

A Comparative Analysis of Motor Fitness Components among Bogura and Khulna District Women Cricket Players

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Abstract:- The current study aims to assess the motor fitness parameters among female cricket players from the Bogura and Khulna districts of Bangladesh. Twenty cricket players from each of the two separate Bangladeshi cities were chosen at random to assess the critical research. The selected subjects (N=40) were between the ages of 16 and 21. The study's criteria variables were leg explosive strength and agility. For this study, the sergeant jump test and shuttle run were utilized to measure the leg's explosive strength and agility. A statistical method called the independent "t" test was employed for the current research. The study's findings demonstrated that the Bogura students' leg explosive strength was superior to that of the Khulna students ($p \leq 0.05$). However, there was no difference in agility between the two statistically significant groups ($p \geq 0.05$).

Keywords:- Leg explosive strength, sergeant jump, agility.

I. INTRODUCTION

As long as humans have existed, physical fitness has been a notion. Physical fitness has been viewed throughout human history as being crucial to daily existence. For their physical existence, the ancient people relied mostly on their own power, stamina, and vitality. The mastery of some fundamental abilities, such as strength, speed, endurance, and agility for sprinting, jumping, climbing, and other abilities used in hunting for a living, was required¹. Players' motor fitness components fluctuate from game to game, position to position, and male to female athletes, according to the findings of several research studies, and they have an impact on sports performance². In his research, Johnson³ discovered that successful wrestlers had superior balance than losing wrestlers. A high degree of overall fitness with motor skills including strength, cardiovascular endurance, speed of moment, leaping ability, agility, flexibility, etc. are the main traits necessary to be developed by basketball players, according to Malhotra and Subraminiam⁴. Depending on the unique requirements of the sports or hobbies, optimal physical performance combines all the elements of motor fitness. Each component should be included as a continuous aspect of the training program, albeit some may need more attention than others⁵. Like in many other sports, motor fitness plays a significant role in the cricket performance pyramid. With an increase in

performance level, motor fitness also rises. The execution of regular training regimens by athletes affects the development of motor fitness. The most significant goal of sports training may be the enhancement and maintenance of motor fitness or condition⁶. Different types of fitness training or conditioning are necessary for varied sports because each person possesses different physical requirements (particular fitness or conditioning)⁷.

Fitness hasn't constantly been seen as being as vital in cricket as it is in other sports. The significance of fitness in any sport cannot be overstated. Being physically fit will enhance your performance. However, one activity that also tests your physical stamina, intellectual toughness, and game skills is cricket⁸. In addition to having a massive impact on all aspects of the game of cricket, motor fitness is specially crucial for attacking fielding, fast bowling, including over-arm throws, running between wickets, and hitting. Motor fitness is measured by performance, which is based on a composite of many criteria⁹.

The fitness traits that are most frequently highlighted include power, speed, agility, balance, flexibility, and stamina. The majority of sporting accomplishments, according to sports principles and application, are mostly dependent on the quality of one's motor skills¹⁰. Physical activities including motor skills, leaping, bending, stretching, and throwing velocity are said to be crucial to the game of cricket and help a team to play well. Testing one's level of fitness is helpful for evaluating and keeping track of cricket players, and it is a complement to improving one's technical proficiency, tactical awareness, and mental agility, all of which are important for performance in cricket. For the best design of the strength/power and endurance training programs to increase performance, analysis of the fitness profile would be crucial. A top stadium for developing sporting prodigies in Bogura Shahid Chandu Stadium, Bangladesh offers facilities for planned training and thoughtful coaching for cricket. For the last few years, Bangladesh's national champion women's cricket team has come from Khulna Division. To determine whether there are any differences between these women's teams, the current study compared the motor fitness of the players.

II. MATERIAL AND METHODS

A. Selection of Subjects:

To carry out this study, we used a sample of 40 healthy division-level female cricketers from Khulna (n=20) and Bogura (n=20) who were at the pre-competition stage and participated in the assessment of physical fitness conducted by Khulna Division and Bogura. Their age ranging between 16-21 years. Each team's players had more than 6 years of playing experience and got comparable diet, supplements, and training for a similar amount of time three days a week. Prior to the fitness test, the participants were instructed to avoid engaging in any vigorous activity for at least 48 hours and to avoid eating a heavy meals. Each fitness test was completed following suggested stretching and jogging warm-ups. In order to prevent injuries during testing, necessary safeguards were followed.

