

EFFECT OF CALISTHENICS AND NON-CALISTHENICS EXERCISES ON PHYSICAL FITNESS

Dr. Rahul Thakur * & Dr. S.G.Vidhale**

ABSTRACT

Physical fitness is an essential quality for learning motor skills and to lead happy and prosperous life, every one of us require, some degree of fitness to perform his daily routine. The general purpose of the study was to find out the comparative effects of calisthenics and non-calisthenics on physical fitness. A sample of seventy-five B. P. Ed. Students from Shri Shivaji College of Physical Education, Amravati, Maharashtra, was selected randomly for the study. The age of students were ranging from 19 to 29 years. The data for the present study was collected through AAHPER Youth Physical Fitness Test. Mean, S. D., 't'-value and Co-relation were used to analyse the data. Following were the main findings of the study: - 1) Calisthenics exercises are helpful in improving physical fitness of the students. 2) Non-calisthenics exercises i.e., exercise with weight are equally good for improving the physical fitness of the students. 3) Calisthenics exercises were more effective than non-calisthenics exercises, in improving physical fitness. 4) A regular systematic training programme making of two experimental variable namely calisthenics and non-calisthenics might bring about change in the physical fitness of the students.

Keywords: Calisthenics exercises, Non-calisthenics exercises, Physical fitness , College- age students.

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INTRODUCTION

Physical fitness is a positive and dynamic quality on a continuum from abundant life to death. It is related to the ability to meet the demands of the environment specially to preserve to withstand stress to resist fatigue and to possess the energy for abundant life. Physical fitness is minimal in the highly conditioned person. Kennet, (1977) pointed out that intelligence and skill could function at the peak of their capacity only when the body was healthy and strong and it was physical fitness that played the most important key to a healthy body. Thus physical fitness is the basis of dynamic and creative intellectual activity. While energy demands of daily tasks vary for individual's. some position between these minimal and maximal poles is satisfactory for most people. It is vital for the every individual to maintain neuro-muscular, cardiovascular, motor movements and other organic systems.

Besides developing physical fitness are must also be socially and mentally fit to be able to adopt himself to the demands of his environment. The process of adaptation involves than the social, mental, as well as the physical phase of health, physical fitness involves both the qualities of man and his ideas. Gloria, (1942) said that the picture of the man who is physically fit reveals unmistakable sign of confidence, courage, alertness, initiative, pride, discipline and good posture.

The greater enemy of a player is fatigue not the opponent. The way to keep a way this enemy of body is developing and maintaining top physical condition. Free hand exercise is one of the factor contributing to total fitness. The contribution of free hand exercise to fitness includes the development and maintenance of strength, speed, agility, endurance and skill in person who are physiologically sound. Cole, (1966) compared the effect of isometric and calisthenics exercises on the physical performance of boys. It was found out that the isometric exercise group improved significantly more only in abdominal strength. Gharote, (1979) concludes that yogic exercises were effective in bringing about improvement in general physical fitness as measured by Fleshman's Battery.

Regular exercises has also a profound effect upon circulation, heart action, respiration, so one must continue to exercise in order to maintain fitness. Hooks, (1962) believed that advantages of calisthenics programme aim to improve metabolism, circulation, relaxation and general muscular development. It is true that many of those aim can be attained in sports performance. Taddonio, (1966) compared physical fitness of two groups, one with 15-minute daily period of calisthenics and other with no physical fitness programmes. She concludes that the groups with callisthenic programme improved significantly. Harryman, (1964) concluded that physical was related to the level of intensity to the level of intensity of physical activity. Non-participants in physical activity led to gradual decrease in levels of physical fitness.

Typical calisthenics exercises are limited to the development of increased flexibility. Their contribution to other components of physical fitness is minimal depending on the degree of intensity, duration of repetition. They should be used primarily for warm-up on stretching. Hoffmann, (1977) found that physical fitness and general motor ability of a student can be improved by specially designed exercise programme by physical education classes, by circuit training and by combination of isometric and isotonic exercises. If the intensity, duration and repetition are at overload level, they can also contribute to the other components of physical fitness.

Thus physical fitness is an essential quality for learning motor skills and to lead happy and prosperous life, every one of us require, some degree of fitness to perform his daily routine.

MATERIAL AND METHODS

Selection of Subjects:

Seventy-five B.P.Ed. Students of Shri Shivaji college of Physical Education, Amravati, Maharashtra were selected as the subjects for the study. The age of students were ranging from 19 to 29 years. The subjects were selected by using random method of sampling, through the use of random numbers. The subjects were divided into three equal groups following matching process, each groups were comprised of twenty-five subjects.

Research Design:

Equated groups design was employed for comparatively analyzing the effect of calisthenics and non-calisthenics i.e., exercise with weight on physical fitness. The subjects were divided into three equal groups following matching process. Each group was comprised of twenty-five subjects. All the three groups were administered AAHPER Youth Physical Fitness Test before and after an experimental period of eight week. Out of these three groups the group A and B were experimental and group C was control. Group A had undergone calisthenics exercise where as experimental group B performed some exercise with weight where as group C served as a control group. All this was done on the basis of random method.

Training Program:

Progressive training schedule was administered while following the adoption period of two weeks. The training was carried out thrice a week for each group, i.e., calisthenics exercise on every Monday, Wednesday and Friday and exercise with weight (non-calisthenics) on every Tuesday, Thursday and Saturday under the careful supervision of researchers.

Training Exercises:

The following Callisthenic and non Callisthenic exercise were included : Calisthenics: High Jump, Side Straddle Hop, Stationary Run, Rowing, Push-ups, Straddle Pull-ups, Trunk Twister, Short Bridge, and Full Bridge. Non-Calisthenics or Exercise with Weight: Leg Raise, With Iron Shoes,

Squat, Bench Press, Snatch, Step-up with dum-bells, Good Morning and Seated Wrist Curling.

Criterion Measure:

The performances of the subject were measure through AAHPER Youth Physical Fitness Test, which was also used as a tool for data collection. Description of the items in included in AAHPER Youth Physical Fitness Test: 1) Pull-ups: number of completed pull-ups for to measure arm strength. 2) Sit-ups: number of bent knee sit-ups for measure muscular endurance of the abdomen. 3) Shuttle-run: shuttle run performance in seconds to determine agility. 4) Standing Broad Jump: standing broad jump performance in inches to determine muscular power. 5) 50 -Yard Dash: Fifty-yard dash run time in seconds to determine speed. 6) 600 Yard run/walk: Six hundred yard run/walk performance in minutes and seconds to measure the cardiovascular endurance.

Reliability of the Data:

The test-retest method was followed for establishing the reliability of the data. For this purpose 50 students were retested under similar conditions on the initial test. The reliability of data was found out by correlating scores of the initial test and those of the retest in each item separately by using product moment correlation. The coefficient of reliability obtained for each reliability obtained for each items of AAHPER Youth Physical Fitness test of calisthenics, non-calisthenics and controlled groups are presented in Table -1.

TABLE 1
RELIABILITY COEFFICIENT OF TEST-RETEST SCORES OF AAHPER YOUTH PHYSICAL FITNESS TEST

S No.	Test Item	Co-efficient of Experimental Group-A	Co-efficient of Experimental Group-B	Control Group
1	Pull-ups	.87	.87	.89
2	Sit-ups	.95	.82	.96
3	Shuttle-run	.94	.85	.80
4	Standing Broad Jump	.84	.89	.81
5	50 Yard Dash	.88	.92	.82
6	600 Yard run/walk	.82	.80	.88

The above Table 1 shows the value of co-efficient of reliability for all the items of AAPHER Youth Fitness Test of two experimental group i.e., calisthenics, non-calisthenics and control groups were considered to be sufficiently high as the obtained 'r' in each of the item was above .80. This indicated that the subject were consistent in their performance.

RESULTS AND DISCUSSION

To find out comparative effect of calisthenics and non-calisthenics exercise on physical fitness. The raw score of the test were converted into standard score with the help of T-scale. After that, composite scores were formed. To find out the significant difference between initial and final means of calisthenics exercise group, non-calisthenics group and control group. means, standard deviations and t-test were computed and data pertaining to this have been presented in Table 2 to 4 and depicted in figure 1 to 3.

TABLE 2

SIGNIFICANCE OF DIFFERENCE OF MEANS OF INITIAL AND FINAL TEST OF CALISTHENICS EXERCISES (EXPERIMENTAL GROUP-A)

ON AAHPER YOUTH PHYSICAL FITNESS TEST

Test	N	Mean	MD	σ DM	t -value
Initial Test	25	280.41	85.75	6.15	13.94*
Final Test	25	366.16			

*Significant at .05 level

t .05 (48)=2.02

From the above Table 2 reveals that there is a significant difference (13.94*) found in between calisthenics initial score i.e., mean of calisthenics group before undergoing training programme on AAHPER Youth Physical Fitness Test and calisthenics final scores on AAHPER Youth Physical Fitness Test after training programme of eight weeks.

TABLE 3

SIGNIFICANCE OF DIFFERENCE OF MEANS OF INITIAL AND FINAL TEST OF NON-CALISTHENICS EXERCISES (EXPERIMENTAL GROUP-B)

ON AAHPER YOUTH PHYSICAL FITNESS TEST

Test	N	Mean	MD	σ DM	t -value
Initial Test	25	273.55	46.78	7.88	5.93*
Final Test	25	320.33			

*Significant at .05 level

t .05 (48)=2.02

The table 3 shows that there is a significant difference found in between initial and final scores of Non-Calisthenics on AAHPER Youth Physical Fitness Test i.e., mean of Non-Calisthenics group before undergoing training programme and mean of Non-Calisthenics group after training programme of eight week.

TABLE 4
SIGNIFICANCE OF DIFFERENCE OF MEANS OF INITIAL AND FINAL
TEST OF CONTROL GROUP ON AAHPER YOUTH PHYSICAL
FITNESS TEST

Test	N	Mean	MD	σ DM	t -value
Initial Test	25	281.21	3.5	6.50	0.538
Final Test	25	277.71			

Non-significant at .05 level

t .05 (48)=2.02

It can be observed from table 4 that there was no significant difference (0.538) found in between initial and final scores of control group on AAHPER Youth Physical Fitness Test i.e., initial scores of control groups before eight weeks of training programme and final scores after of eight weeks without administering any training programme.

DISCUSSION

The application of 't'- test revealed that physical fitness of the group trained through 8 weeks calisthenics exercises programme was improved significantly. Researcher believed that advantages of calisthenics programme

The findings also suggests that non-calisthenics exercise i.e., exercise with weight are also good for developing the physical fitness of the students because exercise with weight cause more static and dynamic contraction in muscle ultimately helpful in developing strength, endurance and other components of physical fitness. But calisthenics exercises are comparatively better exercise for developing physical fitness of the player then non-calisthenics exercises.

The insignificant difference between initial and final scores of control group may be attributed to fact that principle of law of use and disuse. It is evident from results that physical fitness of students can be improved by participating in a calisthenics exercise and non-calisthenics exercise with weight.

CONCLUSION

The findings lead to conclusion that systematized calisthenics and non-calisthenics exercises training programme might be helpful for the sustainable developments of physical fitness.

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EFFECT OF HOME BASED GRADED AEROBIC EXERCISE TRAINING ON GLUCOSE HOMEOSTASIS IN OBESE TYPE 2 DIABETES PATIENTS

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ABSTRACT

The research was undertaken on the assigned control groups or experimental group through convenient sampling to collect base line data. Prospective clinical trial was conducted to undertake current study. Overweight and obese individuals from both sexes having type 2 diabetes ranging between age group of 40-60 years were selected as subjects. Further, both the groups were advised to continue with standard diet and medication as prescribed by their respective physicians. Subjects in current study group underwent a supervised orientation to the aerobic walking exercise program including warm-up and cool down. Thereafter, subjects were asked to continue the same at home for a period of three months duration. The duration of exercise was 20 to 25 min per session initially and progressed to 30 - 45 min per session over a period of time with frequency of 4 to 5 times a week, and at intensity of 4 to 5 on Borg's scale RPE (modified). Subjects in the study group were issued with log books to be maintained to ensure the regularity and adherence to the exercise regime. A total of 21 patients in control group and 28 patients in study group completed the study. Results were compared between groups and within group using paired 't'-test and unpaired t'-test. There was significant increase in the blood sugar levels and glycosylated hemoglobin in control group while significant reductions in study group were noted. The home-based graded aerobic exercise improved the glycemic control, in obese type 2 diabetes patients as compared to control group.

Key words: Type 2 diabetes, Obesity, Exercise, Blood glucose levels, Hemoglobin

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INTRODUCTION

Diabetes mellitus is a metabolic disorder occurring due to lack of insulin or a surplus of insulin antagonists leading to a relative lack of insulin. It is characterised by hyperglycemia and glycosuria. The late stage complications like atherosclerosis, diabetic microangiopathy, diabetic nephropathy, diabetic neuropathy, diabetic retinopathy, infections etc. are attributed to the established fact that in insulin resistant states, endothelial nitric oxide synthesis is reduced and insulin mediated vasodilatation gets impaired. Effective management of diabetes comprises of drugs, diet and exercise. Importance of exercise in the management of diabetes has been positively recognised since decades. The possible benefits of exercise for the patient with type 2 diabetes are substantial and recent studies strengthen the importance of long term exercise programs for the treatment and prevention of this common metabolic abnormality and its complications. Aerobic physical activity is a major therapeutic modality for type 2 diabetes. It is well known that regular aerobic exercise produces beneficial effect on glycemic control, insulin sensitivity, lipid abnormalities and hypertension. Slentz CA, Duscha BD, Johnson JL et al (2004) proved that exercises do have a very positive effect on BMI, obesity and body composition. It has been clinically proven that exercises do play a critical role in controlling the glucose level in a diabetic patient. Exercises can be done in a home based setup as well as in a well-equipped institutional setup. Institutional setup is having benefits like supervision by the therapist, close monitoring of the vitals and daily assessment of the progression and specific necessary modifications in the program. But in the Indian context, it has limitations like finance, time, place, and occupational constraints. In contrast to this, though unsupervised, the home based setup overcomes these limitations. On the background of presence of a good literature revealing the effectiveness of supervised endurance and/ or resistance training program for obese type 2 diabetes patients, there is relatively scanty literature focusing on the efficacy of a home based graded brisk walking program on improving lipids and glycemic control in obese type 2 diabetes populations in Indian set up.

MATERIALS AND METHODS

Selection of Subjects:

Patients in this study were initially screened by physician clinically and bio-chemically to confirm the diabetic status. 66 subjects were identified as potential participants for this study. Patients were allotted to the control group or study group through convenient sampling. Baseline data was collected. No change was done in the routine medical treatments that was going and were instructed to report any change done in the medications by the respective physician.

Subjects in the exercise group were given a home based graded brisk walking exercise program for a period of three months. The study group

comprising of 33 patients between age group of 40 to 60 years were bio-chemically confirmed cases of type 2 diabetes. The patients who were willing to perform prescribed exercise were included in this group. The control group comprised of 33 patients between age group of 40 to 60 years were clinically and bio-chemically confirmed cases of type II diabetes and were not willing to participate in the exercise program.

During course of study, 5 patients from control group were excluded from the study as 3 were started on lipid lowering agents by their physicians and 2 patients stopped the exercise regimen within 2 weeks. So total number of 28 subjects $n=28$ (12 males, 16 females) mean age $=50.03 \pm 4.21$ years completed the study duration of 3 months. Out of 33 patients in the control group, 12 patients got excluded from the study due to reasons like starting of lipid lowering agents and insulin. So by the end of the study, Control Group: $n=21$ (13 males, 8 females) mean age $=51 \pm 4.73$ years.

