Comparison of selected Motor fitness variables among Football and Cricket Players

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Abstract

The present study was being undertaken to analyze the selected motorfitness variables among football and cricket players **(**boys) of Delhi.

To accomplish the motive of this study,100 (N=100) players (50players from Football and 50playersfrom Cricket)were selected, byusing random sampling technique,in the age group of 14-17 years from different schools and clubs of Delhi and were having at-least two years of playing experience at minimum inter school level participation

Motor fitness test was conducted to compare the various motor fitness components (i.e. Speed, Muscular endurance, Explosive strength and Flexibility)among the groups,for this study.

Descriptive statistics like mean, standard deviation and 't' test was applied with the help of SPSS 24.0 statistical package, and the significance level was fixed at 0.05 level.

From the findings of data, the result had exhibited a significant dissimilarityamong football and cricket players **(**boys) of Delhi on speed, muscular endurance,explosive strength, and flexibility.

The findings revealed that football players are significantly superior in the selected motor fitness variables than cricket players of Delhi.

Keywords:boys, football,fitness,cricket,playersand SPSS.

"I don't look at sports as something, which merely tones up the body. I look at it as a tool of education that stimulates the mind, and brings in a culture of discipline".

- Narendra Modi-

I. Introduction:

Health is a lively action and it's mutable. Our level of health changes, if our lifestyle does so. It is considered that being physically active daily is requisite for the human wellness and health.Engaging in physical activities each day helps to improve and motivate our students to focus on school or social work, as well as help them to lead a healthy life.

Today, preparing individuals for meaningful, self-directed existence is viewed, as a primary aim of education. When properly taught, physical education, with its emphasis on building a physically, emotionally, mentally, self-confident and socially fit society, plays an important role in the educational process (Bucher and Wuest, 1987).

"Since the concern for positive health extends to all ages, it is recommended that all persons to be tested periodically on health-related fitness components. Periodic testing places emphasis on the importance of an active lifestyle to maintain low amount of fat, high levels of cardio-respiratory function, achieve sufficient muscular strength, muscular endurance and flexibility in the lower trunk and posterior thigh areas for a healthy low back function" (AAHPERD, 1980).

"Cricket has become one of the most popular games in the world, and of all the major games in India, it is the only one that has been jealouslypreserves bythose who play or support it. Physical variables are the most important contributing factors for better performance in all sports and games, so is in cricket. The game of cricket requires considerable amount of physical fitness and mastery of skills. A cricket player ought to possess specific speed, strength, power, agility, flexibility & endurance in abundance so as to learn & master the techniques of the game" (Ghosh, 1982).

"Football is a game of physical and mental challenges. One must execute skilled movements under generalized conditions of restricted space, limited time, physical and mental fatigue, and opposing players. He must be able to run several miles during a game, mostly at sprint like speed and respond quickly to a variety of rapidly changing situations during play. Finally, he needs a thorough understanding of individual, group, and team tactics. One's ability to meet all these challenges determines how well he performs on the football field" (Luxbacher, 1996).

Many studies were completed on different variables between collegeor university level, but a few research studies are done on the selected motor fitness variables between the Football & Cricket players, at school level.

Therefore, the motive of the present research was to analyze the selected motor fitness variables among football and cricket players **(**boys) of Delhi.

Objective of the study: This research study was conducted with the following objectives-

a. To compare the selected motor fitnessvariables among football and cricket players **(**boys) of Delhi.

Hypothesis of the study: Thehypothesis generated were, as follows-

a. **H_{o1}**: There would be no significant difference on speed amongfootball and cricket players **(**boys) of Delhi.
b. **H_{o2}**: There would be no significant difference on muscular endurance amongfootball and cricket players **(**boys) of Delhi.
c. **H_{o3}**: There would be no significant difference onexplosive strength amongfootball and cricket players **(**boys) of Delhi.
d. **H_{o4}**: There would be no significant differenceon flexibility amongfootball and cricket players **(**boys) of Delhi.

II. Methodology: This part consist of selection of subjects, variables, criterion measures and selection of tests used to assess the variables.

