal Impact Factor 5.011
A Peer Reviewed (Refereed) International Research Journal

A Critical Study on Comparison of Motor Ability among Kabaddi and Kho-Kho Women Players of North Telangana Region

Dr. Anitha
Physical Director
Govt. Degree College,Utnoor, AdilabadDist.Telangana
Email:anithab311@gmail.com

Abstract:

The Purpose of the study was to find out the Comparison of upper body strength among Kabaddi and KhoKho Women Players of North Telangana Region.The Sample for the study consists of 50 Kabaddi Women Players and 50 Kho-Kho Women Players of North Telangana Region.to assess the Motor Ability (Upper Body Strength) and Basket Ball throw test was conducted among the kabaddi and Kho-Kho Women Players of North Telanga region. Hence, it is concluded that kabaddi players had more upper body strength than kho-kho players . Hence it is recommended that the Upper Body Strength training must be given to the both the players to enhance their performance.**Key words**: Kabaddi, Kho-Kho, Upper body Strength

1.Introduction:

Physical activity and exercise can have immediate and long-term health benefits. Most importantly, regular activity can improve your quality of life. Sports and games play a major rule in keeping a person fit and fine. Furthermore, it increases the blood flow in the entire body. So this helps in keeping the heart in the best condition. Moreover, the immunity of the body increases by playing outdoor sports. Also, it helps in keeping your body fat percentage low. This makes the appearance of the body better and makes a person good-looking.

Kabaddi, also known as kabbadi or kabadi, is a popular contact sport played by two teams on opposite halves of the field. Each team has seven players and the objective of the game is for a single player on offence, called a raider, to run into the opposing team part of the filed and tag out as many of their defenders as possible. When they cross onto the other team's side, riders repeat 'kabaddi, kabaddi'. The player has to return in its own half of the field in a single breath, without being tackled by the defenders. Points are given for each player that the

raider successfully tagged, while the other teams earns points if they can stop the raider. Also, the players are out of the game if they are tackled or tagged, if they step out of the field or if they stop chanting, but can be brought back for each point scored by their team for the same actions.

Ancient records are evidence of the fact that Kho-Kho has been played by the people of the Indian subcontinent since the prehistoric ages. The exact roots of Kho-Kho have been difficult to determine by historians. However, Maharashtra is believed to be its birthplace and in those ancient times, it was known by the name Rathera. Several references to the game of Rathera could be found in tales of the epic Mahabharata and since then the game of Kho-Kho has been modified and suited to different standards. The present game of Kho-Kho has been adopted from the styles prevalent in the times of World War 1 around 1914. Kho-Kho, as mentioned earlier, is played by teams of 12 members. Nine of them are called the chasing team, who enter the field and sit with their knees on the ground. The remaining three form the defending team who try to pass by without being touched by the opposing team members.

1.1.General Motor ability:

We define General Motor Ability as a capacity to learn, control and perform motor skills across the lifespan. he five basic motor skills are walking, running, jumping, standing and sitting. A few reasons why motor skills are important are They make a person able to move and complete tasks efficiently. Motor skill development supports cognitive, speech, and sensory development.

1.2.Objective of the Study:

The Objective of the study is to comparison of Motor ability(Upper body strength) among Kabaddi and Kho-Kho Women Players of North Telangana Region.

2.0.Methodology:

The purpose of the study was to find out the motor ability (upper body strength) of Kabaddi andK-kho women players of North Telangana Region. The sample of the study consists 50 Kabaddi and Kho-Kho women players of North Telangana Region age group of 18-25 years at college level.

2.1.Purpose

The basketball throw was designed to gauge the upper body strength needed to throw the ball as far as possible with the greatest amount of force.

2.2.Equipment

Basketball, tape and lime powder

2.3.Procedure

The subject placed to stand behind the restricted line, be ready with the basketball in hand, she has thrown the maximum distance. The assistant measures and records the distance from the restriction line. The subject repeats the test 3 times.

2.4.Score

Basketball throw will be assessed by the distance covered through throwing or restriction line in meters. The throw will be recorded as the score of the subject.

3.RESULTS AND DISCUSSION:

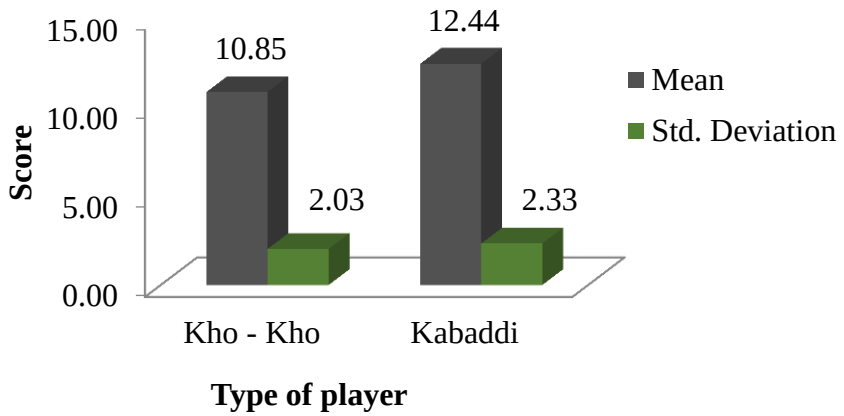
This study shows that Kabaddi players were having better Upper Body Strength than Kho-Kho Women players.The collected data were statistically analyzed by using ANOVA test. In this case 5% level of significance was used to test the hypothesis. It is concluded that there was a significant difference exists between Kabaddi and Kho-Kho women players on selected motor ability Upper body strength.

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Among Groups	62.584	1	62.584	13.084	.000
Between Groups	468.740	98	4.783		
Total	531.324	99			

ANOVA's table shows that the calculated F-Value is 13.084, with a significance level of 0.0000.05, and the 5% level of significance with (1, 98) degrees of freedom. Here, concluded that there is a significant Upper Body Strength mean difference among kabaddi and Kho – Kho women players in north Telangana region. Kabaddi players were better performing than Kho – Kho Players based on mean scores.

Upper Body Strength (Basketball throw)



*Note.**Significant (P<0.05).

4.Conclusion:

This study shows that the Kabaddi Women players have better upper body strength(Basket Ball throw) than Kho-Kho Women players.

5.Recommendations:

It is recommended that similar studies can be conducted on other events. This type of study is useful to coaches to give proper coaching for development of motor qualities for improvement of performance in Kabaddi and kho-kho women players. This study can also implemented on male kabaddi and kho-kho players the same

References

Pawar Anand Diwan (2021)comparative study is related Kho-Kho gamers in terms of physiological variables. In the prevailing investigation, Kho-Kho gamers were the fields of examines in the prevailing study Kho-Kho players of Dhule district.

A.KamalaCannane, D.Sakthignanavel(2017) conducted a study to analyse the factors correlated to the playing ability of the university level Kho-Kho players.

.

ISSN 0975--7732
Asian Journal of Physical Education and Computer Science in Sports
Volume No.31, No.3
ISRA Journal Impact Factor 5.011
A Peer Reviewed (Refereed) International Research Journal

EFFECT OF SAND AND AEROBIC TRAINING PACKAGES ON MUSCULAR STRENGTH AND CARDIOVASCULAR ENDURANCE AMONG THE COLLEGE SOCCER PLAYERS

Dr. SORAISHAM SUNILKUMAR SINGH
Assistant Professor & Football Coach, Department of Physical Education
National College (Autonomous)Tiruchirappalli-620001
Affiliated to Bharathidasan University, Tiruchirappalli-620024
soraishamsunilkumar@gmail.com

Abstract

This study was designed to investigate the effect of sand and aerobic training packages on muscular strength and cardiovascular endurance among the college soccer players. To achieve the purpose of the study (N=60) sixty men students were selected from National College, Tamilnadu, India as subjects. The age of the subjects ranged from 18 to 24 years. The selected subjects were divided into three equal groups (N=20). Group I underwent sand training. Group II underwent aerobic training. Group III acted as control group who did not undergo any specialized training program other than their daily routine. The muscular strength and cardiovascular endurance. Were selected as dependent variables and they were assessed by push ups, cooper's 12 min run/walk test respectively. The subjects were concerned with their particular training for a period of six weeks, six days per week. The collected data from three groups prior to and immediately after the training programme on selected criterion variables were statistically analysed with analysis of covariance (ANACOVA). The level of confidence was fixed at 0.05 for all the cases to test the hypothesis. The result of the study reveals that sand and aerobic training groups achieved significant improvement on selected muscular strength and cardiovascular endurance men students.Keywords: Sand Training, Aerobic Training, Muscular Strength and Cardiovascular Endurance etc.

Introduction

Soccer was known as globe's greatest famous team sport it terms for either participation as well as viewers. A game which has easy regulations especially fundamental tools might be play practically anyplace, between a professional soccer pitch to gyms, avenues, playgrounds at schools, gardens or beach. The activity of soccer is filled with difficulties as well as counter-challenges for the competing sides. Several unexpected scenarios arise throughout the activity. The efficacy of is determined by the abilities of the separate players, collaboration among other players, and, most importantly, the disposition of players onto their team's interests **(Kubendran, C. (2016).**

Sand exercise on a naturally damp and difficult soil. This involves exercising on damp sand located near the water. A lowering sea level provides a firm stuffed flat ground while running away. When fluids reduce, the sand thickens. Sand training allows them to race closer towards the density of water border, providing a stronger ground than softer dry ground. Several beaches had especially low weather, which permit tougher surfaces beyond the border of seawater to run while remaining on stuffed sand.

Sand training Beaches is a fantastic spot for people across all walks of life to enjoy fresh air. Lovely sandy beach is teeming with clean and fresh air, soft noises of beautiful ocean, as well as the silky soil behind one's feet, allowing for limitless activity. Lack of any type of equipment, it is possible to perform limitless activities on soil. Workout on the shore will provide health advantages to players of any age, professionals, and those having health issues or injuries, as well as older adults and those who want to have fun. One of the best strategies is to mix Sand Training (ST) with daily tasks to improve someone's overall health and wealth **(Jason P Shea, 2014).**

An aerobic workout refers to or increases a person's intake of oxygen. Aerobic means "through oxygenation" and relates to the effective utilisation of air within the human body's metabolism or energy-generating processes. There are numerous types of aerobic activity that are done at a moderate pace for a prolonged period of times. To get the best benefits, an aerobic session includes a warming up time, beginning with a minimum of twenty minutes of moderately to vigorous activity using the main muscles, and a cool decreased phase at ending **Arul.S, (2014).**

Methodology

To achieve the purpose of the study (N=60) sixty men students were selected from National College, Tamilnadu, India as subjects. The age of the subjects ranged from 18 to 24 years. The selected subjects were divided into three equal groups (N=20). Group I underwent sand training. Group II underwent aerobic training. Group III acted as control group who did not undergo any specialized training program other than their daily routine. The muscular strength and cardiovascular endurance. Were selected as dependent variables and they were assessed by push ups, cooper's 12 min run/walk test respectively. The subjects were concerned with their particular training for a period of six weeks, six days per week. The collected data from three groups prior to and immediately after the training programme on selected criterion variables were statistically analysed with analysis of covariance (ANACOVA). The level of confidence was fixed at 0.05 for all the cases to test the hypothesis.

Table I: Selected Variables and Their Tests

SL.No	Variables	Test	Unit of Measurements
1	Muscular Strength	push ups	In Counts
2	Cardiovascular Endurance	cooper's 12 min run/walk	In Meters

Table II: Computation of Analysis of Covariance of Means of Sand Training, Aerobic Training and Control Group on Muscular Strength and Cardiovascular Endurance.

Variables	Test	Sand Training	Aerobic Training	Control Group (CG)	Source of Variance	Sum of Square	df	Mean Squares	'F' Ratio
Muscular Strength	Pre Test	3.76	3.84	3.76	Between	0.07	2	0.03	4.65*
					Within	0.42	57	0.01	
	Post Test	3.81	3.84	3.81	Between	0.01	2	0.01	0.760
					Within	0.42	57	0.01	
	Adjusted Post Test	3.85	3.80	3.85	Between	0.03	2	0.01	17.51*
					Within	0.04	56	0.001	
Cardiovascular Endurance	Pre Test	1416.67	1418.33	1425.33	Between	634.44	2	317.22	0.96
					Within	18790.0	57	329.65	
	Post Test	1465.33	1590.00	1427.67	Between	216563.33	2	108281.67	271.70*
					Within	22716.67	57	398.54	
	Adjusted Post Test	1466.58	1590.64	1425.78	Between	219012.26	2	109506.13	302.78*
					Within	20253.37	56	361.67	

***Significant at 0.05 level of confidence**

Table value for df (2.27) at 0.05 level of confidence for 2 and 57 (df) = 3.16, 2 and 56 (df) 3.16. The pre, post-test and adjusted post-test mean values of Muscular Strength on Sand Training Group (STG), Aerobic Training Group (ATG) and Control Group (CG) were 3.16, 3.84, 3.76; 3.81, 3.84, 3.81; and 3.85,3.80, 3.85 respectively.

The pre, post-test and adjusted post-test mean values of Cardiovascular Endurance on Sand Training Group (STG), Aerobic Training Group (ATG) and Control Group (CG) were 1416.67, 1418.33, 1425.33; 1465.33, 1590.00, 1427.67; and 1466.58, 1590.64, 1425.78 respectively. The obtained F values of adjusted post-test were greater than the table value of 3.16. Hence it was proved that there were significant improvements on Muscular Strength and Cardiovascular Endurance of college men soccer players.

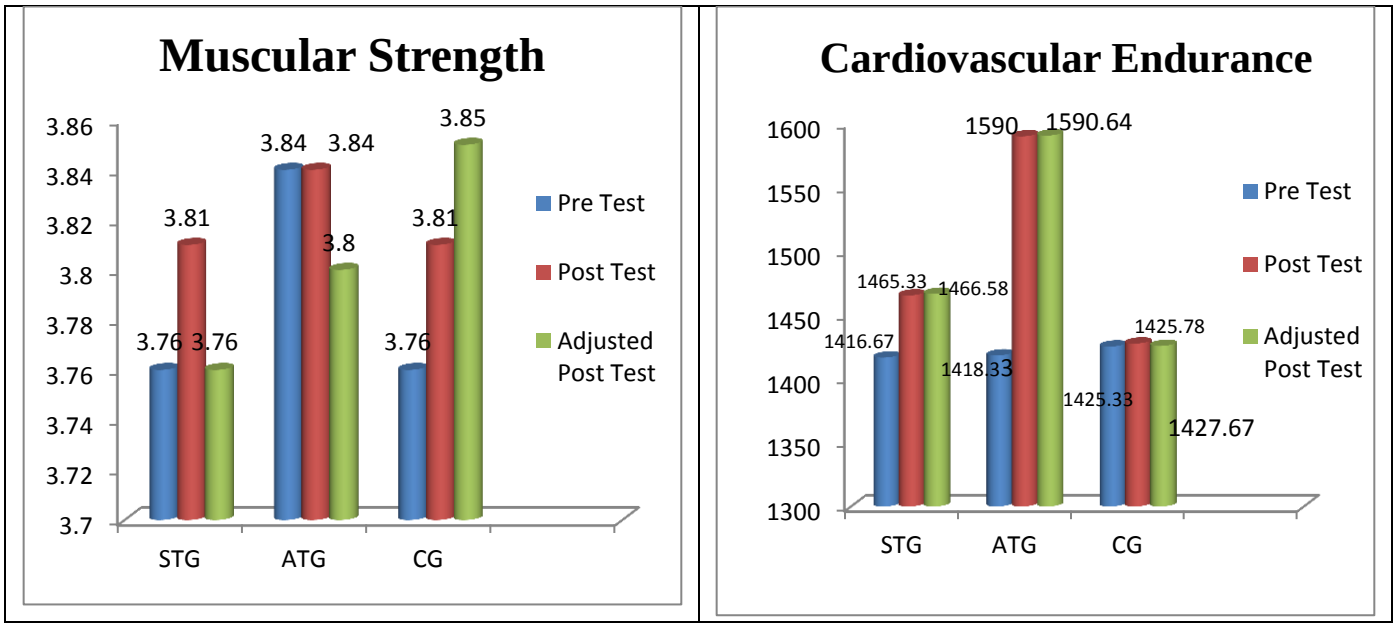


Figure - I: Pre, Post and Adjusted Post Test Means of Sand Training, Aerobic Training and Control Group on Muscular Strength and Cardiovascular Endurance.

Discussion of Findings

The result of the study indicates that the experimental group namely as sand and aerobic training had significantly improved in the selected dependent variables namely as muscular strength and cardiovascular endurance. It is also found that the improvement caused by sand and aerobic training was better when compared to control group.

Conclusions

The experimental group's namely as sand and aerobic training had achieved significant improvement on selected the muscular strength and cardiovascular endurance when compared to control group.

It was concluded that sand training as better improvement when comparing to the aerobic training groups on selected the muscular strength and cardiovascular endurance.

It was concluded that college level player should practice both sand training and aerobic training for positive enhancement of playing.

References

Arul S. (2014)."Effect of Aerobic Interval Training on Cardio Respiratory Endurance and Resting Pulse Rate among University Men Football Players". International Journal of Recent Research and Applied Studies, Volume-1, Issue- 3(14), Pg.No: 55 – 57.

Kubendran, C (2016), Effect of Isolated and Combined Sand and Offshore Training on Selected Motor Fitness Physiological and Performance Variables among Inter Collegiate Football Players.

Shea, P., Hayes, S., Uzuner-Smith, S., Gozza-Cohen, M., Vickers, J., &Bidjerano, T. (2014). Reconceptualizing the Community of Inquiry Framework: An Exploratory Analysis. The Internet and Higher Education, 23, 9-17.

Thiruvangadam, S., &Mohanakrishnan, R. (2023). Merged Impact Of Yogic Practice And Interval Training On Flexibility And Resting Heart Rate Of Middle Age Armed Reserve Police Men In Cuddalore District. *Korean Journal of Physiology and Pharmacology*, *27*(2), 33-36.

ISSN 0975--7732
Asian Journal of Physical Education and Computer Science in Sports
Volume No.31, No.3
ISRA Journal Impact Factor 5.011
A Peer Reviewed (Refereed) International Research Journal

A Comparative Study on Physical Fitness Variables of Post Graduation Kabaddi Specialization Students

Huliraja G
Research Scholar
Vijayanagara Sri krishanadevaraya University Ballari
Department of Physical Education and sports Science
Dr. Sampath Kumar
Assistant Professor
Vijayanagara Sri krishanadevaraya University Ballari
Department of Physical Education and sports Science

Abstract

The main purpose of the study was compared the Physical Fitness variables between I year Mped and II year Mped Kabaddi specialization students of age group 23-26 years. The Physical fitness variables included Cardio Vascular Endurance, Flexibility, Strength, Speed and Agility. Data were collected from 60 subject 30 from I year Mped kabaddi and specialization students and 30 II year Mped kabaddi specialization students. The collected data was analyzed with SPSS and the output was presented. The descriptive analysis of data had revealed that in terms of Physical fitness of I year Mped kabaddi specialization students are better than II year Mped kabaddi specialization students are better in terms of physical fitness. The independent t-test was used as the groups were of separate identity.

Keywords: Physical Fitness, endurance, flexibility, strength, speed, agility etc.