Treatment protocol:

At the beginning of the study, Glycosylated Hemoglobin (GHb), fasting blood sugar (FBS), Post Prandial Blood Sugar (PPBS) and BMI levels were assessed. The Muscular stretch ability and strength in lower limbs were assessed and appropriate physical therapy program was instituted for the study group in case of tightness. The treatment protocol have been presented in table 1.

TABLE 1
TREATMENT PROTOCOL FOR EXERCISE GROUP

Week	Duration	Intensity	Frequency
1 week	20 to 25 min	4-5 (Mod Borg RPE)	4 -5/Week
2 week to 6 weeks	25 to 35 min	4-5 (Mod Borg RPE)	4 -5/Week
6 week to 12 weeks	35 to 45 min	4-5 (Mod Borg RPE)	4 -5/Week

Patients in study group were instructed to maintain and to ensure the regularity and adherence to the exercise regime. Patients performed the exercises for a period of 3 months. The investigations were repeated for both the groups at the end of 3 months.

Procedure:

The study protocol was reviewed and approved by the institutional ethical committee of Manipal College of Allied Health Sciences (MCOAHS), Manipal Academy of Higher Education (MAHE), Manipal, Karnataka, India and the health status of all the subjects were reviewed periodically at Advanced Homoeopathy Clinic, AF Stn Jalahalli, Bangalore. Inclusion Criteria: Bio-chemically diagnosed type 2 diabetes patients with BMI of 25 or more and between age group of 40-60 years of both the sexes were selected a subjects and included in the study. Exclusion Criteria: Following category of patients were deemed suitable to be excluded from the current study:

1. Patients already on regular exercise regime.
2. Those pre-diagnosed with cardio respiratory/ musculoskeletal complications which could interfere with exercise program.

3. Those in which exercise might prove harmful by any means
4. Subjects on regular lipid lowering agents, insulin.
5. Subjects with impaired cognition, and patients who could be irregular on doing the exercise i.e., less than three days/ weeks were excluded from the study.

RESULTS AND DISCUSSION

The analysis of data was through SPSS 12. The level of significance was set at 0.05 level of confidence . Paired 't'- test was used to compare the pre and post values of GHb, FBS, PPBS, BMI within exercise group as well as control group. and data pertaining to this have presented in Table 2 to 4. and depicted in Figure 1 to 4.

FIGURE -1

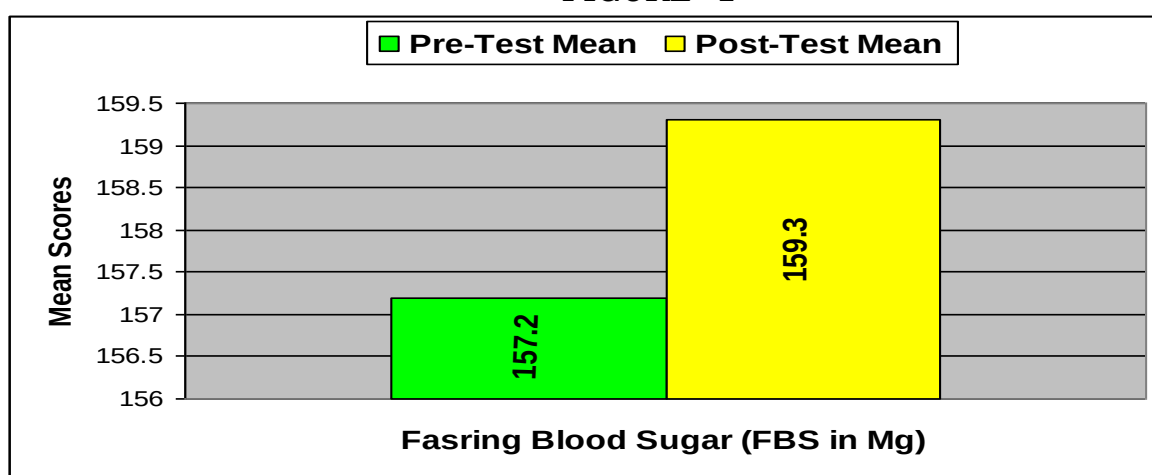


FIGURE -2

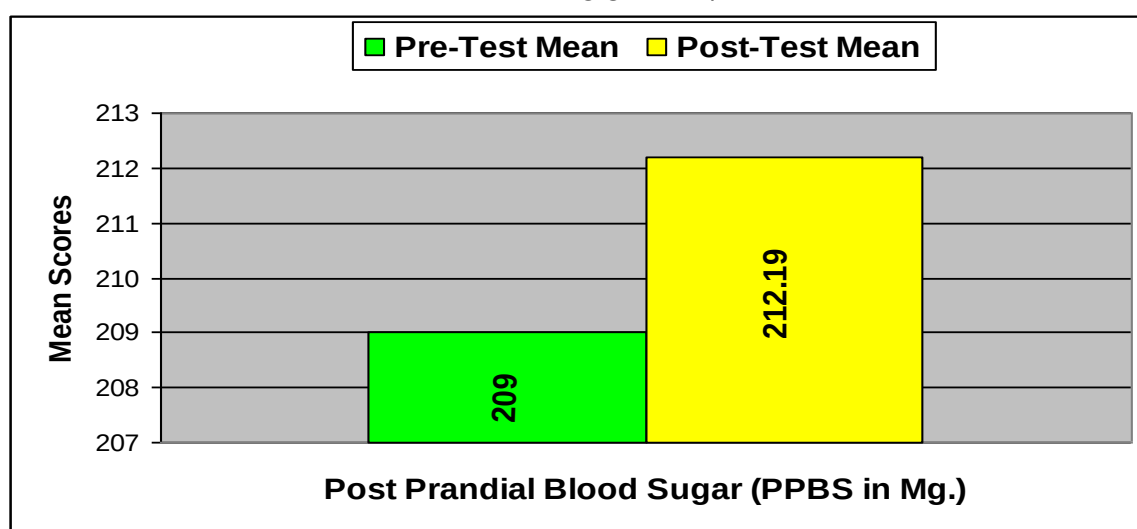


FIGURE -3

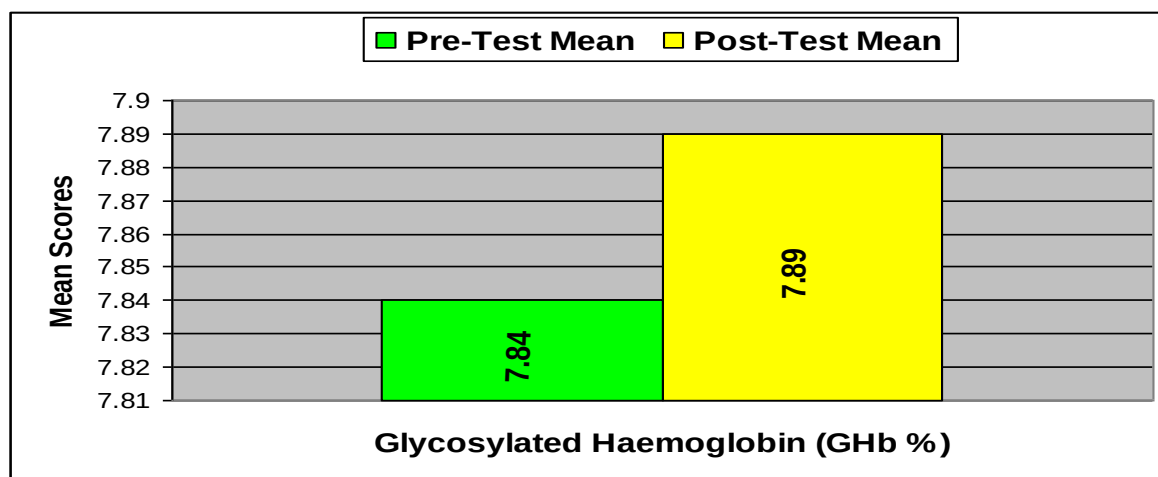


FIGURE -4

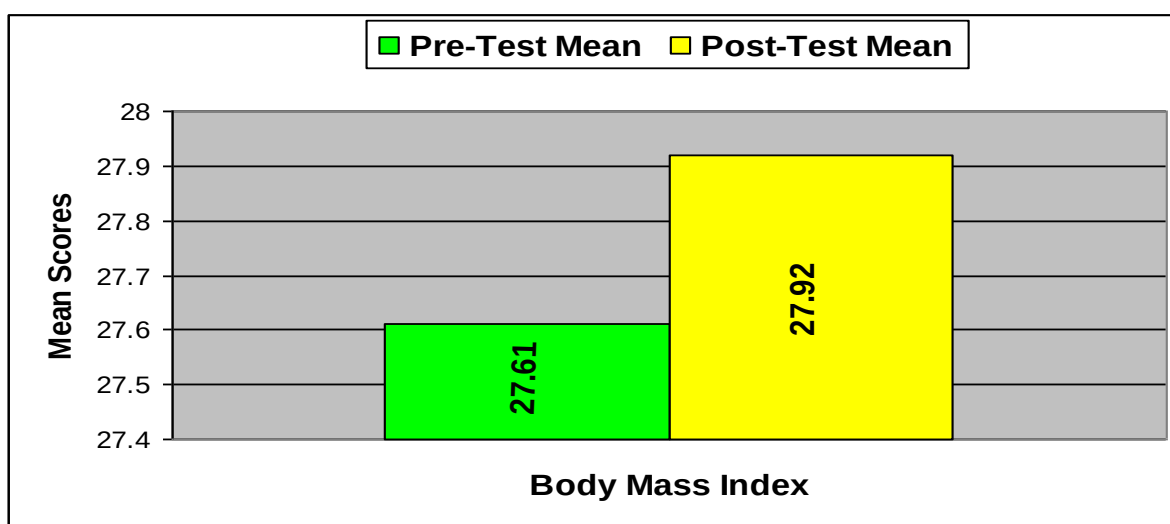


TABLE 2
DESCRIPTIVE STATISTICS OF FBS, PPBS, GHb AND BMI
PARAMETERS OF EXERCISE GROUP AND
CONTROL GROUP (N=28)

Parameters	Control Group		Exercise Group	
	Pre-test Mean $\pm$ SD	Post-test Mean $\pm$ SD	Pre-test Mean $\pm$ SD	Post-test Mean $\pm$ SD
FBS (mg)	157.2 $\pm$ 24.2	159.3 $\pm$ 24.9	181.0 $\pm$ 31.8	172.8 $\pm$ 30.0
PPBS (mg)	209.0 $\pm$ 50.2	212.19 $\pm$ 50.03	233.0 $\pm$ 51.5	226.4 $\pm$ 51.71
GHb (%)	7.84 $\pm$ 1.61	7.89 $\pm$ 1.64	7.86 $\pm$ 0.99	7.37 $\pm$ 1.05
BMI (kg/m ²)	27.61 $\pm$ 1.27	27.92 $\pm$ 1.36	27.64 $\pm$ 1.53	26.87 $\pm$ 1.46

Mean Scores of control and exercise group on pre-test and post test of GHb, FBS, PPBS, BMI of obese type 2 diabetes patients have been depicted in Figure 1to 4.

TABLE 3
SIGNIFICANCE OF DIFFERENCE BETWEEN PRE-POST TEST MEANS
OF FBS, PPBS, GHb AND BMI OF CONTROL GROUP (N=28)

Parameters	Test Means		MD	σ DM	t- value
	Pre	Post			
FBS (mg)	157.20	159.30	2.10	0.324	6.48*
PPBS (mg)	209.00	212.19	3.19	0.492	6.48*
GHb (%)	7.84	7.89	0.05	0.007	7.14*
BMI (kg/m ²)	27.61	27.92	0.31	0.047	6.59*

* Significant at .05 level

t.05 (54)=2.00

Table 3 indicates that there was statistically significant difference between pre-test and post-test means of FBS, PPBS, GHb and BMI of control group after 3 months, as the obtained t-values of 6.48, 6.48, 7.14 and 6.59 respectively were higher than the required t .05 (54) = 2.00

TABLE 4
SIGNIFICANCE OF DIFFERENCE BETWEEN PRE-POST TEST MEANS
OF FBS, PPBS, GHb AND BMI OF EXERCISE GROUP (N=21)

Parameters	Test Means		MD	σ DM	t- value
	Pre	Post			
FBS (mg)	181.00	172.80	8.20	1.265	6.48*
PPBS (mg)	233.00	226.40	6.60	1.018	6.48*
GHb (%)	7.86	7.37	0.49	0.076	6.44*
BMI (kg/m ²)	27.64	26.87	0.77	0.118	6.53*

* Significant at .05 level

t.05 (40)=2.02

Table 4 indicates that there was statistically significant difference between pre-test and post-test means of FBS, PPBS, GHb and BMI of experimental group after 3 months, as the obtained t-values of 6.48, 6.48, 6.44 and 6.53 respectively were higher than the required t .05 (40) = 2.02

DISCUSSION

This study was carried out in order to explore the effectiveness of graded home based exercise on glycemic control in obese type 2 diabetes. During the study, GHb, PPBS, FBS and BMI values were used as outcome measures. This study focuses that it is beneficial for diabetic population to get involved in regular graded aerobic exercise which need not be in out-patient department (OPD) set up only but even home based brisk walking exercise may lead to beneficial improvements in glycemic control and BMI. It was observed during study that home based walking exercise which was done by study group (n=28) gained benefit in terms of beneficial improvements in glycemic control and BMI. (i.e weight reduction). Whereas, subjects in control group, (n= 21) had deterioration in the same which can be attributed to the sedentary life style.

Mean Sugar levels in the control group were found to be minimally elevated after a period of 3 months from the base line data. They were lacking the brisk walking exercise in contrast to study group. Various biochemical mechanisms can be attributed to this change. Exercise induced changes in Hexokinase (HK) and insulin signaling proteins can be one. Exercise rapidly improves the rate of glucose uptake in the muscle. Modulation of Hexokinase is a first rate limiting and committed step in glucose uptake. There are two HK. They are HK 1 and HK 2 and HK 2 being more specific to insulin sensitive tissues. Insulin and exercise both increase the HK 2 activity and expression.

Exercise improves glucose tolerance by augmenting insulin sensitivity through enhanced receptor affinity and for adequate glycemic control. A significant reduction in insulin resistance is often seen with a long term exercise which is associated with the dynamic changes in the cellular content in the insulin stimulated glucose transporter in the muscle termed Glut 4 receptor. Expression of citrate synthase (a regulator of oxidative phosphorylation) is also seen to be increased as a response to long term aerobic exercises.

Glycosylated Hb (GHb): In the exercise group, GHb was reduced by 0.48% after the intervention when compared with the pre exercise values. This was a significant change. In control group, it remained almost stable in the absence of intervention. A meta-analysis, although the individual trials on the effects of exercise in patients with type 2 diabetes have had partially conflicting results, suggests that exercise training reduces GHb by approximately 0.66%, an amount that would be expected to reduce the risk of diabetic complications significantly.

GHb represents the hemoglobin bound with the sugar in the blood. So higher the sugar level in the blood, higher the percentage of hemoglobin bound to sugars. Reduction in the average sugar levels in the exercise group and improved glycemic control would explain the reduction in the values of GHb.

