

COMPARISON OF LUNG FUNCTION OF SEDENTARY WOMEN Vs EXERCISING WOMEN

***Pawar Rajni and **Mehta Deepak**

1. Research Scholar, School of Physical Education, DAVV, Indore, **INDIA.**
2. Professor & Head, School of Physical Education, DAVV Indore, **INDIA.**

Email: rajnispawar@gmail.com

(Received February 7, 2021, accepted June 2, 2021)

ABSTRACT

The purpose of the study was to compare lung function of sedentary women and exercising women of Indore district. The subject's age ranged between 25-55 years, they all were selected from the Indore district, and divided in to two group, one group A exercising women and another group B of sedentary women. Pulmonary lung function PEFR of both groups was checked by Peak Flow Meter. There was a significant difference found in PEFR of sedentary women as compared to exercising women. Group B with sedentary females is found to have lower values compared to the group A for PEFR.

Keywords: Pulmonary, Peak Flow Meter, Expiratory flow rate, Sedentary, Lung.

INTRODUCTION

The modern lifestyle is a potent risk factor for health. Decline in physical activity, increased workload and increase calorie intake are important environmental factors contributing to mobility deficiency sickness and leading to various health related complications. Sedentary lifestyle causes excess body weight which increases a threat to both quality and duration of one's life .Sedentary

lifestyle is associated with co morbidities, Inadequate physical activity and low levels of fitness contributes to the development of obesity, diabetes mellitus, hypertension, metabolic syndrome, hypercholesterolemia, myocardial infarction, osteoporosis, depression, cancer, vascular dysfunction, cardiac disease and respiratory problems in future. Exercise plays a dominant role in modifying individual's total health in general and in particular the cardiac and respiratory systems. Everyone should maintain health throughout the life and to achieve this, best method is to remain physically active so that clinically desirable and beneficial physiological changes occur in the body, to lead a healthier life. Pulmonary function tests (PFT) serve as a tool of health assessment and also to some extent as a predictor of survival rate. Peak expiratory flow rate (PEFR) is most commonly used method to monitor lung function. It is the largest expiratory flow rate achieved with a maximally forced effort from a position of maximal inspiration, it is expressed in liters'/min. Individuals doing exercise regularly tends to have an increase in pulmonary capacity when compared with sedentary one. Regular exercise is accompanied by a number of beneficial physiological effects in the body and is known to improve overall performance and working capacity. Current research suggests that individuals doing regular exercise have better pulmonary functions. The object of our study is to determine the differences between the pulmonary function of exercising female with sedentary female and to make aware importance of exercise to sedentary women.

METHODOLOGY

The 60 women aged ranged between 25-55 years were selected randomly from the Indore district and divided in to two groups, one sedentary group and other exercising group. Lung function PEFR of both the groups was measured by Peak Flow Meter (by Cipla) and the data were compared.

RESULTS AND DISCUSSION

For the data analysis independent t-test was employed, and the findings revealed that there was a significant difference found in both groups i.e. mean of sedentary group was 299.600 ltr/m and of exercising group was 336.600 ltr/m *Significant at 0.05 level. In the present study, significantly higher values of PEFR were observed among women exercising regularly as compared to sedentary women who did not do exercise. The group A exhibited better PEFR status when compared with group B.

Table 1

Group	No of Subjects	Mean	Std. Deviation	t- Value	DF	p-Value
A	30	336.600	52.524	3.463*	58	0.001
B	30	299.600	25.809			

*Significant at 0.05 level

Above table clearly showed that women who exercise regularly had better PEFR values than the sedentary women. In sedentary women primary factors that affect PEFR is the strength of the expiratory muscles generating the force of contraction, the elastic recoil pressure of the lungs and the airway size. The lower values of PEFR could be linked through several mechanisms. A continuous sitting job, increase body fat alters the normal respiratory biomechanics and limits the action of the respiratory muscles. These structural changes in the thoracic-abdominal area restrict diaphragmatic mobility and rib movement, which promotes changes in the dynamics of the respiratory system and reduces its compliance leading to mechanical impairment of the respiratory muscle, this can lead to mismatch of ventilation perfusion ratio. Sukanya et al compared PEFR of medical students with physical education students and found better PEFR in physical education students as they were engaged in physical activity regularly. Saylee et al [2019] also studied PEFR

in obese women and explained that altered mechanical muscular activity due to adiposity, altered airway caliber and increases respiratory resistance may be responsible for the reduced lung functioning and lower PEFr in obese women. Many authors emphasized the importance of PEFr as one of the important indicators of pulmonary function. Similarly, Prakash et al studied various lung functions and reported that the mean FVC value for yoga practitioners was higher whereas in sedentary subjects the values were lower and they are in agreement with the present study. Joshi et al in their study also observed a significant increase in FVC after exercise. Yadav and Das in their study also observed that there was a significant increase in FVC among the subjects exposed to exercises. Sedentary life-style is associated with development of restrictive lung function. We recommend that sedentary people should adopt exercises for improving their health. Hence regular practice of exercise should be promoted among the sedentary subjects that may bring desirable physiological, psychological and physical changes.

CONCLUSION

The Mean PEFr of exercising women group is quite higher than non-exercising sedentary women group, which reveals that the sedentary women's performance was poorer when compared with exercising one. This emphasizes the need to change their lifestyle and adopt measures like exercise regularly to be healthy. Engaging in physical activity produces a positive effect on the lung that is reflected in improvement of pulmonary capacities and overall health. The data from the study provide more scientific evidence to support the beneficial effect of doing exercise and the result of study of lung functions can be used as awareness tool to encourage sedentary women to do physical exercise to get a better healthy future.

RECOMMENDATIONS

It is highly recommended that women as a vast part of society should engage in physical activity. As the results of this study has revealed that women those who are not indulge in physical exercise are more prone to decrease lung function and mobility deficiency complications. The results of this study would help to make aware the sedentary women for future complications.

- The same study can be repeated with some more physiological variables like FVC, FEV1, MVV, and SPO2.
- Future study could be conducted on large population.
- Study can also be conducted on other age groups and gender.
- Further comparative study of changes in PFT before and after exercise could also be studied.

REFERENCES

- Amita Mehta. (2015). Comparative Study of Pulmonary Function Tests in Sedentary Individuals and Dynamic Exercising People. *Journal of Pharmacy and Biological Sciences (IOSR-JPBS)*. **10(3)** Ver. III. P. 73-77.
- Anil Mishra. (2018). A comparative study of the pulmonary functions between actively working and sedentary young female individuals, *Yoga* 2018; **3(2)**. P. 489-492.
- Bera, T. K., and Rajapurkar, M. V. (1993). Body composition, cardiovascular endurance and anaerobic power of yogic practitioner. *Indian J Physiol Pharmacol*. 1993; **37**. P. 225-8.

Joshi, L. N. (1992). Effect of short term Pranayam practice on breathing rate and ventilatory functions of lung. *Indian J Physiol Pharmacol.* 1992; **36**. P. 105-8.

Khanam, A. A., and Sachdeva, U. et al. (1996). Study of pulmonary and autonomic functions of asthma patients after yoga training. *Indian J Physiol Pharmacol.* 1996; **40**. P. 318-24.

Madanmohan Udupa, K., and Bhavanani, A. B. et al. (2004). Modulation of cardiovascular response to exercise by yoga training. *Indian J Physiol Pharmacol.* 2004; **48**. P. 461-5.

Saylee, R. Patil. (2019). Comparison of Peak Expiratory Flow Rate in Obese and Non-Obese Women International Journal of Health Sciences & Research (www.ijhsr.org) 39, Vol. **9(9)**.

Sukanya Badami et al. (2017). Effects of sedentary life style on respiratory rates and peak expiratory flow rate among medical students. *Indian Journal of Clinical Anatomy and Physiology*, January-March, 2017;**4(1)**. P. 100-103.

Twisk, J. W., and Staal, B. J. et al. (1998). Tracking of lung function parameters and the longitudinal relationship with lifestyle. *Eur Respir J.* 1998; **12**. P. 627-34.

Wassermann, K., and Gitt, A. et al. (1995). Lung function changes and exercise-induced ventilatory responses to external resistive loads in normal subjects. *Respiration.* 1995; **62**. P. 177-84.

Yadav, R. K., and Das, S. (2001). Effect of yogic practice on pulmonary functions in young females. *Indian J Physiol Pharmacol.* 2001; **45**. P. 493-6.

ACKNOWLEDGEMENT

I extend my thanks with the depth of my heart to my guide Prof. Deepak Mehta for his continuous support, encouragement and guidance all time .I would also like to thank all the subject of study, Without their voluntary and wholehearted support this paper could not have been completed.

