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A comparative study on selected physical fitness components between kabaddi and kho-kho players

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Abstract
The present study has been designed to investigate the difference of selected physical fitness components between Kabaddi and Kho-Kho players. For accomplish the study total 100 players (50 of Kabaddi & 50 of Kho-Kho) of both games were selected through random sampling as subjects of this study. The age of the sample were ranged from 18 to 25. Body mass index (BMI) for obesity, 40 meter sprint for speed, standing broad jump for strength and sit and reach test for flexibility were used as criterion measure. SPSS version 17 was used to apply all statistical terms and t test was applied to compare the results. The level of significance was set at 0.05.

Keywords: physical fitness, speed, strength, flexibility

Introduction
Patterns of today's living have changed the average Indian into an increasingly sedentary existence. Humans, however, were designed and built for movement. Physiologically, we have not adapted well to this inactive lifestyle. In fact, during what appeared to be a fitness boom in the 1970s and 1980s, fewer than 20 % of adult Americans were exercising as levels that would increase or maintain their aerobic fitness and strength. Yet research had clearly determined that, for almost everyone, an active lifestyle is important for optimal health.

Sport serves vital and important role in social and cultural functioning for each individual. In the last few decades sports have gained tremendous popularity all over the globe. The popularity of sports is still increasing at a fast pace and this happy trend is likely to continue in the future also. The contribution of sports towards the overall welfare of the human society may be capsule in the following points:

- Sports help in the all-around development of human personality.
- Provide ample and healthy means for recreation and relaxation of human mind and body.
- Are effective for rehabilitation and social adjustment to the injured, sick and handicapped.
- Provide opportunities for social interaction thereby fostering peace and understanding among different people, nations, races, religion etc.
- Perform preventive and curative functions for several diseases and ailments inflicting human body and mind.

The 1990s will be remembered as the decade in which the medical profession formally recognized the fact that physical activity is vital to the body's health. Is seems rather ironic that it took this long for clinicians and scientists to reach this conclusion, as Hippocrates (460-377 BC), a prominent physician and athlete, had strongly endorsed physical activity and proper nutrition as essential to health more than 2,000 years earlier. Physical fitness is a general state of health and well-being and, more specifically, the ability to perform aspects of sports, occupations and daily activities. Physical fitness is generally achieved through proper nutrition, moderate-vigorous physical exercise, and sufficient rest. Before the industrial revolution, fitness was defined as the capacity to carry out the day's activities without undue fatigue. However, with automation and changes in lifestyles physical fitness is now considered a measure of the body's ability to function efficiently and effectively in work and leisure activities, to be healthy, to resist hypokinetic diseases, and to meet emergency situations.

Barrow and Gee (1999) acknowledged that the physical fitness is a complex phenomenon consisting of various factors such as speed, strength, flexibility agility, cardiovascular endurance etc.

Jenson and Fisher (1999) clarified as physical traits are considered as important parameters for athletes (Sprinter) such strength, power, speed, agility, coordination, muscular endurance, reaction time, cardiovascular respiratory endurance and flexibility. Since speed, agility, power, co-ordination and reaction time are specific motor traits. These traits are best developed by the repeated practice of the different trainings for which they are needed. The strength, speed, agility co-ordination, power, flexibility contribute to these motor traits.

Methodology
Selection of the subject
A total 100 players were selected as selected through random sampling technique. Out of the total sample 50 subjects were from Kabaddi and 50 subjects were from Kho-Kho were selected respectively. The age of the sample were ranged from 18 to 25.

Selection of the variable
For the present study, the research scholar has gone through the various literatures to finalize the variables. The selection

of the variables was utmost important as the total procedure and administration was dependent upon the nature of selection of variables. The variables are the key direction for the nature of the findings and outcomes from the present study. The experts were also consulted to get appropriate and rational suggestions to finalize the variables. The following variables were selected for the study:

Table 1

Sr. No	Test	Measure
1	Body Mass Index (BMI)	Obesity
2	40 meter Sprint	Speed
3	Standing Broad Jump	Strength
4	Sit and Reach	flexibility

Instrument Reliability

For the purpose of the test all the instruments were used of high standard and reputed companies and were calibrated by the respective companies. The stop watches were used from Casio Company make. All the instruments were calibrated prior to the actual testing procedure with the help of experts and also gone through the several practice trials with Instruments and testing.

