

Assessment And Comparison of Agility in Cricketers Depending on Their Playing Position - An Observational Pilot Study

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ABSTRACT

Background: Cricket is a widely played sport and has been evolved over the years. Agility being the key component of cricket is a collective coordinative ability that includes speed, balance and coordination and plays an important role in determining a player's performance. The agility of players differs on the basis of their anthropometric measurements, position, training period and type of innings played. Improved agility enhances neuromuscular coordination thereby reducing the risk of injuries to the players. Cricketers require different types of agility training to meet their role in a match. Limited literature is available evaluating agility of cricket players. Hence, a need arises to conduct this study. The aim of this study is to evaluate and compare the agility of players depending on their positions.

Objective: To evaluate and compare the agility of cricket players depending on their playing position using Agility T-test.

Method: Institutional ethical clearance and consent from the players were sought. An observational pilot study was conducted on 30 players and were divided into 3 groups- batsmen, bowler and wicketkeepers Agility-T test was used to measure agility. Data was analysed using the software Graph Pad Prism, normality of the data was calculated using the Shapiro Wilk Test and comparison between the groups was done using One way ANOVA test.

Results: The agility differed significantly (p value <0.05). From the study it was revealed that the agility timing scores of cricket players

varied according to their position. Batsmen recorded the lowest time followed by wicketkeeper whereas bowlers recorded the highest timings.

Conclusions: A significant difference was found in the 3 groups of cricketers. Differences in current finding will help in formulating a structured agility training protocol depending on cricketers' position.

Keywords: [cricketers, cricket, agility, playing position, Agility T-test]

INTRODUCTION

Cricket is a bat-and-ball game. It is a game that is played between 2 teams of 11 players each on a field at the center of which is a 22-yard pitch. Cricket is one of the oldest sports in the world. This game had its origin in the 16th century. There has been a rise in popularity over the past two decades. This is a team sport wherein players have to assume their role as a batsman, bowler and a fielder. This is a focused energy game with discontinuous explosions of speed and power.⁽¹⁾

These days in cricket the actual physical demand has expanded which requires the player to possess more agility, flexibility and strength. In this sport, the ability to change direction quickly, running in between the wickets, catching and tossing the ball needs agility. Subsequently, in

cricket agility is important as far as performance is concerned.⁽²⁾

Agility is the ability to explosively start, decelerate, change direction, and speed up again quickly while keeping the body in control and restricting decrease in speed.⁽³⁾

Agility has not only been characterized as the capacity of a player to change their direction rapidly but also with utter precision.⁽⁴⁾

Agility is one of the critical components of any sport. Cricket is one such sport where agility is an important aspect for a player to excel. It has relationships with teachable physical qualities like strength, power, and balance. Good agility requires a complete mixture of speed, balance, power and coordination. It includes the aggregate capacities of a player which helps the athlete to do a group of movements with better quality and effect.⁽³⁾ These include their ability to react, balance, orient themselves and to perceive a rhythm of movement to perform a particular task precisely.

Most game-changing situations have the element of agility and speed. Like- bowling, taking a diving catch, running to score runs or to stop a boundary and tossing the ball for runout opportunities. Apart from skills, the important part of a game, agility is considered as the primary determining factor of success in this sport.⁽³⁾

Agility of a player can be measured using various tests-Illinois test, Agility T-test, Zigzag test, Hexagon agility test, Edgren side step test, Agility cone drill test.

AGILITY T-TEST demonstrates excellent test-retest reliability and interrater reliability and is a multidirectional test which permits the player to push himself in all the directions like forward, backward and sideways. Researches were conducted which shows that Agility T-TEST is the most efficient test for measuring agility of a player. Benefits from improved agility include increased body control during quick movements, increased intramuscular coordination, increased reaction time and decrease in the risk of injury or reinjury.

Despite cricket being the most popular sport there is limited literature available measuring agility of cricketers. There have been researches conducted showing agility in players in different sports like soccer, badminton⁽¹⁴⁾ and table tennis⁽¹⁵⁾ and also there are studies which have been conducted on effect of agility performance and its impact on the cricketers⁽³⁾ but no such study which has been specifically conducted about assessment of agility in cricketers and the difference in them depending on their playing position.

Thus, a need arises to conduct a pilot study on the evaluation and comparison of agility in cricket players depending on their position.

Therefore, the aim of the current study is to evaluate and then compare the agility of cricket players depending on their position (batsmen, bowler and wicketkeeper) using Agility T-test.

MATERIALS & METHODS

An observational pilot study was conducted on 30 cricket players which were selected from the sports club across the Mumbai metropolitan city. The participants selected were in the age group of 16-18 years and who had atleast 1 year of training experience in playing cricket. Ethical clearance from institutional ethical committee was sought. The players having any kind of recent injury to the lower limbs past 6 months, any lower limb or spinal fractures or any soft tissue injury past 6 months were excluded from the study.

The players were asked to perform Agility T-test. The subjects started from the starting point at cone A, and they were asked to run in a straight line to cone B. Then, they were asked to slide to cone C which was on the left side. After touching cone C, they were asked to slide to the right and touch cone D. Finally, they ran again to the left, touched cone B, and ran backwards to the start position. Three trials were performed by every subject with the best score recorded for analysis. The time was noted using a stop watch⁽⁵⁾

Statistical Analysis

Data was collected and statistically analysed using graph pad prism. Shapiro-Wilk test was used to determine the normality of the data collected. One way ANOVA test was used to compare the agility scores in between the groups. The p value was set at <0.05 and was significantly different.