Introduction

Kabaddi is on of the most popular sports in Indian sport of the kabaddi has a long history According to Ron joy seen his nation of play Kabaddi originated Between 1500 BC & 500 BC assumed that there or stories of Gautama Buddha and lord Krishna practicing the ancient sport according to the Orgin of the sport kabaddi is a sport that developed as Jallikattu kabaddi is a high intensity contact sport that demands a unique combination of physical fitness attributes, including strength endurance flexibility coordination. The game involves alternating between attacking and defending roles kabaddi specialization students typically young athletes who pursue training in sport. face unique physical demands that differ from

other sports. These athletes are often subjected to rigorous training regimens that aim to enhance their physical fitness and game-specific skills. Understanding how these fitness variables impact their performance could help in designing more effective training programs tailored to Kabaddi. This study aims to explore and evaluate the key physical fitness variables among Kabaddi specialization students, specifically focusing on strength endurance flexibility coordination how cardiovascular endurance, muscular strength, agility, and speed, and contribute to their overall performance in the sport. By identifying the correlations between these physical fitness components and Kabaddi performance, the study seeks to provide insights into the importance of each variable and how they can be optimized for improved athletic performance. Ultimately, the findings of this study may provide valuable recommendations for coaches, trainers, and sports institutions to develop training programs that target the most crucial physical fitness aspects for Kabaddi players, thereby enhancing their performance and reducing the risk of injury

Statement of the problem

The main problem of this study is to compare the physical fitness variables between I year and II year MPEd kabaddi specialization students.

Delimitations

1. The study was delimited to 23 – 26 age group only.
2. The study was delimited to VSKU Dept of physical education and sports science MPEd students only.
3. The study was delimited to 30 I year MPEd and 30 II year MPEd specialization totao 60 students only.
4. The study was further to the physical fitness such as (endurance flexibility strength speed agility)

Methodology

In this chapter the procedure adopted for selection of subjects, experimental design , variables of the study, selection of test, instrument reliability, orientation of the subjects and testers test administration, collection of data and statistical analysis were described

Selection of the subjects

The study was contented to the I year MPEd specialization students 30 and II year MPEd specialization students 30 VSKU Dept of physical education and sports science Ballari. Age group from 23-26 years respectively.

Table no: 1 Selection of the subjects

Si No	Groups	Total Students
1	I year MPEd	30
2	II year MPEd	30
	Total	**60**

Selection of the variables

The following test items were selected to measure the physical fitness variables.

Table No: 2 Selection of the variables

Si no	variables	Tool/test	Measuring unit
1	Endurances	12 min run and walk	Time /second
2	Flexibility	Sit & reach test	Cm
3	Strength	Standing broad jump	Meter /centimeter
4	Speed	50meter dash	Time / second
5	agility	Shuttle run	Time / second

Administration of The Test

Researcher has conducted as standardized norms of the all Physical fitness variables test for collection of the data.

Analysis And Interpretation Of The Data

The analysis of the data was presented in this chapter. The data for physical fitness variables were collected from vsk university dept of physical education and sports science I year MPEd 30 students and II year MPEd 30 students Bellary District in Karnataka. The subject's age group from 23 to 26 years respectively,

Table No: 3 Descriptive statistics of physical Fitness Variable Between I year and II year MPEd specialization students

Variables	**Group**	**N**	**Mean**	**Std deviation**	**Std error mean**
Endurance	I year	30	1.65	0.516	0.094
	II year	30	1.88	0.459	0.083
Flexibility	I year	30	43.40	5.01	0.915
	II year	30	41.51	4.37	0.798
Strength	I year	30	1.73	0.190	0.034
	II year	30	1.63	0.177	0.032
Speed	I year	30	7.90	0.847	0.154
	II year	30	8.21	0.835	0.152
Agility	I year	30	23.48	1.29	0.237
	II year	30	24.14	1.56	0.285

Interpretation

From the above table 3 gives Descriptive statics such as mean, standard deviation and standard error of physical fitness between I year and II year MPEd specialization students.

Endurance: the mean standard deviation and standard error of physical fitness variables of endurance for I year MPEd specialization students1.65,516 and .094 respectively. On other II year MPEd specialization students 1.88,.459 and .083 respectively.

Flexibility: the mean, standard deviation and standard error of physical fitness variables of flexibility for I year MPEd specialization students 43.40, 5.01 and .915 respectively. On other II year MPEd specialization students 41.51, 4.37 and .798 respectively.

Strength: The Mean, Standard Deviation and Standard Error of physical Fitness variables of strength for I year MPEd specialization students 1.73, 190 and 034 respectively. On other hand II year MPEd specialization students 1.63, .177 and 032 respectively.

Speed: The Mean, Standard Deviation and Standard Error of physical Fitness variables of cardiovascular endurance for I year MPEd specialization students 7.90, .847 and 154 respectively. On other hand II year MPEd specialization students 8.21, 835 and 152 respectively.

Agility: The Mean, Standard Deviation and Standard Error of physical Fitness variables of cardiovascular endurance for I year MPEd specialization students 23.48, 1.29and 237 respectively. On other II year MPEd specialization students 21.14, 1.56 and 285 respectively.

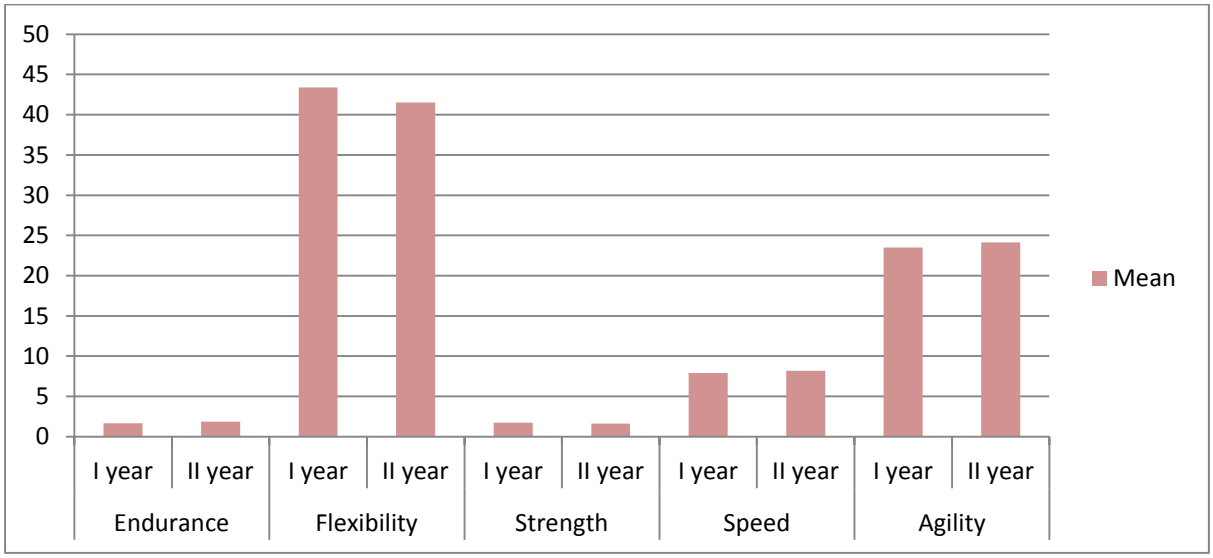


Figure:1

Descriptive statistics of physical Fitness Variable Between I year and II year MPEd **specialization students**

Table No: 4T test for physical Fitness Variables of endurance flexibility strength speed and agility Graduation Kabaddi Specialization Students.

Variables	Group	N	Mean	SD	Df	T	Sig
endurance	I year	30	1.65	.516	58	-1.794	.041
	II year	30	1.88	.459			
Flexibility	I year	30	43.40	5.01	58	1.553	.556
	II year	30	41.51	4.37			
Strength	I year	30	1.73	.190	58	1.953	.843
	II year	30	1.63	.177			
speed	I year	30	7.90	.847	58	-1.453	.953
	II year	30	8.21	.835			
Agility	I year	30	23.48	1.29	58	-1.766	.596
	II year	30	24.14	1.56			

***Significance 0.05**

Inference: above table 2. Displays the mean and standard deviation of Physical Fitness Variable of Endurance between I year MPEd specialization students. are 1.65 and.516 respectively and II year MPEd specialization students. arel.88 and .459 respectively. And t ratio for Cardiovascular Endurance is -1.794. Flexibility between and I year MPEd specialization students. are 43.40 nd 5.01 respectively and II year MPEd specialization students. are 41.51 and 4.37 respectively. and t ratio for flexibility is 1.553. Strength between I year MPEd specialization students are 1.73 and .190 respectively and II year MPEd specialization are 1.63 and 177 respectively. and t ratio for Strength is 1.953. Speed between I year mped specialization students are 7.90 and .847 respectively and II year MPEd specialization students are 8.21 and 835 respectively. It is and t ratio for Speed is -1.453. Agility between I year MPEd specialization students. are 23.48 and 1.29 respectively and II year MPEd specialization students. are 24.14 and 1.56 respectively. and t ratio for Agility is -1.766 with all variables 58 degrees of freedom. Further 0.05, at 5% level of significance. Hence, it is concluded that there is no significant difference in level of all varibles between I year mped and II year MPEd specialization students.

Conclusion

The study highlights distinct physical fitness variable between I year Mped and II year MPEd players, emphasizing the unique demands of each sport physical fitness variable I MPEd players may exit a greater emphasis on aerobic fitness due to continuous nature of the game, while II Year MPEd players may focus more on anaerobic fitness with short bursts of intense activity. On the based of the analyzed data the following conclusions The analysis of the Physical fitness data of MPEd students has revealed that the significant difference was found of cardiovascular Endurance, Flexibility, Strength, Speed and Agility. the obtained t-value was higher than 0.05. in case of the difference between I year Mped and II year MPEd students was found to be significant. The results have revealed that the setup of Specialization Class and the culture along with has an impact on the various dimensions of an individual.

Reference

AAHPERD (1980). AAHPER Youth Fitness Test Manual, Reston V.A: AAHPERD Publications.

Agarwal, J.C. (1975). Educational Research, New Delhi: Agra book Depot.

Andrews, Barry Craig. (1976). Physical Fitness Level of Canadian and South African School Boys. Dissertation abstracts international, 36,9,5912.

Bucher, Charles A. and Wuest, Deborah A. (1987). Foundation of Physical Education and Sport, 10th edition, St.Louis: Mosby College Publishing, P.56.

A Comparative Study of Government and Private School Students. (2016). The International Journal of Psychology ISSN, 3062(52),2348-5396.

Kumar A, Singh N. Comparative study of physical fitness of government and non-government school boys. International journal of behavioral social and movement sciences 2012:4(1):18-22.

Ealph Loyd. Comparision of Physical Fitness of Negro and White Boys of Same Texas District, Dissertation Abstract International, 1991, P. 2464-A.

Adel M Elnasher. A Study of AAHPERD Youth Fitness Test Resulting for Egyptians Male and Females", Completed Research in Health, Physical Education and Recreation 1992:24:111.

MA, Koppes LL, Kemper HC, Monyeki KD, Toriola AL, Pienaar AE, et al. Body composition and physical fitness of undernourished South African rural primary school children. Eur J Clin Nutr 2005;59(7):877-83.

Mookherjee S. A Study of Physical Fitness of Boys 13-17 years of age, SNIPES Journal, 1988, 1.

ISSN 0975--7732
Asian Journal of Physical Education and Computer Science in Sports
Volume No.31, No.3
ISRA Journal Impact Factor 5.011
A Peer Reviewed (Refereed) International Research Journal

AN ANALYTICAL STUDY ON CORE STRENGTH TRAINING AND ANAEROBIC TRAINING ON DEVELOPING ENDURANCE AND AGILITY AMONG UNIVERSITY MALE KHO KHO PLAYERS IN TELANGANA REGION

Dr. B. Srinivas
Assistant Professor, Department of Physical Education & Sports ,
Mallareddy University-Hyderabad, Telangana.

Abstract:

The purpose of this study was to find out An analytical study on core strength training and anaerobic training on developing Endurance and Agility among university male Kho Kho players in Telangana region. The randomly selected ninety (90) university male students from three various colleges in Telangana State was selected as subjects and their age ranged between 22-26 years. The subjects were equally divided into three equal groups experimental group 1,2 and control group. And the investigator took pretest data. Then gave a Core strength and Anaerobic training three days per week and each session consisted of one hour for twelve weeks. The pretest and post test data were collected pre training and immediately after the training. The Endurance and Agility were measured by administering by Standardized test items such as 12minutes runing/walking and shuttle run tests respectively. These data were statistically recorded and examined by appropriate tests. The level of significance as fixed at 0.05 level. The analysis of the data concluded that there is a significant effect of core strength and anaerobic training on experimental group1,2 than the control group in relation to Endurance and Agility of the university students of Telangana region.**Key words:** Core strength Training, Endurance and Agility**.**

INTRODUCTION:

Core Strength Training, Core exercises are an important part of a well-rounded fitness program. A side from occasional sit ups and push ups, however, core exercises are often neglected. Still, it pays to get your core muscles — the muscles around your trunk and pelvis — in better shape. Read on to find out why Core Exercises Improve Your Balance and Stability Core exercises train the muscles in your pelvis, lower back, hips and abdomen to work in harmony. This leads to better balance and stability, whether on the playing field or in daily activities. In fact, most sports and other physical activities depend on stable core muscles. Core exercises can help tone your abs Want more-defined abdominal muscles? Core exercises are important. Although it takes aerobic activity to burn abdominal fat, core exercises can strengthen and tone the underlying muscles.

Anaerobic training, Anaerobic exercise is a type of exercise that breaks down glucose in the body without using oxygen; anaerobic means "without oxygen". In practical terms, this means that anaerobic exercise is more intense, but shorter in duration than aerobic exercise.

OBJECTIVES:

- To assess the effect of Core Strength training and Anaerobic training methods in developing Endurance among university male Kho Kho players in telangana region.
- To assess the effect of Core Strength training and Anaerobic training methods in developing Agilty among university male Kho Kho players in telangana region.

HYPOTHESES:

- It was hypothesized that there would be a significant effect of Core strength training and Anaerobic training on development of Endurance of among university male Kho Kho players in telangana region.
- *It was hypothesized that there would be a significant effect of Core strength training and Anaerobic training on development of Agility of among university male Kho Kho players in telangana region.

METHODOLOGY:

For the purpose of this study ninety (90) University male students were randomly selected as subjects from Sri Venkateshwara B.P.Ed. college, Vinayaka college of physical education, BVK college of physical education, Telangana State and their age ranged between 22-26 years. The ninety (90) University male students divided into three equal groups 30 each namely Experimental1,2 and control groups. And the experimental groups underwent for Core Strength training and Anaerobic training three days per week on alternate days i.e., Monday, Wednesday and Friday and each session consisted of one hour for twelve weeks. The pretest and post test data were collected prior to training and immediately after the training. The Endurance and Agility were measured by administering by Standardized test items such as 12minutes runing/walking and shuttle run tests respectively. These data were statistically recorded and examined by appropriate tests. The level of significance as fixed at 0.05 level of confidence which was considered as appropriate.

Results & Discussions:

Table -1. ANCOVA RESULTS ON EFFECT OF CORE STRENGTH TRAINING AND ANAEROBIC TRAINING COMPARED WITH CONTROLS ON ENDURANCE (12minutes runing/walking)

	CORE STRENGTH TG	**ANAEROBIC TG**	**CG**	**VARIANCE'S SOURCE**	**AVERAGE SQUARES**	**df**	**SQUARES IN MEAN**	**OBTAINED F**
Pre test mean	2243	2227	2246	Between	5887	2	2943	0.19
				Within	1352103	87	15541	
Post Test Mean	2412	2407	2273	Between	374842	2	187421	11.15
				Within	1462097	87	16806	
Adjusted Post Test Mean	2408	2418	2266	Between	430235	2	215117	61.94
				Within	298662	86	3473	
Mean Diff	169	180	27					

Table F-ratio at 0.05 level of confidence for 2 and 87 (df) =3.10, 2 and 86 (df) =3.10.*Significant

As shown in Table -1, the obtained pre test means on Endurance on core strength training group was 2243, anaerobic training group was 2227 and control group was 2246. The obtained pre test F value was 0.19 and the required table F value was 3.10, which proved that there was no significant difference among initial scores of the subjects. The obtained post test means on Endurance on core strength training group was 2412, anaerobic training group was 2407 and control group was 2273. The obtained post test F value was 11.15 and the required table F value was 3.10, which proved that there was significant difference among post test scores of the subjects.

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 61.94 was greater than the required value of 3.10 and hence it was accepted that there was significant differences among the treated groups. Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table - 2.

Table – 2. Multiple Comparisons of Paired Adjusted Means and Scheffe's Confidence Interval Test Results on Endurance

MEAN				required . C I
Core Strength TG	Anaerobic TG	CG	Md	
2408	2418		-9.53	38.19
2408		2266	141.81*	38.19
	2418	2266	151.34*	38.19

***** Significant

The post hoc analysis of obtained ordered adjusted means proved that there was significant differences existed between core strength training group and control group (MD: 141.81). There was significant difference between anaerobic training group and control group (MD: 151.34). There was significant difference between treatment groups, namely, core

strength training group and anaerobic training exercises group. (MD: -9.53).

Table -3. ANCOVA RESULTS ON EFFECT OF CORE STRENGTH TRAINING AND ANAEROBIC TRAINING COMPARED WITH CONTROLS ON AGILITY (SHUTTLE RUN)

	CORE STRENGTH TG	**ANAEROBIC TG**	**CG**	**VARIANCE'S SOURCE**	**AVERAGE SQUARES**	**df**	**SQUARES IN MEAN**	**OBTAINED F**
Pre test mean	10.80	10.92	10.96	Between	0.41	2	0.20	1.11
				Within	16.02	87	0.18	
Post Test Mean	10.54	10.78	10.96	Between	2.60	2	1.30	9.20*
				Within	12.30	87	0.14	
Adjusted Post Test Mean	10.62	10.76	10.90	Between	1.15	2	0.57	58.37*
				Within	0.85	86	0.01	
Mean Diff	-0.26	-0.14	0.00					

Table F-ratio at 0.05 level of confidence for 2 and 87 (df) =3.10, 2 and 86 (df) =3.10.

*Significant

As shown in Table - 3, the obtained pre test means on Agility on core strength training group was 10.80, anaerobic training group was 10.92 and control group was 10.96. The obtained pre test F value was 1.11 and the required table F value was 3.10, which proved that there was no significant difference among initial scores of the subjects. The obtained post test means on Agility on core strength training group was 10.54, anaerobic training group was 10.78 and control group was 10.96. The obtained post test F value was 9.20 and the required table F value was 3.10, which proved that there was significant difference among post test scores of the subjects.

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 58.37 was greater than the required value of 3.10 and hence it was accepted that there was significant differences among the treated groups. Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table 4.

Table – 4. Multiple Comparisons of Paired Adjusted Means and Scheffe's Confidence Interval Test Results on Agility

MEAN				required . C I
Core Strength TG	Anaerobic TG	CG	Md	
10.62	10.76		-0.14*	0.06
10.62		10.90	-0.28*	0.06
	10.76	10.90	-0.14*	0.06

***** Significant

The post hoc analysis of obtained ordered adjusted means proved that there was significant differences existed between core strength training group and control group (MD: -0.28). There was significant difference between anaerobic training group and control group (MD: -0.14). There was significant difference between treatment groups, namely, core strength training group and anaerobic training exercises group. (MD: -0.14).

References:

- Erika Zemkoka and Ludmila Zapletalova (2021) studied the Back Problems: Pros and Cons of Core Strengthening Exercises as a Part of Athlete Training.
- G Tamilselvan, D Nandagopal and Dr. RG Giridharaprasath (2021) studied the Effect of aerobic and anaerobic exercise programme on selected physical fitness components among college women International Journal of Physical Education, Sports and Health.
- M.Biçer (2020) The effect of an eight-week strength training program supported with functional sports equipment on male volleyball players‘ anaerobic and aerobic power Science & Sports.
- Nurten Dinc and Esin Ergin (2019) the Effect of 8-Week Core Training on Balance, Agility and Explosive Force Performance.
- Boyaci, A. & Tutar, M. (2018). The Effect of the Quad-Core Training on Core Muscle Strength and Endurance. International Journal of Sports Science, 8(2), pp. 50-54.