**SCREENING OF STRENGTH VARIABLES ASSOCIATED WITH TALENT
IDENTIFICATION IN ARTISTIC GYMNASTICS**

Prakhar Rathore PhD Scholar, School of Physical Education, DAVV, Indore, M.P.
Prof. Sudhira Chandel Professor, School of Physical Education, DAVV, Indore, M.P.

Abstract

The purpose of the study is to screening the strength variables in artistic gymnastics which is associated with talent identification and for this study 150 gymnast (6 – 11 years) were selected with the help of Purposive Random Sampling. All gymnast from the center of National Sports Academy, Allahabad (Uttar Pradesh). For identification of the strength variable the scholar has categorized it in *Arms and Grip Strength Test* which consists of three items (*Shift on High bar, Over grip hand on High bar and Flexed Arm Hang*), and *Lower Body Explosive Strength test* which consists of three items (*Jump + Broad Jump, Vertical Jump and Standing Long Jump*). Factor Analysis was used at 0.05 level of significance help of SPSS software version 20. It has concluded that only 05 items were found suitable to be extracted in the test battery.

Key Words – Talent Identification, Artistic Gymnastics, Factor Analysis etc.

Introduction

The term "gymnastics" comes to us from the ancient Greek verb "gymnazo" meaning to exercise naked, which is how young people performed the physical health and fitness aspect of their education in the "gymnasium," taught by trainers or "gymnastēs" in the 7th to 3rd centuries BC. The young aristocratic men dedicated significant time to the pursuit of various sporting events to be contested at religious festivals. They were also educated in poetry, letters, and philosophy. (Russell, 2013).

Identification of talent has become an important field of study in sports. In performance sports, only person who and a chance to win a medal in a worldwide competition, due to the rapidly increasing participation and presentation density. Experience has also demonstrated that talent alone is no guarantee of medal performance. Talent must over several years be coupled with hard and difficult training. (Singh, 1991).

In gymnastics talent identification strength is the dominating factor which be tested through different methods and test. For identification of the strength variable the scholar has categorized it in *Arms and Grip Strength Test* which consists of three items (*Shift on High bar, Over grip hand on High bar and Flexed Arm Hang*), and *Lower Body Explosive Strength test* which consists of three items (*Jump + Broad Jump, Vertical Jump and Standing Long Jump*).

Needs and Important of the Study

Strength is the dominating factor in all categories of gymnastics, especially in artistic gymnastics strength variables plays a vital role in the routine of a gymnast. It is very important for gymnastics coaches, gymnast, and physical education teacher to know about strength. This screening criteria will help to all the people who are associated with gymnastics.

Review of related literature

- (Sleeper et al., 2016) The purpose of this study was to develop the MGFMT by establishing a scoring system for individual test items and to initiate the process of establishing test-retest reliability and construct validity. A total of 83 competitive male gymnasts ages 7-18 underwent testing using the MGFMT. Thirty of these subjects underwent re-testing one week later in order

to assess test-retest reliability. Construct validity was assessed using a simple regression analysis between total MGFMT scores and the gymnasts' USA-Gymnastics competitive level to calculate the coefficient of determination (r^2). Test-retest reliability was analyzed using Model 1 Intraclass correlation coefficients (ICC). Statistical significance was set at the $p < 0.05$ level. The relationship between total MGFMT scores and subjects' current USA-Gymnastics competitive level was found to be good ($r^2 = 0.63$). Reliability testing of the MGFMT composite test score showed excellent test-retest reliability over a one-week period (ICC = 0.97). Test-retest reliability of the individual component tests ranged from good to excellent (ICC = 0.75-0.97). The results of this study provide initial support for the construct validity and test-retest reliability of the MGFMT.

- **(Mondal & Yadav, 2013)** The purpose of this study was to identify which were the determinative factors of test item for screening to the gymnast. A total of 50 male subjects aging between 10 to 12 years having at least sub junior national participation from different region of Uttar Pradesh were selected randomly for the study. The variables included were Height, Weight, Leg Length, Calf Girth, Thigh Girth, Shoulder Width, Arm Length, Standing Broad Jump, Fifty Mt. Running, Sit & Reach Test, and Bridge up Test, Abdominal Strength, and Chin-Ups scores of gymnast. Principal component factor analysis was used for extracting factor scores from the factor, which were adopted as an indicator of the performance capability in gymnastics. Findings revealed four extracted factors, according to the content of their respective items, and were named Anthropometric factor, Speed factor, Flexibility Factor, strength factor.
- **(Thomas et al., 2013)** The purpose of this study was to identify physical and motor skills of talent identified female gymnasts. Sixteen gymnasts aged five to eight years completed anthropometry, movement ABC, flexibility, strength, and jumping tests. Movement ABC testing revealed that whilst none of the gymnasts were motor impaired, strong fundamental motor skills can't be assumed except for in the area of static balance. A number of the anthropometric, physiological and biomechanical test results revealed significant age effects which would therefore require large normative data sets for reliability. With the exception of anthropometry, other tests results (excluding those affected by age) showed large variation across the group. Follow-up research is needed to determine whether the tests with large group variation can identify the child with Olympic gymnastics potential.

Objectives

- To find out the Test batteries of strength variables in artistic gymnastics for talent identification.

Research Question

Screening of strength variables associated with talent identification in artistic gymnastics.

Methodology

- Sample and Sampling Technique** - For this study 150 gymnast (6 – 11 years) was selected with the help of Purposive Random Sampling. All gymnast from the center of National Sports Academy, Allahabad (Uttar Pradesh).
- Method and Tools**– Various test were used as a tool for this study, measuring variables are listed below -
 - Arms and Grip Strength Test** -
 - Shift on High bar,
 - Over grip hand on High bar,

- Flexed Arm Hang

B. Lower Body Explosive Strength test -

- Jump + Broad Jump,
- Vertical Jump,
- Standing Long Jump.

iii. **Statistical technique** –For screening the test batteries in strength variables of artistic gymnastics, The research scholar employed Factor Analysis at 0.05 level of significance help of SPSS software version 20.

Data interpretation

Table no. 1 – Descriptive Statistics of Strength variables

	Mean	Std. Deviation
Shift on HB	9.3533	2.84059
Overgrip hand on HB	33.7733	17.31475
Flexed Arm Hang	11.7867	5.96701
Jump+Broad Jump	107.0733	11.15666
Vertical Jump	30.8067	6.39179
Standing Long Jump	105.8400	8.73708

In the above table (Table No. 1) it is clearly shown the descriptive statistics that is mean and standard deviation of different strength variables in artistic gymnastics.

Table. No. 2 –Kaiser-Meyer-Olkin and Bartlett’s test of Factor Analysis for Strength Variables

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.523
Bartlett's Test of Sphericity	Approx. Chi-Square	36.606
	df	15
	Sig.	.001

In the above table (Table no. -2)clearly shows that for measuring the measure the sampling adequacy, Kaiser-Meyer-Olkin (KMO test) was employed and the KMO values was .523 which was much greater than 0.05. So, it was concluded that the sample was sufficient for this study. Further, Bartlett's Test of Sphericity was used for measuring the correlation matrix, to know whether it was an identity matrix or not. As Bartlett's Test of Sphericity was significant because the calculated significant value is .001, which means the factor model developed in the present study was appropriate.

Table no. 3 – Total Variance Explained

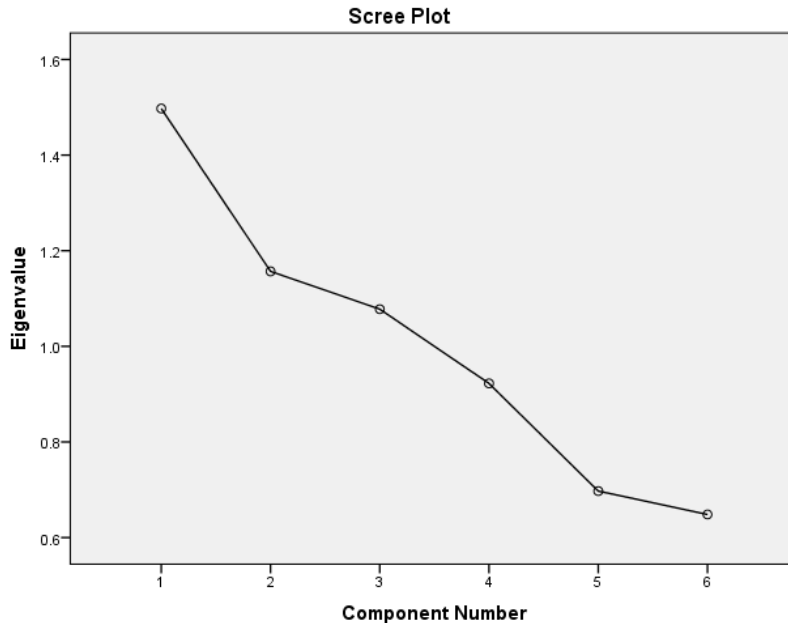
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.497	24.957	24.957	1.497	24.957	24.957	1.471	24.517	24.517
2	1.157	19.281	44.238	1.157	19.281	44.238	1.176	19.596	44.114
3	1.078	17.963	62.201	1.078	17.963	62.201	1.085	18.087	62.201
4	.922	15.374	77.574						

5	.697	11.620	89.194						
6	.648	10.806	100.000						

Extraction Method: Principal Component Analysis.