Selection of subjects: To obtain required data,100 (N=100) players (50players from Football and 50playersfrom Cricket)were selected, byusing random sampling technique, in the age group of 14-17 years from different schools and clubs of Delhi and were having at-least two years of playing experience at minimum inter school level (participation).

Selection of Variables:

- **Independent variable:**Football and Cricket players.
- **Dependent variables:** Speed, Muscular endurance, Explosive Strength &Flexibility.

Criterion Measures:the selected (dependent) variables were evaluated using standard tests and procedure. The following test items were selected to measure the motor fitness variables.

Table A-: Description of variables, tests, and measuring units.

S.no	Variables	Test	Unit of measurement
1	Speed	50 meter dash	Time in Seconds

2	Muscular endurance	Bend knee sit-ups	Time/Score
3	Explosive strength	Standing broad jump	Meter/Centimeter
4	Flexibility	Sit and reach test	Centimeters

Collection of data: before collecting the data, the subjects were assembled at one place and informed about the motive of the study, procedure and possible risks of the research study. The requisiteconsent and approval was obtained from all the participants (players) and coaches or Teachers. The prescribed tests were explained to the subjects and their coaches so that they would be the familiar with the tests and procedure. The participants with injury, disease, sick or ill health were excluded from the study.

Administration of tests: the following test items are globally used in educational research. These tests are taken from AAHPER youth fitness test manual. The explanation of aforementioned tests is given below.

- **50 mtr. Dash run** (to measure speed):

Equipment required: An area on a track, measuring tape, stopwatch and a score sheet.

Procedure: The subjects will take the standing start and two subject can run at the same time. Two parallel lines will be drawn 50 m apart considering as starting and finishing line. The starter commands, “are you ready?” and “blows the whistle. While blowing the whistle (to start a race), the starters arm also goes downward sweep as signal to time recorder. One trail is permitted.

- **Bend knee sit-ups** (to test strength and endurance of abdominal muscles):

Equipment required:A flat clean grassy field/mat, stopwatch, recording sheet and two assistants.

Procedure:after explanation of the test procedure to the subjects, the subject lies in supine position on the floor, with knees bent, feet’s on the floor, and feet must be 12 inches from the hips. The fingers will be interlocked and must be placed behind the neck with the elbows touching the floor, and the angle of knees should be not less than 90 degree. Another partner has to hold his feet to avoid unnecessary movements. On the command “GO” the student starts, touching the knees with their elbows in a sitting position. These are continued until the subject feels unable to continue the test. There should not be any pause in the up or down

position. It should be a continuous process. This exercise can be repeated as many times as possible, but in the time limit i.e. one minute.

- **Standing broad jump** (to measure the explosive strength of legs):

Equipment required: A sandy long jump pit, measuring tape and a score sheet.

Procedure:A take off line is marked on the ground. Subject stands just behind the take off line with the feet several inches apart. The subject swings the arms backward-forward and slightly flex his knees to take a jump in the long jump pit. The measurement (distance) of jump will be measured from the take off line to the heel or other part of the body (touches the ground nearest to the TOL). Every subject will get three attempts and the best one was recorded in meter/centimeter.

- **Sit and reach test** (to evaluate the flexibility of the lower back posterior thigh muscles):

Equipment required:sit and reach box with a measuring scale-9 inch mark (23 cm) at the edge, where the feet will be placed (or alternatively a ruler can be used and a step or box) and a score sheet.

Procedure: First of all, shoes and socks should be removed. Then sit down on te floor with legs stretched out straight ahead. The soles of the feet should be kept flat against the box and, both the knees must be straight, touching the floor. Palms should be facing downwards and hands should be on the top of each other (finger pads on top of fingernails).now, the subject tries to extend his both hands forward along the measuring line on the box as far as he can extend.there should be no jerk or unacceptable movements . He must hold the full reach position for at least two seconds and the distance (score) should be noted. Every subject will get two attempts and the best one was recorded in centimeter.

Statistical Analysis:

In order to find the statistical results, SPSS version 24.0 was employed. Mean and SD (standard deviation) was computed as descriptive statistics.Independent ‘t’ test was applied to reveal the mean differentiationof selected motor fitness variables between the groups (football&cricket players),and for testing the hypothesis, the significance level was fixed at 0.05 level.