RESULT

The baseline characteristics like age, height, weight, body mass index and playing years of the three groups were taken and descriptive analysis was done for the same. The normative agility scores revealed that batsmen had lowest scores followed by wicketkeeper whereas bowlers recorded the highest agility timing. The p value of these three groups were less than 0.05. To compare the scores between the groups One way ANOVA test was done. Mean (10.06,10.11,10.69), standard error of mean (0.29,0.24,0.19) and p value (0.017,0.025,0.029) was calculated of each group batsmen, wicketkeeper and bowler respectively. The level of significance was set at $p < 0.05$.

Figure was plotted using Microsoft Excel.

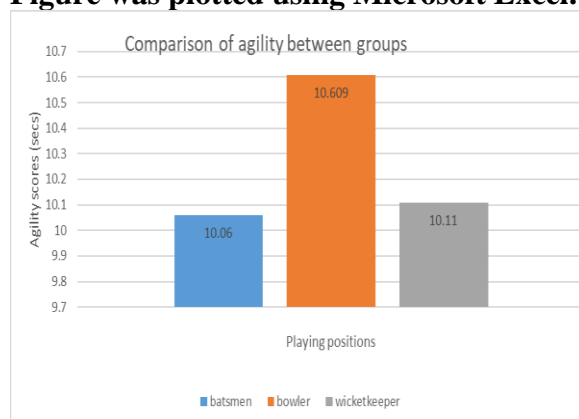


Fig 1-Graph showing the comparison of agility scores between different groups (batsmen, bowlers, wicketkeeper)

DISCUSSION

This study aimed to assess and compare the agility performance in cricketers depending on their playing position. In this study, players were divided into three groups of batsmen, bowler and wicketkeepers. Agility

T-test was performed on these players as a means to measure the agility of players.

This study revealed that there is a significant difference of agility performance in these three groups. According to the normative values of Agility T-Test, batsmen and wicketkeepers showed good agility scores whereas bowlers showed average scores for the same. The mean agility scores of batsmen were recorded at 10.06 secs, wicketkeepers at 10.11secs and bowlers at 10.60 secs.

A similar study (Kemal Goral) which revealed that there was a significant difference in the playing positions and it also varied depending on the anthropometric measures like height and weight although this study was conducted in soccer players.⁽¹³⁾

The possible reason for agility being more in batsmen and wicketkeeper may be because wicket keeper being a fielder needs to be vigilant and quick onto chasing the ball and stumping. Batsmen needs to be agile as his role in this game is running between the wickets and making runs and he needs to keep a close watch on the ball and thus avoid getting runout. The probable reason for bowlers not being that agile as compared to other players may be because he needs to propel the ball from just behind the popping crease towards the stumps that the batsmen is defending.

Agility being a collective coordinative ability it also includes the physical demands of the game and the anthropometric measures of each player. As stated by Candice Jo-Anne Christie, the physical demands in cricket varies between batsmen and bowlers⁽⁸⁾. It stated (Stretch, 1987; Noakes & Durandt, 2000⁽¹⁰⁾; Bartlett, 2003⁽⁹⁾) that batsmen tend to be smaller and lighter as compared to bowlers but have similar morphological profiles with an average of approximately 12-14% body fat (Noakes & Durandt, 2000; Bartlett, 2003). Also, batsmen showed a higher predicted maximal oxygen uptake values and faster running (simulated three runs protocol) with quicker turn times than bowlers. In a study

performed by Ruma Mondal and Dr Pintu Sil on “performance Analysis of batsmen and bowlers in relation to dynamic balance in cricket”⁽¹¹⁾ revealed that bowlers scored less in all 8 aspects if star excursion test of dynamic balance than batsmen. This test also revealed that Batsman showed much higher dynamic balance in Antero-medial, Postero-medial, Posterior and Antero-lateral aspects.

Another reason for the same could be the varying amount of training period. Criteria of training period in this study included all players having an experience of at least 1 year. Training in cricket focuses on players endurance, sprint fitness, speed, agility, muscular strength, flexibility and coordination. The greater the training period better would be the agility performance of players. In a study (Sneha Bas, Hani Patel, Jasmine Jariwala and Dr. Neeti Mishra 2021) revealed that after imposing a 4 week neuromuscular training protocol in cricket players⁽¹²⁾ showed a positive result in players agility, balance and functional performance. The possible bio mechanism behind this could be the activation of mechanoreceptors and a result of neural adaptation and specific training protocol prescribed in that study.

CONCLUSION

Agility was affected in some cricketers. A significant difference was observed in the timings of the agility scores among batsmen, bowler and wicketkeeper. The agility timing scores according to the normative values depicts that batsmen and wicketkeepers showed lesser timings as compared to bowlers. The scores varied due to varying amount of training period and anthropometric measures. Lack of agility thus affects the overall performance of the players as agility is a collective coordinative ability including speed, balance and coordination. Thus proper agility training which includes exercises like lateral jump with agility ladder, squat outs, lateral lunge, side-side toe touch and many more helps improving a players agility thus helps

preventing injury, improves balance, coordination and cognitive function of the player.

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