In the above table (Table no. -3) clearly indicates that the factor extracted and the variance explained by these factors. After applying varimax rotation first factor explained 24.517%, second factor explained 19.596 %, and last factor explained 18.087% of variability. Thus, all the factors together explained (62.201%) cumulative value of the total variance.

Figure no. 1 – Scree Plot representation of total variance explained



The above screen plot (Figure no. 1) clearly shows that the plot which is obtained by plotting the factors against their eigenvalues. This plot shows that only three factors have eigenvalue more than one whereas others have less than one.

Table no. -4 Rotated Component Matrix: Varimax Rotated Solution

	Component		
	1	2	3
Shift on HB	.730	-.503	-.452
Overgrip hand on HB	.614	.766	-.224
Flexed Arm Hang	.004	.818	-.291
Jump+Broad Jump	.569	-.073	-.816
Vertical Jump	.003	-.043	.617
Standing Long Jump	.606	-.048	.779

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Rotation converged in 4 iterations.

In the above table (Table no. -) clearly indicates that the varimax rotated solution about the variable explaining the factor. If the variable has factor loading more than 0.7, it indicates that the factor

extracts sufficient variance from the variables. Result shows that the five component factors have more than 0.06 loading thus they were considered as factors.

Table no. – 5 Test Battery for Screening the Strength Variables in Artistic Gymnastics

Factor 1- Arms and Grip Strength	
Shift on high bar	0.730
Over Grip Hang on High Bar	0.766
Flexed Arm Hang	0.818
Factor 2 - Lower body explosive strength	
Jump + Broad Jump	-0.816
Standing Long Jump	0.779

The above table no. 5 is clearly showing that for screening the strength variables for artistic gymnastics is extracted from the component matrix which more then 0.7. Five variables were found in 0.7 criteria, i.e. *Shift on high bar, Over Grip Hang on High Bar, Flexed Arm Hang, Jump + Broad Jump and Standing Long Jump.*

Discussion and Conclusion

Finally, the research scholar has concluded that 06 items selected in the preliminary phase on the basis of literature review and researchers own understanding, only 05 items were found suitable to be extracted in the test battery, the factors are divided into two categories i.e. Arms and Grip Strength and Lower Body Explosive strength and the factors were found were clearly stated in Table no. – 5.

References

- Delas S, Zagorac N, Katic R. Effects of biomotor structures on performance of competitive gymnastics elements in elementary school male sixth-graders. *Coll Antropol.* 2008;32(2):443-449.
- Mondal, S., & Yadav, A. K. (2013). An Exploratory Factor Analysis Approach for Screening Test Item in Artistic Gymnastics. *International Educational E-Journal.*
- Maffulli N, King JB, Helms P. Training in elite young athletes (the Training of Young Athletes (TOYA) Study): injuries, flexibility and isometric strength. *Br J Sports Med.* 1994;28(2):123-136.
- Russell, K. (2013). The Evolution of Gymnastics. In *Gymnastics.* <https://doi.org/10.1002/9781118357538.ch1>
- Singh, H. (1991). *Science of Sports Training.* New Delhi: D.V.S publications.
- Sleeper, M. D., Kenyon, L. K., Elliott, J. M., & Cheng, M. S. (2016). MEASURING SPORT-SPECIFIC PHYSICAL ABILITIES IN MALE GYMNASTS: THE MEN'S GYMNASTICS FUNCTIONAL MEASUREMENT TOOL. *International Journal of Sports Physical Therapy.*
- Thomas, K., Wilson, C., & Bradshaw, E. J. (2013). FUNDAMENTAL MOVEMENT ASSESSMENT OF YOUNG FEMALE GYMNASTS. *31 International Conference on Biomechanics in Sports.*

INVESTIGATION OF COMPETITION ANXIETY OF TRIBAL AND NON TRIBAL PLAYERS OF DIFFERENT LEVEL OF ACHIEVEMENT IN INDIGENOUS GAMES

Rajendra Singh Chouhan Research Scholar School of Physical Education
Dr.Sudhira Chandel Professor, School of Physical Education Devi Ahilya Vishwavidyalaya,
Indore MP

Abstract:-

The purpose of the study was to compare the investigation of competition Anxiety of tribal and non-tribal player's (National, State, District level) of achievement in Indigenous games. The study may be assessing to sports competition Anxiety among tribal and non-tribal Indigenous players in relation to different level of achievement. The study may be to compare sports competition Anxiety. The study may be to find out the interaction between different level of participation (National, State, District) and different regions (Tribal and non-Tribal) in relation the sports competition Anxiety. The total number of this study one hundred eighteen (= 180) male kabaddi and kho-kho players of different level (30 National, 30 State, 30 District) of achievements and different region (90 Tribal and 90 non-Tribal). The group of the player shall range between 18 to 28 years and the data was collected from tribal DharJhabua, Alirajpur, Barwani, Non-tribal Indore, Khandwa, Khorgone, Burhanpur in Madhya Pradesh. The study was selected psychological variables like sports competition anxiety questionnaire was used for this study Sports Competition Anxiety developed by Rainer Marte were used for this study. According to objectives of the study to gathering the data Analysis of descriptive statistics (Mean Standard Deviation), and (one-way Analysis of Variance with LSD Post Hoc Test with define Mean Difference (MD), Critical Difference (CD) were applied for SPSS-21 software were applied the significance set at .05 level.

Key Word:- Investigation, Competition Anxiety, Tribal, Non Tribal, Achievement, Indigenous Games.

INTRODUCTION: -

Anxiety may be positive motivating force or it may interfere with successful athletic performance. As a positive motivating force it can be interments motivating the athlete to harder to find new and better ways to improve performance and to help set goals. The athlete who uses his anxiety in way was seeking out ways to improve himself. This not only reduces his anxiety but helps him increase his athletic skill and self-confidence. As a negative motivation anxiety may interfere with productive as constructive thinking. Investigations, examination, inquiry, research express the idea of an active effort to find out something. An investigation is a systematic, minute, and thorough attempt to learn the facts about something complex or hidden; it is often formal and official: an investigation of a bank failure. A tribe is a group of people who live and work together. A tribal society is a group of tribes organized around kinships. Tribes represent a part in social evolution between bands and nations Tribes are the type of group's humans lived in before they started living in cities and nations.

PROCEDURE:-

The subjects for this study were being 180 male kabaddi and kho-kho players of different level (30 National, 30 State, 30 District) and different region (90 Tribal and 90 non-Tribal). The group of the player shall range between 18 to 28 years and the data was being collected from tribal, Non-tribal in Madhya Pradesh. The study was selected psychological variables like sports competition anxiety questionnaire was used for this study Sports Competition Anxiety developed by Rainer Marten were used for this study. The Criterion measure chosen for the study was is the scores obtained from the questionnaire of completion Anxiety.

STATISTICAL PROCEDURE

- I. To assess the psychological characteristics of tribal and non-tribal kabaddi and Kho-Kho players with related three variables (Sports competition Anxiety) among different level of achievement (National, State, District) Descriptive statistics was be used.
- II. To compare psychological characteristics (Sports Competition Anxiety) non-tribal kabaddi players of different level of achievement (National, State, District) One Way ANOVA was be used.
- III. To compare the psychological characteristics with related three variables (Sports competition anxiety) among tribal Kho-Kho players of different level of achievement (National, State, District) One Way ANOVA were used.
- IV. To the find out the interaction of different regions Non-Tribal Kho-Kho players and different level of achievement (National, State, District) in relation Sports competition Anxiety) One Way ANOVA were used.