GHb values provide us a measure of a patient's average glycaemia over the preceding 2–3 months and, thus, assess treatment efficacy. GHb testing should be performed routinely in all patients with diabetes, first to document the degree of glycemic control at initial assessment and then as part of continuing care. Since the GHb values reflects mean glycaemia over the preceding 2–3 months, measurement approximately every 3 months is required to determine whether a patient's metabolic control has been reached and maintained within the target range. Thus, regular performance of the GHb values permits detection of departures from the target in a timely fashion.

The relation between the GHb and sugar levels is well defined in which correlation coefficient is $r=0.82$. So, a drop in the blood sugar level (BSL) in exercise group justify the reduction in the GHb levels also. A significant

reduction in the BMI of the exercise group and in contrast to this was observed. Further, there was an increase in the BMI of the control group after the period of three months. Various mechanisms play a role in the exercise induced lipolysis and loss of fat as expressed in the studies of Paul D, Thompson (2002) and Moro C, et al. (2005).

On the background of the established fact that diet and exercise play an important role in controlling type 2 diabetes, our study focused that these benefits can be acquired even in Indian home based set up. Further, current study needs to be taken up on a larger population and in various states in India. Also, there is a need to study how long the benefits of this intervention would last in case the subjects quit the exercise program.

CONCLUSION

In light of the current study, it is concluded that the graded aerobic exercise improves the glycemic and BMI in obese type 2 diabetes population as compared to control group. The home based exercise program is feasible and is effective in gaining the above effects. Though the current study has been undertaken to study the effect of home based aerobic exercises on the patients of Diabetes Mellitus Type 2 (DM type 2) only, it would be interesting and probably significant to undertake similar studies on the patients of Coronary Artery Disease, Chronic Kidney Disease and Chronic Liver Disease. These studies are ought to be undertaken on a larger samples for obtaining more realistic results.

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कामकाजी महिलाओं का खेल एवं शिक्षा के प्रति दृष्टिकोण का अध्ययन

Dr. Adarsh Tiwari *

ABSREACT

शोधार्थी द्वारा प्रस्तुत शोध प्रबन्ध: "कामकाजी महिलाओं का खेल एवं शिक्षा के प्रति दृष्टिकोण का अध्ययन" (शहडोल संभाग के विशेष संदर्भ में) अध्ययन किया गया। जिसके अन्तर्गत साक्षात्कार अनुसूची का प्रयोग कर विभिन्न क्षेत्रों की ३०० शासकीय, अर्द्धशासकीय, अशासकीय एवं स्वरोजगार से जुड़ी ३०० महिला प्रतिनिधियों से जानकारी एकत्र की गई एवं उनका सामाजिक, आर्थिक, पारिवारिक, स्थिति एवं खेल एवं शिक्षा के प्रति रुचि का अध्ययन किया गया। कामकाजी महिलाओं के खेल एवं शिक्षा से सम्बन्धित अध्ययन के आधार पर निष्कर्ष निम्नलिखित हैं रु अधिकतर कामकाजी महिलाओं ने खेल को जीवन में बहुत आवश्यक होना बताया, जबकि २०.०० प्रतिशत कामकाजी महिलाओं ने इसके महत्व को अल्प रूप में ही स्वीकार किया है। अधिकतर महिलाओं को खेल पसंद है, २०.०० प्रतिशत महिलाओं को खेल पसन्द नहीं है तथा २४.६७ प्रतिशत महिलाओं को खेल कभी पसंद हैं। ३८.०० प्रतिशत कामकाजी महिलाओं को खेलों में सहभागिता करना पसंद है, जबकि अधिकतर कामकाजी महिलाएं खेलों को देखना ही पसंद करती हैं। अधिकतर महिलाएं इन्डोर खेलों को पसन्द करती हैं और ४४.३३ प्रतिशत महिलाएं आउटडोर खेलों को पसन्द करती हैं। अधिकतर महिलाएं रोजगार के साथ खेलों को समय देती हैं, केवल २३: महिलाओं अपने सामान्य जीवन एवं रोजगार में व्यस्तता के कारण खेलों को समय नहीं दे पाती। ४२.०० : पारिवारिक सदस्य कामकाजी महिलाओं के चहुंमुखी व्यक्तित्व विकास के पक्षधर हैं। कामकाजी महिलाओं के खेलों में रुझान से ३०.०० प्रतिशत पारिवारिक सदस्य आंशिक अप्रसन्न हैं। कामकाजी २८.०० प्रतिशत महिलाओं ने इस प्रसन्न के संबंध में अनभिज्ञता जाहिर की है। खेलों में परिवार के लोगों का सहयोग के संदर्भ में ३८.६६ प्रतिशत महिलाओं ने यह स्वीकार किया कि उनके परिवार के लोग खेलों के लिए उनका सहयोग नहीं करते। ४५.३४ प्रतिशत महिलाओं की भूमिका और कार्यों के प्रति समाज के विचारों में सकारात्मक परिवर्तन परिलक्षित हो रहे है। कामकाजी ४४.६६ : महिलाओं ने इस प्रश्न के संबंध में अनभिज्ञता जाहिर की है।

Keywords: कामकाजी महिलाएं खेल, शासकीय, अर्द्धशासकीय, अशासकीय एवं स्वरोजगार

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INTRODUCTION

समाज के व्यापक वृत्त में महिलाओं की अस्मिता को उनकी भूमिका से पृथक नहीं देखा जा सकता। यदि भारतीय सांस्कृतिक धरोहर तथा सामाजिक स्थापनाओं में महिलाओं को परिवर्तित परिस्थितियों में पाया गया है तो अवश्य ही तत्कालीन दृष्टिकोण एवं सामाजिक परिप्रेक्ष्य को अनदेखा नहीं किया जा सकता। वर्तमान समय में महिलाओं की स्थिति एवं उन्नत अपेक्षाओं के बावजूद सामाजिक वास्तविकता को नकार कर किसी प्रकार का अध्ययन संभव नहीं है। सामाजिक आरोपण के फलस्वरूप महिला की अवनति तथा उच्चतर सामाजिक आयामों में महिला समानता एवं समस्तरीयता को इंगित करना अपेक्षित है। प्रक्रिया किसी भी दशा, दिशा एवं परिस्थिति में देखी जाये किन्तु पुरुष बनाम महिला से प्रेरित सामाजिक दृष्टि केवल विरोधाभासों की जन्मदात्री ही रहेगी।

स्वतंत्रता प्राप्ति के पश्चात भारतीय समाज में महिलाओं को वस्तुतः वे सभी अवस्थात्मक एवं संवैधानिक अधिकार प्राप्त हैं जो नागरिक समानता एवं न्याय के प्रतिमान हैं, किन्तु यह दावा कि महिलाओं के प्रति सामाजिक दृष्टि में सांगोपांग परिवर्तन हुए हैं, नितान्त विरोधाभास ही हैं। अवश्य ही स्वतंत्र समाज में महिलाओं को किसी घटक विशेष के रूप में देखना अदूरदर्शिता का सूचक है। महिला को घटक मात्र मानकर ही सामाजिक दृष्टिकोण इस प्रकार विकृत एवं दिशाहीन दिखाई देते हैं, जिनके अंतरंग में यह सत्य देखा जा सकता है कि राजनीतिक स्वायत्तता, सामाजिक स्वायत्तता से यदि समीकृत नहीं होती तो अवश्य ही विकास तथा प्रगति संदिग्ध बने रहते हैं।

उत्तर आधुनिक परिदृश्य में नारीवाद से जुड़ी बहसों का आधार सामाजिक वृत्तियाँ एवं सांस्कृतिक अवस्थाएँ हैं। वैश्विक धरातल पर देखा जाय तो तीसरी दुनियाँ या पिछड़े हुए एशियाई, अफ्रीकी तथा लैटिन अमरीकी एवं दक्षिण एशियाई देश, जिनमें भारत भी है, इन सबकी हैसियत आज से पहले मानव समाज के दूसरे, अर्थात् केन्द्र से विस्थापित हुए अन्य की थी। उनकी संस्कृति, उनके साहित्यिक विमर्श और उनकी अस्मिता पर ध्यान उत्तर आधुनिक युग की उपलब्धि है। इसी तरह महिला भी, जो शताब्दियों तक पुरुष समाज का दूसरा, अर्थात् अन्य समझी जाती थी, अब काफी हद तक सामाजिक विमर्श के केन्द्र में आ गई है। डॉ. प्रभा खेतान का यह उद्घरण पर्याप्त है, कि इनलाइटेनमेंट युग से मार्क्सवादी युग तक किस प्रकार महिला अस्मिता के प्रश्न को अन्याय विधि-विधानों के जरिये संरक्षित, सुरक्षित एवं अनुदघटित रखा गया। शस्त्र हो या परम शान्ति, शास्त्र हो या संविधान, हर जगह वह परिधिकरण का शिकार हुई है। पिछली शताब्दी में उसने पुरुषों के बराबर हक की माँग की थी और आज मिले हुए अधिकारों के सबलीकरण का सवाल है। लेकिन इस सवाल में यह आशंका अब भी जीवित है कि फिर कोई उनके साथ खिलवाड़ न करे। उत्तर आधुनिक दौर की महिला अपनी पहचान के प्रति इतनी सचेत है कि वह हमेशा यह जानने का प्रयास कर रही है, कि वे पुरुष जो उससे संवेदना रखते हैं, और उसके बारे में लिख रहे हैं, उसके कितने करीब अथवा दूर हैं। वह यह भी समझने का प्रयास कर रही है कि पूँजीवादी पितृसत्ता चाहे जितनी सरल और उदार लगे, पर भीतर से यह कितनी जटिल है, क्योंकि दोष इसकी संरचना में ही है। उत्तर आधुनिक दौर में महिला सशक्तिकरण के विविध परिप्रेक्ष्यों में उसका संघर्ष भी महत्वपूर्ण है, लेकिन वह संघर्ष भी करे तो किससे, और किसके द्वारा? जब तलवारें पराई हों, धारें पराई हों और यहाँ तक कि म्यान भी पराई हों, और पुरुषों की माप की मूठें उसकी पकड़ से बाहर हों। दरअसल सशक्तिकरण का संघर्ष पहाड़ियों के पीछे छिपे सैनिकों से सीधे मुठभेड़ की बजाए अपने ही भीतर संस्कारों, संवेदनाओं, स्वत्वहीन मर्यादाओं एवं आरोपित समर्पण की अनर्गल प्रथाओं के विरुद्ध लड़ने की आवश्यकता है।¹ उत्तर आधुनिक अवस्थाएँ इन सबके लिए सम्पूर्ण मंच देती हैं। प्रस्तुत प्रबंध में इस दौर की नव्य वैचारिक एवं उत्तर संरचनावादी सैद्धांतिकी के द्विचर विरोधों की वरीयतापरक हैसियत को केन्द्र में रखते हुए महिला सशक्तिकरण के यथार्थ एवं परिणामों पर विचार करने का प्रयास किया गया है। प्रस्तुत शोध प्रतिवेदन की प्रविधि विश्लेषणात्मक, समालोचनात्मक तथा विमर्शपरक है।

समाज में कामकाजी महिलाओं के मानवीय अधिकारों की कुल स्थिति यह है कि कहने को तो महिलाओं के लिए बहुत कुछ किया जा रहा है, कानून बन रहे हैं, उन्हें राजनीति में भागीदारी कराने का निर्णय लिया जा रहा है, अनेक महिला संगठन भी महिलाओं के अधिकारों को लेकर संघर्ष कर रहे हैं, किन्तु बात आगे नहीं बढ़ सकी है, सुधार को संतोषजनक नहीं कहा जा सकता। माना जाता है कि पुरुषों पर महिलाओं की निर्भरता कम हो तो स्थिति बदलेगी। निःसंदेह इससे फर्क पड़ेगा किन्तु सबसे बड़ी और मूल बात पुरुषों की मानसिकता में परिवर्तन लाने की है, उन्हें शिक्षित करने की है। शिक्षा के वर्तमान स्वरूप में पुरुषों और महिलाओं से सम्बन्धित समान सामाजिक अधिकारों का ज्ञान देने की कोई व्यवस्था नहीं है। परिणाम यह होता है कि पुरुषों का व्यवहार भी महिलाओं के प्रति नितांत रूढ़िवादी बना रहता है। सबसे बड़ी आवश्यकता इस बात की है कि प्राइमरी स्तर से ही बच्चों को चाहे वह बालक हो या बालिका, मानवीय अधिकारों के प्रति जागरूक बनाया जाये। विशेष रूप से बालकों को बचपन से ही महिलाओं के प्रति रूढ़िवादी दृष्टिकोण बदलने के लिए शिक्षित किया जाए तभी स्थिति में परिवर्तन आयेगा। यदि सरकार महिलाओं के मानवीय अधिकारों के प्रति और भी अधिक जागरूक होकर उनके समान अधिकारों सम्बन्धी शिक्षा देने तथा एक ऐसी पीढ़ी तैयार करने पर जोर लगाए जिसके मन और मानसिकता में परम्परावादी लिंगभेद न हो तो समाज में एक बड़ा परिवर्तन आ सकता है। इसके लिए सर्वप्रथम प्रमुख बात यह है कि कामकाजी महिलाओं को स्वयं जागरूक होकर अपने अधिकारों के प्रति सजग होना चाहिए और इसके लिए आवश्यक है कि महिला संगठनों, मानव अधिकार आयोग व अन्य संस्थाओं के साथ समन्वय स्थापित किया जाये।

METHODOLOGY

Selection of Subjects:

शोधार्थी द्वारा प्रस्तुत शोध प्रबन्ध: "कामकाजी महिलाओं का खेल एवं शिक्षा के प्रति दृष्टिकोण का अध्ययन" (शहडोल संभाग के विशेष संदर्भ में) अध्ययन किया गया। जिसके अन्तर्गत साक्षात्कार अनुसूची का प्रयोग कर विभिन्न क्षेत्रों की 300 शासकीय, अर्द्धशासकीय, अशासकीय एवं स्वरोजगार से जुड़ी 300 महिला प्रतिनिधियों से जानकारी एकत्र की गई एवं उनका सामाजिक, आर्थिक, पारिवारिक, स्थिति एवं खेल एवं शिक्षा के प्रति रुचि का अध्ययन किया गया।

Procedure of Data Collection:

साक्षात्कार अनुसूची से प्राप्त आँकड़ों के वर्गीकरण, सारणियाँ एवं विश्लेषण के द्वारा यह जानने का प्रयास किया गया है कि 300 कामकाजी महिलाओं का खेल एवं शिक्षा के प्रति क्या दृष्टिकोण है।

विभिन्न सारणियों के माध्यम से कामकाजी महिलाओं की खेल में पसंदगी, खेल से उनके व्यक्तित्व और जीवन पर पड़ने वाले प्रभावों का शोधार्थी द्वारा चित्रण करने का प्रयास किया गया है। कामकाजी महिलाएं किस तरह अपने सामान्य जीवनचर्या, व्यवसाय एवं यदि उन्हें खेलों में रुचि है तो खेल के प्रति किस प्रकार सामंजस्य बनाती हैं, इसका प्रस्तुतिकरण करने का प्रयास भी किया गया है।

खेलों के प्रति रुझान, अपनी पारिवारिक एवं सामाजिक जिम्मेदारियों का निर्वहन, कार्य में कुशलता, व्यक्तित्व विकास के विभिन्न आयामों के बीच सामंजस्य बनाने एवं जीवन की समस्त कठिनाइयों का निराकरण करते हुए वे किस प्रकार अपने जीवन के विकास पथ पर अग्रसर हैं, साथ ही उनके कामकाजी होने का उनके परिवार एवं समाज पर क्या प्रभाव पड़ रहा है, यह जानने का प्रयास भी किया गया है।

