



ISSN: 2456-0057  
IJPNPE 2017; 2(1): 382-385  
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www.journalofsports.com  
Received: 09-11-2016  
Accepted: 10-12-2016

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## Motor fitness components of north zone inter university level football and cricket players: A comparative study

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### Abstract

The purpose of the study was to compare motor fitness components of north zone Inter-University level football and cricket players. Sixteen Football players and sixteen Cricket players who represented Amity University, Noida in North Zone, Inter-university football and cricket tournaments for the year 2015-16 were selected as subjects for the study. The age of the subjects ranged from 18 to 25 years. Both Cricket and Football players gone through five tests (standing broad jump, 50m sprint, sit and reach test, 600m walk and run and shuttle run). The statistical procedure used to compare football and cricket players were:-Computation of mean, Computation of standard deviation, Computation of standard error of difference between the means, Computation of 't' ratio. The level of significance chosen will be 0.05 level of confidence. The analysis of data reveals that football players are superior to that of the cricket players with respect to speed, endurance, strength and agility. No statistically significant difference was noticed between two games with respect to flexibility.

### Introduction

Motor fitness is the sum total of seven motor components namely muscular strength, muscular endurance, cardio-respiratory endurance, speed, power, agility and flexibility. These motor abilities and their complex forms (e.g., strength endurance, explosive strength, speed endurance etc.) are the basic prerequisites for human motor actions. Therefore, the sports performance in all sports depends to a great extent on these abilities. The improvement and maintenance of motor fitness or condition is perhaps the most important aim of sports training. Each sport requires a different type and level of physical condition (specific fitness/condition) and as a result a different type of fitness training or conditioning is required for different sports. Motor fitness is relative to the individual and specific to a sport. The motor fitness demands required to last a full game football or cricket are very different from those placed on the marathon runner. Even within a sport, specificity is relevant, such as in the difference between the bowlers and batsmen of a cricket team and even difference between attacking and defending players in football. The coach who wishes to progress towards peak performance must be aware of both relative and specific fitness, and recognize the demands that a change in either can affect the physical structure of the body. A sportsperson who wishes to achieve peak performance must have a higher level of fitness than the less ambitious competitor.

### Methodology

Sixteen Football players and sixteen Cricket players who would be representing Amity University, Noida in North Zone, Inter-university football and cricket tournaments for the year 2015 will serve as subjects for the study. The age of the subjects will range from 18 to 25 years. Keeping the feasibility criteria and availability of equipment, the following variables are selected:

1. Strength
2. Speed
3. Flexibility
4. Agility
5. Endurance

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**Administration of Tests**

**Item Number I-Standing Broad Jump (To measure explosive strength of the legs)**

**Facilities and Equipment:** Tape measure, a mat, space on the floor and a score sheet.

**Procedure:** The subject will stand behind a take-off line with his feet several inches apart. Before jumping, the subject will slightly flex the knees and swing the arms backward. He then will jump forward by simultaneously extending the knees and swinging the arms forward. Three trials will be permitted. Measurement will be from the closest heel mark to the take-off line.

**Item Number II-50m Sprint (To measure speed)**

**Facilities and Equipment:** A track, stopwatch and a score sheet.

**Procedure:-**The subjects will run in-group of two. The starter will use the command, “ready?” and “Go” The latter will be accompanied by a downward sweep of the arm as a signal to the timer. One trial will be permitted.

**Item Number III-Shuttle Run (To measure agility and speed)**

**Facilities and Equipment:** Two lines parallel to each other will be marked on the floor 10m apart. Since the student must overrun both of these lines, it will necessary to have several feet more of floor space at either end. Two blocks of wood, 5 by 5 by 10 centimeters, a stopwatch and a score sheet will be used.

**Procedure:** The subject will stand at one of the lines with the 2 blocks at the other line. On the signal to start, the subject

will run to the blocks, take one, and returned to the starting line, and place the block behind that line. He then will return to the second block, which will be carried across the starting line on the way back. Two students will run at the same time and two different timekeepers will be used. Two trials will be permitted.

**Item Number IV-Sit and Reach Test (The Purpose of the sit-and-reach test was to evaluate the flexibility of the low back and posterior thigh)**

**Equipment Needed:** A special apparatus consisting of a box with a measuring scale in which 23 centimeters is at the edge against which the bottom of the feet rest.