III. Results: The descriptive analysis of the data shows, mean,standard deviation, mean differences and 't' value onselected motor fitness variables among football and cricket players **(**boys) of Delhi.

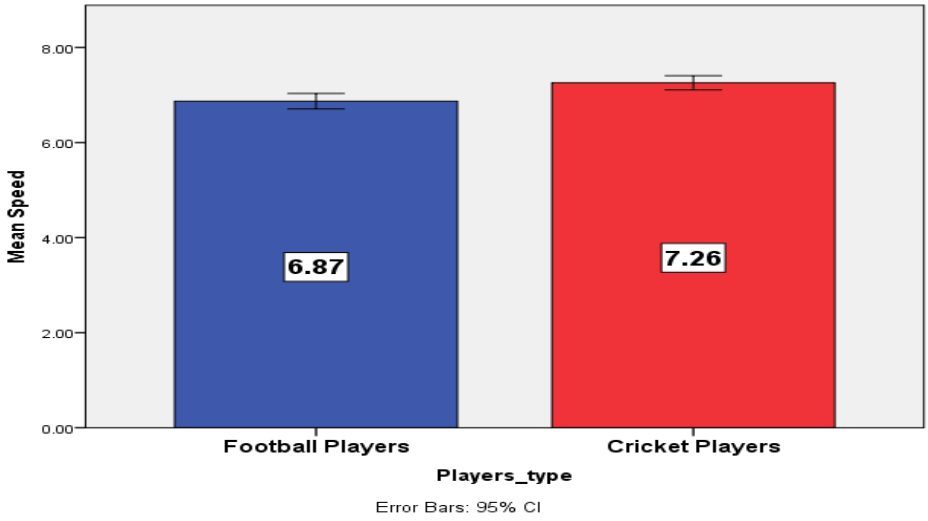
The results of the study are displayed in the below mentioned tables.

S.No	Variable	Group (players)	N	Mean Scores	Standard Deviation	Mean Difference	t-value	p-value
1.	SPEED	Football	50	6.87	0.58	-0.39	-3.504	0.001
		Cricket	50	7.26	0.53			

Table-1: Descriptive statistics of speed among football and cricket players (boys).

*The Table value of **'t',** at 0.05 level of confidence for 98(df)=1.984.

Graph-1:Graphical representation of comparative Mean and SD values of speed among football and cricket players (boys).



It appears from the **Table & Graphno-1** that the computed value of't' is greater than the table value i.e. -3.504>1.984. Thus, the null hypothesis is refused in support of the alternative hypothesis, at the 0.05 level of significance.

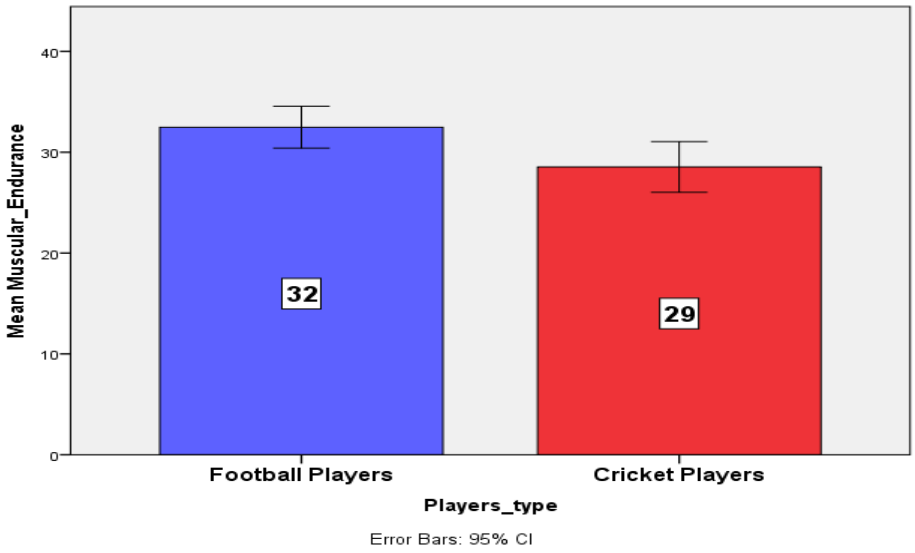
Therefore, it is confirmed that statistically significant difference exists among football and cricket players (boys) of Delhi on speed. Football players are better in speed (faster) as compared to cricket players.