ANALYSIS OF DATA AND RESULTS OF STUDY

प्रस्तुत शोध कार्य के दौरान, शोधार्थी ने शोध हेतु चयनित 300 कामकाजी महिलाओं से, खेल जीवन के लिए आवश्यक है या नहीं, जब जानने का प्रयास किया तो निम्नानुसार तथ्य प्राप्त हुए :-

तालिका क्रमांक – 01
खेल जीवन के लिए आवश्यक होने की राय संबंधी विवरण

क्र.	विवरण	संख्या	प्रतिशत
1.	बहुत अधिक	152	50.66
2.	सामान्य	88	29.34
3	कम	60	20.00
	योग	300	100.00

उपरोक्त तालिका क्रमांक 01 से यह स्पष्ट है कि कामकाजी महिलाओं में 50.66 प्रतिशत उत्तरदाताओं ने खेल को जीवन में बहुत आवश्यक होना बताया, जबकि लगभग 29.34 प्रतिशत ने इसे सामान्य रूप से आवश्यक स्वीकार किया, इसके साथ ही 20.00 प्रतिशत कामकाजी महिलाओं ने इसके महत्व को अल्प रूप में ही स्वीकार किया है।

कामकाजी महिलाओं के जीवन में झांकने का एक प्रयास किया गया, जिसके द्वारा यह जानने का प्रयास किया गया कि कामकाजी महिलाओं को खेल पसंद हैं, अथवा नहीं। इसके प्रतिउत्तर में प्राप्त आँकड़ों निम्न तालिका द्वारा प्रस्तुत किया गया है :-

तालिका क्रमांक – 02
खेल पसन्दगी संबंधी विवरण

क्र.	विवरण	संख्या	प्रतिशत
1.	हां	166	55.33
2.	नहीं	60	20.00
3.	कभी-कभी	74	24.67
	योग	300	100.00

उपर्युक्त तालिका क्रमांक 02 के अवलोकन से यह स्पष्ट होता है कि खेल पसंदगी के संबंध में महिलाओं के अपने-अपने मत या विचार हैं। महिलाओं को खेल पसन्द है के संबंध में प्राप्त आँकड़ा इस प्रकार है – 55.33 : महिलाओं को खेल पसंद है, 20 % महिलाओं को खेल पसन्द नहीं है तथा 24.67 % : महिलाओं को खेल कभी पसंद है तो कभी नहीं। 20 % महिलाएं खेल को बिल्कुल पसन्द ही नहीं करती तो 24.67 % कभी-कभी पसन्द करती हैं। यदि हम यह कहें कि समग्र में 44.67 % : महिलाएं शहडोल संभाग में खेल को पसन्द ही नहीं करती तो गलत न होगा।

तालिका क्रमांक 03 में कामकाजी महिलाओं की इस अभिरुचि को प्रदर्शित किया गया है, कि वे खेल को किस रूप या स्वरूप में पसंद करती हैं, जिसके अंतर्गत खेल को खेलना या देखना के रूप में निम्नानुसार दर्शाया गया है :-

तालिका क्रमांक – 03
खेलों को किस रूप में पसंद करती हैं संबंधी विवरण

क्र.	विवरण	संख्या	प्रतिशत
1.	खेलना	114	38.00
2.	देखना	186	62.00
	योग	300	100.00

महिलाओं खेलों को किस रूप में पसंद करती हैं – खेलना या देखना। इस तालिका के अवलोकन से यह स्पष्ट होता है कि कुल 38.00 % : कामकाजी महिलाओं को खेलों में सहभागिता करना पसंद है, जबकि 62.00 % कामकाजी महिलाएं खेलों को देखना ही पसंद करती हैं।

शोधार्थी ने कामकाजी महिलाओं से जब यह जानने का प्रयास किया कि उन्हें किस प्रकार के खेल पसंद हैं, तो प्राप्त जानकारी एवं उत्तर निम्न तालिका द्वारा प्रदर्शित किया गया है :-

तालिका क्रमांक 04
खेल पसंदगी का प्रकार संबंधी विवरण

क्र.	विवरण	संख्या	प्रतिशत
1.	इन्दोर	167	55.67
2.	आउटडोर	133	44.33
	योग	300	100.00

उपर्युक्त तालिका क्रमांक 04 के अवलोकन दौरान यह पाया या कि खेल पसंदगी का प्रकार संबंधी विचार के प्रति महिलाओं की अपनी रुचि है। आँकड़ों से यह स्पष्ट होता है कि 55.67 % महिलाएं इन्दोर खेलों को पसन्द करती हैं और 44.33 % महिलाएं आउटडोर खेलों को पसन्द करती हैं।

निम्न तालिका क्रमांक 05 में महिलाओं द्वारा अपने रोजगार के साथ खेलों को समय दिये जाने संबंधी जानकारी के अंतर्गत विवेचन है कि कामकाजी महिलाएं अपने व्यवसाय के साथ खेलों को समय दे पाती हैं अथवा नहीं ? खेल और व्यवसाय में वे किस प्रकार सामंजस्य बनाती हैं, इसका विवरण प्रस्तुत किया गया है:-

तालिका क्रमांक – 05
रोजगार के साथ खेलों को समय देने संबंधी विवरण

क्र.	विवरण	संख्या	प्रतिशत
1.	हाँ	158	52.66
2.	नहीं	69	23.00
3.	कभी-कभी	73	24.34
	योग	300	100.00

उपर्युक्त तालिका क्रमांक 05 का अवलोकन किया गया जिससे यह पता चलता है कि महिलाएं रोजगार के साथ खेलों को समय देती हैं, जिसकी संख्या 158 (लगभग 52.66%) है। केवल 69

(लगभग 23 % महिलाओं ने ही शोध के दौरान, शोधार्थी को यह बतलाया कि वे अपने सामान्य जीवन एवं रोजगार में व्यस्तता के कारण खेलों को समय नहीं दे पाती। 24.34 % : महिलाओं से यह मत प्राप्त हुआ, कि वे कभी-कभी खेल को रोजगार के साथ समय दे पाती हैं ।

शोधार्थी द्वारा जब यह जानने का प्रयास किया गया कि उनके खेल के प्रति रुझान पर उनके परिवार पर क्या दृष्टिकोण है ? क्या उनके परिवार, उनके खेल के प्रति रुझान को पसंद करते हैं ? जो तथ्य प्रकाश में आये वे निम्न तालिका में प्रदर्शित किये गये हैं :-

तालिका क्रमांक – 06
खेल के प्रति रुझान से परिवार की पसन्दगी सम्बन्धी विवरण

क्र.	विवरण	संख्या	प्रतिशत
1.	हाँ	126	42.00
2.	नहीं	90	30.00
3.	मालूम नहीं	84	28.00
	योग	300	100.00

उपर्युक्त तालिका क्रमांक 06 में कामकाजी महिलाओं का खेलों में रुझान देखकर परिवार के सदस्यों की प्रतिक्रिया सम्बन्धी प्राप्त आंकड़ों से यह जानकारी प्राप्त होती है कि 42.00 % : परिवार के सदस्य कामकाजी महिलाओं के खेलों में रुझान को प्रोत्साहित करते हैं। कामकाजी महिलाओं के खेलों में रुझान से 30.00 % : पारिवारिक सदस्य आंशिक अप्रसन्न हैं। कामकाजी 28.00 प्रतिशत महिलाओं ने इस प्रश्न के संबंध में अनभिज्ञता जाहिर की है।

शोध के दौरान, कामकाजी महिलाओं को उनकी खेल गतिविधियों के लिए उनके परिवार का सहयोग प्राप्त होता है अथवा नहीं, यह जानने का प्रयास किया गया। इसका विवरण निम्न तालिका क्रमांक 07 में प्रस्तुत है :-

तालिका क्रमांक – 07
खेल में परिवार के लोगों का सहयोग देने सम्बन्धी विवरण

क्र.	विवरण	संख्या	प्रतिशत
1.	हां	184	61.34
2.	नहीं	116	38.66
	योग	300	100.00

उपर्युक्त तालिका क्रमांक 07 से यह पता चलता है कि – जब कामकाजी महिलाओं से यह पूछा गया कि क्या आपके खेल के लिए परिवार के सदस्य सहयोग देते हैं अथवा नहीं, तब 61.34% मात्र सहयोग देने की स्थिति में प्राप्त हुए हैं। खेलों में परिवार के लोगों का सहयोग के संदर्भ में 38.66% महिलाओं ने यह स्वीकार किया कि उनके परिवार के लोग खेलों के लिए उनका सहयोग नहीं करते।

खेलकूद में महिलाओं की भागीदारी के प्रति समाज के नजरिये को महिलाएं किस दृष्टिकोण से देखती हैं ? वे समाज के दृष्टिकोण को उचित समझ रही हैं अथवा नहीं ? जब उनसे यह जानने का प्रयास किया तो निम्न तथ्य प्रकट हुए :-

तालिका क्रमांक – 08

खेलकूद में महिलाओं के रुझान के प्रति समाज का दृष्टिकोण सम्बन्धी विवरण

क्र.	विवरण	संख्या	प्रतिशत
1.	हां	136	45.34
2.	नहीं	42	14.00
3.	मालूम नहीं	122	40.66
	योग	300	100.00

उपरोक्त तालिका क्रमांक 08 के अवलोकन से जानकारी प्राप्त होती है कि जब कामकाजी महिलाओं से पूछा गया कि वे खेलकूद में महिलाओं की भागीदारी के प्रति समाज के दृष्टिकोण से संतुष्ट हैं, तो 45.34 % उत्तरदाताओं का मत समस्या के समाधानात्मक दृष्टिकोण के साथ प्रसन्नता को समेटे हुए है। समाज का एक पक्ष ऐसा भी है जो खेलकूद में महिलाओं की भागीदारी से प्रसन्न नहीं है। इनकी संख्या 14.00 % है। इस वर्ग की मानसिकता से अज्ञान का अंधकार हटाने और ज्ञान का दीप प्रज्ज्वलित करने की आवश्यकता है। कामकाजी 44.66 % महिलाओं ने इस प्रश्न के संबंध में अनभिज्ञता जाहिर की है। मालूम नहीं कब तक निम्न जिज्ञासाओं एवं प्रश्नों को जन्म देता है—

DISCUSSION

कामकाजी महिलाएं अपने कार्यक्षेत्र में अपनी भूमिका का निर्वहन करने के साथ-साथ खेल एवं शिक्षा को भी महत्व प्रदान कर रही हैं, साथ ही घर-परिवार की जिम्मेदारियाँ भी बखूबी निभा रही हैं। कामकाजी महिलाओं में खेल एवं शिक्षा के प्रति जिज्ञासा एवं रुचि तो है, किन्तु पर्दा प्रथा, सामाजिक कुरीतियाँ एवं समाज की मानसिकता उनकी इस सोच को संकुचित करती है। कामकाजी महिलाओं का मानना है कि जीवन के लिए खेल एवं शिक्षा आवश्यक है और इसमें परिवार का सहयोग भी महिलाओं को प्राप्त हो रहा है। यह बात महत्वपूर्ण है कि यह प्रतिशत सीमित है जो लगातार बढ़ रहा है। कामकाजी महिलाओं का मानना है कि खेल में सरकारी सुविधाओं की कोई कमी नहीं है, बल्कि उन सुविधाओं का सही क्रियान्वयन न होने के कारण वे सर्वसुलभ नहीं हो पाती हैं। कामकाजी महिलाओं में अधिकांश महिलाएं ऐसी थीं जिन्होंने शिक्षा प्राप्त करने के दौरान ही खेल में सहभागिता दर्ज कराई। शिक्षा प्राप्त करने के पश्चात वे खेलों को देखने तक ही सीमित हो रही हैं। यदि वे खेलती भी हैं तो इनडोर खेलों को ही महत्व प्रदान करती हैं। अधिकांश कामकाजी महिलाओं का मानना है कि खेल प्रमाण-पत्रों की उपयोगिता नौकरी दिलाने में नहीं है, इसलिए भी उन्होंने खेल में सक्रियतापूर्वक सहभागिता दर्ज नहीं कराई। कामकाजी महिलाओं में खेल एवं शिक्षा से सम्बन्धित उपलब्धियाँ शहर एवं अच्छे परिवार से सम्बन्धित महिलाओं में देखी गई। किन्तु अब धीरे-धीरे सभी वर्गों की बालिकाएं एवं महिलाएं सहभागिता दर्ज करा रही हैं। कामकाजी महिलाओं का मानना है कि खेल एवं शिक्षा उन्हें शोषण से मुक्ति दिलाने में भी सहायक है।

CONCLUSIONS

कामकाजी महिलाओं के खेल एवं शिक्षा से सम्बन्धित अध्ययन के आधार पर निष्कर्ष निम्नलिखित हैं :

1. कामकाजी महिलाओं में 50.66 प्रतिषत उत्तरदाताओंने खेल को जीवन में बहुत आवश्यक होना बताया, जबकि लगभग 29.34 प्रतिषत ने इसे सामान्य रूप से आवश्यक स्वीकार किया, इसके साथ ही 20.00 प्रतिषत कामकाजी महिलाओं ने इसके महत्व को अल्प रूप में ही स्वीकार किया है।
2. 55.33 प्रतिषत महिलाओं को खेल पसंद है, 20.00 प्रतिषत महिलाओं को खेल पसन्द नहीं है तथा 24.67 प्रतिषत महिलाओं को खेल कभी पसंद हैं।
3. 38.00 प्रतिषत कामकाजी महिलाओं को खेलों में सहभागिता करना पसंद है, जबकि 62.00 प्रतिषत कामकाजी महिलाएं खेलों को देखना ही पसंद करती हैं।
4. 55.67 प्रतिषत महिलाएं इन्डोर खेलों को पसन्द करती हैं और 44.33 प्रतिषत महिलाएं आउटडोर खेलों को पसन्द करती हैं।
5. 52.66: महिलाएं रोजगार के साथ खेलों को समय देती हैं, केवल 23: महिलाओं अपने सामान्य जीवन एवं रोजगार में व्यस्तता के कारण खेलों को समय नहीं दे पाती।
6. 42.00 : पारिवारिक सदस्य कामकाजी महिलाओं के चहुंमुखी व्यक्तित्व विकास के पक्षधर हैं। कामकाजी महिलाओं के खेलों में रुझान से 30.00 प्रतिषत पारिवारिक सदस्य आंशिक अप्रसन्न हैं। कामकाजी 28.00 प्रतिषत महिलाओं ने इस प्रसन्न के संबंध में अनभिज्ञता जाहिर की है।
7. खेलों में परिवार के लोगों का सहयोग के संदर्भ में 38.66 प्रतिषत महिलाओं ने यह स्वीकार किया कि उनके परिवार के लोग खेलों के लिए उनका सहयोग नहीं करते।
8. 45.34 प्रतिषत महिलाओं की भूमिका और कार्यों के प्रति समाज के विचारों में सकारात्मक परिवर्तन परिलक्षित हो रहे है। कामकाजी 44.66 : महिलाओं ने इस प्रश्न के संबंध में अनभिज्ञता जाहिर की है।