Statistical Tool Used

To explore the difference between obtained results 't' test was used as statistical tool. SPSS version 17.0 was used to apply all calculation. Mean, standard deviation and standard error of mean was used as descriptive statistics. The level of significance was set at 0.05.

Table 1: Descriptive Statistics of selected variables for kabaddi and kho-kho players

S.NO	Variables	Mean Kabaddi	Mean Kho-Kho	Mean Difference
1	Body mass index	22.09	19.65	02.44
2	40 M dash (in sec)	7.62	6.61	01.01
3	Standing broad jump (in mtr)	2.08	1.89	0.19
4	Sit & reach test (in cms)	16.58	21.40	04.82

N=100 (50 Kabaddi 50 Kho-Kho)

The Table - 3 highlight the mean values of Kabaddi and Kho-Kho players for the selected variables. The Body Mass Index for Kabaddi players depicts 22.09 and Kho-Kho players 19.65 with a mean difference of 02.44. It shows that Kabaddi players have more BMI score or they were fatter than the Kho-Kho players. The mean value for 40 M Dash for Kabaddi and Kho-Kho players were 7.62 and 6.61 seconds respectively with a difference of 1.01 seconds, signifying that Kho-Kho players were reported faster than the Kabaddi players. The mean value of standing broad jump of Kabaddi players is higher than the Kho-Kho players with the mean difference of 0.19. Kho-Kho players were reported higher flexibility with the mean difference of 04.82 respectively

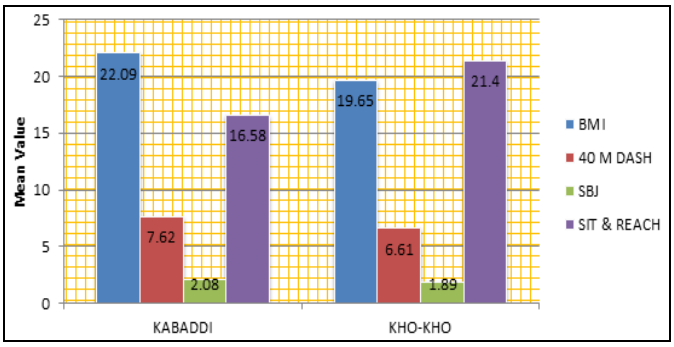

Fig 1: Graphical presentation of comparative mean value of selected variables of kabaddi and kho-kho players

Results

Table 2: Significance of mean comparasion of selected variables

S.NO.	Variables	Mean difference	S.D. Difference	't' Value
1	Body mass index	2.45	2.43	7.11*
2	40m Dash	1.01	1.21	5.89*
3	Standing broad jump	.19	.311	4.24*
4	Sit and reach test	4.86	6.94	4.96*

*significance at 0.05 level (df=49) 2.01

The results mentions in table 2 in which it was found that for the body mass index mean and S.D difference is 2.45±2.43 and t value is 7.11 which was highly significant at 0.05 level of confidence as the tabulated value depicted as 2.01 respectively. It may be observed from the results that there is a significant difference between Kabaddi and Kho-Kho players in reference to body mass index component.

A test for measuring speed was selected as 40 M Dash for which the values of paired mean difference were 1.01, paired S.D. difference was 1.21 and 't' value was 5.89 was significant at both 0.05 and 0.01 levels of confidence against the tabulated value 2.01 and 2.68 respectively. It may also be observed that the speed component has significant difference between Kabaddi and Kho-Kho Players.

The paired mean difference for Standing Broad Jump was 0.19, paired S.D. difference was 0.31 and't' value was 4.24,which was found significant at both 0.05 and 0.01 levels of confidence. The Sit & Reach Test was computed for the paired mean difference which were 4.86, paired S.D. difference 6.94 and 't' value was 4.96 was significant at both 0.05 and 0.01 levels of confidence against the tabulated value 2.01 and 2.68 respectively.

The table no. 2 also evident that there was a significant difference found between Kabaddi and kho-Kho players in their flexibility with t value of 4.96, which was highly significant at 0.05 level of confidence.

Conclusion

After analysis and basis of the obtained results there is significant difference found between Kabaddi and Kho-Kho players in there body mass index with the t value of 7.11, it means Kabaddi players have higher percentage of body fat than Kho-Kho players. It was also evident that Kho-Kho players have more speed than Kabaddi players. But in the strength, the mean of Kabaddi players was high than the Kho-Kho players and t value of sit and reach was 4.96. it means Kho-Kho players have more flexibility than the Kabaddi players.

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