Table-2: Descriptive statistics of muscular endurance among football and cricket players (boys).

S.No	Variable	Group (players)	N	Mean Scores	Standard Deviation	Mean Difference	t-value	p-value
2.	Muscular Endurance	Football	50	32.48	7.33	3.94	2.428	0.017
		Cricket	50	28.54	8.83			

*The Table value of **'t'**,at 0.05 level of confidence for 98(df)=1.984.

Graph 2: Graphical representation of comparative Mean and SD values of muscular endurance among football and cricket players (boys).



It appears from the **Table & Graph no-2**that the computed value of't' is greater than the table value i.e. 2.428 >1.984. Thus, the null hypothesis is refused in support of the alternative hypothesis, at the 0.05 level of significance.

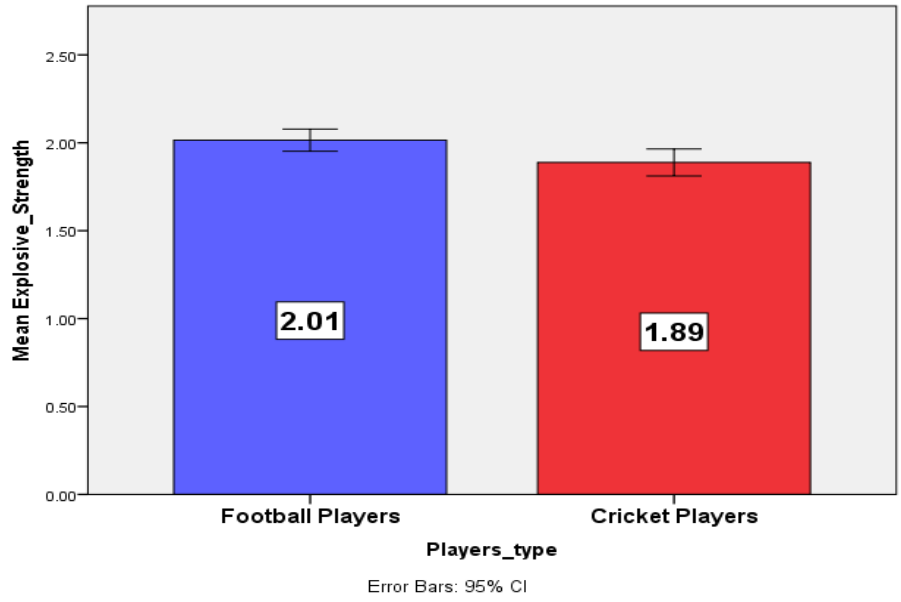
Therefore, it is confirmed that statistically significant difference exists among football and cricket players (boys) of Delhi on muscular endurance. Football players have a high level of muscular endurance than cricket players.

Table-3: Descriptive statistics of explosive strengthamong football and cricket players (boys).

S.No	Variable	Group (players)	N	Mean Scores	Standard Deviation	Mean Difference	t-value	p-value
3.	Explosive Strength	Football	50	2.01	0.22	0.13	2.568	0.012
		Cricket	50	1.89	0.27			

*The Table value of **'t'** at 0.05 level of confidence for 98(df)=1.984.

Graph 3: Graphical representation of comparative Mean and SD values of explosive strength among football and cricket players (boys).



It appears from the **Table & Graph no-3**that the computed value of't' is greater than the table value i.e. 2.568 >1.984. Thus, the null hypothesis is refused in support of the alternative hypothesis, at the 0.05 level of significance.