ISSN 0975-7732
Asian Journal of Physical Education and Computer Science in Sports
Volume No.31, No.3
ISRA Journal Impact Factor 5.011
A Peer Reviewed (Refereed) International Research Journal

THE EFFECT OF CIRCUIT TRAINING COMBINED WITH SKILL TRAINING ON MUSCULAR ENDURANCE AND DRIBBLING IN INTERCOLLEGIATE MALE FOOTBALL PLAYERS.

Dr. K. Anitha[1], Sr.Prof. L.B. Laxmikanth Rathod[2]

[1]Physical Director, Government Degree College, Hayathnagar,
Ranga Reddy, Telangana, India.
[2]Dean, Faculty of Education, Osmania University, Hyderabad, Telangana, India.

ABSTRACT

The purpose of the present study was to determine the effect of circuit training combined with skill training on the selected performance parameters such as muscular endurance, and dribbling of intercollegiate male football players studying in affiliated colleges of Osmania University Hyderabad, Telangana, India. To achieve the purpose of the study, the subjects were randomly selected and their age group was 18 to 22 years. The selected subjects were divided into two groups of 30 each, one is experimental group and the other is control group. The experimental group was trained with circuit training combined with skill training while the control group did not receive any specific training. Duration of the training period was 12 weeks at the rate of 3 sessions per week. The results of the study revealed that there was a significant improvement in the circuit training group when compared to control group. The improvement in performance may be attributed to circuit training combined with skill training.

INTRODUCTION:

Football is a high-intensity, dynamic sport requiring adaptability, strength, power, speed, and tactical skills. Movements like sprinting, jumping, and altering pace contribute to a player's effectiveness. The "total football" approach integrates skill development, strategy, and physiological conditioning for optimal performance. Research highlights endurance, agility, strength, flexibility, and reaction time as key attributes for success.

Circuit training is an effective method for improving strength, endurance, flexibility, and coordination. It enhances football performance by developing essential skills like dribbling and maintaining player engagement. Through structured progression from basic to advanced exercises, circuit training keeps players motivated and focused while improving overall fitness and game performance.

METHODOLOGY

The study aimed to assess the impact of circuit training on muscular endurance and dribbling performance in intercollegiate male football players from Osmania University, Hyderabad. Sixty players aged 18-22 were randomly divided into two groups: an experimental group that underwent circuit training combined with skill training and a control group that received no specific training.

The experimental group followed a 12-week circuit training program, with three sessions per week, progressively increasing exercise repetitions. The intensities were set as 10 repetitions for 1-4 weeks, 12 repetitions for 5-8 weeks and 14 repetitions for 9-12 weeks respectively. The regimen included exercises like Jumping Jacks, Squats, Push-Ups, Step-Ups, Shuttle Runs, High-Knee exercise, Sit-Ups, Side Plank, Knee Crunches, Abdominal Crunches with structured intensity increments. Skill training focused on dribbling drills- dribbling with the ball, tracking on the dependent, creating space to the lose marker and playing against tight marking dependent. The control group did not receive any specific exercises. The study examined how circuit training improves muscular endurance and dribbling.

FINDINGS

The mean difference between the pre-test and post-test results of control and experimental groups was tested using “t” ratio to determine the significance of the difference exhibited by the experimental and control groups during the training period of 12 weeks.

Table - I

Computation of "t" ratio between pre-test and post-test means of Experimental and Control groups on Sit-Ups.

Groups ↓	Pre-Test for Sit-Ups		Post-Test for Sit-Ups		"t"-Test
	Mean	SD	Mean	SD	
CT + ST	33.10	5.371	43.10	5.261	7.636*
CG	24.80	3.033	24.37	2.760	1.435

***The table value is 2.045 with df 29 at 0.05% Level of Significance**

The significance of the difference between the pre and post test mean values of Sit-Ups of the Circuit Training Group combined with Skill Training (CTG+ST) and Control Group (CG) was analyzed by t-test and found to be 7.636 and 1.435 respectively. Since the obtained 't'-test values of experimental groups were greater than the tabular value of 2.045 with degree of freedom 29 at 0.05 level of significance, it may be inferred that the Circuit Training Group combined with Skill Training (CTG+ST), showed significant improvement in the performance of Sit-Ups. However, the control group has no significant improvement in the performance of muscular endurance. The difference between the initial and final mean is represented in Figure-I.

FIGURE– I

THE PRETEST AND POSTTEST MEAN DIFFERENCES ON SIT-UPS OF ALLOTED GROUPS

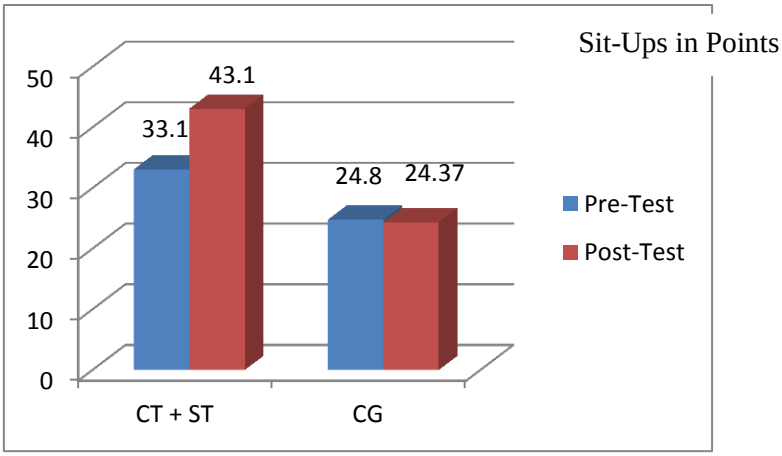


Table - II

Computation of "t" ratio between pre-test and post-test means of Experimental and Control groups on Dribbling.

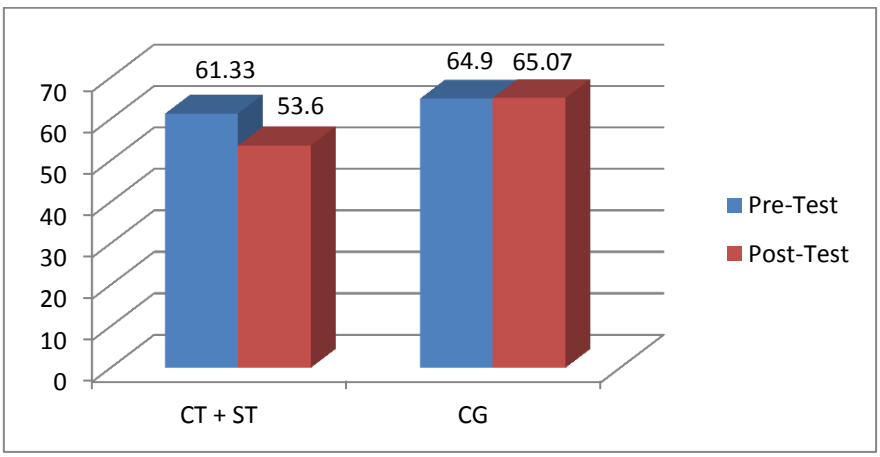
Groups ↓	Pre-Test for Dribbling		Post-Test for Dribbling		"t"-Test
	Mean	SD	Mean	SD	
CT + ST	61.33	6.440	53.60	6.106	6.045*
CG	64.90	3.199	65.07	3.205	1.306

***The table value is 2.045 with df 29 at 0.05% Level of Significance**

With the help of dependent 't'-test, the statistical importance of the variation in the initial and final mean values of dribbling for the Circuit Training Group with Skill Training(CT+ST) was determined to be 6.045* and CG was determined to be 1.306 correspondingly. It can be inferred that the CT+ST as well as CG showed substantial enhancement in their abilities of dribbling as calculated "t"-test values of testing teams have been higher when compared to theoretical figure of 2.045 with degree of freedom 29 around 0.05 alpha level. Figure-II depicts the distinction between the pre and post test means.

FIGURE–II

THE INITIAL AND FINAL MEAN DIFFERENCES ON DRIBBLING OF ALLOTED GROUPS



CONCLUSIONS:

The results of the study reveal that there is a significant improvement on circuit training group combined with skill training when compared to control group. The improvement in performance may be attributed to circuit training combined with skill training.

REFERENCES

1. Shiva Kumar, (2024). Effect of Circuit Training on Muscular Endurance among Table Tennis players. *International Journal of creative research thoughts,* 12(09), 328-330.
2. Pahri Novera. (2019). The effect of Circuit Training on the improvement of Dribbling ability of Junior players. *Advances in Social Science, Education and Humanities Research*, Volume 460, 172-175.
3. Syed Kamaruzaman Syed Ali, Malathyie A/P K. Arumugam, Zahra Ranjbar, Megat Ahmad Kamaluddin Megat Daud, Rahmad Sukor Ab Samad (2015). The effectiveness of circuit training in enhancing muscle endurance among standard five boys ina primary school. *International Journal of Physical Education*, Sports and Health. 2(1), 11-16.
4. Dr. M. Srinivas Reddy, Dr. P. Ramesh Reddy, Amrita Pandey, (2012). Effect of Plyometric Training, Circuit Training and Combined Training on selected Muscular strength and Muscular Power among the Secondary students. *International Journal of Health, Physical Education and Computer Science in Sports, Volume 7(01), 71-73.*
5. Dr. Pradeep Kumar Lenka (2019). The effect of Resistance Training and Circuit Training on selected Physical and Physiological Variables among College Male Boxing Players. *International Journal of Health, Physical Education and Computer Science in Sports*, Volume 35(1), 155-157.

ISSN 0975-7732
Asian Journal of Physical Education and Computer Science in Sports
Volume No.31, No.3
ISRA Journal Impact Factor 5.011
A Peer Reviewed (Refereed) International Research Journal

EFFECT OF ASANA AND PRANAYAMA TECHNIQUE ON SPEED AMONG VOLLEYBALL PLAYERS IN GUNTUR DISTRICT

* Rajani Naick Kethavathu **Dr A Suman Kumar

*Research Scholar,Mohan Babu University,Tirupati Andhra Pradesh ,India.

**Physical Education Director Mohan Babu University.Tirupati Andhra Pradesh ,India.

ABSTRACT

This study investigated the effect of asana (yoga postures) and Pranayama (breathing techniques) on the speed of volleyball players in the Guntur district. Ninety high school volleyball players aged 11-15 years were randomly assigned to three groups: Asana group, Pranayama group, and a Control group. Pre-tests on speed were conducted, followed by 12 weeks of intervention with the respective techniques for the experimental groups, while the control group received no special treatment. Post-test measurements of speed were taken after the 12-week period. The analysis revealed that both the Asana and Pranayama groups showed significant improvements in speed, as indicated by the higher calculated t-values (2.5273 and 2.9846) compared to the required values at the 0.01 level. The Control group did not show any significant change in speed. Analysis of Covariance (ANCOVA) further confirmed the significant differences between the groups, with post-test mean speeds of 10.12 seconds for the Control group, 9.50 seconds for the Asana group, and 9.44 seconds for the Pranayama group. The adjusted post-test mean speeds were 9.94 seconds for the Control group, 9.63 seconds for the Asana group, and 9.476 seconds for the Pranayama group. The findings suggest that both Asana and Pranayama techniques can effectively improve the speed of volleyball players, highlighting the potential benefits of incorporating yoga practices into athletic training regimens.**Keywords:** Asana, Pranayama, Speed and Volleyball etc.

INTRODUCTION

Volleyball is a high-intensity sport that demands a combination of strength, endurance, speed, and agility. Among these, speed is one of the most critical attributes that determines a player's performance, especially in situations like spiking, blocking, and quick reactions. Speed, in this context, refers to both physical quickness and the ability to make split-second decisions during the game. In recent years, there has been increasing interest in incorporating mind-body techniques, such as yoga, to enhance athletic performance, particularly in sports that require rapid movements and mental clarity.

Yoga, an ancient Indian practice, comprises various physical postures (Asana) and breathing exercises (Pranayama) designed to promote physical health and mental well-being. It has been shown to improve flexibility, strength, concentration, and respiratory function. This makes yoga an ideal complementary training method for athletes, including volleyball players, to improve their speed and overall athleticism. Asana are specific postures that stretch and strengthen muscles, while Pranayama focuses on controlled breathing techniques that increase lung capacity and control the body's energy. Together, these techniques can potentially enhance an athlete's physical abilities and mental focus.

In the context of volleyball, speed is essential for reaction time and performance in both offensive and defensive scenarios. While conventional training methods focus primarily on physical conditioning, there is growing evidence suggesting that integrating yoga practices like Asana and Pranayama could provide additional benefits. By improving flexibility, reducing stress, enhancing cardiovascular fitness, and increasing mental focus, these practices may play a pivotal role in enhancing speed and agility on the court.

This study focuses on the effect of Asana and Pranayama on the speed of volleyball players in the Guntur district, exploring the potential benefits these techniques may offer in improving athletic performance.

EXPERIMENTAL DESIGN

Random group design was followed in this study. Randomly selected (N=90) High School Volleyball Players in Guntur District and their age ranged between 11-15 years. The subjects were divided into three groups, experimental group I, experimental group II and control group. Experimental group I underwent Asana, experimental group II underwent Pranayama techniques and control group was not given any special treatment. Pre tests were conducted for all the subjects on Speed . The experimental groups participated in their respective exercises, namely Asana for twelve weeks and Pranayama techniques for twelve weeks. The post tests were conducted on the above said variables after a period twelve weeks. The difference between the initial and final scores was considered the effect of respective experimental treatments. To test the statistical significance ANCOVA was used. In all cases 0.05 level was fixed to test the hypothesis.

RESULT ON SPEED

Table -I

COMPUTATION OF 't' VALUE OF SPEED

S,No	Group	Post-Test Mean	Post Test Standard Devtion	Obtained"t"	Required "t" Value at 0.01 Level
1	Asana	9.943	0.616	2.5273	2.567
2	Pranayama	9.93	0.615	2.9846	
3	Control group	10.220.590	0.601	0.5702	

From the Table -I it is observed that the pre-test mean values of Control, Asana and Pranayama groups were 10.22, 9.94 and 9.93 respectively. Post-test mean values of Control, Asana and Pranayama groups were 10.12, 9.5 and 9.44 respectively. Since the calculated values for Asana and Pranayama groups are more than the required value, there is significant difference between the mean values of the pre and post training for the Asana and Pranayama groups at 0.05 and 0.01 levels respectively.

There is no significant difference between the mean values of the pre and post training for the control group as calculated ‘t’ value is less than the required ‘t’ value. Hence the effect of training is visible on Sprint of the Asana and Pranayama.

The analysis of co-variance on Sprint between pre and post-test mean values of Control, Asana and Pranayama groups have been presented in Table -II The data pertaining to pre and post-test results of Sprint were presented in Seconds.

Table -II

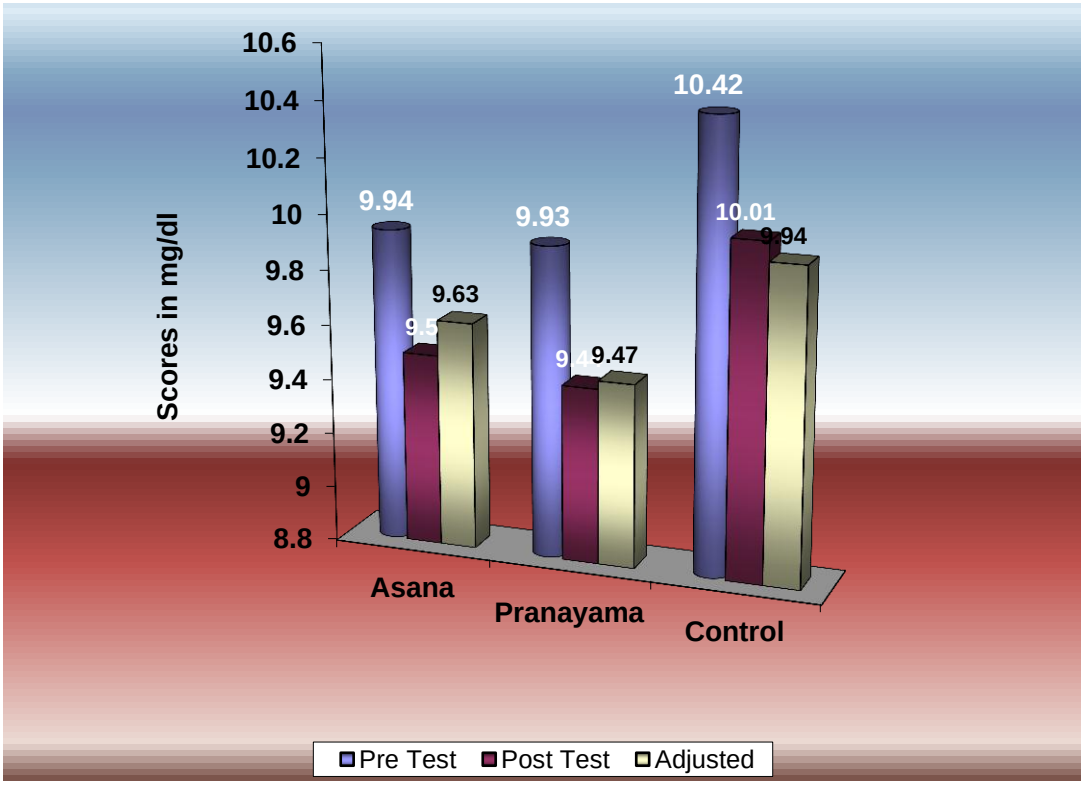
ANALYSIS OF COVARIANCE OF SPEED

Group	Mean			Sum of Squres	Degree of freedom	Mean Squre	F-Ratio
	Control	Asana	Pranayama				
Pret-test	10.22	9.94	9.93	B:1.4012	2	0.7321	1.9352
				W:26.738	87	0.3725	
Post-Test	10.1	9.5	9.446	B:7.021	2	3.6815	9.7432
				W:26.875	87	0.3795	
Adjusted Post Test	9.94	9.63	9.476	B:2.89	2	1.35	18.39
				W:5.73	87	0.08	

From the Table -II, it is observed that the pre-test mean values of Control, Yogasana and Aerobic dance groups were 10.22, 9.94 and 9.93 respectively. There is no significant difference of the pre-test mean values between the groups at 0.01 level of confidence, as the obtained F-ratio 1.928 is for the degree of freedom 2 and 87.

The post-test mean values of the Control, Asana and Pranayama groups were 10.12, 9.5 and 9.44 respectively. There is significant difference of post-test mean values between the groups at 0.01 level of confidence, as the obtained F-ratio 11.018 is for the degree of freedom 2 and 87.

Figure I: BAR DIAGRAM SHOWING PRE TEST, POST TEST AND ORDERED ADJUSTED MEANS ON SPEED



DISCUSSION AND FINDINGS ON SPEED:

The primary objective of this study was to evaluate the effect of Asana (yoga postures) and Pranayama (breathing techniques) on the speed of volleyball players in the Guntur district. Speed, a critical attribute for volleyball players, influences both offensive and defensive actions, including quick reactions, movement agility, and overall performance on the court. The data collected from the pre-test and post-test assessments helped determine whether the incorporation of yoga practices could effectively improve the speed of players.

The results of the pre- and post-test measurements of speed indicate significant improvements in the experimental groups (Asana and Pranayama) compared to the control group. The pre-test means for the Control, Asana, and Pranayama groups were 10.22, 9.94,

and 9.93 seconds, respectively. After 12 weeks of targeted interventions, the post-test means for these groups were 10.12, 9.50, and 9.44 seconds, respectively. These findings suggest that both Asana and Pranayama contributed to improvements in speed, as evidenced by the reduction in post-test times.