ANALYSIS OF DATA AND RESULT OF THE STUDY

The analysis of data collected on one hundred eighty (N=180) subject was selected i.e. (90 tribal and 90 non-tribal players from kabaddi ninety (90) and khokho ninety (90) players of different level (30 National, 30 State, 30 District) from kabaddi players fourth five (45) subject from each groups age range between 18 to 28 years. Tribal area (Dhar, Jhabua, Alirajpur, Barwani) and Non-tribal area (Indore, Khandwa, Khorgone, Burhanpur) in Madhya Pradesh. . The data on selected psychological variables like Sports competition sports competition anxiety, self-concept and Group-cohesion tribal and non-tribal Kabaddi and Kho- Kho players for the various groups national, state and district level of Madhya Pradesh statistical tools used was SPSS 21 software examined by descriptive statistic mean and standard deviation and one-way analysis of variance (ANOVA) with post Hoc test (Mean Deference and Critical Mean Deference) were applied. Descriptive statistic means and standard deviation and one-way analysis of variance (ANOVA) with post Hoc test (Mean Deference and Critical Mean Deference) was employed in order to compare between Tribal and Non-tribal kabaddi and Kho Kho different level national, state and District level on the basis of selected psychological variables (Sports Competition Anxiety)

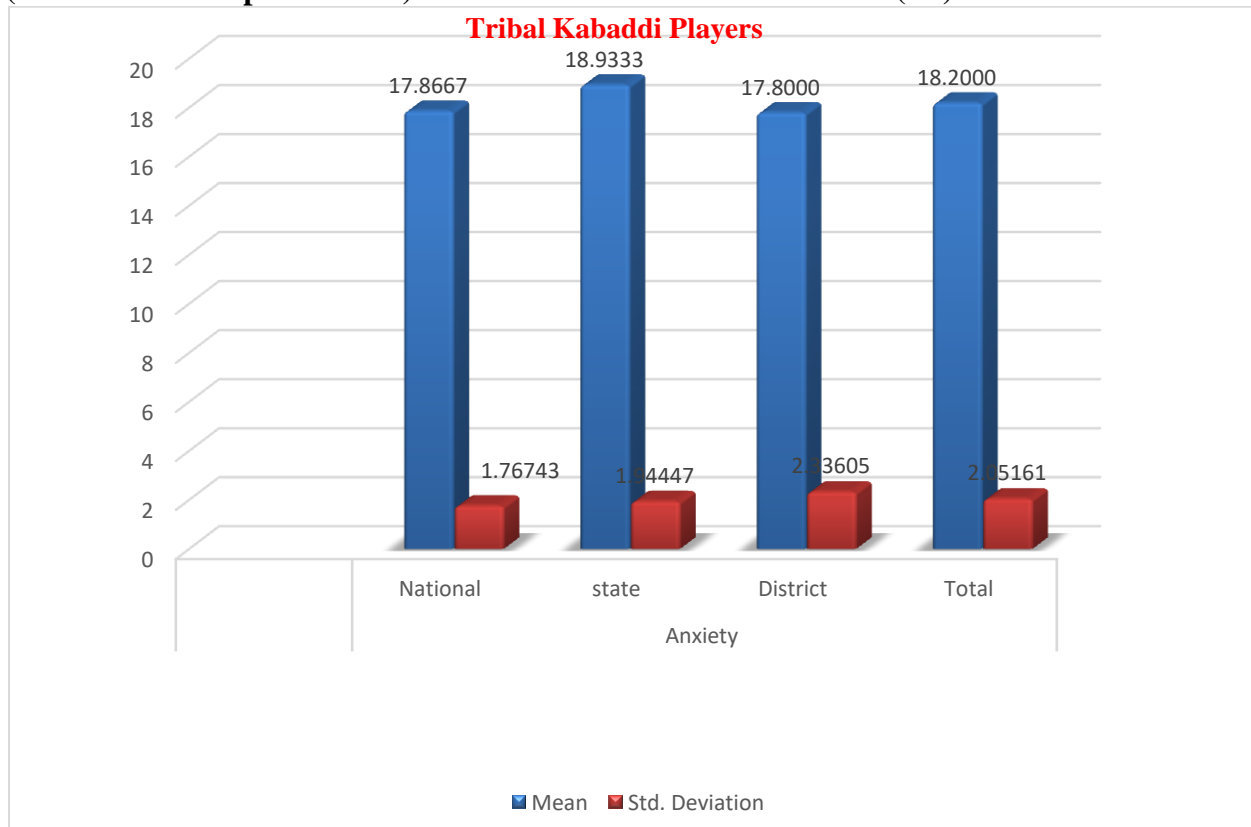
Level of Significance

The level of significance to check the compare obtained by independent t test was set at 0.05 level.

DESCRIPTIVE STATISTICS TABLES MEAN AND STANDARD DEVIATION VALUES OF DIFFERENT LEVEL OF NATIONAL, STATE AND DISTRICT TRIBAL KABADDI PLAYERS OF MADHYA PRADESH (SPORTS COMPETITION ANXIETY)

VARIABLES	GROUPS	MEAN	STD. DEVIATION	MINIMUM	MAXIMUM
Sports Competition Anxiety	National	17.8667	1.76743	15.00	20.00
	State	18.9333	1.94447	15.00	22.00
	District	17.8000	2.33605	15.00	23.00
	Total	18.2000	2.05161	15.00	23.00

Table shows Sports competition sports competition anxiety of different level (National, State and District,) tribal kabaddi players of Madhya Pradesh. With the help of descriptive statistics (Mean and standard deviation) of tribal areas of for this study. Psychological variables sports competition sports competition anxiety was 17.86 ± 1.76 , 18.93 ± 1.94 , 17.80 ± 2.36 ,



Discussion of Finding

On the basis of the above findings we can say that psychological variables sports competition sports competition anxiety for the different level like national state and district no significance difference of all groups in Tribal Kabaddi Players of Madhya Pradesh for the different level like national state and district. Two groups were No significant different Between National and State level and No significant different Between State and District level, and one group was Significant different* Between National and District level groups in Tribal Kabaddi Players of Madhya Pradesh of no significance difference of all groups in Tribal Kabaddi Players of Madhya Pradesh. On the basis of the above findings we can say that psychological variables sports competition sports competition anxiety for the different level like national state and district for the different level like national state and district two groups No significant different Between National and State level and No significant different Between State and District level, and one Significant different* Between National and District level groups in Non-Tribal Kabaddi Players of Madhya Pradesh. On the basis of the above findings we can say that psychological variables sports competition sports competition anxiety for the different level like national state and district for the different level like national state and district two groups No significant different Between National and State level, No Significant Difference Between National and District level and one Significant different* Between State and District level groups in tribal Kho-Kho of Madhya Pradesh.

Discussion of Hypothesis

The findings of the present study strongly indicate that there were significant differences in relation to the psychological variables sports competition anxiety between the different level achievements national, state and district all three groups kabaddi and Kho Kho payers between tribal and non-tribal of Madhya Pradesh. Hence, the hypothesis earlier set that there might be significant difference between different level of tribal and non-tribal kabaddi and Kho- Kho players from and sports competition anxiety variables hypothesis was accepted for this study. Significant set at 0.05 levels. The findings of the present study strongly indicate that there were significant differences in

relation to the psychological variables sports competition anxiety between the different level achievements national, state and district all three groups kabaddi payers between tribal and of Madhya Pradesh. Hence, the hypothesis earlier set that there might be significant difference between different level of tribal kabaddi players from and sports competition anxiety variables alternative hypothesis was rejected for this study. Significant set at 0.05 levels. There were significant differences in relation to the psychological variables sports competition anxiety between the different level achievements national, state and district all three groups Kho-Kho payers between tribal and non-tribal of Madhya Pradesh. Hence, the hypothesis earlier set that there might be significant difference between different level of tribal and non-tribal Kho- Kho players from and sports competition anxiety variable alternative hypothesis was accepted for this study. Significant set at 0.05 levels. There were significant differences in relation to the psychological variables competition sports competition anxiety between the different level achievements national, state and district all three groups kabaddi and Kho-Kho payers between tribal and non-tribal of Madhya Pradesh. Hence, the hypothesis earlier set that there might be significant difference between different level of tribal and non-tribal kabaddi and Kho- Kho players from and sports competition anxiety variable alternative hypothesis was accepted for this study. Significant set at 0.05 levels.

