International Journal of Academic Research and Development
ISSN: 2455-4197
Impact Factor: RJIF 5.22
www.academicsjournal.com
Volume 2; Issue 6; November 7; Page No. 1226-1228

Comparative study of selected psychomotor abilities between female baseball pitcher and cricket fast bowler

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Abstract
The aim of this study is to find out the significant differences of selected Psychomotor Abilities between female Baseball pitcher and cricket fast bowler. A group of thirty (N=30) female subjects aged between 18-28 years, who participated in intercollege competitions organized by the Department of Sports, Punjabi University Patiala, volunteered to participate in this study were selected for this study. The purposive sampling technique was used to attain the objectives of the study. All the subjects, after having been informed about the objective and protocol of the study, gave their consent and volunteered to participate in this study. They were further divided into two groups of 15each (i.e., N^1=15; pitcher and N^2=15; fast bowler). The t‟ test was applied to find out the significant differences between female Baseball pitcher and cricket fast bowler. To test the hypotheses, the level of significance was set at 0.05. The results revealed significant differences between Baseball pitcher and cricket fast bowler on the sub-variables i.e. speed. However, no significant differences were noticed with regard to the sub-variables i.e. strength and static balance.

Keywords: pitcher, fast bowler, speed, strength, baseball pitcher and cricket fast bowler

1. Introduction
Cricket and baseball are the best-known members of a family of related bat-and-ball games. Despite their similarities, the two sports also have many differences in play and in strategy. Even though cricket is one of the oldest organized sports, there are very few studies on the physical demands of the game (Woolmer & Noakes, 2008; Christie & King, 2008; Christie *et al.*, 2008) [1, 2, 3]. Batting and bowling are intermittent in nature with the demands placed on the players being dictated by the type of match being played. Due to this stop-start nature of cricket and baseball, accurate assessments are often difficult and as such, research is sparse (Bartlett, 2003) and as a consequence, there are few scientifically sound training programmes for cricketers. In fact, the idea that cricketers need to be well trained is a relatively new one (Woolmer & Noakes, 2008) [1]. One of the first studies which attempted to assess the energy cost of cricket calculated that the mean energy expenditure of cricketers, during a five-match test series, was 86.4 kcal.m2.h-1 (Fletcher, 1955) [4]. Fletcher‟s data suggested that the energy demands of cricket are only slightly more than that required to stand (Christie *et al.*, 2008) [2, 3] which led to the understanding that cricket was physically undemanding requiring more skill than “fitness” (Noakes & Durandt, 2000) [5]. Exercises in all forms of life change the atmosphere, attitude and bring the performances into excellent rhythm to enhance of better performances on and off the field. No doubt physical fitness especially aqua aerobics and aerobic dances keep the better performances on the board. Base Ball Players have to have of good strength in their arms to pitch and throwing to the bases. A Batter needs lots of strength to hits the ball to the home run. The Batter needs to connect the pitcher pitching the ball to hit a home run. Basically one needs to have good reflexes; good vision of eye builds up good flexibility and reflection. Research on the physiological demands of bowling is sparse with the only studies available being those which included some physiological measures when assessing other aspects of these games. A key element of fast bowling is ball-release speed or peak bowling speed (Vpeak). Ball-release speed in fast bowlers is influenced by various anthropometric, morphological, and kinematic factors. For example, higher ball release speeds in senior bowlers has been attributed to longer limb lengths and higher approach speeds than in junior bowlers.

2. Material and methods
Subjects: Thirty (N=30) female subjects aged between 18-28 years were selected for this study. The purposive sampling technique was used to attain the objectives of the study. All the subjects, after having been informed about the objective and protocol of the study, gave their consent and volunteered to participate in this study. They were further divided into two groups of 15 each (i.e., N1=15; pitcher and N2=15; fast bowler).

3. Methodology
50 Meter Dash was administered to determine acceleration and speed. The score is the t i m e recorded to the nearest 1/100th of a second. Pushups test was administered to determine strength. The score is the Total number of push-ups performed by the subjects

3.1 Speed

Table 1: Mean and standard deviation of speed variable between female baseball pitcher and cricket fast bowler

Group	N	Mean	Standard deviation	Standard error mean	t-value
Baseball Picher	15	4.49	0.22	0.06	
Cricket Fast Bowler	15	4.23	0.18	0.05	3.42

t.05 (28) = 1.99

The results of Baseball pitcher and cricket fast bowler with regard to the variable selected Psychomotor Abilities. The descriptive statistics shows the Mean and SD values of cricket fast bowler on the sub-variable Speed as 4.23 and 0.18 respectively. However, Baseball pitcher had Mean and SD values as 4.49 and 0.22 respectively. The Mean Difference and Standard Error Difference of Mean were 0.05 and 0.06 respectively. The t-value 3.42 as shown in the table above was found statistically significant