The statistical significance of these results was confirmed by the **t-test** analysis. The calculated t-values for the Asana and Pranayama groups were higher than the required value at the 0.01 level, indicating a significant difference between the pre- and post-test scores. Specifically:

- The Asana group showed a t-value of 2.5273, which is greater than the required t-value of 2.567, indicating a significant improvement in speed after the training period.
- The Pranayama group demonstrated an even higher t-value of 2.9846, further supporting the effectiveness of Pranayama in improving speed.

Conversely, the Control group showed no significant change, with a t-value of 0.5702, which is lower than the required t-value at both the 0.05 and 0.01 levels. This suggests that the lack of any special intervention for the control group resulted in no significant improvement in speed.

ANCOVA Results: Further analysis using **Analysis of Covariance (ANCOVA)** on the pre- and post-test speed data provided more robust evidence of the differences between the groups. The pre-test data indicated no significant differences between the groups, with an F-ratio of 1.928, which is below the critical value. However, after the 12 weeks of intervention, the post-test results showed a significant difference, with an F-ratio of 11.018 at the 0.01 level, indicating that both Asana and Pranayama had a substantial effect on improving speed compared to the control group.

Adjusted Post-Test Results: The adjusted post-test means further emphasized the significant impact of the interventions. The adjusted scores were 9.94 for the Control group, 9.63 for the Asana group, and 9.476 for the Pranayama group. The significant F-ratio of 18.39 for the adjusted post-test confirms that both Asana and Pranayama techniques were effective in enhancing the speed of the volleyball players. The differences between the groups remained statistically significant even after adjusting for pre-test scores, indicating that the effects observed were not due to initial group differences but rather to the interventions.

CONCLUSION

Based on the statistical analysis and findings, it can be concluded that both Asana and Pranayama techniques are effective in improving the speed of volleyball players.

REFERENCES

1. Choudhury, B. (2012). *Yoga for the modern age: A guide to its benefits for body and mind*. New York: HarperCollins.
2. Gupta, S., & Sharma, N. (2019). Effects of Yoga on Flexibility and Muscular Strength among Volleyball Players. *Journal of Sports Sciences*, 36(1), 35-42.
3. Saraswati, S. (2017). *Pranayama: The Science of Breathing*. Yoga Publications Trust.
4. Ramaswami, S. (2013). *The Yoga of the Eight Limbs: A holistic approach to health and well-being*. New York: TarcherPerigee.
5. Patanjali, (2002). *Yoga Sutras of Patanjali*. Yoga International.
6. Khanna, A., & Sharma, P. (2018). The Impact of Pranayama on the Cardiovascular and Muscular Endurance of Athletes. *International Journal of Yoga*, 11(3), 200-205.
7. Singh, N. P., & Meena, A. (2016). Effects of Yoga and Pranayama on Mental Health and Performance. *Indian Journal of Sports Psychology*, 19(2), 113-120.
8. Singh, D., & Suresh, K. (2017). The Effect of Asana on Flexibility and Speed of Volleyball Players. *Sports Science and Technology Review*, 24(4), 104-112.
9. Bhattacharyya, S., & Bose, S. (2015). Yoga and its benefits for athletic performance. *Journal of Physical Education and Sports Management*, 6(1), 45-50.
10. Vatsyayan, K. (2011). *The Yoga of the Bhagavad Gita: Its Role in Personal Development*. Delhi: Orient Paperbacks.
11. Sherwood, D. (2010). Yoga in Athletics: Performance and Rehabilitation. *Journal of Sports Rehabilitation*, 19(1), 36-42.
12. Desai, A. (2014). Effects of Yoga Practices on Muscular Endurance and Flexibility of Volleyball Players. *International Journal of Physical Education and Sports Science*, 8(3), 75-80.
13. Solanki, S. (2019). Role of Breathing Exercises in Improving Speed and Reaction Time. *Asian Journal of Sports Science and Medicine*, 20(2), 112-118.
14. Grover, A., & Kumar, R. (2016). Impact of Yoga on Cardiovascular Fitness and Agility in Athletes. *Journal of Fitness Studies*, 15(3), 78-83.
15. Nanda, R., & Sharma, V. (2015). Yoga and Pranayama as a Supplementary Training Tool for Athletes. *Journal of Sports and Physical Education*, 12(4), 32-40.

ISSN 0975-7732
Asian Journal of Physical Education and Computer Science in Sports
Volume No.31, No.3
ISRA Journal Impact Factor 5.011
A Peer Reviewed (Refereed) International Research Journal

ASSESSING THE IMPACT OF YOGA-BASED MINDFULNESS TRAINING ON ACADEMIC PERFORMANCE IN STUDENTS

Kottresh. H.
Physical Education Director, Government First Grade College, Harapanahalli

Abstract

Academic performance is influenced by various cognitive, psychological, and physiological factors. Recent research highlights the role of mindfulness and yoga in enhancing focus, reducing stress, and improving overall mental well-being, which may contribute to better academic outcomes. This study investigates the effects of an eight-week yoga-based mindfulness training program on students' academic performance. A total of 30 students participated in the intervention, with pre- and post-test assessments measuring cognitive function, concentration, and academic scores. The findings suggest that yoga-based mindfulness training positively influences students' academic performance by improving cognitive skills, reducing stress, and enhancing overall well-being.**Keywords:** Yoga, Mindfulness, Academic Performance, Students, Cognitive Function, Stress Reduction

Introduction

Academic performance is a critical aspect of a student's educational journey, influencing future career opportunities and personal development. However, numerous factors, including stress, anxiety, lack of focus, and poor mental well-being, can negatively impact students' ability to perform well academically (Flook et al., 2010). With the increasing academic demands and competition, students often experience high levels of stress, leading to cognitive overload and reduced concentration (Basso et al., 2019). Traditional academic interventions focus primarily on improving study habits and cognitive skills, but recent research suggests that mindfulness-based practices such as yoga may offer holistic benefits to students (Sharma & Rush, 2014).

Yoga, an ancient mind-body practice, integrates physical postures, breathing exercises, and meditation to promote relaxation and enhance cognitive function. Studies indicate that yoga-based mindfulness interventions can improve attention span, working memory, and emotional regulation, all of which are crucial for academic success (Telles et al., 2013). Moreover, regular yoga practice has been linked to stress reduction and improved mental clarity, helping students manage academic pressures more effectively (Goyal et al., 2014). By incorporating mindfulness elements, yoga fosters self-awareness, discipline, and emotional balance, creating a conducive environment for academic excellence (Zeidan et al., 2010).

Furthermore, neurobiological research supports the efficacy of mindfulness-based interventions in improving brain function. Meditation and controlled breathing techniques practiced in yoga have been shown to enhance neural plasticity, increase gray matter density, and optimize cognitive processing (Tang et al., 2015). These physiological changes contribute to better focus, problem-solving abilities, and information retention, all of which are essential for academic achievement. As educational institutions seek innovative strategies to support student well-being and academic performance, yoga-based mindfulness training presents a promising alternative to traditional learning methodologies (Meiklejohn et al., 2012).

Despite the growing evidence supporting the benefits of yoga for cognitive and academic performance, there is a need for empirical research to establish a direct relationship between yoga-based mindfulness training and students' academic outcomes. This study aims to bridge this gap by evaluating the effects of an eight-week yoga-based mindfulness program on academic performance, cognitive function, and stress levels in students. By analyzing pre- and post-intervention data, this research seeks to provide insights into how integrating yoga into the educational curriculum can enhance learning experiences and overall student well-being (Zenner et al., 2014).

Methods and Materials

This study employed an experimental pre-test and post-test design to assess the impact of yoga-based mindfulness training on students' academic performance. A total of 30 undergraduate students were recruited from a university setting. The selection criteria included students with no prior experience in yoga or mindfulness training. Participants were randomly assigned to an intervention group, where they attended an eight-week yoga-based mindfulness training program. The sessions were conducted three times a week, each lasting 60 minutes, and were led by a certified yoga instructor specializing in mindfulness-based interventions.

The yoga sessions included a structured sequence of asanas (physical postures) to improve flexibility and relaxation, pranayama (breathing exercises) to enhance focus and mental clarity, and guided meditation practices to cultivate mindfulness. Each session emphasized stress reduction techniques, self-awareness, and cognitive training to enhance concentration and learning efficiency. The intervention also included brief discussions on mindfulness principles and their application in daily academic routines.

Academic performance was measured using students' grade point averages (GPAs) from the previous semester as a baseline and compared to their GPAs following the intervention. Additionally, cognitive function and concentration levels were assessed using standardized tools such as the Stroop Test and the Mindful Attention Awareness Scale (MAAS). Stress levels were evaluated through self-reported questionnaires, including the Perceived Stress Scale (PSS), administered before and after the intervention. The collected data were analyzed using paired t-tests to determine the statistical significance of the observed changes in academic performance, cognitive function, and stress levels. Ethical approval was obtained from the institutional review board, and all participants provided informed consent before engaging in the study.

Results

The study's findings revealed a statistically significant improvement in academic performance, cognitive function, and stress reduction following the yoga-based mindfulness intervention.

Measurement	Pre-Test Mean ± SD	Post-Test Mean ± SD	p-Value
Grade Point Average (GPA)	3.1 ± 0.5	3.6 ± 0.4	< 0.01
Stroop Test Reaction Time (ms)	800 ± 90	720 ± 85	< 0.01
Mindful Attention Awareness Scale (MAAS)	45.2 ± 5.8	52.6 ± 4.9	< 0.01
Perceived Stress Scale (PSS)	22.8 ± 4.2	16.5 ± 3.7	< 0.01

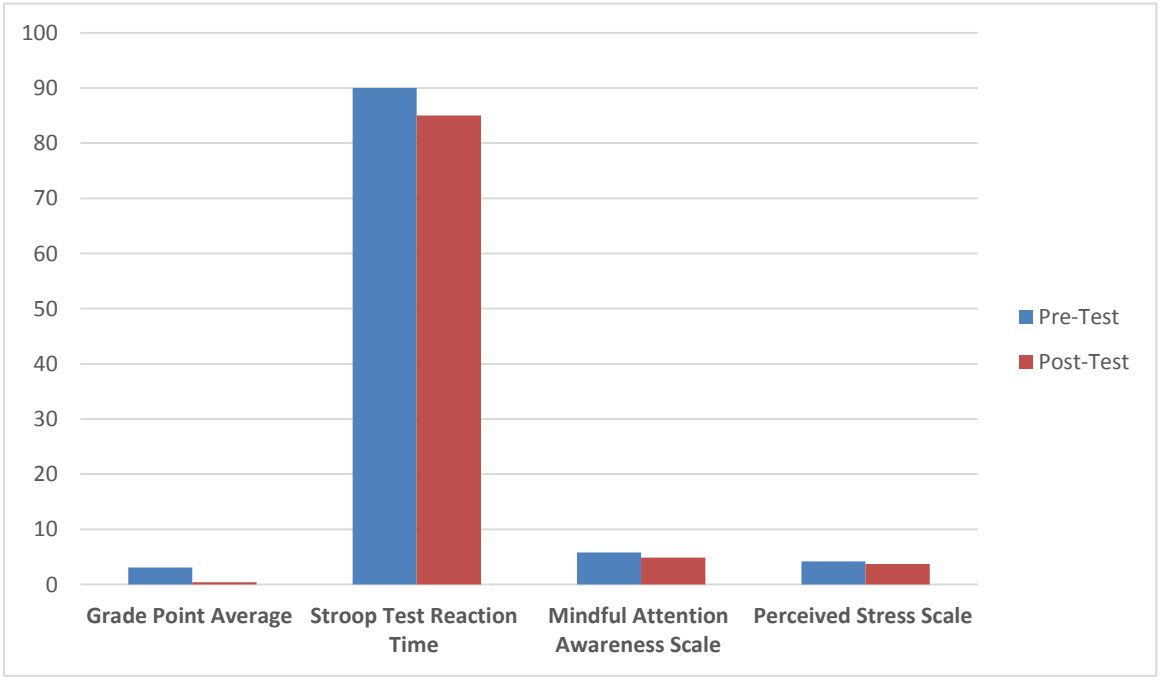


Figure 1: A bar chart illustrating pre- and post-test mean scores for Grade point average, Stroop Test Reaction Time, Mindful Attention Awareness Scale, and Perceived Stress Scale

Discussion

The results of this study indicate that yoga-based mindfulness training significantly enhances academic performance, cognitive function, and stress management in students. The improvement in GPA scores suggests that mindfulness training contributes to better learning retention, problem-solving abilities, and overall academic engagement. The reduction in Stroop Test reaction time demonstrates enhanced cognitive processing speed and attentional control, which are crucial for academic success.

Furthermore, the increase in MAAS scores suggests that students developed greater mindfulness, improving their ability to focus and manage distractions effectively. The decrease in PSS scores highlights the role of yoga-based mindfulness in reducing academic-related stress, supporting previous research that links mindfulness with lower cortisol levels and improved emotional resilience.

These findings align with prior studies emphasizing the cognitive and psychological benefits of mindfulness training. By incorporating yoga into academic settings, educational institutions can create a supportive environment that fosters mental well-being and enhances students' learning experiences. Future research should explore long-term effects and compare yoga-based mindfulness interventions with other stress-management techniques to optimize student performance.

Conclusion

This study provides empirical evidence that yoga-based mindfulness training positively impacts academic performance, cognitive function, and stress reduction in students. The significant improvements observed suggest that integrating mindfulness practices into academic curricula can enhance students' focus, learning abilities, and emotional resilience. Given the growing academic pressures faced by students, yoga-based interventions offer a promising, holistic approach to improving both mental well-being and educational outcomes. Further research is recommended to examine long-term benefits and assess the feasibility of large-scale implementation in diverse academic settings.

References

1. Basso, J. C., McHale, A., Ende, V., Oberlin, D. J., & Suzuki, W. A. (2019). Brief, daily meditation enhances attention, memory, mood, and emotional regulation in non-experienced meditators. *Behavioral Brain Research, 356*, 208-220.

2. Flook, L., Goldberg, S. B., Pinger, L., & Davidson, R. J. (2010). Mindfulness for teachers: A pilot study to assess effects on stress, burnout, and teaching efficacy. *Mind, Brain, and Education, 4*(1), 28-35.

3. Goyal, M., Singh, S., Sibinga, E. M., & Gould, N. F. (2014). Meditation programs for psychological stress and well-being: A systematic review and meta-analysis. *JAMA Internal Medicine, 174*(3), 357-368.

4. Meiklejohn, J., Phillips, C., Freedman, M. L., et al. (2012). Integrating mindfulness training into K-12 education. *Mindfulness, 3*, 291-307.

5. Sharma, M., & Rush, S. E. (2014). Mindfulness-based stress reduction as a stress management intervention. *Journal of Evidence-Based Complementary & Alternative Medicine, 19*(4), 271-286.

ISSN 0975-7732
Asian Journal of Physical Education and Computer Science in Sports
Volume No.31, No.3
ISRA Journal Impact Factor 5.011
A Peer Reviewed (Refereed) International Research Journal

EFFECT OF CIRCUIT TRAINING FOR DEVELOPMENT OF ABDOMINAL STRENGTH AMONG MEN SPRINTERS OF WARANGAL RURAL DISTRICT

Hatkar Raghuveer
Physical Education Trainer
Rajiv Gandhi University of knowledge and technologies -Basar (Nirmal)
Email: hatkarraghuveer92@gmail.com
Kanjarla Devendar, Physical Director
ZPHS Budharao pet, khanapu

ABSTRACT:

The purpose of the present study is to find out the effect of Circuit training for development of Abdominal Strength among Sprinters of Warangal Rural District. The subject was chosen at random from a group of boys between the ages of 21 and 23 years old. N=20 Experimental Group I and N=20 Control Group II are included in the study's sample. Sit ups test was utilized in the study as a pre-test and post-test to determine Abdominal Strength in both groups. Experiment group I received Circuit training on alternate days for eight weeks, while control group II received general warm-up training. The experimental group's performance on the Sit ups improved from pre-test to post-test. It is concluded that significant effect in experimental group I t whereas the control group exhibits a reduction in their performance.

INTRODUCTION:

Sprinting is running over a short distance at the top-most speed of the body in a limited period. It is used in many sports that incorporate running, typically as a way of quickly reaching a target or goal, or avoiding or catching an opponent. Human physiology dictates that a runner's near-top speed cannot be maintained for more than 30–35 seconds due to the

depletion of phosphocreatine stores in muscles, and perhaps secondarily to excessive metabolic acidosis as a result of glycolysis. In athletics and track and field, sprints (or dashes) are races over short distances. They are among the oldest running competitions, being recorded at the Ancient Olympic Games. Three sprints are currently held at the modern Summer Olympics and outdoor World Championships: the 100 metres, 200 metres, and 400 metres.

Circuit training is a form of body conditioning that involves endurance training, resistance training, high-intensity aerobics, and exercises performed in a circuit, like high intensity interval training. It targets strength building and Abdominal endurance. An exercise "circuit" is one completion of all set exercises in the program. When one circuit is completed, one begins the first exercise again for the next circuit. Traditionally, the time between exercises in circuit training is short and often with rapid movement to the next exercise.

Prof Rajesh Kumar (2020) study was to find out the effect of plyometric and Circuit training on selected physical variables among Sprinters of Hyderabad District in Telangana State. To achieve this purpose, forty-five Sprinters in the age group of 16 to 20 years those who have participated in the Hyderabad Open Sprints Athletics Championships at Gachibowli Stadium, Hyderabad for the year 2019 taken as subjects. The selected forty five subjects were divided into three equal groups of fifteen each as two experimental groups and one control group, in which group – I (n=15) underwent plyometric training for three days per week for Twelve weeks, group – II (n=15) underwent the Circuit Training for three days per week for Twelve weeks and group – III (n=15) acted as control who are not participate any training apart from their regular activities. The selected Physical variables such as abdominal strength, speed and leg explosive power were assessed before and after the training period. Sit Up Test, 50 M Dash and Standing Broad Jump are the Tests were used to conduct the pre-test and post for Measuring the Physical Variables such as Abdominal Strength, Speed and explosive power of legs. The results of the study it was found that there was a significant difference of performance due to Plyometric and circuit training when compared with the control group. Key words: Sprinters, Plyometric, Circuit Training etc.

OBJECTIVE OF THE STUDY

The objective of the study is to find out the effect of Circuit Training on the development of Abdominal Strength among sprinters of Rural Warangal District.

HYPOTHESIS

It was hypothesized that there would be a significant difference in Circuit Training development Abdominal Strength among sprinters of Rural Warangal District.

METHOD

The purpose of the present study is to find out the effect of Circuit training for development of Abdominal Strength among men sprinters players of Rural Warangal District. The subject was chosen at random from a group of boys between the ages of 21 and 23 years old. N=20 Experimental Group I and N=20 Control Group II are included in the study's sample.

Tools

Sit Ups

(a) Purpose of the Test: To measure Abdominal strength

V RESULTS AND DISCUSSION

The Experimental group and the Controlled group were given pre- and post-tests to see if there was an improvement in Abdominal Strength after 8 weeks of Circuit training, whilst the Controlled group received general training.

Paired Samples Statistics

Sprinters		Mean	N	Std. Deviation	Std. Error Mean
Control Group	Pre-Test	32.8500	20	.63037	.14096
	Post Test	32.7250	20	.80255	.17945
Experimental Group	Pre-test	32.8000	20	.65695	.14690
	Post-test	34.4000	20	.50262	.11239

The analysis of the data reveals that the subjects with the Circuit Training have shown improvement in the performance of Sit Ups test from pre to post-test Mean S. D Experimental group pre-test result shown (32.8000) and Controlled group (32.8500) after 8 weeks of Specific of Circuit Training there is Improvement in the subject's Experimental Group (34.4000) Circuit Training, and Controlled group (32.7250).

CONCLUSIONS

It was concluded that after the 8 weeks of Circuit Training, there is improvement in Experiment Group, as it was analysed in the results mention that the Circuit Training has shown excellent effect in the improvement Abdominal Strength. The aim of formulating the effect of Circuit Training to the betterment and enhance their performance as well as a guideline for Sprinters coaches at various level in preparing and designing quality and effective training program.