CONCLUSIONS

- ❖ Within the limitations of the study the following conclusions were drawn:
- ❖ There was no significance Mean score of sports competition anxiety for the all difference groups (national state and district level) of achievements tribal areas kabaddi players of Madhya Pradesh.
- ❖ There was No significant difference Mean score of group cohesion for the all different groups (national state and district level) of achievements tribal areas kabaddi players of Madhya Pradesh.
- ❖ There was No significant different Between National and State Level Mean score of sports competition anxiety for the different groups (national state and district level) of achievements non-tribal areas kabaddi players of Madhya Pradesh.
- ❖ There was significant different Between National and district Level Mean sports competition anxiety for the different groups (national state and district level) of achievements non-tribal areas kabaddi players of Madhya Pradesh.
- ❖ There was Significant Different between State and District Level Mean score of sports competition anxiety for the different groups (national state and district level) of achievements non-tribal areas kabaddi players of Madhya Pradesh.
- ❖ There was Significant Different between State and District Level Mean score of sports competition anxiety for the different groups (national state and district level) of achievements non-tribal areas kabaddi players of Madhya Pradesh.

RECOMMENDATIONS

In the light of the conclusions drawn; the following recommendations are made:

- ❖ Similar types of study may be conducted on female players.
- ❖ Similar types of study may be conducted for different games and sports, where the sports competition anxiety important role of players such as different games and inter college, intervarsity, all India University etc.
- ❖ The study may be conducted utilizing the college level students of different university of other states.
- ❖ The similar studies may be carried out selecting other socio – psychological variables contributing to performance efficiency.
- ❖ Similar study can be undertaken on other subject physical education students.
- ❖ Similar study can be undertaken on the football, basketball, volleyball, cricket, and hand ball of university, state, and national players and student's college level.

- ❖ A comparative study can be conducted among physical education students working in different states of India.
- ❖ A more comprehensive study can be conducted on large samples of individuals.
- ❖ The study may be repeated on subjects of higher / lower level and on professional players to measure their psychological characteristics.
- ❖ The similar studies may be conducted on other physiological and anthropometric variables.
- ❖ This study provides a good feed-back for different sports competition anxiety, self-concept and group cohesion psychological variables benefit of one and all.

REFERENCES

- Aldermen, "Psychological Behaviour in Sports" (New Jersey : Prentice Hall Inc. 1984.
- K. C. Kocher and V. Partap, "Anxiety level and yogic practices" Yoga Mimasha 15 (April 1972
- Susan Ziegler, "An overview of anxiety Management Strategies in sport" Cited by Robert N. Singer, "Physical Education Foundation" (New York Hold, Richat and Winston, 1976.
- William F. S.Treub, "Sports Psychology an Analysis of Athletes Behavior", (New York, Ithaca publishers. 1992.
- https://www.google.com/search?q=investigation+definition&rlz=1C1CHBD_enIN868IN868&oq=Investigation&aqs=chrome.1.69i57j35i39j0l3j46j0l2.4029j0j8&sourceid=chrome&ie=UTF-8
- https://www.google.com/search?rlz=1C1CHBD_enIN868IN868&sxsrf=ALeKk00qJc3wlfTz2VvnIdVmOVr7Uh9q2A%3A1586776236886&ei=rEiUXubXNZfWz7sPg8-1wAQ&q=definition+competition&oq=definition+Competition&gs_lcp=CgZwc3ktYWIQA RgAMgIIADICCAAyAggAMgYIABAWEB4yBggAEBYQHjIGCAAQFhAeMgYIABAWEB4yBg gAEBYQHjIGCAAQFhAeMgYIABAWEB46BAg

Comparison of Cognitive approach Coping Strategies in Relation to Different Playing Positions of Female Kabaddi Players

Avinash Yadav Sports Officer, Govt. College Dharampuri, Dhar, (M.P.)
Dr. Vivek B. Sathe Senior Assistant Professor, School of Physical Education, Devi Ahilya University, Indore, (M.P.)

ABSTRACT

The aim of the present study was to assess Cognitive Approach Coping Strategies in Relation to Different Playing Positions of Female Kabaddi Players. To conduct the study total 300 interuniversity Female Kabaddi players were selected. The sample of Female Kabaddi players comprised of 100 subjects from each playing position namely raiders, blockers and corners and aged between 17 to 28 years. To assess Cognitive Approach Coping Strategy of female Kabaddi players, Coping Strategies Scale prepared by Srivastava (2001) was used. Results indicated that among all female Kabaddi players, raiders have considerably more efficient cognitive approach to coping as compared to blockers and corners. It was concluded that raiders possesses significantly superior cognitive approach coping strategy as compared to other playing positions i.e. blockers and corners.

Keywords : Cognitive Approach Coping Strategies, playing positions, Kabaddi.

INTRODUCTION

According to general definition of stress given by Lazarus and Folkman (1984), stress is association between an individual with surrounding environment that is judged by an individual as a threat to his/her overall wellbeing which an individual cannot cope with existing resources. According to Jones (1990) stress is a demand placed on a person who either react or avoid that situation to cope with that particular situation. Stein and Cutler (2002) in their definition of stress considered it as complete response or action from an individual to cope with environmental demands. As per White (2008), stress is inescapable in everyone's life and each individual cope with stressful circumstances in a unique manner.

Studies conducted by Gould et al. (1993), Pensgaard and Ursin (1998), Waples (2003), Anshel and Si (2008) Bahramizadea and Besharata (2010), Acharya (2017) have explored the coping strategies used by athletes for stress management. They also analysed the utility of correct coping strategy for optimal performance. To cope with stressors different coping strategies are used and one such coping strategy is cognitive coping strategy. This coping strategy helps to reduce depression, severe anxiety, negative aggression etc. Cognitive behavioural strategies are used to reduce psychological problems arising out of own behaviour, negative thoughts or wrong assessment of situation. Self monitoring, decision making, cognitive restructuring and proper goal setting are mainly included in this type of coping strategy.

OBJECTIVE

The objective of the present study was to compare Cognitive Approach Coping Strategies in Relation to Different Playing Positions of Female Kabaddi Players.

METHODOLOGY:-

The following methodological steps were taken in order to conduct the present study.

Sample:- To conduct the study total 300 interuniversity female Kabaddi players were selected. The sample of female Kabaddi players comprised of 100 subjects from each playing position namely raiders, blockers and corners.

The sample for the present study was selected with the help of purposive sampling. The age of the selected female Kabaddi players was confined between 17 to 28 years.

Tools:

Coping Strategies Scale:

To assess cognitive approach coping strategy of female Kabaddi players, Coping Strategies Scale prepared by A.K. Srivastava (2001) was used. There are 6 items to assess cognitive approach coping strategy in this scale. The test-retest reliability of this scale is 0.92.

Procedure:

300 female interuniversity Kabaddi players were selected as per requirement of playing position protocol. Subjects were briefed about the basic objectives of the present study and assured that the information given by them will be kept confidential. The basic information on coping strategies scale was given to the subjects prior to its administration. Coping Strategies Scale prepared by A. K Srivastava (2001) was administered to each subject. The scoring pertaining to responses on items pertaining to cognitive approach coping strategy was carried out according to author's manual.

RESULT AND DISCUSSION

In table 1 mean scores of female Kabaddi players on cognitive approach coping strategies in relation to their playing position are presented.

Table 1 : One Way ANOVA- Descriptive Statistics on Cognitive Approach Coping Strategies of Female Kabaddi Players with Different Playing Positions

Playing Position of Female Kabaddi Players	N	Cognitive Approach Coping Strategies	
		Mean	S.D.
Raiders	100	16.56	4.01
Blockers	100	15.07	3.67
Corners	100	15.25	3.73

Fig. 1 : Bar Diagram Showing Mean Scores on Cognitive Approach Coping Strategies of Female Kabaddi Players with Different Playing Positions