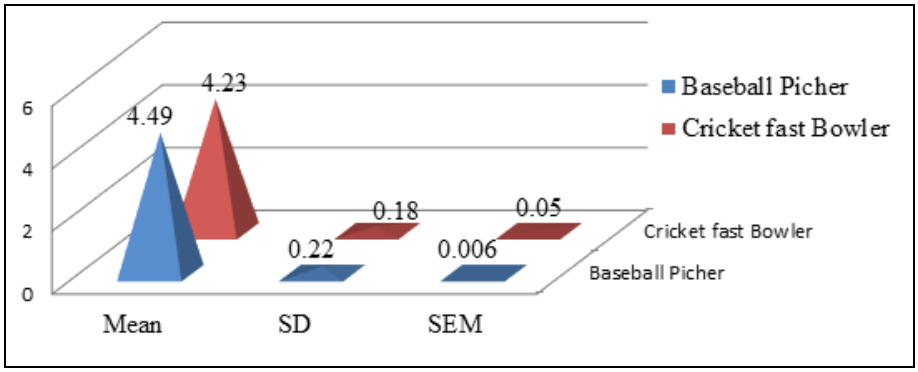

Fig 1: Mean and standard deviation of speed variable between female baseball pitcher and cricket fast bowler C

3.2 Strength

Table 2: Mean and standard deviation of strength between female baseball pitcher and cricket fast bowler

Group	N	Mean	Standard Deviation	Standard error mean	t-value
Baseball Picher	15	25.67	2.66	0.69	0.674
Cricket Fast Bowler	15	24.9	3.26	0.84	

t.05 (28) = 1.99

The descriptive statistics shows the Mean and SD values of cricket fast bowler on the sub-variable Strength as 24.9 and 3.26 respectively. However, Baseball pitcher had Mean and SD values as 25.67 and 2.66 respectively. The Mean Difference and Standard Error Difference of Mean were 0.84 and 0.674 respectively. The t-value 0.674 as shown in the table above was found statistically insignificant (P>.05). It has been observed that Baseball pitcher have exhibited better on Strength than the cricket fast bowler. The comparison of mean scores of both the groups has been presented graphically in figure-2

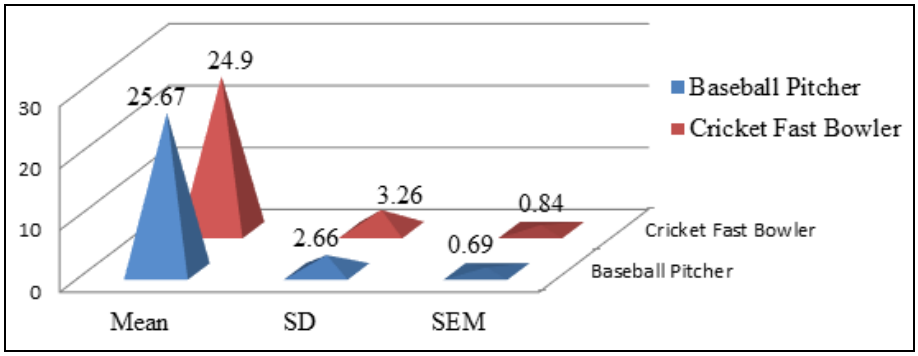

Fig 2: Mean and standard deviation of strength between female baseball pitcher and cricket fast bowler c

4. Discussion & Conclusion

It is concluded from the above findings that the significant difference was found in the speed ability- 30m sprint test, the cricket fast bowler group had better speed in comparison to the Baseball pitcher group. Because fast bowler don't have the luxury of standing in one spot to deliver the ball. Fast bowlers run in, on average, 25 yards (22m) every delivery. The insignificant difference was found in the strength ability- push

up test, the baseball Pitcher had better shoulder strength in comparison to the cricket fast bowler. While comparing the mean value of strength, it was found that pitcher have better shoulder strength as compared to fast bowler. The outcome of results might be due to the pitcher makes every pitch until a point where the coach replaces the tiring pitcher with a relief pitcher and a succession of pitchers may come into the game in sequence until it ends. Pitcher use their full arm strength in the practice and competition while pitching resulting which pitcher had perform better on 0 5 10 15 20 25 30 Fast Bowler Pitcher 4.23 4.49 24.9 25.67 15.4 15.81 3.11 3.25 25.07 25.93 Speed and Strength.

5. References

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