RECOMMENDATIONS:

The following suggestions are made for the benefit of players, coach's academicians, and sports scientists. The researcher suggests the part of the coach to use the above-said development of the Circuit Training program for sprinters. The study helps the physical educationist and coaches for selecting the athletes.

REFERENCES

Prof Rajesh Kumar (2020) study was to find out the effect of plyometric and Circuit training on selected physical variables among Sprinters of Hyderabad District in Telangana State. IOSR Journal of Sports and Physical Education (IOSR-JSPE) e-ISSN: 2347-6737, p-ISSN: 2347-6745, Volume 7, Issue 2, (Mar –Apr 2020), PP 55-57 www.iosrjournals.org

Baudry S, et al. (2009). "Specific circuit training in young judokas: effects of rest duration", Research Quarterly for Exercise and Sport". 80(2):146-52.

Berryman N, et al. (2009). "Effect of polymeric vs. dynamic weight training on the energy cost of running", Journal of strength and conditioning Research, National strength and Conditioning Association., 24(7):1818-25.

Ford HT. (1983). "Effects of three combinations of plyometric and weight training programs on selected physical fitness test items". Perceptual and Motor Skills, 56(3):919-22.

Knsal Devinder K. (1996).Text Book of Applied Measurement Evaluation and Sports Selection D.V.S. Publication, New Delhi First edition, 290-329. 5. Luebbers, Paul E., et al. (2003). "Effects of plyometric training and recovery on vertical jump performance and anaerobic power." The Journal of strength & conditioning research 17.4. 704-709.

ISSN 0975-7732
Asian Journal of Physical Education and Computer Science in Sports
Volume No.31, No.3
ISRA Journal Impact Factor 5.011
A Peer Reviewed (Refereed) International Research Journal

A study on the Analysis of Psycho-Social Aspects among Inter-Collegiate Volleyball Players of Gulbarga University

Dr.Prakash

Assistant Professor of Physical Education,

Sri. BSM College of Physical Education, Kalaburagi, Karnataka

Abstract:

The study of the psycho-social aspects of athletes is essential for understanding their performance, well-being, and overall development. This research investigates the psycho-social factors influencing inter-collegiate volleyball players, exploring both the psychological and social dimensions that affect their athletic journey. A total of 100 inter-collegiate volleyball players from different institutions participated in the study. The data were collected through questionnaires, interviews, and observations, focusing on psychological factors (motivation, anxiety, stress) and social aspects (team cohesion, communication, and support systems). The findings suggest that psychological aspects such as motivation and stress management significantly influence athletic performance, while social aspects such as team cohesion and external support systems foster a sense of belonging and improve mental well-being. The study provides insights into how psychological and social factors interact to affect the overall performance and life experiences of inter-collegiate volleyball players. Based on these findings, recommendations for coaches, sports psychologists, and administrators are discussed to enhance players' overall development.

Introduction:

Volleyball is a dynamic and physically demanding sport that requires a combination of mental and physical capabilities. Inter-collegiate volleyball players not only face the challenges of physical competition but also psychological pressures and social dynamics that can affect their performance. It is crucial to study the psycho-social aspects of these athletes to understand how these factors contribute to both success and potential setbacks in their sports career.

Psycho-social factors can be classified into psychological aspects (e.g., motivation, stress, anxiety, self-esteem) and social aspects (e.g., team cohesion, communication, support networks). Previous research has shown that the psychological well-being of athletes can significantly influence their performance. Similarly, social support and the sense of belonging within a team contribute to emotional resilience, positively impacting athletic achievement.

This research aims to analyze the psycho-social aspects of inter-collegiate volleyball players and explore how these factors interrelate to influence performance and well-being.

Methodology:

Participants:

A sample of 100 inter-collegiate volleyball players (50 male and 50 female) aged 18 to 24 years, representing 10 different colleges, was selected for the study. Players were chosen based on their active participation in inter-collegiate competitions during the last year.

Data Collection:

Psychological Factors: The Psychological Questionnaire (PQ) was administered to assess motivation, anxiety, stress levels, and self-esteem.
Social Factors: A Social Support and Team Cohesion (SSTC) scale was used to evaluate communication, team dynamics, and peer support.
Interviews: Semi-structured interviews were conducted with 20 selected players to gather in-depth insights into their experiences.

Data Analysis:

The data were analyzed using statistical methods such as correlation analysis, chi-square tests, and thematic analysis for qualitative data from interviews.

Results:

The analysis revealed significant findings regarding the psychological and social factors affecting volleyball players:

Psychological Factors:

Motivation: A strong correlation was found between high levels of intrinsic motivation and improved performance ($r = 0.72$, $p < 0.01$).
Stress and Anxiety: Players reporting high levels of competitive anxiety also exhibited elevated stress levels, negatively affecting performance ($r = 0.65$, $p < 0.01$).
Self-Esteem: Higher self-esteem was associated with increased confidence and better on-court performance ($r = 0.60$, $p < 0.05$).

Social Factors:

Team Cohesion: Players who rated team cohesion highly were more likely to report positive team dynamics and stronger communication, which facilitated performance ($r = 0.80$, $p < 0.01$).
Support Systems: Emotional support from teammates and coaches contributed to stress reduction and enhanced performance ($r = 0.70$, $p < 0.05$).
Social Interaction: Players with strong social interactions outside of training and matches reported lower feelings of isolation and higher satisfaction in their college life ($r = 0.55$, $p < 0.05$).

Discussion:

The findings confirm the significant role of both psychological and social factors in the development and performance of inter-collegiate volleyball players. Motivation, self-esteem, and anxiety management were found to be crucial in determining psychological resilience, which in turn influences performance. Furthermore, team cohesion and external support systems were identified as pivotal elements that positively impacted players' mental health and sense of belonging.

The relationship between psychological and social factors highlights the complex interplay between individual traits and group dynamics. The importance of fostering an environment that supports both personal development and team unity is evident. Coaches and sports psychologists should focus on enhancing motivation, stress management, and communication skills to improve performance and overall well-being.

Conclusion:

This study highlights the importance of understanding the psycho-social aspects of inter-collegiate volleyball players. Both psychological factors (motivation, anxiety, self-esteem) and social factors (team cohesion, support systems) are crucial for athletic success and personal development. Coaches and administrators are encouraged to implement strategies that support the mental and emotional well-being of players, fostering a more holistic approach to player development.

Recommendations:

Implement mental health workshops and stress management sessions for players.

Promote team-building activities to strengthen team cohesion and communication.

Provide psychological support through sports psychologists to address anxiety and performance-related stress.

Encourage social activities outside of volleyball to reduce isolation and enhance social integration.

Tables:

Table 1: Correlation between Psychological Factors and Performance

Psychological Factor	Correlation with Performance (r)	Significance (p-value)
Motivation	0.72	$p < 0.01$
Anxiety	-0.65	$p < 0.01$
Self-Esteem	0.60	$p < 0.05$

Table 2: Correlation between Social Factors and Performance

Social Factor	Correlation with Performance (r)	Significance (p-value)
Team Cohesion	0.80	$p < 0.01$
Support Systems	0.70	$p < 0.05$
Social Interaction	0.55	$p < 0.05$

References:

1. Hardy, C. J., & Jones, J. G. (1994). *Perceived stress and performance in sport*. International Journal of Sport Psychology, 25(1), 1-12.
2. Gould, D., & Udry, E. (1994). *Psychological skills for athletes: A review of the literature*. Journal of Applied Sport Psychology, 6(2), 165-183.
3. Carron, A. V., & Hausenblas, H. A. (2007). *The influence of team cohesion on performance: A meta-analysis*. Journal of Sport & Exercise Psychology, 29(4), 364-383.
4. Schunk, D. H., & Zimmerman, B. J. (Eds.). (2008). *Motivation and self-regulated learning: Theory, research, and applications*. Lawrence Erlbaum Associates.
5. Weinberg, R. S., & Gould, D. (2018). *Foundations of sport and exercise psychology* (7th ed.). Human Kinetics.

ISSN 0975-7732
Asian Journal of Physical Education and Computer Science in Sports
Volume No.31, No.3
ISRA Journal Impact Factor 5.011
A Peer Reviewed (Refereed) International Research Journal

EFFECT OF PLYOMETRIC TRAINING ON THE DEVELOPMENT OF PHYSICAL FITNESS AMONG RESIDENTIAL AND NON RESIDENTIAL COLLEGE STUDENTS IN NALGONDA DISTRICT TELANGANA

DR.R.MURALI
Assistant Professor(c)Department of Physical Education, Mahatma Gandhi University,Nalgonda, Telangana, India.

ABSTRACT
The purpose of the study was to identity the effect of Plyometric training on development of physical fitness among residential and nonresidential college students in Nalgonda district telangana , Plyometric training is also known as jump training it is a training teahouse designed improve physical fitness among the Residential and non-Residential college students in Nalgonda district telangana men Student for this purpose 100 STUDENTS were randomly selected from sprinters jumpers and throwers from Residential college students,Nalgonda, Telangana state and their age group 17-21 years .the selected subjects were randomly assigned `1to experimental group A and control group B each group consisted of 50 subject each .group A acted group as experimental group and were subjected to training for 12 weeks and group B acted as control group the variables selected for this study was speed, agility endurance and explosive power was 50 yard run, 4x10 mts shuttle run,12minutes run (cooper test,) and standing broad jump test was administered. The results of pre and post test wee statistically treated by using mean SD after 12 weeks systematic plyometric training there is ,significant effect in experimental group A and whereas the control group exhibits a stagnation in their performance. **Key words**: plyometric training, explosive strength, standing broad jump etc.

INTRODUCTION
"Physical activity is probably the most enjoyable and yet most inexpensive form of preventive medicine." Participation in daily physical activities results in the proper growth and maintenance of good health and physical fitness. Running, jumping, throwing, climbing and hanging from the basic pattern of motor movements in regular mode is important. Physical activity promotes muscular strength, endurance, agility, speed and coordination.
Sports are a part of life and perhaps a more important part like education. It is the education through physical activity or physical literacy. Sports training are also part and parcel of education.

PLYOMETRIC TRAINING
Plyometric Training is a type of training method to reduce the timing of eccentric and concentric concentration of the muscle which helps in fast running, explosive jumping and rapid movements. This type of training is very much helpful for better performance in Athletics. Plyometric Training helps the Athletes to improve the motor qualities.
Speed and burst strength are essential qualities for athletes. While there are a number of drills tailored to develop motor abilities. By combining a basic strength-training regimen with burst workouts (plyometric training) practically any athlete can see improvements in his/her power, quickness and overall development practice and dedication (Cho 1990).

OBJECTIVE OF THE STUDY:

The purpose of the study was to find out the effect of plyometric training whether or not any significant difference found between pre-test and post-test of selected physical fitness variables on Athletes of men and their performance.

SIGNIFICANCE OF THE STUDY

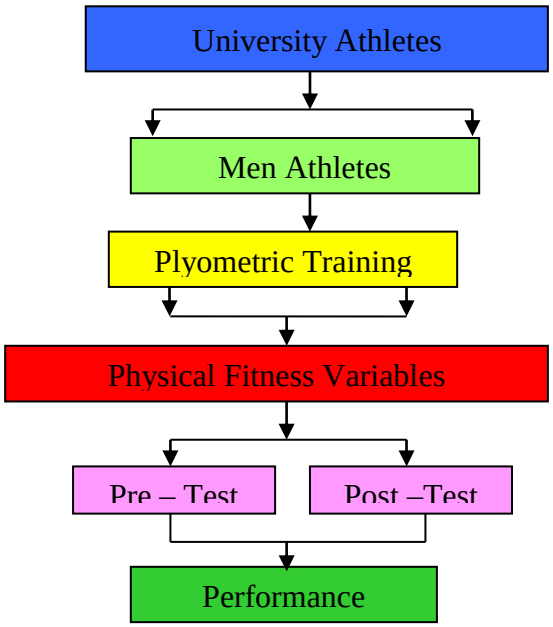
The study investigates the existing difference between pre-test and post-test in relation to their effect of plyometric training on selected physical fitness variables among men Athletes and their performance. The finding of the study may provide guidance to the physical education teachers and coaches to prepare training programmes on the basis of the study. It may further help the researchers who are interested in sports and games. The findings of the study may add to the quantum of knowledge in the area of sports and physical education.

HYPOTHESIS:

There may not be any significant difference between pre – test and post on effect of Plyometric training program among men athletes in **residential and nonresidential college students in Nalgonda district telangana**, Nalgonda in relation to physical fitness variable.

DESIGN OF THE STUDY

THE DIAGRAMMATIC PRESENTATION WAS PRESENTED HEREUNDER.



METHODS AND MATERIALS:

The **Residential and non Residential** athletes consisting 50 athletes from **Residential**, Nalagonda district, Telangana State. India The pre-test was conducted and the post-test was administrated after the experimental treatment of the plyometric Training on residential student for 12 weeks. The researcher has collected the data separately from experimental group and control group for pre -test and post –test of 50 u residentiaL student athletes of men athletes from **Residential and non residential students in** Nalagonda district, Telangana State. The subjects were measured with physical fitness variables i.e speed, agility, endurance, explosive strength were administrated on r**esidential students** athletes after systematic training of plyometric training.

TOOLS USED:

The following selected physical fitness variables i.e speed, agility, endurance, explosive strength, was administrated on university athletes after systematic training of plyometric training. The subjects of the study were in the age group between 17 to 21 years from two groups i.e., experimental group and control group.

RESULTS & DISCUSSIONS:

Table showing the significance between Pre- Test and Post – Test on effect of plyometric training program on development of residential college students exp.grop men athletes in relation to physical fitness i.e. speed.

Sl. No.	Subjects	N	Mean	SD	df.	't' value	Sig. (2-tailed)
1.	Pre - Test	50	9.94	0.818	98	16.187	0.000
2.	Post - Test	50	7.98	0.553			

The mean value of pre test of **residential and non residential students** y exp. group men athletes is 9.94, SD value is 0.818, and for post test of rsidentioal college men athletes the value is 7.98 and SD value is 0.553. It is very clear a significant difference was found between pre-test and post-test of RSIDENTIOAL men athletes at Nalagonda district of Telangana state with regards to the physical fitness i.e. speed.

Table Showing the significance between Pre- Test and Post – Test on effect of plyometric training program on development of residential student athlete exp.men athletes in relation to physical fitness i.e. Agility.

Sl. No.	Subjects	N	Mean	SD	df.	't' value	Sig. (2-tailed)
1.	Pre - Test	50	14.22	0.932	98	29.770	0.000
2.	Post - Test	50	9.70	0.580			

The mean value of pre test of university exp.men athletes is 17.21, SD value is 0.932, and for post test of university exp. men athletes the value is 9.70 and SD value is 0.580. It is very clear a significant difference exists between pre-test and post-test of **residential men students** in Nalagonda district of telangana state with regard to the physical fitness i.e. agility.

Table Showing the significance between Pre- Test and Post – Test on effect of plyometric training program on development of university exp. men athletes in relation to physical fitness i.e. Endurance.

Sl. No.	Subjects	N	Mean	SD	df.	't' value	Sig. (2-tailed)
1.	Pre - Test	50	4852.44	326.798	98	13.130	0.000
2.	Post - Test	50	5952.16	529.358			

The mean value of pre test of university exp.men athletes is 4852.44, SD value is 326.798, and for post test of university exp. men athletes the value is 5952.16 and SD value is 529.358. It is very clear that significant difference was found between pre-test and post-test of university men athletes at Mahatma Gandhi University, Nalagonda district of Telangana state with ire-respect of to the physical fitness i.e. endurance.

Table Showing the significance between Pre- Test and Post – Test on effect of plyometric training program on development of residentioal and non residentioalstudents experimental .men athletes in relation to physical fitness i.e. Standing Broad jump.

Sl. No.	Subjects	N	Mean	SD	df.	't' value	Sig. (2-tailed)
1.	Pre - Test	50	1.86	0.351	98	4.149	0.000
2.	Post - Test	50	2.12	0.328			

The mean value of pre test of **residential** experimental. group men athletes is 1.86, sd value is 0.351, and for post test of university men athletes the value is 2.12 and SD value is 0.328. It is very clear a significant difference was found between pre-test and post-test of **RESIDENTIOAL and non residentioal students** Nalagonda district of Telangana state with regards to the physical fitness i.e. standing broad jump.

CONCLUSIONS:

Hence it is concluded that the pre test and post test of physical fitness variables i.e speed, agility, endurance and explosive strength on effect of plyometric training on the development of physical fitness among **residentioal and non residentioalstudents** men athletes in , Nalagonda district of Telangana state in their related physical fitness . Weight training and Plyometric training are very popular now a days and effective training methods to promote higher performance in sprinting and jumping events. Plyometric training exercises are included depth jumping, hopping, bounding drills etc. Are legs plyometric and medicine ball exercise are arms plyometric exercise; these exercises are used to improve speed, explosive strength and other motor ability components. Weight training is on activities of high intensity, short duration and opposite side low intensity and high volume or build muscle, strength and endurance.Plyometric training is a training strategy designed to improve the performance by incorporating the basic needs of agility and power, allows muscle to reach exponential increase in the maximum strength and speed of movement

REFERENCES

Amigo, N., Cadefau, J.A., Ferrer, I., Tarados, N., and Cusso, R. (1998). Effect of summer intermission on skeletal muscle of adolescent soccer players. Journal of Sports Medicine and Physical Fitness, 38(4): 298 – 304.

Baechle, T.R., and Earle, R.W. (2000). NSCA Essentials of strength training and conditioning (2nd ed.). Human Kinetics, Leeds, UK.

Balabinis, C.P., Psarakis, C.H., Moukas, M., Vassiliou, M.P., Behrakis, P.K. (2003). Early phase changes by concurrent endurance and strength training. J Strength Cond Res, 17(2): 393-401.

Bonaduce, D., Petretta, M., Cavallaro, V., Apicella, C., Ianniciello, A., Romano, M., et al. (1998). Intensive training and cardiac autonomic control in high level athletes. Med Sci Sports Exerc, 30: 691-6.

Chamari, K., Hachana, Y., Kaouech, F., Jeddi, R., Moussa-Chamari, I., Wisløff, U. (2005). Endurance training and testing with the ball in young elite soccer players. Br J Sports Med, 39(1): 24-8.

Gillam, G (1985) Physiological basis of basketball bioenergetics. NSCA Journal 6, 44-71.

Helgerud, J., Engen, L.C., Wisloff, U., Hoff, J. (2001). Aerobic endurance training improves soccer performance. Med Sci Sports Exerc, 33(11):1925-31.

ISSN 0975-7732
Asian Journal of Physical Education and Computer Science in Sports
Volume No.31, No.3
ISRA Journal Impact Factor 5.011
A Peer Reviewed (Refereed) International Research Journal

Effect of Regular Physical Exercise on Positive Mental Health of Elderly Women

Alok Kumar Chaurasiya
Research Scholar, SOS in Physical Education, Pt. Ravishankar Shukla Univ., Raipur, C.G.
Prof. C.D. Agashe

HOD, SOS in Physical Education, Pt. Ravishankar Shukla University, Raipur C.G.