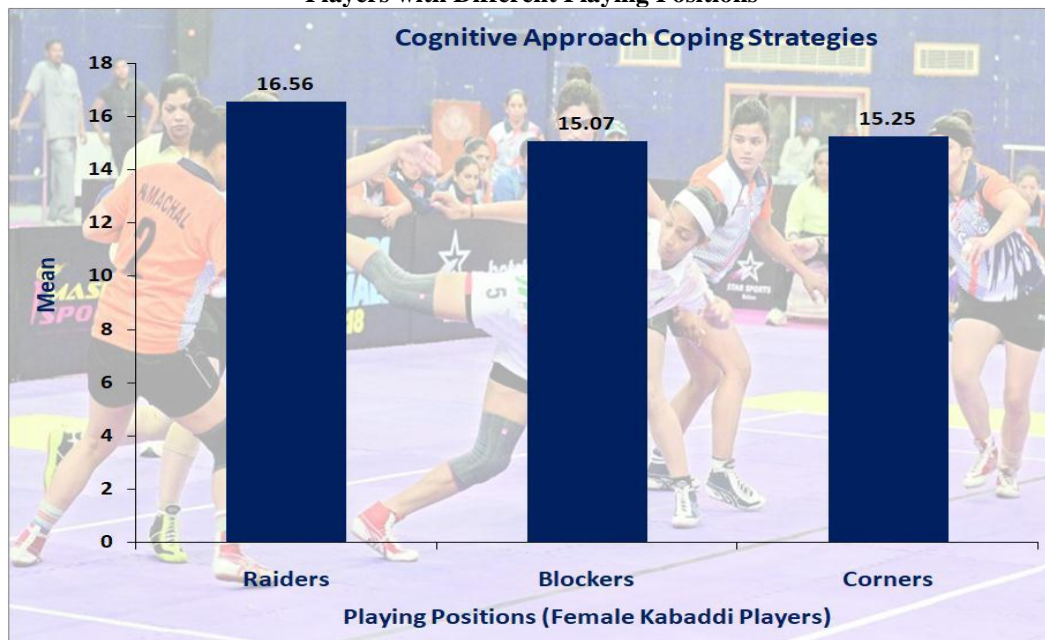


Table 2 ANOVA Summary

Source	df	SS	MS	F
Between Groups	02	132.287	66.143	4.55*
Within Groups	297	4309.900	14.511	
Total	299	4442.187		

F (2,297) = 3.03 at .05 level and 4.68 at .01 level

* Significant at .05 level

The F ratio of 4.55 given in table 2 indicates statistically significant impact of playing positions on cognitive approach towards coping with stress among female Kabaddi players.

The results shown in table 1 and table 2 are evaluated with the help of Least Significant Difference Test. The obtained observations are shown in table 2.

The results shown in table 2 and table 3 are evaluated with the help of Least Significant Difference Test. The obtained observations are shown in table 3.

Table 3 Comparison of Group Means on Cognitive Approach Coping Strategies of Female Kabaddi Players with Reference to Playing Position

Mean (I)	Mean (J)	Mean Difference (I-J)
Raiders	Blockers	1.49*
	Corners	1.31*
Blockers	Corners	-0.18

* Significant at .05 level

LSD test revealed that mean scores of female raiders on cognitive approach coping strategies was significantly higher as compared to female Kabaddi players occupying the positions of blockers and corners. The mean difference of 1.49 and 1.31 was statistically significant which indicate that findings have 5% chance of not being true.

LSD test shown in table 3 also revealed statistically non-significant difference in mean scores of female Kabaddi players occupying blockers and corners on cognitive approach coping strategies.

The results clearly indicate the superiority of female raiders in using cognitive approach to coping with stress as compared to female kabaddi players with playing positions of blockers and corners.

Although a team game, raiders are considered elite in Kabaddi. This is not surprising because winning percentage of teams is dependent upon their successful raid. Being elite the raiders perform that extra bit in the form of cognitive approach coping strategies to tackle different problems. This is why raiders have better cognitive approach coping strategies as compared to female kabaddi players occupying positions of corner and blockers.

CONCLUSION

On the basis of results it was concluded that efficacy of cognitive approach coping strategies among female Kabaddi players can be predicted by their respective playing positions.

REFERENCES

- Acharya, A. (2017). Analysis of achievement goal orientation and coping strategies, among the university athletes. *International Journal of Physical Education, Sports and Health*; 4(2): 13-15.
- Anshel, M. H., & Si, G. (2008). Coping styles following acute stress in sport among elite Chinese athletes: A test of trait and transactional coping theories. *Journal of Sport Behavior*, 31(1), 3-21.
- Bahramizadea, H. and Besharata, M.A. (2010). The impact of styles of coping with stress on sport achievement. *Procedia Social and Behavioral Sciences*, 5,764–769.
- Durge, R.R. and Bhagwati Chandra (2016). Evaluation of self confidence in national female kabaddi players. *Academic Sports Scholar*, Vol. 5, Issue 12.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal and coping*. New York: Springer.
- Pensgaard, A.M. and Ursin, H. (1998). Stress, control, and coping in elite athletes. *Scandinavian Journal of Medicine and Science in Sports*, Vol. 8, Issue 3, 183-189.
- Srivastava, A.K. (2001). *Manual of Coping Strategies Scale*, Rupa Psychological Centre.
- Stein, F., & Cutler, S. (2002). *Psychosocial occupational therapy: A holistic approach* (2nd ed.). San Diego: Singular Publishing.
- Waples, S.B. (2003). *Psychological characteristics of elite and non-elite level gymnasts*. Doctor of Education, Submitted to Texas University.

Dhara Shegaonkar Research Scholar School of Physical Education DAVV
Dr. Vivek B Sathe Associate Professor School of Physical Education DAVV
vbsathe@gmail.com

Abstract

Play is a rich social experience. Game and sports are the best means of building a strong foundation for the development of social traits. The purpose of the study was to highlight the achievement of Sandhya Agrawal Arjun Awardee towards the contribution on the Cricket. A case study was designed to investigate the contribution and achievement of Sandhya Agrawal toward the promotion of Cricket of women in the country and also to study his philosophy with regard to sports as a profession in India and to enlist leadership and administration quality of her this investigation biographical and interpretative method were applied.

Keywords: Cricket, Achievements, Arjun Award, leadership

Introduction

Sport plays a prominent role in all society. Sport receives an inordinate amount of media attention, and has attracted the interest of most Indians, especially when it comes to Olympic. Even in the older days sports and sportsmen were given due importance of by our ancient rulers. Certain sports were considered essential even for the members of royal society and budding rulers were supposed to be master and excel in certain sports.

As the today's sport is not the part of recreational it totally based on the competition and competition with competitors. As per the days by days all countries participating in International Tournaments and Indian government provides the good sports environment for Indian players. The Indian government policy having a lot motivation to sports persons as well as opportunity, awards to elite sports persons. That having continuous good performance in international level competitions. Named after Arjun, the Pandava Brother of Mahabharata fame, who defeated a huge army of Kauravas in the battle against evil, Arjuna Awards is conferred to many sportsperson from different sports in India. The Indian government and state government give the awards to players those having elite performance. Arjuna Award, Dronacharya Award, Dhyan Chand Award, Rajiv Gandhi Award, Maharaja Ranjit Singh Award and some other also.

Government give incentives in the form of Awards or cash to the players for their motivation and to influence others in the side sports. There are plethora of renowned awards like Arjun award, Dronacharya award which gives by the ministry of sports to pioneer sports person.

The Arjuna Awards are given by the Ministry of Youth Affairs and Sports, government of India to recognize outstanding achievement in National sports. Instituted in 1961, the award carries a cash prize of INR 500,000, a bronze statuette of Arjuna and a scroll. Over the years the scope of the award has been expanded and a large number of sports persons who belonged to the pre-Arjun Award era were also included in the list. Further, the number of disciplines for which the award is given was increased to include indigenous games and the physically handicapped category.

Before Khel Ratna, Arjuna Awards was the most prestigious award for a sportsperson in India. From the year 1961, this award given to those player who give outstanding performances for previous three year at international tournament. Arjun award given by the honourable president of India. From 2001 the award is conferred on sportsperson who come under any of these three categories:

1. Olympic games/ Asian Games/ Comanwealth Games/ World Cup/ World Championship Disciplines and cricket.

2. Indigenous Games

3. Sports for the Physically Challenged.

The Government has recently revised the scheme for the Arjun Award. As per the revised guidelines, to be eligible for the Award, a sportsperson should not only have had good performance consistently for the previous three years at the international level with excellence for the year for which the Award is recommended, but should also have shown qualities of leadership, sportsmanship and a sense of discipline.

Sandhya Agarwal is a former captain of the Indian women's cricket team. She hails from Indore. She was born on 9 May 1963 in Indore, Madhya Pradesh, India. She played in 13 Test matches from 1984 to 1995, scoring 1110 runs at a batting average of 50.45, including 4 centuries. She reached her top score of 190 against England in 1986, beating Betty Snowball's score of 189 that had held the record in women's Test cricket since 1935. However, her mark was passed by Denise Annetts, who scored 193 in 1987. She also played in 21 Women's ODIs, scoring 567 runs at an average of 31.50. In 1986, she received the Arjuna Award.

Sports Career

Sandhya Agarwal (born 9 May 1963) is a former captain of the Indian women's cricket team. She hails from Indore. She played in 13 Test matches from 1984 to 1995, scoring 1110 runs at a batting average of 50.45, including 4 centuries. She reached her top score of 190 against England in 1986, beating Betty Snowball's score of 189 that had held the record in women's Test cricket since 1935. Amit Jaiswal (2019) However, her mark was passed by Denise Annetts, who scored 193 in 1987.