RECCOMENDATION

कामकाजी महिलाएं खेल एवं शिक्षा में अपनी महत्वपूर्ण उपस्थिति दर्ज कराएं, इस हेतु उन्हें प्रोत्साहन राशि, सुविधाएं एवं इसके साथ ही इसे नौकरी एवं रोजगार के साथ सीधा जोड़ा जाना चाहिए, जिससे वे इस ओर अधिक प्रोत्साहित होंगी। जब कामकाजी महिलाएं खेल एवं शिक्षा में अपनी सहभागिता दर्ज करा रही हों, उस समय उनके लिए सुरक्षा के पुख्ता इंतजाम होना चाहिए, जिससे वे अपने आपको असुरक्षित न मानकर उत्कृष्ट प्रदर्शन करते हुए अच्छी उपलब्धियाँ अर्जित कर सकें। कामकाजी महिलाएं खेल एवं शिक्षा में अपनी भूमिका अच्छे से निभाएँ इस हेतु सरकार की भूमिका केवल सुविधाएँ उपलब्ध कराने तक ही सीमित नहीं होनी चाहिए बल्कि उन योजनाओं के क्रियान्वयन पर विशेष ध्यान रखा जाना चाहिए। कामकाजी महिलाओं से संबंधित खेल प्रतियोगिताओं का आयोजन ग्रामीण क्षेत्रों में भी किया जाना चाहिए। इससे ग्रामीण महिलाओं को प्रोत्साहन मिलेगा। कामकाजी महिलाओं के खेल एवं शिक्षा हेतु प्रोत्साहन में पुरुष वर्ग का सहयोग महत्वपूर्ण है। अतः पुरुष वर्ग को भी इस हेतु प्रोत्साहित किया जाना चाहिए।

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COMPARATIVE STUDY OF SOCIAL ADJUSTMENT OF MALE AND FEMALE PLAYERS

Inder Kerketta* Omprakash Gangey**

ABSTRACT

The purpose of the present study was to compare the Social Adjustment between male and female players of Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G). For the present study total 50 male and female players (25 each) from Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G) were selected randomly as a subject and the age ranging between 18 to 28 years. For the present study the independent variable (male and female players) and dependent variable (Social Adjustment) were selected as a variable. To measure the Social Adjustment, the Social Adjustment Questionnaire was used which was made by Charles C. Cowell. To know the significant difference between male and female players, descriptive statistics and independent t-test was used for the analysis of data with the help of SPSS (version 16.0) software and the level of significance was set at 0.05. The calculated data mean score of the male players is 3.36 and SD is 1.72 and mean score of female players is -1.44 and SD is 2.75 respectively and calculated 't' value is 7.379 which is greater than tabulated 't' value (2.01), it reveals that male players mean score is higher than the female players and it is also reveals that there is significant difference in Social Adjustment of male players and female players, because the calculated value is greater than the table value and it is significant at 0.05 level. The results indicate that there is significance difference of Social Adjustment between male and female players of Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G).

Keywords: Male players, Female players and Social Adjustment.

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INTRODUCTION

In the complex society, a vital need for every human being is the stability in life process. Adjustment is an important state of a person that influences the human relationship. It is a fundamental for good health. Social adjustment is a state of person when he can meet the various social situations in which he finds himself without deviating from the basic standard of conduct. (Tarandeep, Supinder Kaur and Rachhpal Singh, 2016). Adjustment is the process by which living organism maintains a balance between its need of the circumstances that influence the satisfaction of these needs. Adjustment implies a constant interaction between the person and his environment. Adjustment attempts to satisfy need by overcoming both inner and outer obstruct and by adopting circumstances. The behavior of human beings is difficult to act and investigate because of the complexity of the subject matter. This complexity of human behavior is best illustrated by the adjustment process it involves a number basic and applied of knowledge, such as psychology, Genetics, Sociology, Anthropometry, Medicine and even religion. (Malkeet Singh and Damanpreet Singh, 2016). The concept of adjustment was first given by Darwin, who used it as 'adaptation' to survive in the physical world. The term adjustment is often used as a synonym for accommodation and adaptation. Strictly speaking, the term denotes the results of equilibrium, which may be affect by either of these processes (Monroe, 1990). Shafer (1961) emphasized that adjustment is the process by which a living organism maintains a balance between its needs and the circumstances that influence the satisfaction of these needs. Kulshrestha (1979) explained that the adjustment process is a way in which the individual attempts to deal with stress, tensions, conflicts etc., and meet his or her needs. Good (1959) states that adjustment is the process of finding and adopting modes of behaviour suitable to the environment or the changes in the environment.

METHODOLOGY

Selection of Subjects:

For the present study total 50 male and female players from Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G) were selected randomly as a subject and the age ranging between 18 to 28 years. In this study Social Adjustment Questionnaire (Charles C. Cowell) was used to measure Social Adjustment level of an individual.

Statistical Analysis:

Descriptive Statistic, Mean, Standard Deviation and Independent t-test was applied to compare the degree of Social Adjustment (behaviour) level between male and female players. Data was analyzed using the statistical package SPSS version 16.0. The level of Significance was set at 0.05.

Instrumentation:

Social Adjustment Questionnaire is developed and standardized by Charles C. Cowell. The test consisted of 20 items (10 positives and 10 negatives questions) and it measures the social behaviour (good and poor adjustments). Ten of the pairs of positive and negative behaviour trends were retained as common denominators underlying good and poor adjustment. These positive and negative scales (forms A and B, respectively) appear in Social Adjustment Questionnaire. Questionnaires distributed to participants and instruct to fill the questions according to their own choice. Thus, a socially well-adjusted pupil would get a high positive score; a socially maladjusted pupil would receive a high negative score. Each question contain four alternatives choice to be marked by student viz. markedly, somewhat, only slightly and not at all and the point allotted was +3, +2, +1 and +0 for form A and -3, -2, -1 and 0 for form B respectively. The total index score is the sum of the points for the 10 items in form A minus the sum of the points for the 10 items in form B.

Criterion Measures:

Sr. No.	Variables	Questionnaire	Measuring Unit
01.	Social Adjustment (behaviour)	Social Adjustment Questionnaire by Charles C. Cowell.	In counts

RESULTS OF THE STUDY

The scores were obtained by using the key as suggested by Charles C. Cowell. All the individual Social Adjustment score was used to judge the level of social adjustment (behaviour).

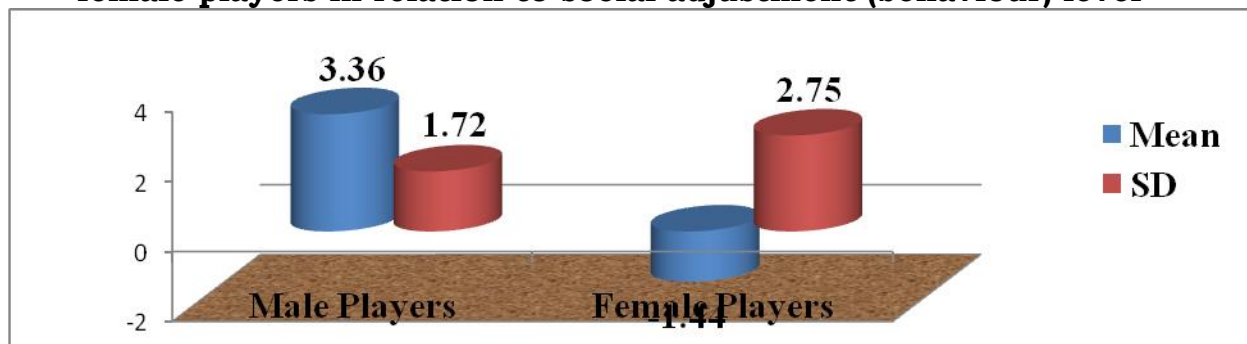
Table - I
Comparative and descriptive table of male and female players in relation to social adjustment (behaviour) level

Groups	N	Mean	SD	MD	σ D.M.	t-value
Male players	25	3.36	1.72	4.80	.65	7.38*
Female players	25	1.44	2.75			

*Significant at 0.05 level, $t_{0.05 (48)} = 2.01$

Table-1 indicates that the calculated t-value 7.38 on social adjustment (behaviour) observed "t" values are compared with the critical value 2.01, 48 degree of freedom. It was observed that the value 7.38 was found as higher than the table value 2.01. This confirms that significant difference exists between the means of male and female players in relation to social adjustment (behaviour) level.

Fig – 1 -
Graphical representation of Mean and Standard Deviation of male and female players in relation to social adjustment (behaviour) level



CONCLUSIONS

On the basis of result following conclusions have been made -

1. Significant difference was found between the male and female players of Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G) in relation to social adjustment.
2. The male players were having more positive social adjustment (behaviour level) than the female players.

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SPORTS SPECIFIC PSYCHOLOGICAL SKILLS OF INTER COLLEGE LEVEL KABADDI PLAYERS.

Dr. R. Jagathesan* Dr. M. Ganesh Kumar**

ABSTRACT

The purpose of the investigation was to find out the gender based difference of psychological skills among Inter College level Kabaddi Players. Study conducted on 60 kabaddi players showed that among them 30 were male and 30 female Kabaddi players variables in psychological skills were anxiety controls, concentration, confidence, mental preparation, motivation and team emphasis. The data were obtained by administering psychological skills inventory for sports (PSIS) developed by Mahoney. To compare gender based difference between the variables 't' test was applied. The findings revealed significant difference in concentration and team emphasis but there was no difference seen in anxiety control, confidence, mental preparation and motivation.

Keywords: Psychological Skill, Kabaddi Players, College level, Tamilnadu

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INTRODUCTION

Sports is a medium which can provide a sense at purpose, a sense at continuous challenge as well as a range of emotion which is sometimes difficult to experience elsewhere. The ultimate victory in competition is derived from the inner satisfaction of knowing that you have done your best and that you have gotten the most out at what you had to give. The mental demands of sport are in every aspect as important as the physical demands. Athletes, individuals and teams spend spent thousands at hours perfecting their physical performance but many often neglect their mental skills and fitness. Development at your mental skills will enhance your physical and strategic skills and can make them all the important difference between winning and losing.

The purpose of the study was to assess gender based differences in sports specific psychological skill of Kabaddi players. It was also hypothesized that there will be a significant difference between male and female Kabaddi players in Anxiety control, concentration, confidence mental preparation motivation and Team emphasis.

METHODOLOGY

Participants:

Sixty Kabaddi players were selected as subject (30 Male and 30 Female) Their participation level Inter College Kabaddi players were randomly selected from various college at Namakkal District and their age ranged between 18 and 20 Years.

Instrument:

Psychological skills inventory for sports (PSIS) as developed by Mahoney et. al (1987) were used to collect the data.

RESULTS AND DISCUSSION

see the significant differences between male and female Kabaddi players in their psychological skills mean, SD and t- ratio were computed and data pertaing to this has been presented in Table 1

TABLE 1
MEAN, STANDARD DEVIATION AND t- VALUE AT MALE AND FEMALE KABADDI PLAYERS

PSIS	Male (N : 30)				Female (N : 30)				't' ratio
	Mean	S.D.	Max.	Min.	Mean	S.D.	Max.	Min.	
AX	62.70	8.04	68	38	59.23	17.37	93	38	1.84
Con	47.03	9.71	67	25	61.47	13.74	88	33	4.68*
C.F.	59.93	11.41	83	39	62.57	14.93	94	42	0.78
MP	46.60	12.03	71	21	42.50	14.04	75	17	1.26
MV	64.73	8.87	82	46	68.77	8.25	86	54	1.61
TM	76.27	7.80	86	61	70.20	10.65	93	46	2.62*

* Significant at 0.05 level, t '0.05 (58) = 2.01

From the table it is evident that there are significant differences in concentration and team emphasis as the obtained 't' value of 4.68 and 2.62 are higher than the required value at 2.01 for significance at 0.05 level at confidence.

Whereas no significant differences were found in anxiety control, confidence mental preparation, and motivation as the obtained 't' values at 1.84, 0.78, 1.26 and 1.61 are much lesser than the required value of 2.01 for significance at 0.05 level at confidence. So the hypothesis is accepted for the variables at concentration and team emphasis and rejected for all variables.

CONCLUSIONS

Within the limitations at the present study and on the basis at the results at the study, the following conclusions may be considered appropriate.

1. There were significant differences between male and female Kabaddi players in the variables of confidence and team emphasis.
2. There were no significant differences between male and female Volley Ball players in the variables at anxiety control, confidence, mental preparation and motivation.

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A STUDY OF PSYCHOLOGICAL CHARACTERISTICS OF JUNIOR NATIONAL LEVEL MALE KABADDI PLAYERS

Dr. Gulbahar khan*

ABSTRACT

The purpose of the study was to research the psychological characteristics of junior national level kabaddi players. For the aim of this study a complete of 240 junior national male kabaddi players were elite as subject. the themes were the team members of various states and union territories of India, participated in Junior National Kabaddi Tournament. For the gathering of information scholar requested the coaches and team managers of taking part groups of various states. the themes were within the vary of 16- nineteen years older as a result no issue were encountered in administering the psychological Inventories and Questionnaires as all were relevant to the 15+ age teams. the themes were thought-about because the true representative of the whole male junior kabaddi population of India at the time of their assessment on the chosen psychological variables i.e. Anxiety, personality, achievement motivation, visual perception. Mean and standard deviations were calculated to understand the psychological attributes of junior national level male kabaddi players. Results of applied mathematics analysis discovered that the junior national level male kabaddi players were found relaxed, additional neurotic temperament. average in achievement motivation and visual perception.

Keywords: National level, Kabaddi, psychological Variables, Male Players

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RESULTS AND DISCUSSION

To prepare the psychological profile of junior national level kabaddi players on Anxiety, Achievement motivation, Personality and Visual Perception variables. means and standard deviations were computed and data pertaining to this have been presented in Table 1.

TABLE 1
MEAN AND STANDARD DEVIATION OF PSYCHOLOGICAL
VARIABLES OF NATIONAL LEVEL KABADDI
PLAYERS

S.No.	Psychological Variables	M ± SD
1.	Anxiety	24.82 ± 6.28
2.	Achievement Motivation	37.71 ± 5.96
3.	Visual Perception	53.45 ± 1.15
4.	Personality	
	a. Psychoticism	6.04 ± 3.34
	b. Extraversion	11.29 ± 2.52
	c. Neuroticism	11.68 ± 3.43
	d. Lie Score	11.13 ± 3.17

Mean scores on anxiety, achievement motivation, visual perception and four factor of personality of junior national kabaddi players have been depicted in figure 1 to 4.

The classifications of anxiety in terms of the categories are presented in Table 2.

TABLE 2
RANGE OF SCORE OF ANXIETY OF JUNIOR NATIONAL LEVEL
KABADDI PLAYERS

S.No.	Categories	Range of Scores
1.	Very High	42 and above
2.	High	33 to 41
3.	Average	18 to 32
4.	Low	10 to 17
5.	Very Low	9 and below

It is evident from table 2 that the junior national level male kabaddi players were found to be average on sports competitive anxiety when they were compared with the range of scores, as obtained mean value of anxiety of 24.82 was in average category between 18 to 32 range of score, which indicates that the junior level male kabaddi players were relaxed at the time of competition.

The data on the Personality were derived from the administration of Eysenck Personality Questionnaire (EPQ) by Eysenck and Eysenck. It is clearly evident from the table 1 that the mean value on psychoticism, extraversion, neuroticism and lie score dimensions of personality were 6.04± 3.34, 11.29± 2.52,

11.68± 3.43± 3.17, and 11.13± 3.17 respectively. The junior national level male kabaddi players were found to have more neurotic tendency, less in psychotic, extrovert and lie score in whole sample of this study.