B. Variables Selected:

The criterion variables were selected for the study were agility and leg explosive strength. The standard tests which were selected for each variable of selected motor fitness component are as follows:

- The sergeant jump test for leg's explosive strength and
- Shuttle run for agility

C. Equipment and tools used-

The following instruments and tools were used for collecting data in the present study:

- Digital stopwatch for measuring time
- Different cones
- Marker Steel tape for measuring distance
- Whistles
- High wall

D. Procedure of collecting data

The subjects were gathered at one location. Prior to the inquiry, coaches and their players had been made aware of the purpose and methodology of the experimental study. The coaches and all investigative responders gave their assent and approval at the same time. An initial sergeant jump test to gauge the explosive strength of the leg helped with motor fitness. After that, a 4x10-yard shuttle run was held to test agility. All of these tests were carried out under protocol. Each subject had two attempts, with a notation that a final score was the best outcome.

a) SHUTTLE RUN(4 x 10 Yd.)

- **Purpose:** To measure Agility.

- **Facilities and Equipment:** Steel tape, two stop watches and marking powder.

- **Description:** Lines are placed 10 yard apart with marking tape. The two blocks are placed adjacent to and outside of the line not being used as the starting line. On the signal "Go" the test performer (1) runs from the starting line to the blocks and pick up one; (2) returns to the starting line and placed the block behind the line; (3) runs to pick up the second block; and (4) returns to the starting line and place the second block behind the line.

- **Scoring:** Two trials are permitted. The better time to the nearest one –tenth second is accepted as the score. Rest should be allowed between trials. The student is not permitted to throw or drop the blocks. Not touched, or when the pupil pushes off the floor with elbow Time was considered to rear half second¹¹.



Fig. 1: Shuttle Run

b) SARGENT JUMP TEST

- **Purpose:** To measure the leg muscle power
- **Equipment required:** Measuring tape or marked wall, chalk for marking wall
- **Description:** Reaching up with the hand that is closest to the wall, the athlete leans sideways against the wall. The fingers' points are noted or

recorded while keeping the feet flat on the ground. The athlete then takes a step back from the wall and executes a vertical jump as high as they can, utilizing their arms and legs to help propel their bodies higher. When you leap the highest, try to contact the wall. The score is determined by the gap between the jump height and the standing reach height. The superior effort out of two is recorded¹².

• **Statistical Techniques:** Mean and standard deviation were calculated in order to study the physical fitness components of the female cricketers of Khulna and Bogura. The mean was computed for comparison of players of two groups. The “t-test” was used to determine the significance of differences between means when T-values were significant

. The level of significance was 0.05. Data analysis was done with SPSS version 10.



Fig. 2: Sargent Jump Test

III. RESULTS AND INTERPRETATION

Group	Mean	SD	t-value
Boguraplayers	32.34	2.048	4.195
Khulna players	29.62	2.044	

Table 1: Mean Standard Deviation and ‘T’ Ratio on Leg Explosive Strength among Bogura and Khulna women Cricket Players. Significant at 0.05, table value = 2.02 (df = 38).

Values of leg explosive strength (sergeant jump test in cm)

Table-I showed that the mean values of leg explosive strength among the Boguraplayers and the Khulnaplayers were 32.34 and 29.62 respectively. The obtained ‘t’ ratio of 4.195 is greater than the table value 2.02

for df 1 and 38 required for significance at 0.05 levels. It was concluded that there was a significant difference occurred in leg explosive strength among the Boguraplayers and the Khulna players.