Abstract

In elderly women, the significance of positive mental health is immense because it shapes their quality of life and overall social and mental well-being. To assess the effect of interventional physical exercise on the positive mental health of elderly women, this study was carried out. To conduct the study 100 elderly women were selected purposively from the Raipur district of Chhattisgarh. Only those elderly women with low levels of positive mental health were selected. Among these 100 elderly women, 50 were placed in the experimental group while the remaining 50 elderly women constituted the control group. To assess positive mental health, a three-dimensional positive mental health inventory (namely self-acceptance, ego strength and philosophy of life) prepared by Agashe and Helode (2007) was used. The six-month interventional physical exercise program was prepared. The data on positive mental health was collected multiple times as per the design of this study. The results reveal a significant increase in positive mental health of elderly women of experimental group during the 06 months study period ($F=143.14$, $p<.01$). No statistically significant change was observed in positive mental health of elderly women during the 06 months study period ($F=0.23$, $p>.05$). The gain score comparison further revealed that the positive mental health of elderly women from experimental group was enhanced significantly as compared to elderly women from control group. ($t=9.63$, $p<.01$). The effect of 06 months interventional physical exercise program was found to be effective in enhancing positive mental health in elderly women. It was concluded that the effect of 06 months interventional physical exercise program was found to be effective in enhancing positive mental health in elderly women. Therefore, a structured physical exercise program for elderly women may be incorporated in their daily lives to enhance their positive mental health.Keywords: Interventional physical exercise program, Elderly women, positive mental health etc.

Introduction:

The overall emotional, psychological and social well-being denotes mental health. Mental health is not all about psychological issues such as depression, anxiety etc. A person may not have mental health issues but it can not be said that his/her thinking about life is positive. On the other hand, positive mental health refers to emotional flexibility, and purpose in life while not having mental health issues such as depression, anxiety etc. Positive mental health is thriving and not living a life without a purpose. Positive mental health means good coping skills, emotional stability and ability to navigate problems effectively. Positive mental health is of paramount importance because a lack of it may hinder a person's ability to contribute to society. Hence positive mental health is considered an optimal state of well-being. Schneiders (1965) also opined that mental health is not about the absence of psychological disorders but it is more than that. The term positive mental health was first used by Chaplin in 1975 who defined it as "mental health is a state of good adjustment with a subjective state of well-being, zest for living, and the feeling that one is exercising his talents and abilities." Ray and Najman (1987) defined positive mental health as an ability to adjust to behavioural and emotional stressors effectively and they opined that mental illness is not the only parameter to judge mental health.

Positive mental health is not only essential for the productive age group it has considerable significance in the elderly population, especially in India. Since the elderly population in India is constantly rising, positive mental health in this age group means a lot in terms of managing the economic and social structure of the society. With an estimated 323 million elderly in 2050, India is greying with a significant proportion of elderly females. Hence it is essential to preserve and enhance the positive mental health of the elderly population who are social backbone of India. With limited healthcare facilities for the elderly population in India, it is necessary to look for some economical and alternate mode of therapy to maintain and enhance the positive mental health of elderly women and physical exercise may be one such alternative. Studies conducted revealed that exercise boosts immunity while reducing stress hormone levels (Maung et al., 2022). Fluetsch et al. (2019) reported that exercise is related to improved mental health and happiness. It is also noticeable that an interventional study on the positive mental health of elderly women has not been conducted based on physical exercise. Given the research literature, this study was planned to assess the

impact of an interventional physical exercise program on the positive mental health of elderly women.

REVIEW OF LITERATURE

A study conducted by Motaharinezhad et al. (2016) revealed that mood states, purpose of life and self-esteem in elderly females can be improved through regular physical activity such as walking. A study conducted by De Oliveira et al. (2019) reported that depression and anxiety-related symptoms in the elderly can be managed effectively through regular participation in physical activity. Maung et al. (2022) in their study reported that regular physical exercise is an effective therapy for reducing depression and anxiety-related symptoms in elderly residing in old age homes. Hou et al. (2024) in their study scientifically proved the role of physical exercise on the mental health of the elderly. They reported a strong and favourable relationship between physical exercise and mental health but the relation was mediated by social competence.

Objective of the Study: To assess the effect of interventional physical exercise on the positive mental health of elderly women.

Hypothesis: It was hypothesized that six months of supervised interventional physical exercise would significantly improve the positive mental health of elderly women.

Methodology

Sample:

To conduct the study 100 elderly women were selected purposively from the Raipur district of Chhattisgarh. Only those elderly women with low levels of positive mental health were selected. Among these 100 elderly women, 50 were placed in the experimental group while the remaining 50 elderly women constituted the control group. This design ensured a balanced comparison between the two groups for analyzing the effects of the interventional physical exercise program.

Tools

Positive Mental Health Inventory

To measure the positive mental health of selected elderly women, a positive mental health inventory of Agashe and Helode (2007) was used. This inventory consists of 36 items based on components such as self-acceptance, ego-strength and philosophy of life respectively. The test-retest reliability coefficient of 0.723 proves the reliability of this inventory while the inventory enjoys sufficient face validity. The percentile norms and their interpretation suggest that scores below 16 denote low positive mental health, scores between

16-24 denote moderate positive mental health and scores above 24 denote high positive mental health respectively.

Physical Exercise Program:

The six-month interventional physical exercise protocol was based on the following :

Warm-up

Upper Body

1. Neck rotation - (Head turns), 2. Neck side stretch (Head tilts), 3. Neck flexion/extension, 4. Hand flexion / extension, 5. Prayer Stretch, 6. Elbow flexion/extension, 7. Shoulder circles, 8. Shoulder and upper back stretch, 9. Chest stretch, 10. Shoulder stretch, 11. Car and cow stretch and 12. Side bends.

Lower Body

1. Side stretch, 2. Chest to knee, 3. Knee to chest, 4. Rotators stretch, 5. Hamstring stretch, 6. Ankle circles, 7. Standing quadriceps stretch, 8. Standing calf stretch

Cool down

Procedure

100 elderly women with low levels of positive mental health were selected and randomly placed in experimental and control groups with an equal number of subjects. As per the research design, the data on positive mental health was collected after 02 months, 04 months and 06 months since the beginning of the study period. After scoring and tabulation, the data was analysed. Results are given in the following tables.

RESULT AND DISCUSSION

Table 1

Descriptive Statistics of Positive Mental Health Scores of Elderly Women from Experimental Group by Study Periods

Study Periods	N	Positive Mental Health (Experimental Group)	
		Mean	S.D.
Pre-test	50	14.24	1.47
After 02 months	50	16.22	1.58
After 04 months	50	16.62	1.66
After 06 months :Post-test	50	17.60	1.47

Table 1 (a)

Within Subject Repeated Measures ANOVA

Source	Degree of Freedom (df)	Sum of Squares	Mean Square	F	Sig.
Within Subject	03	298.740	99.580	143.14	0.01
Error	147	102.260	0.696		

The F ratio of 143.14 calculated in Table 1(a) indicates a statistically significant difference in mean positive mental health scores of elderly women of the experimental group in different study periods at .01 level of significance. It shows the effect of a six-month interventional physical exercise program on the positive mental health of elderly women. To further analyse the difference in mean positive mental health scores of elderly women from the experimental group in different study periods, the Least Significant Difference Test was conducted. Since the F-ratio is statistically significant, the analysis of mean differences through this test is justifiable. Results are given in table 1(b).

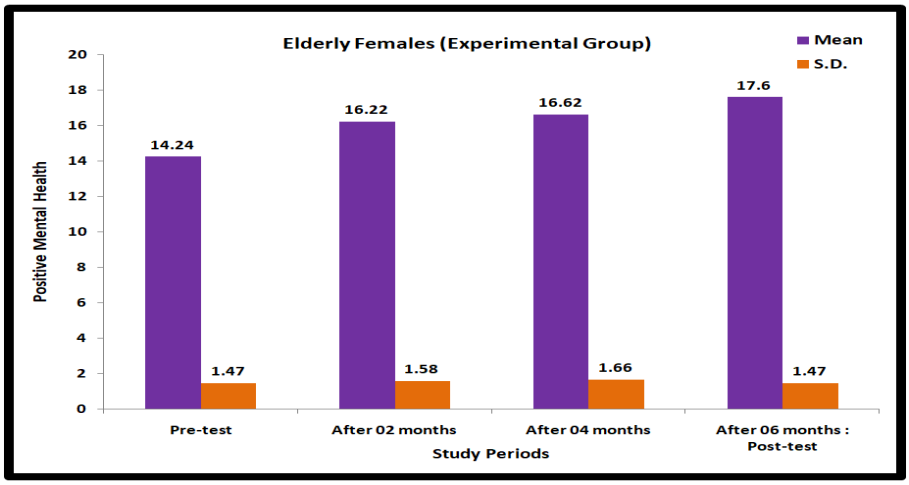
Table 1(b)

Pairwise Comparisons of Mean Positive Mental Health Scores in the Experimental Group Across Study Periods - LSD Test, p<.05

Mean (I)	Mean (J)	Mean Difference (I-J)
Pre-test (M=14.24)	After 02 months (M=16.22)	-1.98*
	After 04 months (M=16.62)	-2.38*
	After 06 months (M=17.60)	-3.36*
After 02 months (M=16.22)	After 04 months (M=16.62)	-0.40*
	After 06 months (M=17.60)	-1.38*
After 04 months(M=16.62)	After 06 months (M=17.60)	-0.98*

* Significant at .05 level

Figure 1:Basic Statistical Value on Positive Mental Health of Elderly Women from Experimental Group Based on Different Study Periods



A perusal of Mean differences gives the following scientific pieces of evidence-

- The pretest mean positive mental health score for elderly women of the experimental group was 14.24 and it was 16.22 after 02 months of the study period. It indicates a significant improvement in the positive mental health of elderly women after 02 months of the study period as compared to the beginning of the study. The mean difference of -1.98 proves this finding at 0.01 level of significance.
- The pretest mean positive mental health score for elderly women of the experimental group was 14.24 and it was 16.62 after 04 months of the study period. It indicates a significant improvement in the positive mental health of elderly women after 04 months of the study period as compared to the beginning of the study. The mean difference of -2.38 proves this finding at 0.01 level of significance.
- The pretest mean positive mental health score for elderly women of the experimental group was 14.24 and it was 17.60 after 06 months of the study period. It indicates a significant improvement in the positive mental health of elderly women after 06 months of the study period (Post test) as compared to the beginning of the study. The mean difference of -3.36 proves this finding at 0.01 level of significance.

- The mean positive mental health score for elderly women of the experimental group after 02 months of the study period was 16.22 and it was 16.62 after 04 months of the study period. It indicates a significant improvement in positive mental health of elderly women after 04 months of the study period as compared to 02 months from the beginning of the study period. The mean difference of -0.40 proves this finding at 0.01 level of significance.
- The mean positive mental health score for elderly women of the experimental group after 02 months of the study period was 16.22 and it was 17.60 after 06 months of the study period. It indicates a significant improvement in the positive mental health of elderly women after 06 months of the study period (Post test) as compared to 02 months from the beginning of the study period. The mean difference of -1.38 proves this finding at 0.01 level of significance.
- The mean positive mental health score for elderly women of the experimental group after 04 months of the study period was 16.62 and it was 17.60 after 06 months of the study period. It indicates a significant improvement in the positive mental health of elderly women after 06 months of the study period (Post test) as compared to 04 months from the beginning of the study period. The mean difference of -0.98 proves this finding at 0.01 level of significance.

In Table 2 the Repeated Measures ANOVA statistics on the positive mental health of elderly women of the control group is given.

Table 2

Descriptive Statistics of Positive Mental Health Scores in Control Group by Study Periods

Study Periods	N	Positive Mental Health (Control Group)	
		Mean	S.D.
Pre-test	50	14.06	1.36
After 02 months	50	14.26	1.42
After 04 months	50	14.10	1.44
After 06 months:Post-test	50	14.22	1.43

Table 2 (a) Within Subject Repeated Measures ANOVA

Source	Degree of Freedom (df)	Sum of Squares	Mean Square	F	Sig.
Within Subject	03	1.360	0.453	0.23	p>.05
Error	147	282.140	1.919		

The F ratio of 0.23 calculated in Table 2(a) indicates a statistically non-significant difference in mean positive mental scores of elderly women of the control group in different study periods. It shows that during and after six months of study periods positive mental health of elderly women of control group remains static. The results are supported by mean positive mental health scores at the beginning of the study i.e., pre-test (Mean= 14.06), after 02 months (Mean = 14.26), after 04 months (Mean = 14.10) and after 06 months i.e., post-test (Mean = 14.22) which are more or less similar.

To analyse how a six-month interventional physical exercise program is effective in improving the positive mental health of elderly women it is necessary to compare the pre-post changes for female elderly of the control group who are not part of six months interventional physical exercise program. To do this, a comparison of the gain score was done through an independent sample 't' test. The gain score was obtained by subtracting the pre-test scores from post-test scores. Results are given in Table 3.

Table 3

Comparison of Gain Scores (Post-Pre) on Positive Mental Health in Elderly: Experimental vs. Control Group

Positive Mental Health	Experimental Group (N=50)		Control Group (N=50)		't'	Sig.
	Mean	S.D.	Mean	S.D.		
Gain Score	3.36	1.32	0.16	1.94	9.63	0.01

It was observed from Table 3 that the mean gain in positive mental health scores was higher in elderly women from the experimental group compared to elderly women of the control group. The calculated 't' value = 9.63 gives statistical evidence that after participating in a six-month physical exercise program, positive mental health in elderly women from the experimental group (Mean gain = 3.36) improved significantly ($p<.01$) as compared to elderly women from the control group (Mean gain = 0.16).

The results supported the beneficial impact of interventional physical exercise programs on the positive mental health of elderly women. It has been illustrated through various research that due to physical activity body releases happy chemicals such as endorphins which make people feel happy. The results are also consistent with the findings of Fluetsch et al. (2019) in which exercise has shown good association with mental health and overall happiness.

Conclusion

It was concluded that the effect of 06 months interventional physical exercise program was found to be effective in enhancing positive mental health in elderly women. Therefore, a structured physical exercise program for elderly women may be incorporated in their daily lives to enhance their positive mental health.

References

Chaplin, J.P. (1975). Dictionary of Psychology (Rev. ed.), D.P., New York.

de Oliveira, L.D.S.S.C.B., Souza, E. C., Rodrigues, R. A. S., Fett, C. A., & and Piva, A. B. (2019). The effects of physical activity on anxiety, depression, and quality of life in elderly people living in the community. Trends in Psychiatry and Psychotherapy, 41(1), 36–42.

Fluetsch N, Levy C, Tallon L. The relationship of physical activity to mental health: a 2015 behavioral risk factor surveillance system data analysis. J Affect Disord. (2019) 253:96–101.

Hou, B., Wu, Y. and Huang, Y. (2024). Physical exercise and mental health among older adults: the mediating role of social competence. Front Public Health.; 12:1385166. doi: 10.3389/fpubh.2024.1385166.

Maung TM, Jain T, Madhanagopal J, Naidu SRLR, Phyu HP, Oo WM. Impact of aerobic and strengthening exercise on Quality of Life (QOL), mental health and physical

performance of elderly people residing at old age homes. Sustainability. (2022) 14:10881.

Motaharinezhad, F., Madani, P., Seyed, S., Ayoubi, Avaz K. and Rasolzadeh, M. (2016). The Impact of the Six-Week Walking on the Elderly's Happiness and Mental Health, Middle East J Rehabil Health Stud., 3(3): e60290.

Ray, J.J. and Najman, J.M. (1987): Neo conservatism, mental health and attitude towards death. Personality and Individual Differences, 8(2), 277-279.

Schneiders, A.A. (1965): Personal adjustment and Mental health. Holt, Rinehart and Winston, New York.

ISSN 0975-7732
Asian Journal of Physical Education and Computer Science in Sports
Volume No.31, No.3
ISRA Journal Impact Factor 5.011
A Peer Reviewed (Refereed) International Research Journal

A STUDY ON ASSOCIATION BETWEEN HIP JOINT RANGE OF MOTION AND VERTICAL JUMP PERFORMANCE

Dr. Ashwini K N
Assistant Professor
Department of Studies in Physical Education Sports Sciences,
Karnataka State Akkamahadevi Women University, Vijayapura
ashwinikn04@gmail.com

ABSTRACT:

Vertical jump performance is a critical measure of lower body power and athletic capability, influenced by joint flexibility and mobility. The hip and knee joints play a significant role in generating the force and range of motion needed for an effective jump. Goniometry, a method to assess joint range of motion, helps evaluate flexibility and its contribution to physical performance. The purpose of the study was to understand the association of hip joint range of motion with vertical jump performance of the athletes. To achieve the purpose of the study total 41 female athletes selected for the study as subjects, those who have participated in intercollegiate level in different games. The age range of the subjects were 21 to 25 years. To measure the hip joint range of motion goniometer was used. To assess the vertical jump performance Sargent vertical jump test was used. To analyse the collected data the mean, SD and Coefficient of Correlation was used. Most hip joint movements showed weak correlations with vertical jump performance, external rotation of the right hip, and abduction and extension of the left hip, were slightly more associated with vertical jumping ability.

Key Words: Range of Motion, Goniometry, Hip Joint, Vertical Jump

INTRODUCTION:

Vertical jump performance is a crucial measure of lower-body power and an essential skill in various athletic disciplines, including basketball, volleyball, and track and field. It reflects not only muscular strength and power but also the biomechanical efficiency of the lower extremities (Cormie et al., 2011). Among the key factors influencing vertical jump performance are hip and knee range of motion (ROM), which directly contribute to optimal force production and joint coordination during jumping tasks (Lees et al., 2004).

Goniometry, a reliable and widely used method to measure joint angles, provides insights into the flexibility and functional capacity of the hip and knee joints (Clapis et al., 2008). Hip

extension and flexion, along with knee flexion, play pivotal roles in generating explosive power during the take-off phase of a vertical jump. Limitations in these ranges of motion may impede the transfer of force, thereby reducing jump height and athletic performance (Santos & Janeira, 2011).

Previous studies have explored the relationship between flexibility and sports performance, emphasizing that an optimal balance between flexibility and stability is necessary for peak athletic output (Behm & Chaouachi, 2011). However, the specific association between hip and knee joint goniometry and vertical jump performance remains underexplored. Understanding this relationship could have practical implications for athlete screening, injury prevention, and targeted training interventions aimed at enhancing performance.

The purpose of this study is to examine the association between hip and knee joint goniometry and vertical jump performance in athletes. By investigating this relationship, the study aims to provide evidence-based insights into how joint flexibility and range of motion influence lower-body power and overall athletic capabilities.

PURPOSE OF THE STUDY:

The broad objective of the study was to explore the association of hip joint range of motion with vertical jump performance

METHODOLOGY:

Selection of Subjects:

The purpose of the study was to find out the association of hip and knee joint range of motion with vertical jump performance. For the purpose 41 Female intercollegiate level athletes in the age group ranging from 21 to 25 years were randomly selected as subjects.

Selection of Variables:

1. Vertical Jump.
2. Hip Range of Motion: Hip Flexion, Hip extension, Hip Abduction, Hip Adduction, Hip Internal Rotation, Hip External Rotation

Selection of Tests:

To measure the vertical jump ability of the selected subjects, the Sargent jump test was developed by Dr Dudley Allen Sargent (1849-1924) was used. The hip flexion, extension, abduction, adduction, internal rotation and external rotation was asses with the help of goniometer.

ANALYSIS AND INTERPRETATION OF DATA

The descriptive statistics of selected variables were presented in table -1

Table -1 :Mean, SD of Vertical Jump and Hip Range of Motion Variables

Variables	Mean	SD
Vertical Jump	0.28	0.09
Right Hip Flexion	125.17	14.15
Right Hip extension	28.56	9.66
Right Hip Abduction	39.41	11.19
Right Hip Adduction	23.02	5.99
Right Hip Internal Rotation	29	7.61
Right Hip external Rotation	27.46	6.14
Left Hip Flexion	125.88	13.26
Left Hip extension	25.88	10.32
Left t Hip Abduction	39.12	11.42
Left Hip Adduction	24.12	6.84
Left Hip Internal Rotation	30.78	7.39
Left Hip external Rotation	29.12	5.47

The above table 1 shows that the mean, SD of selected variables. The mean and SD of vertical jump was 0.28 and 0.09 respectively. The mean and SD of right Hip flexion was 125.17 and 14.15 respectively. The mean and SD of right Hip extension was 28.56 and 9.66 respectively. The mean and SD of right Hip Abduction was 39.41 and 11.19 respectively. The mean and SD of right Hip Adduction was 23.02 and 5.99 respectively. The mean and SD of right Hip Internal Rotation was 29 and 7.60 respectively.