She also played in 21 Women's ODIs, scoring 567 runs at an average of 31.50. Amit Jaiswal (2019). Her major teams included Indian women's cricket team and the Railways women's cricket team. MCC office (2017, 2019).

Post retirement

After her retirement, Agarwal continued to contribute to cricket as a selector and coach. She is chairperson of girl's U-19 and senior women's team of MPCA as well as a member of the BCCI's women's committee. MCC office (2017).

In 2017, Agarwal was offered the honorary life membership by The Marylebone Cricket Club, one of the most active cricket clubs that also own Lord's Ground and the guardian of the laws of the game, MCC office (2017, 2019). Agarwal was being honoured in recognition of her distinguished services to cricket.

Related Work

Naveen Kumar (2013), the paper is an effort to have an close into the contributions of Indian sport shooter Vijay Kumar and his achievements in the field of shooting. This study helped to expose his qualities as a sportshooter. This study also reveals his socio-economic background and motivational factors. Khan (2013) conducted a case study to highlight the achievements and contributions of Arjuna Awardee Zafar Iqbal in the field of hockey as well as in the field of sports and also to underline his key personality traits and beliefs with regard to the skills as a sports administrator and as a coach. Sharma (2012) investigated the India is the traditionally in sport loving society. Games have always considered as an integral part of culture of India. Singh (2008) evaluate that the case study on Arjun Awardee Manjeet Kaur who was Athlete. The purpose of the study was to reveal tremendous impact of Arjun Awardee Manjeet Kaur on Indian Athlete. Satpal (2008) conducted a case study on Arjuna Awardee Vijendar Singh, Pugilist. Vijendar Singh was belongs to Haryana. Kumar (2008) explored the personal life, sports career and contribution of Dronacharya Awardee M.K. Kaushik, in the field of Hockey. Singh (2000) conducted a case study on Dronacharya awardee Prof. Karan Singh, eminent physical educationist and Sports Promoter and a great academician.

References

1. Amit Jaiswal, Interview with Former woman Cricket Captain Sandhya Agarwal, retrieved 7 February 2019.
2. Bijnder Singh (2013), Dhronacharya Prof. Karan Singh –Eminent Physical Educationist and Sports Promoter –A Case Study Unpublished Doctor of Philosophy Thesis, Jiwaji University, Gwalior.
3. "MCC offers life membership to former India captain Sandhya Agarwal - Times of India". The Times of India. Retrieved 7 February 2019.
4. Naveen kumar (2013) Rajiv Gandhi Khel Ratna Awardee Indian Sport Shootervijay Kumar: A Case Study Indian Journal Of Applied Research Volume : 3 | Issue : 4 | April 2013 | ISSN - 2249-555.
5. "Sandhya Agarwal". Cricinfo. Retrieved 7 February 2019.
6. Satpal, (2008). "Arjuna Awardee Vijender Singh Pugilist –A Case Study", M.P.Ed.Dissertation, M.D. University, Rohtak.
7. Singh P (2010). Padma Shri Charanjeet Singh an eminent sports personality-a case study, Journal of Physical Education and Sports, 28(3).
8. Singh t. (2008) Contribution of S. Pargat Singh Promotion of Sports Phagwara Mmaster Degree level dissertation lovely professional university
9. Singh P (2010). Padma Shri Charanjeet Singh an eminent sports personality-a case study, Journal of Physical Education and Sports, 28(3).
10. Singh t. (2008) Contribution of S. Pargat Singh Promotion of Sports Phagwara Mmaster Degree level dissertation lovely professional university.
11. Tanveer khan (2013) Arjuna awardee zafariqbal „legendary hockey player“-a case study unpublished doctoral thesis, Aligarh muslim university.

**EFFECT OF DYNAMIC SURYANAMASKAR ON MUSCULAR ENDURANCE OF
SEDENTARY COLLEGE STUDENTS**

Dinesh Kaithwas Sports Officer, Govt. College Barwah, dist. Khargone
Dr.Vivek B.Sathe Senior Assistant Professor, School of Physical Education D.A.V.V., Indore
dkaithwas@gmail.com

ABSTRACT

Background: Sedentary lifestyle of college students is one of the leading causes of lifestyle disability worldwide. With all Nowadays pollution, heating and various environmental problems have covered us, the importance of health and fitness has increased to a great extent. India has a rich tradition of yogic practices. Another practice of yoga that is being practiced with tradition is that of Suryanamaskar. It gives physical, mental and spiritual benefits and is a practical, lively approach to life. **Objectives of the study:** the objectives of the study was to characterize, effect of Dynamic Suryanamaskar, comparison between Conventional and Dynamic Suryanamaskar and determine the significant difference of adjusted post-test means among three groups of sedentary college students in relation to Muscular endurance. **Materials and Methods:** To achieve these purpose Ninety (90) male sedentary college students from Jawaharlal Nehru Boys Hostel, Takshshila Campus, Devi Ahilya Vishva Vidhyalaya, Indore, in age group 18-28 were selected randomly as subjects. Further they were divided into three groups, with 30 subjects in each group such as Conventional Suryanamaskar, Dynamic Suryanamaskar and control group. Data was analyzed by using 't'test and analysis of covariance (ANCOVA) **Results:** conventional and dynamic Suryanamaskar groups improved significantly having't' values **-4.86** and **-6.82** respectively. Control group also significant having't' value **2.85** but performance was not improved

Key Words: Dynamic Suryanamaskar, Muscular endurance, Sedentary College Students

INTRODUCTION

The evolution of technology has reached a point where pretty much anything is available at the touch of a button. Shopping, learning, working and entertainment can all be accessed from the comfort of our own homes, on a train or sat in a cafe. An inactive fashion is sitting at a table all day. Walking very little quite it takes to try and do the weekly grocery searching then you're resting your higher body on a go-cart handle. Paying some other person to clean the house, wash the dog and automobiles, cut the grass, rake the leaves and weed the garden. Sitting in front of a Television, laptop for entertainment, talking or texting for hours on the phone.

The word "Sedentary" is derived from the Latin word "Seder" which means "to sit" hence Sedentary behavior is a term used to characterize those behaviors that are associated with low energy expenditure. This includes home, business centers, long screen time, car driving prolonged sitting at work, and leisure time. Sedentary Life Style is type of lifestyle which an individual or group adopt that do not permit regular physical activity. Sedentary lifestyle is one of the major causes of life style disease disability around the world. Approximately two million deaths every year are attributable to sedentary lifestyle; the findings from a WHO study on risk factors suggest that sedentary lifestyle is one of the ten leading causes of death and disability in the world.

The transition from secondary school to university is often accompanied by unhealthy behavior changes such as decreasing physical activity and increasing sedentary behavior in college going students. Therefore it's the responsibility of each country to promote health and physical fitness for its

people, as a result of fitness is that the basic demand for most of the tasks to be undertaken by an individual in his/her daily life. To develop motor and physiological variables several methods of training are used namely circuit training, aerobic training, weight training, fartlek training, yoga training etc.

India has a rich tradition of yogic practices. Another practice of yoga that is being practiced with tradition is that of Suryanamaskar .it is considered the best in yoga, it is also known as Sarva-anga (whole body) Exercise. Only regular practice of Suryanamaskar, person is able to benefit the whole yogic exercise. In the dynamic Suryanamaskar the routine differs greatly with regards to the recommended pace of movement, number of repetitions and emotional approach. I as A researcher want to know that effect of Dynamic Suryanamaskar on Muscular Endurance of sedentary college students.

Objectives of the study

- The first objective of the study was to characterize Muscular Endurance of sedentary college students.
- The second objective of the study was to find out the effect of Dynamic Suryanamaskar on Muscular Endurance of Sedentary College students.
- The third objective of the study was to find out the comparison between Conventional Suryanamaskar and Dynamic Suryanamaskar in relation to muscular Endurance.
- The fourth objective of the study was to determine the significant difference of adjusted post-test means among three groups (Two Experimental and one control group) of sedentary college students in relation to Muscular Endurance.

MATERIAL AND METHODS

Subjects

The study has made on Ninety (N=90) male sedentary college students from Jawaharlal Nehru Boys Hostel (J.N.B.H.),Takshshila Campus, Devi Ahilya Vishva Vidhyalaya (D.A.V.V.), Indore were selected as subject for this study at random and their age were ranged between 18-28 years.

Variables and tests

Muscular Endurance was measured through sit-ups test. As far as experimental treatments are concern twelve weeks of conventional and dynamic Suryanamaskar training were conducted in a planned manner.