**Description:-**The subject was in sitting position with legs extended, feet shoulder-width apart, and shoes off. The arms extended forward with one hand on top of the other and fingers pads on top of fingernails. The subjects reached directly forward, palms down, along the measuring scale four times, holding the position of maximum reach the last time for one full second. Only one trial was given.

**Item Number V-600m Run (To measure endurance)**

**Facilities and Equipment:** A track, stopwatch and a score sheet.

**Procedure:** The subjects will run in-group of eight and each student will have a partner to record his position, which he conveyed to the recorder for matching with the time. The starter will use the command, “ready?” and “Go” The latter will be accompanied by a downward sweep of the arm as a signal to the timer. One trial will be permitted.

**Analysis of Data and Result**

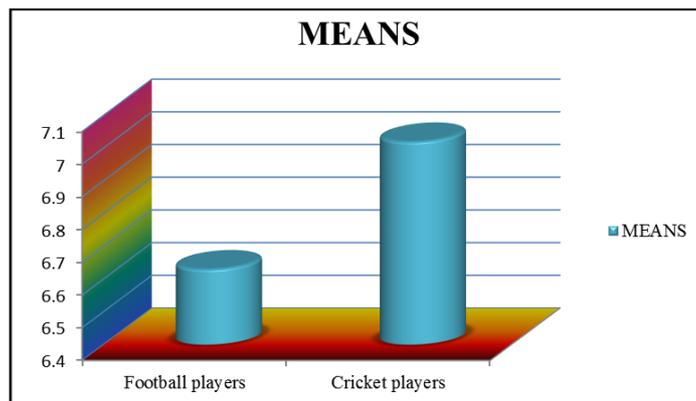
**Table 1:** Significance of Difference of the means of 50m Sprint with respect to Cricket and Football players

Groups	Mean	Mean Difference	Standard Deviation	Standard Error	T- Ratio
Cricket Players	7.02	0.39	0.27	0.12	3.54*
Football Players	6.63		0.38		

\*Significant at 0.05 level  $t_{0.05}(30) = 2.04$

From the above table it is evident that a difference of 0.39 in the means of cricket and football players is statistically significant at 0.05 level of confidence. T value of 3.54

obtained is more than the table value of 2.04 with 30 degrees of freedom.

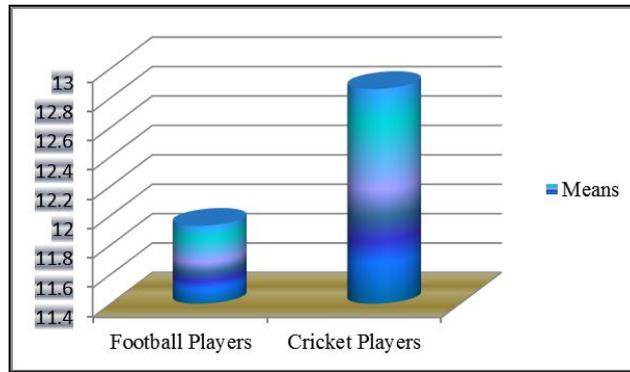


**Table 2:** Significance of Difference of the means of Shuttle run with respect to Cricket and Football players

Groups	Mean	Mean Difference	Standard Deviation	Standard Error	T- Ratio
Cricket Players	12.86	0.93	0.91	0.24	3.32
Football Players	11.93		0.67		

The analysis of data in table 2 above shows that the difference in the means of shuttle run in respect of cricket and football players is significant at 0.05 level of confidence. The t value

of 3.32 is more that the table value of 2.04 with 30 degrees of freedom.



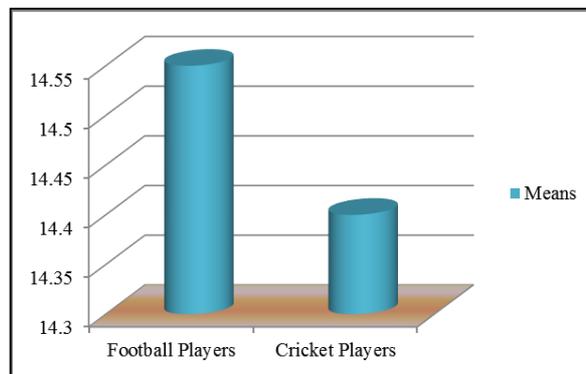
**Table 3:** Significance of Difference of the means of Sit and Reach test with respect to Cricket and Football players

Groups	Mean	Mean Difference	Standard Deviation	Standard Error	T- Ratio
Cricket Players	14.40	0.15	0.16	0.43	0.45
Football Players	14.55		0.73		

\*Significant at 0.05 level  $t_{0.05}(30) = 2.04$

A difference of 0.15 in the means of cricket and football players with respect to sit and reach test (flexibility) is

statistically is not significant as the value of 0.45 is less than the table value of 2.04 with 30 degrees of freedom.