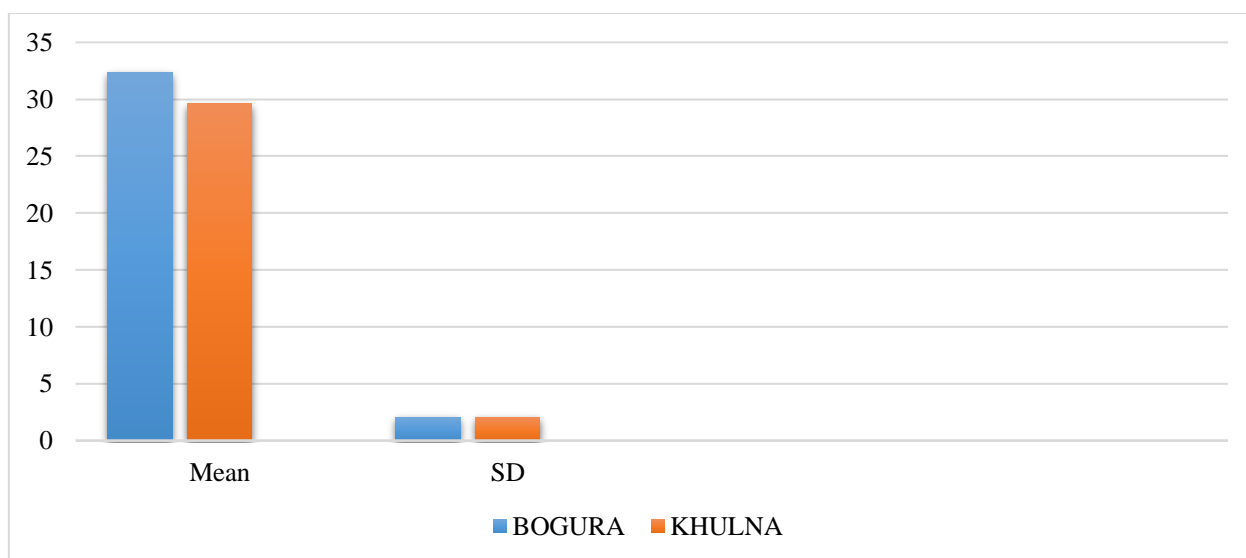


Fig. 3: Graphical presentation of Mean, Standard Deviation on Leg explosive strength among Bogura and Khulna female players

Values of agility (Shuttle run 4*10yd in sec)

Group	Mean	SD	t-value
Boguraplayers	10.24	0.46	0.65
Khulna players	10.15	0.39	

Table 2: Mean Standard Deviation and ‘T’ Ratio on agility among Bogura and Khulna women Cricket Players. Significant at 0.05, table value = 2.02 (df = 38).

Table-2 showed that the mean values of agility among the Bogura and the Khulna women Cricket Players were 10.24 and 10.15 respectively. The obtained ‘t’ ratio of 0.65 is

less than the table value 2.02 for df 1 and 38 required for significance at 0.05 levels.

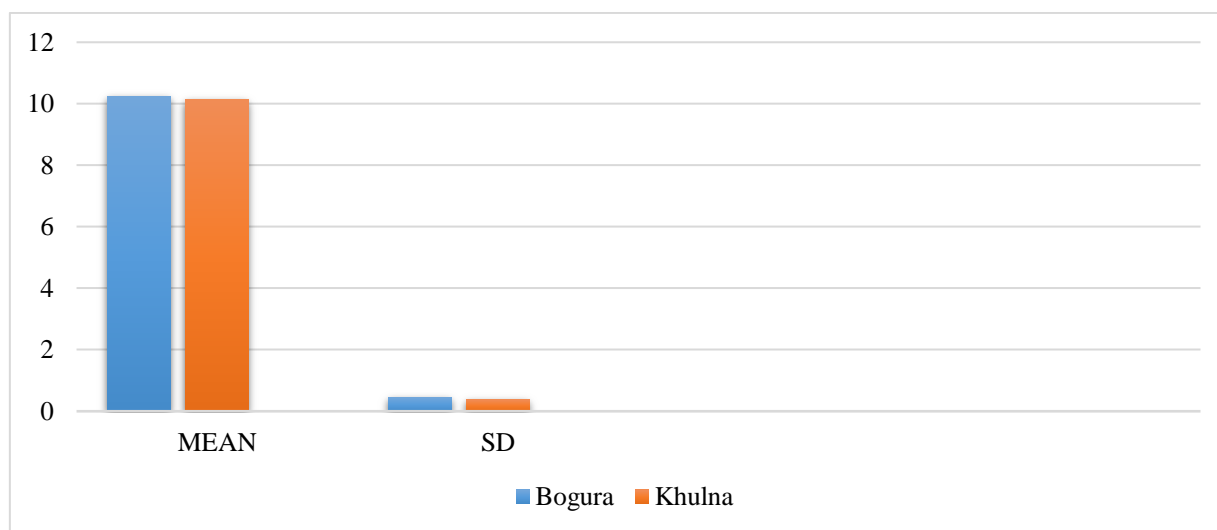


Fig.4: Graphical presentation of Mean, Standard Deviation on Agility among Bogura and Khulna cricketers

The above findings indicate that significant differences in leg explosive strength were discovered between Bogura and Khulna women's cricket players, as the obtained t-value was greater than the tabulated value of 2.02. The results revealed that Bogura women's cricket players have better explosive leg strength as compared to the Khulna cricket players. The results might be attributed to their practice environment, which includes different types of practice environments. It was concluded that there was no significant difference in agility between the Bogura students and the Khulna students. The results of the present scenario point out the positive quality of Bogura students as compared with Khulna students.

IV. CONCLUSION

Based on the results of the above study the investigator concluded that the Bogura students had better explosive strength than the Khulna students and in the case of the agility there was no significant difference among the two groups.

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