Procedure

As the subjects were sedentary they were not able to cope up in the early weeks of programme. So the subjects were allowed to take rest in between the Suryanamaskar sets as and when they required. After the 2nd and 3 week the subjects were able to perform the Suryanamaskar properly. When they were able to perform the Suryanamaskar properly they were allowed to take rest after 6 sets in conventional Suryanamaskar group and after 3 sets in dynamic Suryanamaskar. All the subjects performed the conventional Suryanamaskar after proper warming up the experimental groups were given respective training to the subjects six days a week Monday to Saturday except Sundays from 7.00 to 8.00 a.m. Exercises were introduced in progressive manner. Simple to complex procedure was adopted.

Statistical analysis

To find out the significance difference between the pre and post test data of each group paired 't' test was applied and to find out between group significance of the difference analysis of covariance (ANCOVA) was applied .whenever the F ratio for adjusted post mean was found significant ,the turkey L.S.D. test was applied to determine the paired mean differences. For the analysis was fixed at 0.05.

RESULTS, DISCUSSION AND CONCLUSIONS

The mean differences of Muscular Endurance for two experimental and one control group and their 't' values is presented in table-1.

TABLE – 1 PAIRED 'T' RATIO OF MUSCULAR ENDURANCE FOR ALL THE THREE GROUPS

GROUPS	MEAN		MD	SE _{DM}	Cal't'
	PRE	POST			
CONTROL	27.53	26.46	1.06	0.37	2.85*
CONVENTIONAL SURYANAMSKAR	26.46	28.16	-1.70	0.34	-4.86*
DYNAMIC SURYANAMSKAR	27.80	30.63	-2.83	0.41	-6.82*
*Significant at 0.05 level for one tailed test Tab t.05(29) = 1.699 N=30 df=29					

The table-1 clearly reveals that conventional and dynamic Suryanamaskar groups improved significantly having 't' values -4.86 and -6.82 respectively. Control group also significant having 't' value 2.85 but performance was not improved. The needed 't' value for significance at .05 level with (29) df were 1.699.

For finding the significance of difference between the means of two experimental and one control group analysis of covariance was applied. The value of F and means of two experimental and one control group are presented in table -2

Table – 2 ANALYSIS OF VARIANCE AND COVARIANCE OF ALL THREE GROUPS FOR MUSCULAR ENDURANCE

Source of Variance	Group means			Sum of Squares	Df	Mean Sum of Square	'F' Ratio
	Control	Conventional	Dynamic				
Pre Test Means	27.53	26.46	27.80	B=29.86 W=2099.73	2 87	B=14.93 W=24.13	0.62
Post Test Means	26.46	28.16	30.63	B=263.35 W=1940.60	2 87	B=131.67 W=22.30	5.90*
Adjusted Post Test Means	26.23	28.86	30.16	B=240.95 W=343.94	2 86	B=120.47 W=3.99	30.12*
*Significant at 0.05 level B = Between Group Variance W= Within Group Variance 'F' Ratio needed for significant At 0 .05 (2, 90) =3.10 N = 90							

The table-2 indicates that 'F' value for adjusted post test means (F=30.12) for two experimental and one control group was significant. The 'F' value needed for significant at .05 level with (2, 90) df was 3.10.

To find which of the differences between adjusted group means were statistically significant, the post hoc 't' test was applied as an extension of analysis of covariance. The data related to this is presented in table-3.

TABLE-3 PAIRED ADJUSTED FINAL MEANS AND DIFFERENCE BETWEEN MEANS OF ALL THREE GROUPS FOR MUSCULAR ENDURANCE

CONTROL	CONVENTIONAL SURYANAMASKAR	DYNAMIC SURYANAMASKAR	MEAN DIFFERENCE	CRITICAL DIFFERENCE
26.23	28.86		-2.63*	0.74
26.23		30.16	-3.93*	

	28.86	30.16	-1.30*	
*Significant at 0.05 level				

Table-3 clearly reveals that conventional and dynamic Suryanamaskar group were statistically superior to the control group (MD= -2.63 and -3.93 respectively). It was also found that dynamic Suryanamaskar group was statistically superior to conventional Suryanamaskar group (MD= -1.30). The graphic representation of the adjusted final means of all the three groups are presented in figure-1

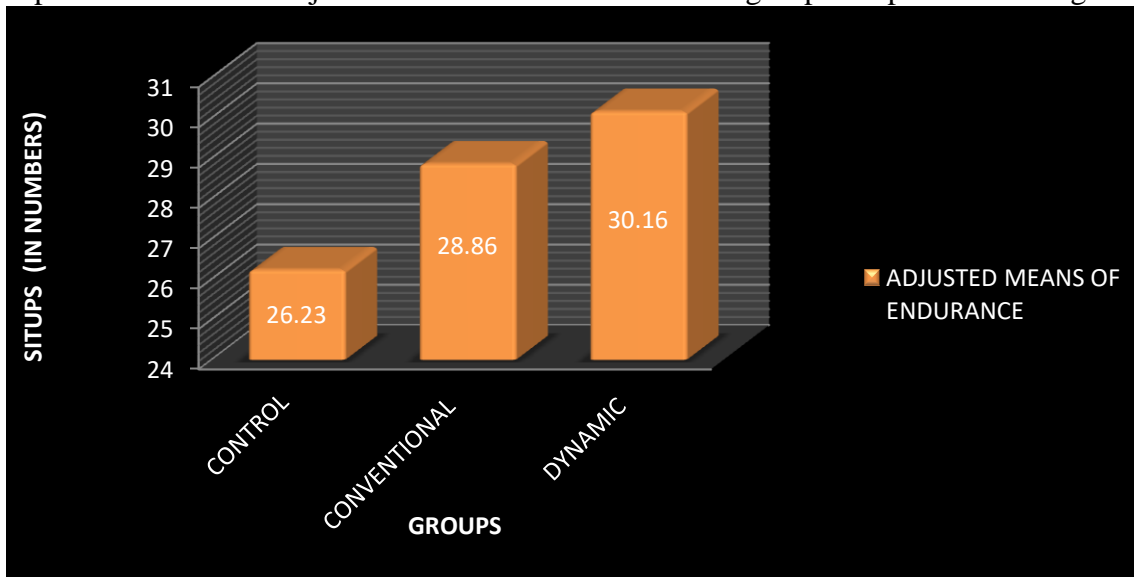


Figure 1: comparison of paired adjusted final means of the two experimental and one control group for muscular endurance

Discussion

For Muscular Endurance conventional and dynamic Suryanamaskar group were statistically superior to the control group. It was also found that dynamic Suryanamaskar group was statistically superior to conventional Suryanamaskar group. This result supported by the reason for such findings may be due to General Body endurance depends on skeletal muscle characteristics, oxygen uptake, its circulation and utilization. Performing dynamic sun salutation is similar to anaerobic exercise as it involves dynamic stretching and dynamic component with maximum stress on cardio-respiratory system. Dynamic sun salutation contributes to significantly intense physical activity to improve cardio-respiratory fitness in sedentary individuals. Sun salutation practice leads to improvement in general muscle endurance. This result supported by the study conducted by Prof. (dr.) **Kanwaljeet singh et al.** "The effect of Suryanamaskar Yogasana on muscular endurance and flexibility among intercollegiate yoginis."

Conclusion

The findings of the study show that the conventional Suryanamaskar training programme was found to be effective in relation to muscular endurance and the dynamic Suryanamaskar training was also found to be effective in relation to muscular endurance. As far as group analysis was concern the findings concluded that dynamic Suryanamaskar group was statistically superior to conventional Suryanamaskar group and control group in relation to muscular endurance.

REFERENCES

- Ajmer Singh et.al, Essentials of Physical Education. (Fourth Edition, Kalyani Publishers, New Delhi, India.p535.540,2012)
- C.A.Bucher, Foundation of physical education and sports, (London: C.V. Mosby Co. p.287.,1983)
- Modak, M., & Joglekar, S. Suryanamaskar.M.Bathe,Ed. (Pune, India: Dr. Kalindi Modak. ,2010).
- Milind V. Bhutkar et al, “How Effective Is Sun Salutation in Improving Muscle Strength, General Body Endurance and Body Composition”. Asian Journal of Sports Medicine, Volume 2 (Issue 4), December 2011, p.p: 259-266.
- Gauri Shankar and Bhavita Pancholi “The Effect of Suryanamaskar Yoga Practice on The Heart -Rate ,Blood Pressure, Flexibility and Upper Body Muscle Endurance in Healthy Adult” International Journal of Health Sciences & Research Vol. 01 Issue 01(Oct. 2011):2