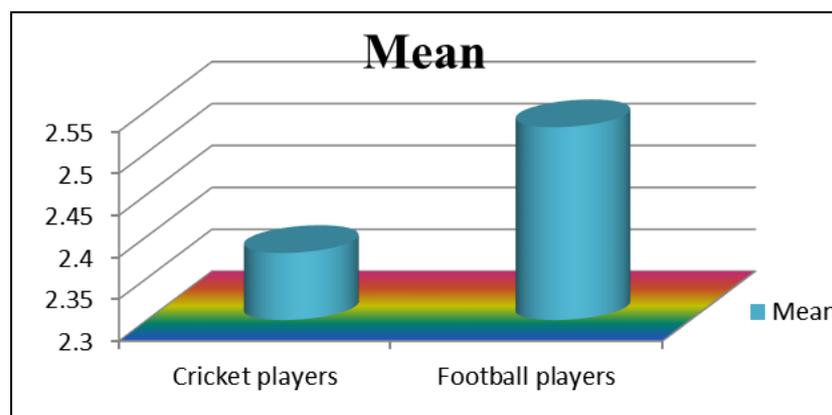
**Table 4:** Significance of Difference of the Means of Standing Broad Jump With Respect To Cricket and Football Players

Groups	Mean	Mean Difference	Standard Deviation	Standard Error	T- Ratio
Cricket Players	2.38	0.15	0.137	0.057	2.77
Football Players	2.53		0.194		

\*Significant at 0.05 level  $t_{0.05}(30) = 2.04$

A difference of 0.15 in the means of cricket and football players with respect to Standing broad jump (Strength) is statistically is significant at 0.05 level of confidence as the

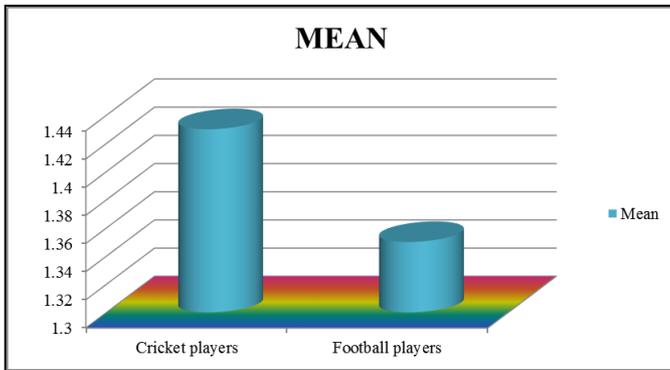
value of 2.77 is greater than the table value of 2.04 with 30 degrees of freedom.



**Table 5:** Significance of Difference of the means of 600m run and walk with Respect to Cricket and Football players

Groups	Mean	Mean Difference	Standard Deviation	Standard Error	T- Ratio
Cricket Players	1.43	0.08	0.044	0	5.71
Football Players	1.35		0.044		

\*Significant at 0.05 level  $t_{0.05}(30) = 2.04$



A difference of 0.08 in the means of cricket and football players with respect to 600m run and walk (Endurance) is statistically significant at 0.05 level of confidence as the value of 5.71 is greater than the table value of 2.04 with 30 degrees of freedom.

### Discussion of Findings

The analysis of the data clearly revealed that football players are significantly superior to the cricket players in Speed (50m sprint), Agility (4\*10 m shuttle run), Endurance (600m run and walk), Strength (standing broad jump). In case of flexibility difference in the means of players belonging to two groups has not found to be statistically significant.

### Conclusions

1. Football players have significantly better sprinting ability as compared to Cricket players of Inter-University level.
2. Inter-University level football players are significantly better to Inter-University cricket players with respect to agility.
3. Football players have significantly better endurance ability as compared to Cricket players of Inter-University level.
4. Inter-University level football players are significantly better to Inter-University cricket players with respect to strength.
5. No significant difference was observed with respect to flexibility assessed using sit and reaches test between Inter-University level Cricket and Football players.

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