The mean and SD of right Hip External Rotation was 27.46 and 6.14 respectively. The mean and SD of left Hip flexion was 125.87 and 23.26 respectively. The mean and SD of left Hip Extension was 25.88 and 10.32 respectively. The mean and SD of left Hip Abduction was 39.12 and 11.42 respectively. The mean and SD of left Hip Adduction was 24.12 and 6.84 respectively.

The mean and SD of left Hip Internal Rotation was 30.78 and 7.39 respectively. The mean and SD of left Hip External Rotation was 29.12 and 5.47 respectively.

The correlation between vertical jump performance and Hip goniometry were presented from table-2

Table -2 :Correlation of Vertical Jump and Hip Range of Motion presented in Table-2

	VJ	*RHF*	*RHE*	*RHAB*	*RHAD*	*RIR*	*RER*	*LHF*	*LHE*	*LHAB*	*LHAD*	*LIR*	*LER*
VJ*	1.000												
RHF*	0.161	1.000											
RHE	0.198	0.200	1.000										
RHAB	0.057	0.208	0.327	1.000									
RHAD	0.241	0.303	0.041	-0.155	1.000								
RIR	0.111	0.037	0.419	-0.026	0.071	1.000							
RER	0.278	0.335	0.395	0.446	0.080	-0.080	1.000						
LHF	0.144	0.695	0.379	0.310	0.141	0.047	0.271	1.000					
LHE	0.245	0.400	0.526	0.166	0.168	0.338	0.423	0.363	1.000				
LHAB	0.257	0.126	0.269	0.650	0.234	0.044	0.304	0.174	0.014	1.000			
LHAD	-0.063	0.297	-0.046	-0.086	-0.242	-0.030	-0.104	-0.421	-0.240	-0.118	1.000		
LIR	0.129	0.269	0.358	0.005	-0.015	0.649	0.138	-0.371	-0.241	-0.012	-0.118	1.000	
LER	0.128	0.099	0.302	0.008	-0.167	0.131	0.491	-0.077	-0.275	-0.175	-0.042	-0.354	1.000

*(VJ- Vertical Jump, RHF- Right Hip Flexion, RHE-Right Hip Extension, RHAD-Right Hip Adduction, RHAB-Right Hip Abduction, RIR-Right Hip Internal Rotation, RER-Right hip external Rotation, LHF-Left Hip Flexion, LHE-Left Hip Extension, LHAD-Left Hip Adduction, LHAB-Left Hip Abduction, LIR-Left Internal Rotation, LER-Left External Rotation)

The table 2 shows that the correlation between vertical jump performance and Hip Range of Motion Variables.

Correlation of Vertical Jump with Right Hip Movements:

External rotation (r=0.278) showed the strongest positive correlation with vertical jump performance. Adduction (r=0.241r) and extension (r=0.198) also demonstrated weak but positive relationships. Flexion (r=0.161), internal rotation (r=0.111r), and abduction (r=0.057) showed weaker associations.

Correlation of Vertical Jump with Left Hip Movements:

Abduction (r=0.257) and extension (r=0.245) had the strongest positive correlations with vertical jump performance. Flexion (r=0.144), internal rotation (r=0.129), and external rotation (r=0.128) showed weak positive relationships. Adduction had a negative correlation (r=−0.063) with vertical jump performance.

DISCUSSION ON FINDINGS:

The findings highlight the importance of specific hip joint movements in contributing to vertical jump performance. While the correlations are generally weak, the stronger positive correlations for certain movements—such as right hip external rotation and left hip abduction—suggest these movements may play a slightly more prominent role in jump mechanics. These movements might contribute to hip stabilization, alignment, and force generation during vertical jumps. External rotation may facilitate a better loading position during the preparatory phase of the jump, while abduction could assist in maintaining balance and optimizing the force transfer. Hip extension is a key component of explosive movements like jumping, and the positive correlations align with the role of the posterior chain muscles (glutes and hamstrings) in generating vertical force. Adduction's contribution could reflect its role in stabilization and proper alignment during take-off.

CONCLUSIONS:

While most hip joint movements showed weak correlations with vertical jump performance, external rotation of the right hip, and abduction and extension of the left hip, were slightly more associated with improved jumping ability. These findings underscore the complex interplay of hip joint mechanics in vertical jump performance. Incorporating exercises to strengthen external rotation and abduction, particularly on the right and left hips respectively, could enhance performance. Exercises like banded side steps, single-leg Romanian deadlifts, and rotational hip drills may be beneficial. Coaches and trainers should assess and address asymmetries in hip strength and mobility to improve performance and reduce the risk of injury. Further studies with larger sample sizes and advanced biomechanical analysis (e.g., motion capture) are recommended to better understand the contributions of specific hip movements to vertical jump performance.

REFERENCES

Behm, D. G., & Chaouachi, A. (2011). A review of the acute effects of static and dynamic stretching on performance. *European Journal of Applied Physiology, 111*(11), 2633–2651. https://doi.org/10.1007/s00421-011-1879-2

Clapis, P. A., Davis, S. M., & Davis, R. O. (2008). Reliability of inclinometer and goniometric measurements of hip extension flexibility using the modified Thomas test. *Physiotherapy Theory and Practice, 24*(2), 135–141. https://doi.org/10.1080/09593980701378234

Cormie, P., McGuigan, M. R., & Newton, R. U. (2011). Developing maximal neuromuscular power: Part 1 - Biological basis of maximal power production. *Sports Medicine, 41*(1), 17–38. https://doi.org/10.2165/11537690-000000000-00000

Lees, A., Vanrenterghem, J., & De Clercq, D. (2004). Understanding how the human body responds to changes in jump technique: A simulation study. *Journal of Biomechanics, 37*(12), 1735–1743. https://doi.org/10.1016/j.jbiomech.2004.02.005

1. Santos, E. J. A. M., & Janeira, M. A. A. S. (2011). The effects of plyometric training followed by detraining and reduced training periods on explosive strength in adolescent male basketball players. *Journal of Strength and Conditioning Research, 25*(2), 441–452. https://doi.org/10.1519/JSC.0b013e3181c86559

ISSN 0975-7732
Asian Journal of Physical Education and Computer Science in Sports
Volume No.31, No.3
ISRA Journal Impact Factor 5.011
A Peer Reviewed (Refereed) International Research Journal

Influence of Psycho-Physical Parameters on the Performance of B.P.Ed Students in the Kho-Kho Game

Mr.Dilip Sanka
Principal & Assistant Professor of Physical Education,
Sri. BSM College of Physical Education, Kalaburagi, Karnataka

Abstract
The present study investigates the impact of psycho-physical parameters on the performance of Bachelor of Physical Education (B.P.Ed) students in the traditional Indian sport of Kho-Kho. Kho-Kho is a high-intensity game requiring agility, speed, endurance, and psychological resilience. The study explores how physical attributes such as strength, flexibility, reaction time, and aerobic capacity, combined with psychological factors like motivation, anxiety, and self-confidence, influence the players' performance. The findings suggest that both physical and psychological factors significantly contribute to the success of Kho-Kho players, emphasizing the need for a holistic training approach.

Introduction:

Kho-Kho, one of India's oldest traditional sports, is a test of agility, strategic thinking, and teamwork. For B.P.Ed students, understanding the influence of psycho-physical attributes on their performance can aid in improving training methodologies and enhancing overall game performance. This study aims to analyze how psychological factors like anxiety, motivation, and concentration, alongside physical parameters such as speed, endurance, and muscular strength, contribute to successful Kho-Kho play.

Methodology

Participants:

The study involved 50 B.P.Ed students (25 male, 25 female) aged between 18-25 years, actively participating in Kho-Kho.

Measurements:

Physical Parameters: Agility (Illinois agility test), speed (50m sprint test), muscular strength (hand grip test), endurance (Cooper's 12-minute run test), reaction time (Nelson hand reaction test), and flexibility (sit-and-reach test).
Psychological Parameters: Anxiety (Sports Anxiety Scale), motivation (Achievement Motivation Scale), and self-confidence (Self-confidence Inventory).
Performance Evaluation: Game performance was assessed through match observation and player statistics.

Statistical Analysis:

Pearson correlation analysis and regression models were used to determine the influence of psycho-physical parameters on game performance.

Results:

Table 1: Correlation Between Physical Parameters and Kho-Kho Performance

Physical Parameter	Correlation Coefficient (r)
Agility	0.78*
Speed	0.72*
Endurance	0.65*
Muscular Strength	0.59*
Reaction Time	0.68*
Flexibility	0.55*

(*Significant at $p < 0.05$)

Table 2: Correlation Between Psychological Parameters and Kho-Kho Performance

Psychological Parameter	Correlation Coefficient (r)
Anxiety (inverse)	-0.60*
Motivation	0.75*
Self-confidence	0.70*

(*Significant at $p < 0.05$)

Discussion:

The study findings indicate a strong correlation between psycho-physical attributes and Kho-Kho performance. Agility, speed, and endurance are primary determinants of success in the game. Additionally, psychological attributes such as high motivation and self-confidence positively influence performance, while anxiety negatively affects it. These findings highlight the importance of integrating psychological training with physical conditioning in B.P.Ed programs.

Conclusion:

The study underscores the importance of psycho-physical conditioning in Kho-Kho. Training programs should focus on enhancing both physical capabilities and psychological resilience to optimize player performance. Future research can explore intervention strategies to improve these parameters in Kho-Kho training.

References:

1. Bompa, T.O. (2009). *Periodization: Theory and Methodology of Training.* Human Kinetics.
2. Weinberg, R.S., & Gould, D. (2019). *Foundations of Sport and Exercise Psychology.* Human Kinetics.
3. Kansal, D.K. (2008). *Test and Measurement in Sports and Physical Education.* D.V.S. Publications.
4. Singh, H. (1991). *Science of Sports Training.* D.V.S. Publications.

ISSN 0975-7732
Asian Journal of Physical Education and Computer Science in Sports
Volume No.31, No.3
ISRA Journal Impact Factor 5.011
A Peer Reviewed (Refereed) International Research Journal

Effect of Psycho-Physiological Factors on the Performance of Long-Distance Athletes of Gulbarga University

Dr.Arvind V. Patil
Assistant Professor of Physical Education,
Sri. BSM College of Physical Education, Kalaburagi, Karnataka

Abstract:
Long-distance running performance is influenced by a combination of psychological and physiological factors. This study investigates the impact of key psycho-physiological determinants, such as motivation, anxiety, stress, VO2 max, heart rate variability, and muscular endurance, on the performance of long-distance athletes at Gulbarga University. A sample of 50 university athletes was analyzed through psychometric tests and physiological assessments. The findings reveal a strong correlation between psychological resilience and physiological efficiency in optimizing performance. The study suggests targeted training programs to enhance both mental and physical readiness, ultimately improving endurance running outcomes.
Keywords: Psycho-physiological factors, long-distance athletes, performance, endurance, Gulbarga University

1. Introduction:

Endurance sports require a blend of physiological capacity and psychological resilience. Long-distance athletes must maintain optimal cardiovascular function while managing psychological stressors such as anxiety and motivation. This study aims to evaluate how psycho-physiological factors influence the performance of long-distance athletes at Gulbarga University.

2. Methodology:

2.1 Participants:
Fifty male and female long-distance athletes from Gulbarga University participated in the study.

2.2 Data Collection Tools:

Psychological parameters: Motivation scale, anxiety scale, stress inventory
Physiological parameters: VO2 max test, heart rate variability, muscular endurance test
Performance measures: Race completion time, running economy, perceived exertion

2.3 Statistical Analysis:

Data were analyzed using correlation and regression models to determine the impact of psychological and physiological variables on athletic performance.

3. Results and Discussion:

Parameter	Correlation with Performance
Motivation	Positive ($r = 0.76$, $p<0.05$)
Anxiety	Negative ($r = -0.58$, $p<0.05$)
Stress	Negative ($r = -0.64$, $p<0.05$)
VO2 max	Positive ($r = 0.81$, $p<0.05$)
Heart Rate Variability	Positive ($r = 0.69$, $p<0.05$)
Muscular Endurance	Positive ($r = 0.74$, $p<0.05$)

The study found that higher motivation and VO2 max levels significantly improve endurance performance, whereas high anxiety and stress levels negatively impact running efficiency. Athletes with better heart rate variability and muscular endurance exhibited superior performance.

4. Conclusion:

Psycho-physiological factors play a crucial role in determining long-distance running performance. Training programs that focus on psychological resilience, stress management, and physiological conditioning can enhance endurance outcomes for university athletes. Future research should explore intervention strategies to optimize these factors for improved athletic success.

References:

1. Noakes, T. D. (2012). *The Lore of Running*. Human Kinetics.
2. Morgan, W. P., & Costill, D. L. (1996). "Psychological and physiological aspects of endurance performance." *Sports Medicine, 22*(4), 225-236.
3. Raglin, J. S. (2001). "Psychological factors in sports performance: The interplay of mood, motivation, and anxiety." *Journal of Sports Sciences, 19*(5), 385-397.
4. Astrand, P. O., & Rodahl, K. (2003). *Textbook of Work Physiology*. McGraw-Hill.

ISSN 0975-7732
Asian Journal of Physical Education and Computer Science in Sports
Volume No.31, No.3
ISRA Journal Impact Factor 5.011
A Peer Reviewed (Refereed) International Research Journal

A Comparative Analysis on Physical, Physiological Parameters and Performance Among Inter-Collegiate Badminton Players

Dr. Shankrappa
Physical Education Director, MSI Degree College, Kalaburagi, Karnataka

Abstract:
The study aims to conduct a comparative analysis of physical and physiological parameters, as well as performance metrics, among inter-collegiate badminton players. Badminton, being a high-intensity, fast-paced sport, demands a combination of strength, speed, endurance, flexibility, and mental agility. Understanding how these parameters influence the overall performance of athletes at the collegiate level can provide insight into optimizing training programs and enhancing player development. The study compares the physical fitness levels, cardiovascular endurance, muscular strength, flexibility, body composition, and psychological factors such as motivation and stress levels among male and female badminton players from different universities. Data were collected through fitness tests, performance trials, and interviews with the players. Statistical analyses were performed to examine the differences between players' physical and physiological characteristics and their impact on competition performance. The findings reveal significant variations in specific physical attributes between male and female players, and they highlight the key areas that coaches and trainers should focus on to maximize athletic potential. This study contributes to the development of sport-specific training regimens for badminton players and suggests avenues for further research in athletic performance optimization.

Introduction:

Badminton is one of the most physically demanding sports, requiring athletes to possess a combination of strength, speed, endurance, flexibility, and coordination. In the context of inter-collegiate competitions, players often exhibit varying levels of physical and physiological attributes, which can influence their performance outcomes. The purpose of this research is to analyze and compare these factors among male and female inter-collegiate badminton players, focusing on physical fitness, cardiovascular health, and sport-specific performance metrics. By understanding how these parameters interact, coaches can tailor training programs that maximize player development.

Methods:

A total of 60 badminton players (30 male, 30 female) from inter-collegiate teams were selected for the study. The athletes were assessed using standard fitness tests to evaluate strength, flexibility, cardiovascular endurance, and body composition. Performance metrics were collected using sport-specific drills to measure sprint times, agility, smash speed, and reaction time. Physiological parameters such as heart rate and VO2 max were also measured. Statistical analysis was carried out to determine the differences between male and female players in terms of their physical, physiological, and performance outcomes.

Results:

Table 1: Physical and Physiological Parameters of Inter-Collegiate Badminton Players

Parameter	Male Players (N=30)	Female Players (N=30)	p-value
Age (years)	20.5 ± 2.1	20.2 ± 1.9	0.45
Height (cm)	175.4 ± 5.6	162.3 ± 6.4	<0.001
Weight (kg)	70.8 ± 7.9	58.4 ± 6.3	<0.001
BMI (kg/m²)	23.1 ± 2.4	22.2 ± 2.1	0.17
Resting Heart Rate (bpm)	58.4 ± 6.5	62.3 ± 7.4	0.02
VO2 Max (ml/kg/min)	47.5 ± 4.3	45.2 ± 4.0	0.21
Flexibility (cm)	17.8 ± 3.2	21.5 ± 4.5	0.01

Note: Data are presented as Mean ± Standard Deviation. Statistical significance is set at $p<0.05$.

Table 2: Performance Metrics of Inter-Collegiate Badminton Players

Parameter	Male Players (N=30)	Female Players (N=30)	p-value
40-meter Sprint Time (sec)	5.1 ± 0.3	5.3 ± 0.4	0.06
Agility (T-Test, sec)	8.2 ± 0.6	8.6 ± 0.7	0.03
Max. Smash Speed (km/h)	220.2 ± 12.8	198.3 ± 11.2	<0.001
Endurance (Shuttle Run Test)	19.4 ± 1.5	18.7 ± 1.6	0.15
Reaction Time (ms)	202.4 ± 16.1	215.7 ± 18.3	0.08

Note: Data are presented as Mean ± Standard Deviation. Statistical significance is set at $p<0.05$.

The data revealed several key findings:

- Physical Characteristics: Male players were significantly taller and heavier than female players, with a corresponding difference in muscle mass. However, there was no significant difference in Body Mass Index (BMI).
- Cardiovascular and Physiological Variables: Male players exhibited lower resting heart rates compared to female players, suggesting better cardiovascular fitness. Both groups had similar VO2 max values, indicating similar aerobic capacities.
- Performance Metrics: Male players demonstrated higher max smash speeds, faster sprint times, and better overall agility compared to female players. However, female players exhibited superior flexibility.

Discussion:

The findings indicate that while male players tend to have an advantage in terms of speed and strength, female players may benefit from better flexibility and endurance. These differences highlight the importance of tailoring training programs to address the specific physical and physiological strengths and weaknesses of each gender. Moreover, the results underscore the need for sport-specific conditioning to improve performance, particularly in areas like smash speed and agility.

Conclusion:

This comparative analysis provides valuable insights into the physical and physiological characteristics of inter-collegiate badminton players. Coaches and trainers can utilize these findings to optimize training regimens that enhance player performance across both genders. Further research is recommended to explore the role of mental factors, such as motivation and stress management, in influencing badminton performance.

References:

1. Drenowatz, C., & Eisenmann, J. C. (2011). Physical fitness and performance in youth: A comparative study. *Journal of Sports Science and Medicine, 10*(3), 350-355.
2. Fowles, J. R., & Sale, D. G. (2004). Strength and power. In T. L. Fox, R. W. Bowers, & M. L. L. (Eds.), *The physiology of exercise* (2nd ed., pp. 345-357). Human Kinetics.
3. Lien, Y. H., & O'Hara, R. (2009). The relationship between agility and performance in badminton athletes. *Journal of Sports Performance, 22*(1), 65-72.
4. Smith, R. J., & Thomas, R. W. (2010). Cardiovascular fitness and its impact on badminton performance. *International Journal of Physical Education and Sports Science, 12*(2), 95-104.
5. Zubair, S., & Miah, M. (2013). Gender differences in physical fitness: A comparison of male and female college athletes. *Journal of Human Kinetics, 36*(1), 113-120.