Achievement motivation in relation to sports situation is the degree to which an individual is willing to approach a competitive situation. Achievement motivation is an athlete's pre-disposition to approach or void a competitive situation. The Rao Achievement Motivation Test provides a simple and objective measure of Achievement Motivation of junior national level male kabaddi players. The data on the Achievement Motivation were derived by the administration of Rao Achievement Motivation Test and comparisons were made on the basis of the mean and standard deviations. It is evident from the table 1 that the mean score of achievement motivation was 37.71± 5.96. The achievement motivation of junior national kabaddi players was found to be average as per the norms of the test. Hence, from the obtained mean it is very clear that the junior national male kabaddi players may not be considered to possess a very high and bright profile in achievement motivation.

The data on the Visual Perception were derived by the administration of Muller-Lyer Illusion Apparatus Test, which measure the space error between standard stimulus (fixed) and variable stimulus (moveable). Further comparisons were made on the basis of the mean and standard deviations. It is evident from the table 4 that the mean score of visual perception was 53.45 ± 1.15. The visual perception of junior national kabaddi players was found to be average as per the norms of the test. The present finding may be attribute due to the fact that visual efficiency plays an important role in the game of kabaddi which can substantiated by the findings of the other research work.

CONCLUSIONS

1. National level male kabaddi players were found relaxed at the time of competition.
2. National level male kabaddi players were found to have more neurotic tendency compared to other dimension of personality.
3. Achievement motivation was found average among junior national male kabaddi players.
4. National level male kabaddi players were found to have average visual perception

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EFFECT OF RESISTANCE TRAINING WITH MOBILITY TRAINING ON PERFORMANCE RELATED FITNESS VARIABLES AMONG UNTRAINED MEN

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ABSTRACT

The purpose of the study was to find out the effect of resistance training with mobility training on selected performance related fitness variables among untrained men. To achieve this purpose, 40 male students studying in various classes were randomly selected as subjects from Mailam Engineering and Technology, villupuram, Tamilnadu. The age of the subjects were ranged from 18 to 25 years. The subjects were further classified at random into two equal groups of 20 subjects each. Group - I underwent resistance training with mobility training for three days per week for twelve weeks and group - II acted as control. The selected criterion variables namely speed and shoulder strength was assessed before and after the training period. The collected data were statistically analyzed by using Analysis of Covariance (ANCOVA). From the results of the study it was found that there was a significant improvement on speed and shoulder strength among the resistance training group when compared with the control group.

Keywords: Resistance Training, Performance, Fitness, Mobility.

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INTRODUCTION

Muscle strength and power are important determinants of a successful performance in many individual and team sports. Consequently, during the past decades much attention both from coaches and researchers has been focused on determining the optimal training methods for the development of strength, power and competitive performance (1).

Resistance training has two different meanings. A broader meaning that refers to any training that uses a resistance to the force of muscular contraction (better termed strength training), and elastic or hydraulic resistance, which refers to a specific type of strength training that uses elastic or hydraulic tension to provide this resistance. Resistance training is a form of strength training in which each effort is performed against a specific opposing force generated by resistance (i.e. resistance to being pushed, squeezed, stretched or bent). Exercises are isotonic if a body part is moving against the force. Exercises are isometric if a body part is holding still against the force.

Resistance exercise is used to develop the strength and size of skeletal muscles. Properly performed, resistance training can provide significant functional benefits and improvement in overall health and well-being. The goal of resistance training, according to the American Sports Medicine Institute (ASMI), is to "gradually and progressively overload the musculoskeletal system so it gets stronger."

Research shows that regular resistance training will strengthen and tone muscles and increase bone mass. Resistance training should not be confused with weightlifting, power lifting or bodybuilding, which are competitive sports involving different types of strength training with non-elastic forces such as gravity (weight training or Plyometrics) rather an immovable resistance (isometrics, usually the body's own muscles or a structural feature such as a doorframe). Full range of motion is important in resistance training because muscle overload occurs only at the specific joint angles where the muscle is worked. Athletic performance in many sports demands the development of muscle strength, which is required for other performance related characteristics, notably speed and power.

Muscle strength is routinely developed through prolonged participation in a structured resistance exercise programmes. Yet despite extensive research in the area, the adaptive mechanisms contributing to maximal strength adaptation are not yet fully understood.

A number of key principles are applied during resistance exercise programmes. Legend suggests Greek athlete Milo of Croton lifted and carried a calf on his shoulders each day from birth until it became fully grown; as the animal grew in size so did his strength. This legend clearly demonstrates the importance of applying a progressively increasing external load. The mechanical loading of muscle as a consequence of the external load is perhaps the most important consideration of any resistance-training

programme. Research has consistently indicated that moderate to heavy loads are required in order to gain an increase in muscle size, muscle activity and muscle strength. Correspondingly, an extensive review of the literature and current guidelines published by the American College of Sports Medicine (ACSM) suggest relatively heavy loads that equal, or are in advance of 80% of a one-repetition maximum (1RM) are required in order to achieve optimal strength gains (2).

A number of studies that used the term strengthening in fact used resistance training. Because strengthening is a generic term and has received criticism for being a vague term that most often fails to define the type of strengthening used (3).

Resistance exercise programmes can be modified not only by the external load, but also by the speed of contraction, and level of induced fatigue. Altering resistance exercise programmes in just one of these ways will induce a distinct skeletal muscle response. However, the combined effects of adjusting training in two or more of these areas simultaneously will result in more complex physiological interactions that may either hinder or improve training related strength gains. Unfortunately, we still have insufficient evidence to fully understand the complex interactions between load, movement speed and the extent of muscular exhaustion induced by the level of work (e.g. completed number of sets and repetitions). Resistance training appears to be a safe and effective form of intervention for patients with muscle strength deficit, but further evidence is needed to determine whether this type of exercise can improve function and quality of life (4).

High resistance training improves muscle strength and physical capacity in elderly individuals, but benefits with regard to disability and quality of life remain unclear (5). Marked evidence indicates that regular participation in a resistance training program can improve measures of strength and power in adults (6). Interest in resistance training received a considerable boost during World War II, when DeLorme demonstrated the importance of progressive resistance training for improving muscle strength and hypertrophy during rehabilitation programs for injuries (7).

Mobility refers to free joint movements throughout its full range of motion. Mobility comprises muscle length, muscle tension, tissue quality and how the nervous system controls the joint. Mobility needs corrective exercises to address nervous system, stretching the muscle length and dynamic mobility, foam rolling and massage to the muscle tension.

METHODOLOGY

Selection of Subjects:

40 male students were randomly selected as subjects from Mailam Engineering and Technology, villupuram, Tamilnadu studying in various classes. The age of the subjects were ranged from 18 to 25 years. The subjects were further classified at random into two equal groups of 20 subjects each. Group - I underwent resistance training with mobility

training for three days per week for twelve weeks. The duration of the sessions was 60 minutes which includes 10 minutes each for warm up and warm down. The active duration of 40 minutes Group - I underwent resistance training with mobility training and group - II acted as control.

Selection of Variables:

The subjects were assessed on selected criterion variables namely speed and shoulder strength before and after the training period. The selected variables were measured by using standard testing procedures (Speed: 50 mts dash, shoulder strength: cricket ball throw).

Statistical Analysis:

The data collected from high resistance training with mobility training and control groups before and after completion of the training period on selected variables were statistically examined by using Means, SDs, and Analysis of Covariance (ANCOVA). All the data were analyzed using SPSS statistical package. The level of confidence was fixed at 0.05 level of significance.

RESULTS AND DISCUSSION

The Analysis of covariance on speed and shoulder strength of the pre test and post test scores of resistance training with mobility training and control group have been analyzed and data pertaining to this, has been presented in the table 1.

TABLE 1
ANALYSIS OF CO VARIANCE ON SELECTED VARIABLES AMONG
RESISTANCE AND CONTROL GROUPS

Variables	Tests	Control Group Mean $\pm$ S.D	Experimental Group Mean $\pm$ S.D.	F- Ratio
Speed	Pre-test	7.97 $\pm$ 0.32	8.03 $\pm$ 0.31	0.28
	Post-test	7.99 $\pm$ 0.32	7.88 $\pm$ 0.32	1.14
	Adj. Post-test Mean	8.01	7.85	105.49*
Shoulder strength	Pre-test	63.07 $\pm$ 3.82	62.91 $\pm$ 3.52	0.02
	Post-test	62.75 $\pm$ 3.77	67.00 $\pm$ 3.37	14.13*
	Adj. Post-test Mean	62.68	67.08	136.16*

* significance at .05 level

The findings of table 1 shows that significant difference existing between resistance training with mobility training and control group on speed and shoulder strength, as the obtained 'F' ratio of 105.49, and 136.16 respectively for adjusted post test means were greater than the required value of 4.1 for significance at 0.5 level of confidence.

From this study the resistance training with mobility training has its influence in the performance related variables among untrained men.

CONCLUSION

Based on the results of the study, it is concluded that there was a significant difference between resistance training with mobility training group and control group on speed and shoulder strength.

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COMPARATIVE STUDY OF UPPER BODY STRENGTH AND ENDURANCE OF SCHOOL CHILDREN OF NORTHERN TRIBAL REGION OF WEST BENGAL

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ABSTRACT

The purpose of the study was to compare and investigate the upper body strength and endurance of school children of northern tribal region of West Bengal. One thousand and eleven boys and girls (five hundred and eleven boys and five hundred girls) children ranging ages between 13 to seventeen years studying in middle schools, high schools and higher secondary schools in northern tribal region of West Bengal were randomly selected for the present investigation. To find out the significance of difference among the means on push-ups component of health fitness in different age groups, one way mean, SD, t-ratio and F-ratio were computed. The results of the study concluded that the upper body strength and endurance improved among boys and girls with advancement of age. But the significant differences were found between boys and girls children of thirteen to seventeen years of age in their upper body strength and endurance, The boys were better than girls in their upper body strength and endurance in all age groups.

Key words: School Children, strength, Endurance, Age groups, Sexes

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INTRODUCTION

Physical fitness could be a dynamic construct and is continually growing in importance to standard of living and health. It is important to live fitness each as associate outcome of physical activity and as a intercessor of physical activity's impact on illness morbidity, mortality and injury. The measurement of fitness ought to become associate vital a part of police investigation systems that track physical activity and risks for illness or injury (Dishman, Washburn & Heath, 2004).

Muscular strength and endurance is the ability of a muscle or muscle group to execute continual contractions over a amount comfortable to cause muscular fatigue, or to maintain a particular percentage of the most voluntary contraction for a chronic amount (ACSM, 2005)

The push-up is more closely associated with penalization than anything. It was most favorite among education teachers and drill instructors. Though, its use in strength and conditioning regimens was in frequent. In an earlier time, the push-up was largely regarded as a live of a man's strength and fitness. In more present a lot of this name has been passed on to the bench press, but the push-up's passing misses the nice chance to master a entranceway movement to at least one of the foremost biological process progressions altogether of fitness (Glassman, 2003).

A push-up is a common calisthenics exercise performed in a very prone position by raising and lowering the body exploitation the arms. Push-ups exercise the pectoral muscles, triceps, and anterior deltoids, with ancillary advantages to the rest of the deltoids, serratus anterior, coracobrachialis and the midsection as a full. Push-ups are a basic exercise used in civilian coaching and training or education and unremarkably in military physical training. They are a typical sort of penalization employed in the military, school sport, or in some martial arts disciplines.

Push-ups promotes shoulder stability and range of motion in the joint. This position and mobility transfers to a upward and downward arm swing with a smart elbow drive. Doing pushups with the elbows flared out promoted associate unstable and internally turned shoulder position. This poor position surfaces as a stiff and inefficient forward and backward arm swing when you run, where the elbows drive across the body (Helming,2014).

The push-up mainly encourage to develop the muscles of the chest, arms, and shoulders, which required support from alternative muscles results in a wider vary of muscles integrated into the exercise (American Council on Exercise, 2011) .

Push-ups are extensively used for the development of upper body strength, power and muscular endurance in fitness settings. There are many principal exercises in fitness, which are used by strength and conditioning experts to train athletes in sports, such as baseball (Hammer,2009), boxing (Wallace and Flanagan, 1999), and martial arts (La Bounty, et.al. 2011); and

they play a prominent role in the basic training programs of the United States Military (Popovich, et.al. 2000). Although, the load during a push-up is limited by an individual's body weight and anthropometry, many biomechanical variations of the exercise can be performed to change muscle activity, which may be lesser or greater to develop the muscles. These variations most often change the hand and foot positions, which impacts muscle recruitment patterns and joint stresses (Chuckpaiwong and Harnroongroj, 2009).

The push-up has long been advocated as a means to assess the muscular endurance of the upper body particularly. A variety of push-up tests are commonly employed as part of a fitness assessment. These tests have been validated across a wide range of populations (Wood and Baumgartner, 2004).

Contreras et.al., (2012) concluded that Push-ups can be an excellent exercise for improving muscle strength and endurance. It is imperative that practitioners possess adequate knowledge of push-up variations in order to optimize the challenge on the target musculature without compromising proper form and risking injury.

Vishen and Sen (2015) concluded that the effective improvement of upper body performance was observed through dynamic and plyometric push up training among male cricket players.

The purpose of the study was to compare and investigate the upper body strength and endurance of school children of northern tribal region of West Bengal

METHODOLOGY

Selection of Subjects

One thousand and eleven boys and girls (five hundred and eleven boys and five hundred girls) children ranging ages between 13 to seventeen years studying in middle schools, high schools and higher secondary schools in northern tribal region of West Bengal were randomly selected for the present investigation. They were randomly selected. Their age records were collected from school records. and tested on push-ups within one month of their birthdays.

Testing Procedure:

Purpose -To measure higher body strength and Endurance. Equipment: Gymnasium mat and stopwatch. Procedure: The test position varies between boys and girls. The male participant in the common place "up" position. The hands were shoulder width apart whereas the feet were unbroken along. The back was straight, with head up, with the participant using the toes as the important purpose. Female participants adopted a changed "knee push-up" position, with legs together, lower leg in contact with mat with ankles plantar flexed. The back kept straight, hands shoulder width apart and head command up. On the 'go' command, each participant began the push-up by bending the elbows and lowering the entire body as a

unit till the higher arms were parallel to the bottom. Each participant lowered their bodies till their chins and abdomen touches the mat. The participant returned to the beginning position by raising the entire body till the arms were absolutely extended. The body remained straight and moved as a unit for the entire repetition. Scoring: The maximal range of push-ups performed consecutively in one minute while not rest was counted as the score.



Push-Ups by Boys



Push-Ups by Girls

RESULTS AND DISCUSSION

To find out the significance of difference among the means on push-ups component of health fitness in different age groups, one way mean, SD, t-ratio and one way Analysis of Variance (ANOVA) were computed and data pertaining to this has been presented in Table 1 to 6.