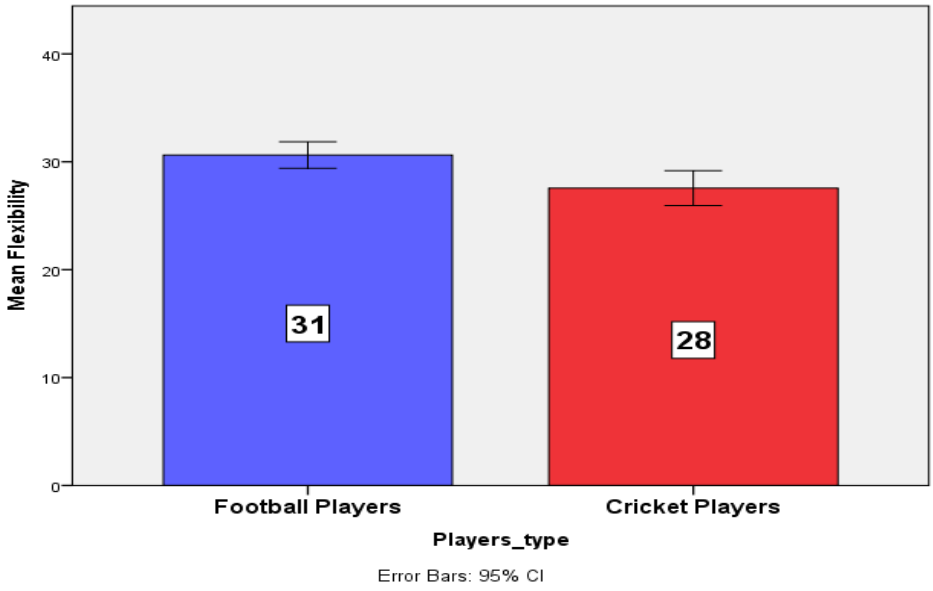
Therefore, it is confirmed that statistically significant difference exists among football and cricket players (boys) of Delhi on explosive strength. Football players aresuperior in explosive strength as compared to cricket players.

S.No	Variable	Group (players)	N	Mean Scores	Standard Deviation	Mean Difference	t-value	p-value
4.	Flexibility	Football	50	30.62	4.33	3.06	3.028	0.003
		Cricket	50	27.56	5.69			

Table-4: Descriptive statistics of flexibility among football and cricket players (boys).

*TheTable value of **'t'** at 0.05 level of confidence for 98(df)=1.984.

Graph 4: Graphical representation of comparative Mean and SD values of flexibility among football and cricket players (boys).



It appears from the **Table & Graph no-4**that the computed value of't' is greater than the table value i.e. 3.028 >1.984. Thus, the null hypothesis is refused in support of the alternative hypothesis, at the 0.05 level of significance.

Therefore, it is confirmed that statistically significant difference exists among football and cricket players (boys) of Delhi on flexibility. Football players are moreflexiblethan cricket players.

IV. Discussion: The main motive of this research was to compare the selected motor fitness variablesamong football and cricket players **(**boys) of Delhiand it clearly indicates towards the disparate results of the obtained data.

After conducting, AAHPERD Physical fitness battery (1966) between South African and Canadian boys' students, data revealed that South African boys found better than the Canadian boys in AAHPERD Tests (Andrews, 1976)

In Another study, result indicates that, there is a significant relationship between knowledge and motor fitness of football and cricket players of district Burdwan, West Bengal. She has taken 200 players (100-football and 100-cricket) and, employed AAHPER Youth Fitness test and Psychological trait intelligence test to know the outcome i.e. correlation. Later, she discovered that there is a positive correlation between motor fitness and intelligence for both the groups and, football players were better in physical and psychological variables (both) than cricket players(Begum, 2015).

A study was conducted to compare the physical fitness variables of football (n-32) and cricket players (n-32), samples were taken from little flower school-Varanasi, age between 14-18 years. They have used 't' test to discover the difference among the groups. AAHPER youth physical fitness test was used and they found that there is a significant differences on speed, agility explosive strength and cardio vascular endurance but, no significant differences discovered on muscular strength, and endurance respectively(Pathak and Rawat, 2010).

V. Conclusion: On the basis of the result of the research, and within limitation it is observed that there is a statistically significant differences exists among football and cricket players (boys) of Delhi on motor fitness variables i.e. Speed, Muscular Endurance, explosive Strength and Flexibility. Football players were stronger and superior than cricket players.

The analysis of data reveals, significant differences in motor fitness variables among football and cricket players (boys) of Delhi may be due to their daily lifestyle, skills, nature of game, movement's pattern, anthropometrical structures of players and educational environment.

Furthermore, it can be said that different kind of games required different degree of fitness.

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