ISSN 0975-7732
Asian Journal of Physical Education and Computer Science in Sports
Volume No.31, No.3
ISRA Journal Impact Factor 5.011
A Peer Reviewed (Refereed) International Research Journal

Influence of Physical and Physiological Parameters on the Performance of District Hockey Players

Dr. Manjunath Sahadevappa
Physical Education Director
Shri. Siddrameshwar Degree College, Kamalnagar, Bidar, Karnataka

Abstract

The performance of athletes, particularly in team sports such as hockey, is influenced by both physical and physiological factors. This research aims to explore the impact of various physical and physiological parameters on the performance of district-level hockey players. Key variables such as body composition, strength, flexibility, aerobic capacity, and anaerobic endurance were assessed to understand their influence on hockey performance. The study was conducted on a group of 30 male district-level hockey players, aged between 18 and 25, who were evaluated using standardized fitness tests and performance measures. Results indicated that aerobic fitness, strength, and body composition were the most significant contributors to overall performance, while flexibility showed a moderate impact. The findings highlight the importance of tailored training programs that incorporate both physical conditioning and physiological improvements to enhance the performance of hockey players.

Introduction:

Hockey is a high-intensity, fast-paced sport that demands a combination of strength, endurance, agility, and tactical awareness. The performance of hockey players is determined by a wide range of factors, with physical and physiological parameters playing crucial roles. Previous studies have emphasized the importance of attributes such as aerobic capacity, muscle strength, body composition, and flexibility in athletic performance. However, there is limited research specifically examining how these parameters influence hockey performance at the district level.

This study seeks to address this gap by investigating how key physical and physiological factors impact the performance of district-level hockey players. Understanding these relationships can help coaches and trainers design effective conditioning programs to optimize player performance.

Methodology:

Participants:

A total of 30 male district-level hockey players, aged 18–25 years, participated in this study. All players were actively engaged in regular training for a minimum of 6 months leading up to the study.

Physical and Physiological Assessments:

The participants were assessed for the following parameters:

1. Body Composition: Body fat percentage and lean body mass were measured using skinfold calipers.
2. Strength: Maximum voluntary contraction (MVC) of leg muscles was measured using a dynamometer.
3. Flexibility: Flexibility was evaluated through the sit-and-reach test.
4. Aerobic Capacity: Aerobic capacity (VO2max) was measured using a graded exercise test (GXT) on a treadmill.
5. Anaerobic Capacity: The Wingate Anaerobic Test (WAnT) was used to assess short-term anaerobic performance.

Performance Measures:

The players' performance was assessed using a composite of skill-based tests and match performance metrics, including:

- Speed: 40-meter sprint test.
- Agility: Illinois agility test.
- Endurance: 12-minute Cooper run test.

Statistical Analysis:

The data were analyzed using Pearson's correlation coefficient to determine the relationship between the physical and physiological parameters and performance outcomes. A p-value of <0.05 was considered statistically significant.

Results:

Table 1: Correlation of Physical and Physiological Parameters with Performance Indicators

Parameter	Speed (r)	Agility (r)	Endurance (r)	Performance (r)
Body Fat Percentage	-0.45	-0.33	-0.48	-0.52
Lean Body Mass	0.36	0.29	0.42	0.49
Strength (MVC)	0.58	0.50	0.44	0.60
Flexibility	0.21	0.35	0.28	0.36
VO2max (Aerobic Capacity)	0.64	0.58	0.65	0.71
Anaerobic Capacity	0.49	0.45	0.52	0.60

Discussion:

The results of this study demonstrate a significant correlation between several physical and physiological parameters and the performance of district-level hockey players. Aerobic capacity, as measured by VO2max, showed the strongest correlation with overall performance ($r = 0.71$), highlighting the importance of cardiovascular endurance in sustaining high-level play during hockey matches. Additionally, strength, particularly in the legs, was positively correlated with performance indicators such as speed and agility ($r = 0.58$ and $r = 0.50$, respectively), suggesting that muscular power plays a critical role in sprinting, quick directional changes, and overall match performance.

Body composition also emerged as a significant factor, with lower body fat percentages being linked to higher performance scores (r = -0.52), possibly due to the improved muscle-to-fat ratio contributing to better movement efficiency. Flexibility was less strongly correlated with performance, though it still showed a moderate impact, particularly in agility and overall match performance (r = 0.36).

Interestingly, anaerobic capacity was another important factor, with a moderate to strong correlation with performance (r = 0.60). The ability to generate high bursts of power in short intervals is crucial in hockey, especially during sprints and high-intensity moments of the game.

Conclusion:

This study emphasizes the importance of both physical and physiological parameters in determining the performance of district-level hockey players. Aerobic capacity, muscular strength, and body composition were identified as the most significant factors contributing to performance. These findings suggest that hockey players at this level would benefit from training programs that enhance cardiovascular endurance, strength, and body composition. Furthermore, incorporating anaerobic training could improve the ability to perform explosive actions during matches. Coaches and trainers should consider these factors when designing conditioning programs for hockey players to maximize their performance on the field.

References:

1. Andersen, J., & Nielsen, P. (2019). The role of aerobic fitness in soccer performance: A review. *Journal of Sports Science and Medicine*, 18(4), 734–741.
2. Baker, J., & Nance, S. (2017). The impact of strength and conditioning on the performance of athletes in team sports. *Sports Science Review*, 25(1), 3-10.
3. Chtara, M., Chaouachi, A., & Hammami, M. (2019). The impact of body composition on performance in high-level athletes: A systematic review. *International Journal of Sports Physiology and Performance*, 14(2), 157-164.
4. Douda, H. T., & Papadopoulou, S. (2018). Effects of anaerobic capacity on the performance of field hockey players. *European Journal of Applied Physiology*, 118(6), 1263-1273.
5. Nilsson, J., & Sjöberg, S. (2018). Flexibility and performance in team sports: A review of the literature. *Journal of Strength and Conditioning Research*, 32(1), 90-98.
6. Stojanovic, M., & Jovanovic, M. (2021). Aerobic capacity and its relationship with performance in team sports athletes. *Journal of Sports Medicine*, 45(1), 120-130.

ISSN 0975-7732
Asian Journal of Physical Education and Computer Science in Sports
Volume No.31, No.3
ISRA Journal Impact Factor 5.011
A Peer Reviewed (Refereed) International Research Journal

Effect of Circuit Training and Plyometric Training on the Development of Explosive Power among Collegiate Sprinters of Osmania University

Gaddam Ramu
Ph.D. Scholar, Dept. of Physical Education
Osmania University
Prof. Rajesh Kumar
Senior Professor in Physical Education
University College of Physical Education, Osmania University, Hyderabad
Email:rajesh2sports@gmail.com

Abstract:

The purpose of the study was to find out the effect of Circuit Training and Plyometric training on the development of Speed among Collegiate Sprinters of Osmania University. The selected Male Collegiate Sprinters N=45 were randomly assigned into 3-groups and each group consist of n=15. Circuit training Group I consists of 15 Sprinters underwent treatment of Circuit Training Program Plyometric Training group-II consists of 15 Sprinters underwent treatment of Plyometric training program and control group 15 Sprinters participated only their regular routine of Sprint Training for 12 Weeks. The age group of Sprinters between 18 to 25 Years. To assess the explosive Power Standing Broad Jump Test were used in the Pre Test and Post Test of the Study.Accordingly, the results obtained showed that the intervention of Plyometric Training (PT) and Circuit Training (CT) on explosive Power significantly improved among treatment groups. Key Words:Plyometric Training, Circuit Training, explosive Power, Sprinters etc.

Introduction:

.

Circuit resistance training is some resistance exercise done by in a circuit interval training technique that minimizes rest between sets and exercises. Plyometric training 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 .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, is defined as exercises that enable a muscle to reach maximum strength in as short time as possible. This speed strength ability is known as power. Although most coaches and athletes know that power is the name of the game, few have understood the mechanics, necessary to develop it. Plyometrics is a common training methodology used by competitive athletes to develop speed and power.

Buddhadev Kandar(2022) Effect of circuit training and plyometric training on explosive strength among Vishwavidyalaya level players.The purpose of the present study was to find out the effect of circuit training and plyometric training on selected physical fitness variables on the players of Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.). Forty five men players were selected as subjects. The subjects were aged between 20 to 25 years. They were divided into three equal groups of fifteen each, group 1.Underwent circuit resistance training, group 2.Underwent plyometric training and group 3. Acted as control that did not participate in any special training apart from their regular sports and games practices. The subjects were tested on selected criterion variable such as, explosive strength. The selected criterion variable such as standing broad jump. The analysis of covariance (ancova) was used to find out the significant differences if any, between the experimental groups and control group on selected criterion variable. The 0.05 level of confidence was fixed to test the significance, which was considered as an appropriate. The result of the present study has revealed that there was a significant difference among the experimental and control group on explosive strength

Prof. Rajesh Kumar(2020) Effect of Plyometric and Circuit Training On Selected Physical Variables among Sprinters of Hyderabad District of Telangana State.The purpose of the study was to find out the effect of plyometric and Circuit training on selected physical variables among Sprinters of Hyderabad District in Telangana State.To achieve this purpose, forty five

Sprinters in the age group of 16 to 20 years those who have participated in the Hyderabad Open Sprints Athletics Championships at Gachibowli Stadium, Hyderabad for the year 2019 taken as subjects. The selected forty five subjects were divided into three equal groups of fifteen each as two experimental groups and one control group, in which group – I (n=15) underwent plyometric training for three days per week for Twelve weeks, group – II (n=15) underwent the Circuit Training for three days per week for Twelve weeks and group – III (n=15) acted as control who are not participate any training apart from their regular activities. The selected Physical variables such as abdominal strength, speed and leg explosive power were assessed before and after the training period. Sit Up Test, 50 M Dash and Standing Broad Jump are the Tests were used to conduct the pre test and post for Measuring the Physical Variables such as Abdominal Strength, Speed and explosive power of legs. The results of the study it was found that there was a significant difference of performance due to Plyometric and circuit training when compared with the control group.

Purpose of the study:

The purpose of the study was to find out the effect of Circuit Training and Plyometric training on the development of Speed among Collegiate Sprinters of Osmania University.

Methodology:

The selected Male Collegiate Sprinters N=45 were randomly assigned into 3-groups and each group consist of n=15. Circuit training Group I consists of 15 Sprinters underwent treatment of Circuit Training Program Plyometric Training group-II consists of 15 Sprinters underwent treatment of Plyometric training program and control group 15 Sprinters participated only their regular routine of Sprint Training for 12 Weeks. The age group of Sprinters between 18 to 25 Years

Results and Discussion:

Table: 1 To test the effectiveness of Circuit training and Plyometric training on Standing Broad jump .

Group	SBJ(in Meters)	Mean	N	S.D.	S.E.	t	df	p-value
Control Group	Pre test	2.3283	15	.13249	.02419	0.571	14	0.573
	Post test	2.3317	15	.13934	.02544			
Plyometric Training	Pre test	2.3433	15	.05108	.00933	38.331	14	.000
	Post test	2.5263	15	.05738	.01048			
Circuit Training	Pre test	2.3100	15	.03270	.00597	35.629	14	.000
	Post test	2.4977	15	.03989	.00728			

The above table presents the standing broad jump (SBJ) performance of selected Sprinters. The Control Group shows that in the pre-test, the mean is 2.3283 meters.. The post-test mean is 2.3317. the mean difference is 0.0033.Hence there is no difference found in pre test to posttest SBJ(in Meters) in control group. It indicating that no change in performance of SBJ(in Meters) indicating no change in performance.

The Plyometric Training Group shows that in the pre-test, the mean is 2.3433 meters.. The post-test mean is 2.5263..Hence there is a difference found in pre test to posttest SBJ(in Meters) in Plyometric Training . It indicating that there is change in performance of SBJ(in Meters) .

The Circuit Training Group shows that in the pre-test, the mean is 2.3100 meters.. The post-test mean is 2.4977..Hence there is a difference found in pre test to posttest SBJ(in Meters) in Circuit Training . It indicating that there is change in performance of SBJ(in Meters) .

Conclusion:

Accordingly, the results obtained showed that the intervention of Circuit Training (CT) and Plyometric Training (PT) on explosive power significantly improved among treatment groups.

Recommendations:

Based on analysis of collected data, the investigators would like to recommend the research work to extend further more as mentioned below.

1.Similar research work should be done on similar set of sports to validate the results. Use a variety of training to develop physical strength, focusing on the development of other motivations through all methods that have to do with each quality to be created.

2.Further research, as well as the published findings, will contribute to the Sprinters coaching.The study also helps the physical educationists and coaches understanding the knowledge and performance of the players.

References:

Buddhadev Kandar(2022) Effect of circuit training and plyometric training on explosive strength among Vishwavidyalaya level players International Journal of Physical Education, Sports and Health 2022; 9(1): 159-160

Prof. Rajesh Kumar(2020) Effect of Plyometric and Circuit Training On Selected Physical Variables among Sprinters of Hyderabad District of Telangana State, IOSR Journal of Sports and Physical Education (IOSR-JSPE) e-ISSN: 2347-6737, p-ISSN: 2347-6745, Volume 7, Issue 2, (Mar – Apr 2020), PP 55-57 www.iosrjournals

ISSN 0975-7732
Asian Journal of Physical Education and Computer Science in Sports
Volume No.31, No.3
ISRA Journal Impact Factor 5.011
A Peer Reviewed (Refereed) International Research Journal

Global Trends in Fitness through Physical Education

Dr. Jagan Mohan Sidda
Associate Professor and Head
Dept. of Physical Education, Vivekananda GDC, Hyderabad

Introduction:

Physical education and fitness have undergone significant transformations worldwide, reflecting shifts in technology, lifestyle, education policies, and public health awareness. As schools, communities, and policymakers recognize the importance of lifelong movement habits, fitness education is evolving beyond traditional sports and structured exercise routines. The global trends in fitness and physical education emphasize inclusivity, technology-driven workouts, holistic well-being, and innovative teaching approaches that cater to a diverse range of students.

These trends are shaping how schools and communities encourage physical activity, engage students in movement, and promote long-term health benefits. Understanding these developments allows educators, parents, and students to adopt progressive fitness models that align with current needs and future demands.

The Shift Toward Holistic Fitness

Historically, physical education focused on competitive sports and athletic performance, often emphasizing structured drills, skill-based training, and standardized fitness tests. While these elements remain important, the focus has expanded to a holistic approach, considering:

- Mental well-being alongside physical fitness.
- Personalized fitness plans over one-size-fits-all routines.
- Inclusivity in movement rather than performance-based sports.
- Technology-driven engagement to make fitness more interactive and accessible.

This broader view of fitness ensures that all students, regardless of athletic ability, body type, or interest level, find enjoyable and sustainable ways to stay active.

Key Global Trends in Fitness and Physical Education
Several emerging trends are shaping modern fitness education and providing schools with innovative tools to engage students in movement.

1. Technology-Integrated Fitness Programs
Technology is revolutionizing fitness education, making movement more interactive, measurable, and engaging. Some of the biggest technological advancements in fitness include:

- Wearable fitness trackers and smart devices – Schools are incorporating devices such as smartwatches, heart rate monitors, and step counters to provide real-time feedback on students' activity levels.
- Fitness apps and gamified movement – Digital platforms offer personalized workout plans, challenges, and real-time tracking, encouraging students to stay active beyond school hours.
- Virtual and augmented reality workouts – VR and AR allow students to engage in interactive sports simulations, guided workouts, and immersive fitness experiences that make movement more exciting.
- AI-powered fitness coaching – Artificial intelligence-driven training programs provide customized workouts based on students' fitness levels, helping them progress at their own pace.

By leveraging technology, schools can make fitness education more engaging and accessible, ensuring that students remain active in a digital-first world.

2. Inclusive and Adaptive Physical Education
Inclusivity is a key focus of modern fitness education, ensuring that all students, regardless of ability, gender, or background, have equal access to movement opportunities.
Some of the most impactful changes include:

- Adaptive physical education programs for students with disabilities, using modified equipment, alternative activities, and tailored instruction.
- Gender-inclusive sports programs that encourage equal participation and break stereotypes in traditionally male- or female-dominated activities.
- Choice-based fitness education that allows students to select movement styles that align with their interests, such as yoga, martial arts, dance, or outdoor recreation.
- Mental health integration, where mindfulness practices, relaxation techniques, and breathing exercises are included in fitness curriculums.

By removing barriers to participation, schools ensure that fitness is for everyone, not just the athletically inclined.

3. Mind-Body Fitness and Holistic Well-Being
Modern fitness education emphasizes mental well-being as much as physical strength. The rise of mind-body fitness practices includes:

- Yoga, Pilates, and stretching routines that promote flexibility, balance, and stress relief.

Meditation and mindfulness practices integ

4. Outdoor and Nature-Based Fitness Programs
As more research highlights the benefits of movement in natural environments, outdoor fitness programs are gaining popularity. Schools worldwide are:

- Organizing nature-based physical activities such as hiking, cycling, and adventure-based learning.

- Encouraging green exercise, where students engage in fitness sessions in outdoor parks or eco-friendly environments.
- Incorporating team-building and survival skills training, helping students develop problem-solving abilities and resilience.

Countries such as Norway and Canada emphasize outdoor fitness as a key part of their school curriculums, ensuring that students get exposure to nature while staying active. This trend encourages lifelong movement habits that extend beyond structured gym-based workouts.

5. Sports for Peace

Sports Diplomacy Helps to Play Sports Matches and is a tool for the International Cooperation through dialogue between the Nations.

References:

1. American College of Sports Medicine. (2024). *ACSM's complete guide to fitness & health* (2nd ed.). Human Kinetics.

2. Ekelund, U., Tarp, J., Fagerland, M. W., Johannessen, J. S., Hansen, B. H., Jefferis, B., ... & Lee, I. M. (2020). Joint associations of accelerometer-measured physical activity and sedentary time with all-cause mortality: A harmonised meta-analysis in more than 44,000 middle-aged and older individuals. *British Journal of Sports Medicine*, 54(24), 1499-1506.

3. Füzéki, E., & Banzer, W. (2018). Physical activity recommendations for health and beyond in currently inactive populations. *International Journal of Environmental Research and Public Health*, 15(5), 1042.

4. Gallo, L. A., Gallo, T. F., Young, S. L., Moritz, K. M., & Akison, L. K. (2020). The impact of isolation measures due to COVID-19 on energy intake and physical activity levels in Australian university students. *Nutrients*, 12(6), 1865.

5. Guthold, R., Stevens, G. A., Riley, L. M., & Bull, F. C. (2018). Worldwide trends in insufficient physical activity from 2001 to 2016: A pooled analysis of 358 population-based surveys with 1·9 million participants. *The Lancet Global Health*, 6(10), e1077-e1086.

6. Hansen, B. H., Dalene, K. E., Ekelund, U., & Anderssen, S. A. (2020). Step by step: Association of device-measured daily steps with all-cause mortality—A prospective cohort study. *Scandinavian Journal of Medicine & Science in Sports*, 30(9), 1705-1711.

7. Katzmarzyk, P. T., Powell, K. E., Jakicic, J. M., Troiano, R. P., Piercy, K., & Tennant, B. (2019). Sedentary behavior and health: Update from the 2018 Physical Activity Guidelines Advisory Committee. *Medicine & Science in Sports & Exercise*, 51(6), 1227-1241.

8. Li, N. (2023). Effects of daily exercise time on the academic performance of students: An empirical analysis based on CEPS data. *arXiv preprint* arXiv:2312.11484.

9. Loprinzi, P. D., & Frith, E. (2019). A brief primer on the mediational role of BDNF in the exercise-memory link. *Clinical Physiology and Functional Imaging*, 39(1), 9-14.

10. McCullough, A. (2025). Dance for 20 minutes a day to hit weekly exercise target. *The Times*.

11. National Institute on Aging. (2024). *Get fit for life: Exercise & physical activity for healthy aging*.

12. Piercy, K. L., & Troiano, R. P. (2018). Physical activity guidelines for Americans from the US Department of Health and Human Services: Cardiovascular benefits and recommendations. *Circulation: Cardiovascular Quality and Outcomes*, 11(11), e005263.

13. Segar, M. L. (2022). *The joy choice: How to finally achieve lasting changes in eating and exercise*. Hachette Go.

14. Segar, M. L. (2015). *No sweat: How the simple science of motivation can bring you a lifetime of fitness*. AMACOM.