TABLE 1
DESCRIPTIVE STATISTICS ON PUSH-UPS COMPONENT OF PHYSICAL FITNESS OF BOYS AND GIRLS AGED THIRTEEN TO SEVENTEEN YEARS

Age in years	Mean	SD	Mean	SD
13	7.77	1.71	11.63	1.52
14	13.56	2.52	10.74	2.17
15	14.94	2.77	12.70	2.77
16	16.57	3.18	14.91	2.97
17	19.31	3.77	18.03	3.52

The mean scores of push-ups component of health fitness of male and female children belong to northern tribal region of West Bengal aged 13 to 17 years have been depicted in figure 1 to 5

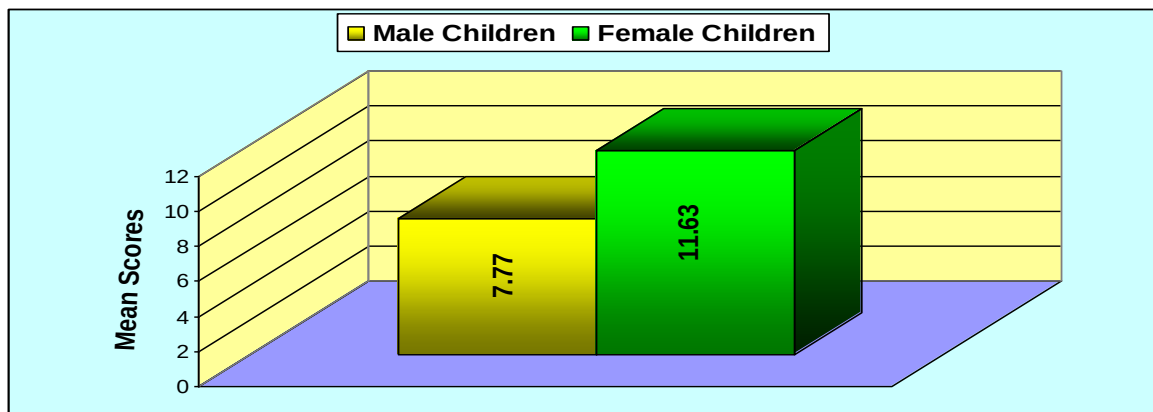


Figure. 1: Mean Scores of Upper body Strength and Endurance of Male and female Children in thirteen years of age

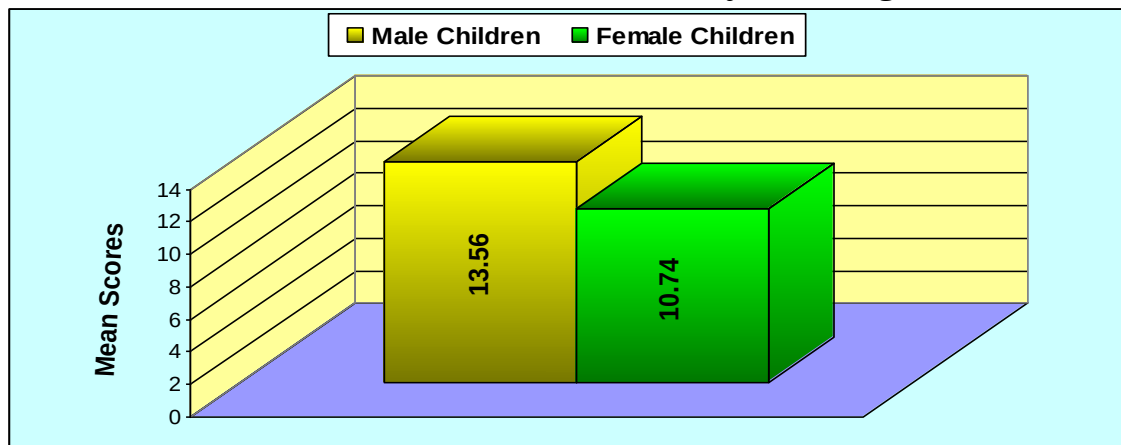


Figure. 2: Mean Scores of Upper body Strength and Endurance of Male and female Children in Fourteen years of age

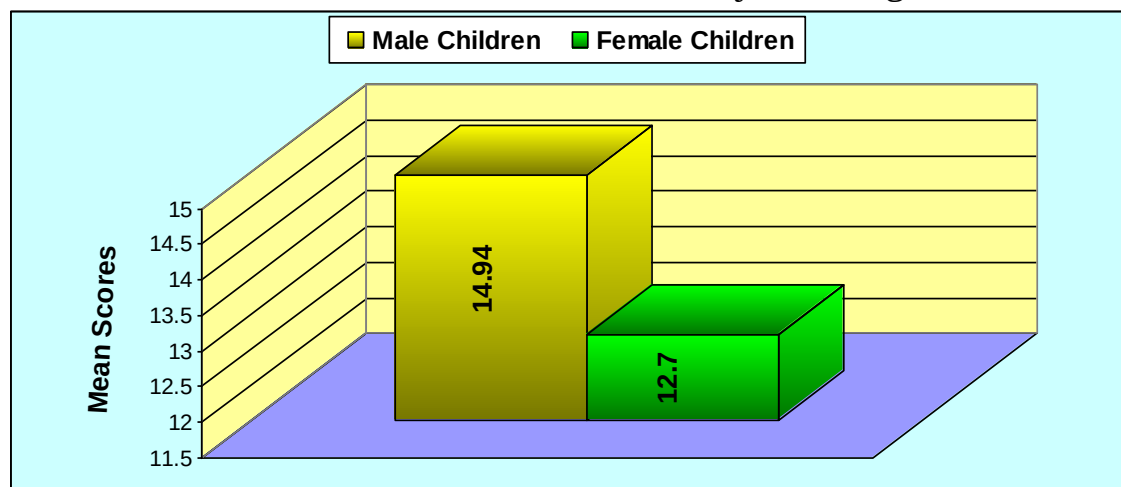


Figure. 3: Mean Scores of Upper body Strength and Endurance of Male and female Children in Fifteen years of age.

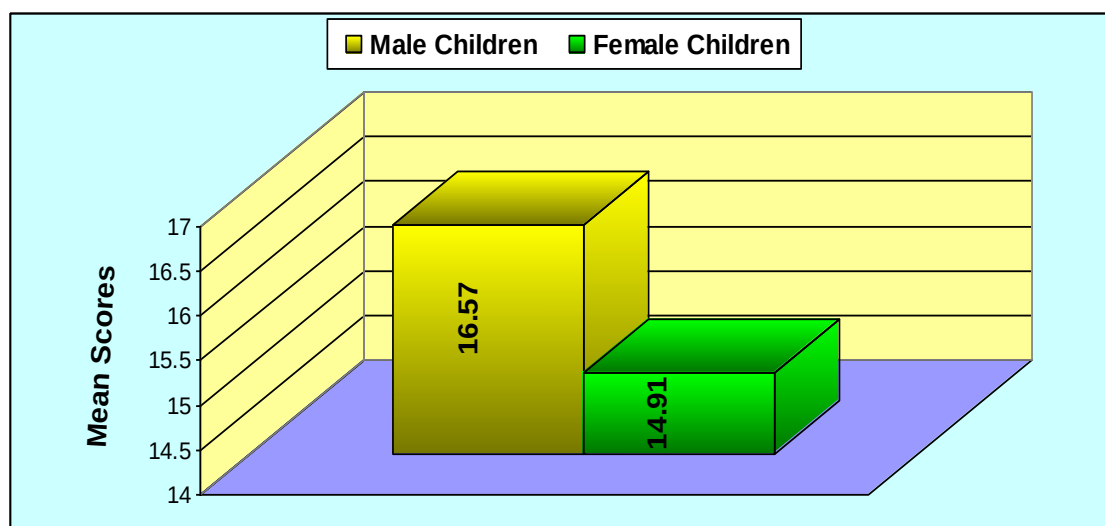


Figure. 4: Mean Scores of Upper body Strength and Endurance of Male and Female Children in Sixteen years of age

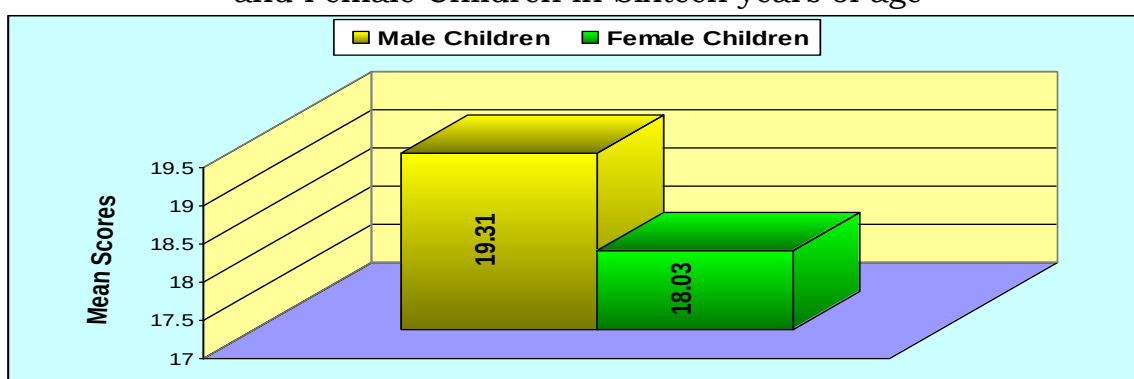


Figure. 5: Mean Scores of Upper body Strength and Endurance of Male and female Children in Seventeen years of age.

TABLE 2
ANALYSIS OF VARIANCE ON PUSH-UPS COMPONENTS OF PHYSICAL FITNESS OF BOYS FROM THIRTEEN TO SEVENTEEN YEARS OF AGE

Sex	Source of Variance	df	Sum of Squares	Mean Square	F-Value
Boys	Between groups	4	3481.33	870.33	104.87*
	Within group	506	4199.42	8.299	

*Significant at .05 level, $F_{.05}(4,506) = 2.39$

It is evident from table 2, that the significant difference was found among boys of different age groups on push-ups component of physical fitness, as the obtained F-values of 104.87 was much higher than the required $F_{.05}(4, 506) = 2.39$. As the F-ratio on push-ups component of physical fitness was found to be significant, the Scheffe's Test of Post-hoc

Comparison was applied to find out the significance of difference between ordered paired means of different age group and data pertaining to this, has been presented in table 3 and depicted in figure 6.

TABLE 3
SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED PAIRED MEANS
FOR BOYS FROM THIRTEEN TO SEVENTEEN
YEARS OF AGE ON PUSH-UPS

13	14	15	16	17	MD	C.I.
7.77	13.56	-	-	-	5.79*	1.25
7.77	-	14.94	-	-	7.17*	1.25
7.77	-	-	16.57	-	8.80*	1.25
7.77	-	-	-	19.31	11.54*	1.25
-	13.56	14.94	-	-	1.38*	1.25
-	13.56	-	16.57	-	3.01*	1.25
-	13.56	-	-	19.31	5.75*	1.25
-	-	14.94	16.57	-	1.63*	1.25
-	-	14.94	-	19.31	4.37*	1.25
-	-	-	16.57	19.31	2.74*	1.25

*Significant at .05 level

The data in table 3 clearly reveals that mean differences between thirteen - fourteen followed by fifteen, sixteen and seventeen; between fourteen - fifteen followed by sixteen and seventeen; between fifteen - sixteen followed by seventeen; between sixteen - seventeen years of age boys were found statistically significant, as the confidence intervals were lesser than the mean differences. The data clearly indicate that shoulder strength and endurance improved with age.

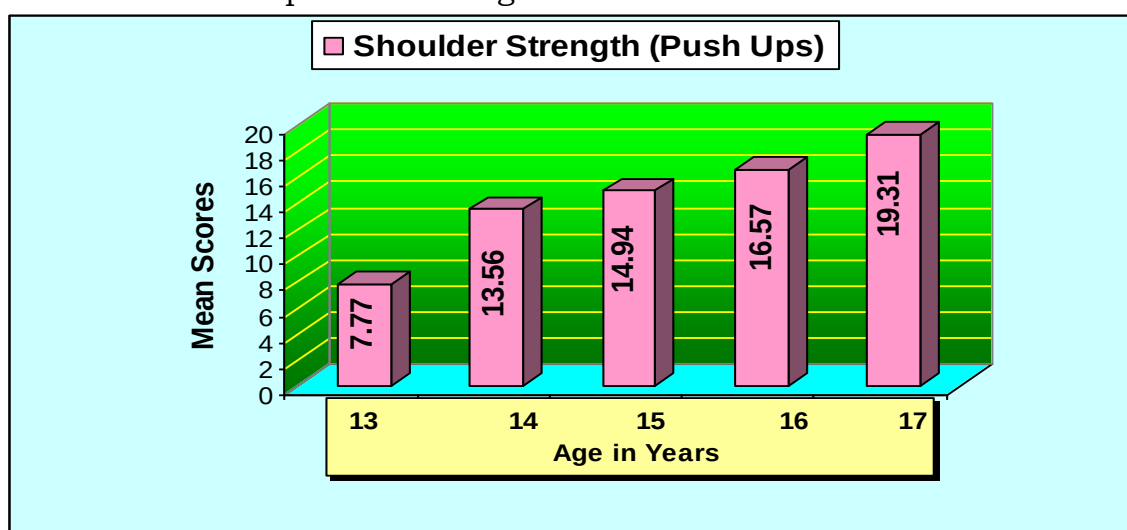


Figure. 6: Mean scores of Boys of Thirteen to seventeen Years of Age on Upper body Strength and Endurance.

TABLE 4
ANALYSIS OF VARIANCE ON PUSH-UPS COMPONENTS OF PHYSICAL
FITNESS OF GIRLS FROM THIRTEEN TO SEVENTEEN
YEARS OF AGE

Sex	Source of Variance	df	Sum of Squares	Mean Square	F-Value
Girls	Between groups	4	6135.50	1533.88	213.69*
	Within group	495	3553.05	7.178	

*Significant at .05 level

$F_{.05(4,495)} = 2.40$

It is evident from table 4, that the significant difference was found among girls of different age groups on push-ups component of physical fitness, as the obtained F-values of 213.69 was much higher than the required $F_{.05(4,495)} = 2.40$

As the F-ratio on push-ups component of physical fitness was found to be significant, the Scheffe's Test of Post-hoc Comparison was applied to find out the significance of difference between ordered paired means of different age group and data pertaining to this, has been presented in table 5 and depicted in figure 7.

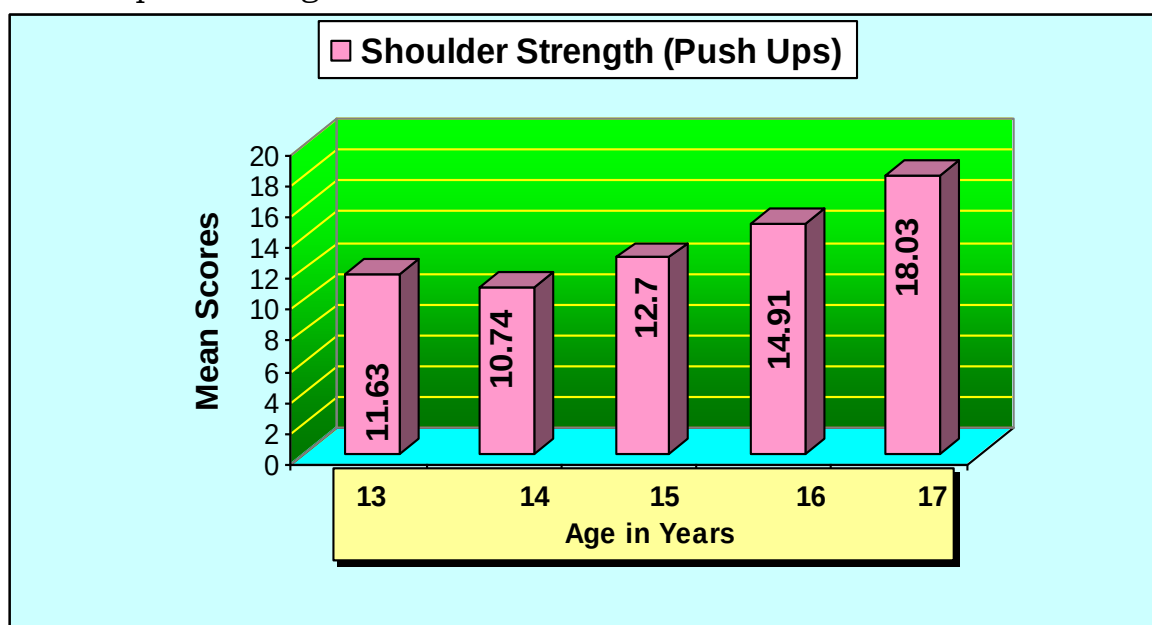


Figure. 7: Mean scores of Female children of Thirteen to seventeen Years of Age on Upper body Strength and Endurance.

TABLE 5
SIGNIFICANCE OF DIFFERENCES BETWEEN ORDERED PAIRED MEANS
FOR GIRLS FROM THIRTEEN TO SEVENTEEN
YEARS OF AGE ON PUSH-UPS

13	14	15	16	17	MD	C.I.
11.63	10.74	-	-	-	0.89	1.17
11.63	-	12.70	-	-	1.07	1.17
11.63	-	-	14.91	-	3.28*	1.17
11.63	-	-	-	18.03	6.40*	1.17
-	10.74	12.70	-	-	1.96*	1.17
-	10.74	-	14.91	-	4.17*	1.17
-	10.74	-	-	18.03	7.29*	1.17
-	-	12.70	14.91	-	2.21*	1.17
-	-	12.70	-	18.03	5.33*	1.17
-	-	-	14.91	18.03	3.12*	1.17

*Significant at .05 level

The data in table 5 clearly indicates that mean differences between thirteen - fourteen followed by fifteen were not found statistically significant, as the confidence intervals were higher than the mean differences. The significant differences were observed among girls between fourteen - fifteen followed by sixteen and seventeen; between fifteen - sixteen followed by seventeen; between sixteen - seventeen years of age were found statistically significant, as the confidence intervals were lesser than the mean differences. The data clearly indicate that shoulder strength and endurance improved with advancement age,

TABLE 6
SIGNIFICANCE OF DIFFERENCE BETWEEN MEAN SCORES
ON PUSH-UPS COMPONENTS OF PHYSICAL FITNESS
OF BOYS AND GIRLS FROM THIRTEEN TO
SEVENTEEN YEARS OF AGE

Age Group	N	Sex	Mean	M.D.	σ D.M.	t-ratio
13 yrs	103	Male	7.77	3.86	0.23	16.78*
	100	Female	11.63			
14yrs	103	Male	13.56	2.82	0.33	8.54*
	100	Female	10.74			
15 yrs.	103	Male	14.94	2.24	0.39	5.74*
	100	Female	12.70			
16 yrs	103	Male	16.57	1.66	0.43	3.86*
	100	Female	14.91			
17 yrs	103	Male	19.31	1.28	0.51	2.51*
	100	Female	18.03			

It is quite obvious from Table 6, that statistically significant differences existed between boys and girls of northern tribal region of West

Bengal on push-ups component of physical fitness in age of thirteen, fourteen, fifteen, sixteen and seventeen years, as the obtained t-values of 16.38, 8.54, 5.74, 3.86 and 2.51 respectively were higher than the required $t_{0.05}(201)=1.97$.

DISCUSSION

Descriptive statistics on push-ups component of fitness of boys and women aged 13 to seventeen years indicated that the boys in age of fourteen to seventeen years were found higher than women. This may be attributed to the dearth of food nutrients area unit cultural beliefs regarding foods, poverty, and lack of awareness (Zwiren, 1993). But the women in age of 13 years were found to possess additional shoulder strength than boys.

The results of one way analysis of variance (ANOVA) for boys of various age teams on push-ups element of fitness expressed vital variations on higher body strength and endurance. The Scheffe's Test of Post-hoc Comparison showed that higher body strength and endurance improved with advancement of age. But the vital variations exhibited by the boys in their shoulder strength between 13 - fourteen followed by fifteen, sixteen and seventeen; between fourteen - fifteen followed by sixteen and seventeen; between fifteen - sixteen followed by seventeen; between sixteen - seventeen years of age boys.

The results of one way analysis of variance (ANOVA) for women of totally different age teams on push-ups element of fitness conjointly expressed the numerous variations on higher body strength and endurance.. The Scheffe's Test of Post-hoc Comparison showed that higher body strength and endurance improved with advancement of age. But the vital variations exhibited by the women in their shoulder strength between 13 - fourteen followed by fifteen weren't found statistically vital. The vital variations were discovered among women between fourteen - fifteen followed by sixteen and seventeen; between fifteen - sixteen followed by seventeen; between sixteen - seventeen years more matured were found statistically significant.

When the boys and women youngsters of 13 to seventeen years of age were compared along on push-ups element of fitness, they had statistically significant distinction in their push-ups element of fitness. Which could flow from to variations in dietary intake, conditioning program and socioeconomic standing.

CONCLUSIONS

1. Dissimilarity was observed among boys and girls children of different age groups on push-ups component of physical fitness.
2. Improvement was seen in their upper body strength and endurance among boys and girls with advancement of age.
3. Statistically significant differences were found between boys and girls children of thirteen to seventeen years of age on push-ups component of fitness,

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COMPARISON OF PEAK EXPIRATORY FLOW RATE OF STATE LEVEL PLAYERS OF TEAM GAMES

Sudhir Rajpal*

ABSTRACT

The purpose of the present study was to compare the peak expiratory flow rate between state level male players of Basketball and Baseball. For the purpose of this study, fifty (N=50) state level male players (Basketball=25, Baseball=25) from Bilaspur City (C.G.) were selected as subject for this study by using purposive sampling technique. The age of the subjects ranged between 14-16 years. To find out the significant differences between selected state level male players of Basketball and baseball, mean, SD and t- test was used with the help of SPSS software. The level of significance was chosen at .05. The results of the study concluded that the Significant difference was not found between selected state level male players of Basketball and Baseball on peak expiratory flow rate.

Keywords: Peak Expiratory Flow Rate, Male players, Basketball, Baseball.

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INTRODUCTION

Peak breath rate of flow refers to the peak breath rate of flow sustained by a healthy children employing a peak Flow Meter for a minimum of some milliseconds. Flow Meter by means that of demonstration. the very best of the 3 readings is taken because the PEFR worth.

PEFR is that the most flow rate generated throughout a forceful exhalation, ranging from full respiratory organ inflation. Peak rate of flow primarily reflects massive airway flow and depends on the voluntary effort and muscular strength of the patient (BheekieA, 2001)

PEFR as a activity of improvement perform was introduced by Hadorn in 1942, associate degreed was accepted in 1949 as an index of spirometry (Jain, Kumar and Sharma,1983)). The largest breath rate of flow achieved with a peakly forced effort from a footing of maximal inspiration, expressed in liters/min (American body part Society, 1995)

Several factors such as contractile power of respiratory muscles, elastic property of lung tissue, and airways resistance influence the maximal flow volume. Studies reveal that about twenty five percent of players suffer from breathing abnormalities, which hinder the endurance performance of a player. Mostly, the players did not aware about it. After the diagnosis of this factor, correction should made by the individual. Through the development of lung function, athletes, can improve the endurance performance to get the best results in competition. Physical exercises have little effect on lung volumes and capacities. But the vital capacity may increase slightly through maximal exercise and decrease in residual volume through performing the slight exercise, which is related to vital capacity.

The use of a single forced expiration to assess the ventilatory capacity is becoming increasingly popular, mainly because, as pointed out by Kennedy (1953), it is a much simpler and less tiring procedure than the maximum voluntary ventilation.

A number of factors influence PEFR in normal subjects. Age and height are the obvious ones. PEFR is correlated with height in children, PEFR is also correlated with some physical factors i.e. age and body surface area (Gupta, et.al. 1993).

Hsi, Hsu, Jenkins(1982) suggested that ventilatory functions of normal subjects can be predicted better by using sitting height, which reduced the racial differences in ventilatory functions. However, a study in which PEFR was determined in standing and sitting height indicated that the latter does not refine the prediction of the parameter (Gupta and Mathur, 1982). Low socio-economic standing, overcrowding of residence, and smoking have an adverse result on PEFR (Jain, Kumar and Sharma, 1983). PEFR is additionally influenced by varied environmental factors throughout childhood, level of physical activity (Jain, Kumar and Sharma, 1983). and presumably by comparatively poor intra-uterine growth (Pande,

et.al.1997) .Other authors have additionally joined lower PEFR to socio-economic standing and malnourishment (Singh and Peri, 1979).

Advantages of the utmost forced breath flow as a live of improvement capability square measure thought-about and therefore the history of the utilization of the measurement is reviewed. it's recommended that the utmost forced breath flow measured with the height flow meter is also found to be a convenient and reliable manner of estimating improvement capability (Wright and . McKerrow, 1959).

The average PEFR of healthy young Indian males and females is around five hundred and 350 lpm severally. The PEFR reaches a peak at regarding 18-20 years, maintains this level up to regarding thirty years in males, and regarding forty years in females, so declines with age. Indian (Dikshit, Raje and. Agrawal, 2005).

Roy, et.al. (1991) investigated the higher mean value of PEFR (lit/min) among the throwers followed by marathon runners, long distance runners and jumpers. PEFR value increases insignificantly with the increase in age. Finally, PEFR was found to be higher in elite sportsmen than non-sportsman Indian counterparts Singh (2014) found significant differences in PEFR among volleyball, hockey and handball players They also revealed that the volleyball players have low PEFR in comparison with the hockey and handball players. Mohiuddin, Jaleeli and Misbahuddin (2013) revealed that the significant improvement was found among athletes in their PEFR compared to control group. Significant correlations exhibited by sportsmen in weight, BMI and BSA with PEFR. Singh, and Kaur (2015) indicated the significant difference on peak expiratory flow rate among national level male players volleyball. cricket and baseball. Volleyball players were found superior compared to cricket and baseball players on peak expiratory flow rate.

Omar and Henry .(1991) indicated that the boys had higher PEFR than girls. The greater amount of PEFR was observed in Malays and the lesser amount in Indians for both sexes. Malay and Chinese boys did not differ significantly, but the levels of PEFR for Malay and Chinese boys were significantly higher than those for Indian boys. Taksande, et.al. (2008) expressed the positive correlation between age, height, weight and PEFR of males and females. The males had higher values of PFER than the females at all heights. Malik, Jindaland Banga (1982) found that PEFR in south Indian school children was lower than that observed in Western and North Indian children. Another study observed the PEFR values among North Indian school children in Punjab and found that the height and the standardized value of PEFR showed no rural-urban differences (Singh and Peri, 1979). An article reported higher predicted values of PEFR among children from Maharashtra than those in children from the other Indian states (Mahajan, et.al. 1984). A researcher measured the PEFR of healthy tribal children who were living at high altitude in the Himalayas. They found

that the values are comparable with those of North Indian urban children (Kashyap, Puri, Bansal, 1992). An investigator studied PEFR measurements in rural children of Rajasthan and found that they were lower than those reported for Caucasian and urban Indian children of the same height (Sharma, et.al. 2002) .

The purpose of the present study was to compare the peak expiratory flow rate between state level male players of Basketball and Baseball. It was also hypothesized that there may be significant difference between Basketball and Baseball players in Peak Expiratory Flow Rate.

MATERIALS AND METHODS

Sample:

For the purpose of this study, fifty state level male players (Basketball=25, and baseball=25) from Bilaspur (Chhattisgarh) were selected as a sample of this study.

Research Design:

The purposive sampling design was used for the selection purpose of sample and collection of data.

Tool Used:

The Peak flow meter was used to measure the peak expiratory flow rate (PEFR) of state level male players of two team games i.e Basketball and Baseball.

Statistical analysis:

To assess the state level players of two different team games on peak expiratory flow rate, mean, SD and t –ratio were computed. For testing the hypothesis, significant level was set 0.05 level of confidence. Statistical package of Social Science 16.0. was used for computation of collected data.

RESULTS AND DISCUSSION

To find out the significance differences between state level male Basketball and baseball players on peak expiratory flow rate, , mean, SD and t –ratio were computed and data pertaining to this has been presented in Table 1 and 2.

TABLE 1
DESCRIPTIVE STATISTICS OF PEAK EXPIRATORY FLOW RATE OF
SELECTED STATE LEVEL MALE BASKETBALL AND BASEBALL
PLAYERS OF BILASPUR CITY

Variable	Team Games	N	Mean	SD
Peak expiratory flow rate	Basketball	25	318.80	35.98
	Baseball	25	306.40	33.90

Mean scores on peak expiratory flow rate of state level male players of Basketball and Baseball games belong to Bilaspur, Chhattisgarh have been depicted in figure 1.

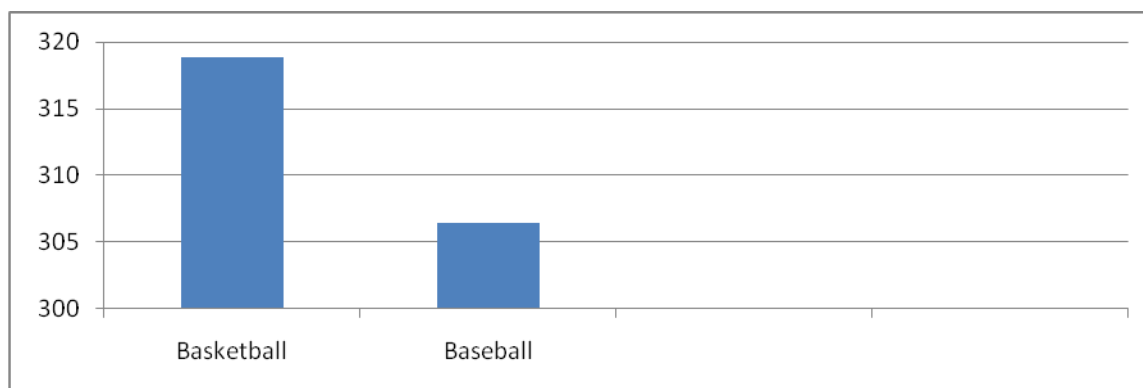


Figure 1: Mean Scores of peak Expiratory flow rate of State Level Male Players of Basketball and Baseball Games.

TABLE 2
SIGNIFICANCE OF DIFFERENCE BETWEEN MEAN SCORES
ON PEAK EXPIRATORY FLOW RATE OF STATE
LEVEL MALYERS OF BASKETBALL AND
BASEBALL GAMES

Variable	Team Games	Mean	MD	σ DM	t-ratio
Peak expiratory flow rate	Basketball Baseball	318.80 306.40	12.40	7.20	1.25

It is quite obvious from Table 2, that statistically significant difference was not existed between state level male players of Basketball and Baseball games, as the obtained t-value of 1.25 was less than the required $t_{0.05(48)}=2.01$.

DISCUSSION

Result presented in table 1 indicated that peak flow exiratory rate in Basketball players was higher ($M = 318.80$) as compare to Baseball players . But calculaed $t = 1.2543$ is statistically not significant at 0.05 level

The finding of the study showed that there was no significant difference obtained on peak expiratory flow rate between selected state level male players. Basketball players demonstrated significantly better than baseball players on peak expiratory flow rate. But it may be due to physique, training and nature of Basketball game .. Hence, the both different games players were not differed significantly on expiratory flow rate .

The finding of the study showed that there was significant difference obtained on peak expiratory flow rate among selected state level male players. Basketball players demonstrated significantly better than baseball players on peak expiratory flow rate. It may be attributed to the fact that the physique, training and nature of Basketball players is different when compared with baseball players. Hence, the both different games were differed significantly.

CONCLUSIONS

In the light of the findings and limitations of the present study, researcher concluded that the Basketball and Baseball players did not differ significantly on peak expiratory flow rate.

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