



## RELATIONSHIP OF ANTHROPOMETRIC MEASUREMENTS TO PERFORMANCE IN CRICKET

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### **Abstract**

*The purpose of the present study was to find out the relationship of the selected anthropometric variables contributing to success in cricket viz; batting, bowling and wicket keeping. Thirty male cricket players who represented their inter-district in the cricket competition were randomly selected for the study. They were further classified in three equal groups as per their playing position i.e. 10-batsmen, 10 bowlers and 10 wicket keepers. The grading and performance were judged in the light of ten point scale by a panel of three professional judges. The score was average rating of three experts. Anthropometric measurements including linear measurements, diameters and circumferences were taken by following the standard techniques of Tanner et al. (1969). The relationship of fifteen anthropometric measurements with performance in bating, bowling and wicket keeping were studied. Coefficient of correlation was computed to find the relationship of various anthropometric measurements to performance in cricket. It was analyzed that performance in bating is more a function of arm length, leg length, and shoulder width and fore arm girth. Height and shoulder width help the bowler's o perform better and wicket keeper needs to be shorter to excel in the game of cricket. It has been established that attainment of such characteristics helps the cricketers to perform better during competition.*

**Key Words:** Anthropometric measurements, Bating, Bowling, Wicket Keeping.

### **INTRODUCTION**

Cricket is one of the best and favorite games for everyone, from children to their grandparents. It has been the most entertaining game since long years back. Cricket can be played both socially and competitively, by males and females of all ages. While competitive Cricket is mostly played on a pitch on an oval field, Cricket just for fun can be played in backyards, parks, streets or on the beach. For millions of Cricket fans it's their world, their home. It's been played in England since the 16th century and became popular worldwide. It undergone major developments in the 18th

century and hence became the national game in England. The game is played on a large oval shaped field, equipped with bat, ball and gloves. Each team consists of 11 players, competing each other in one or two innings depending on the time span decided for the game.

At the moment, many people the world over love it hence, making it grows in popularity. There are different levels of the sport. There is the professional and the infant division. The professionals have developed in the level of skill as compared to amateurs and would go on to play at the club level. There is also a scholastic level of

play. Some changes have occurred over time that has resulted to the inclusion of some techniques which were not there before. We will also notice that some rules have been crafted that makes the game be played under similar rules the world over. One body is mandated to monitor international developments in this great sport.

There are many variations in the sport, through the concept of the game is the same- there is a team that bats and aims at making as many runs as possible, and there is the other team which bowls and fields, in an attempt to limit the number of scores made by the aforementioned team. Variations arise when it comes to the size of the playing field, the length of time that the game is allowed to go on for, and in some cases, in the number of players.

As every game Cricket has certain rules which need to be followed. There are various matches held all over the world throughout the year. Various events like IPL's, twenty20, world cups are driving people crazy. Most of the public is busy scheduling their meetings, appointments, important tasks according to the scheduled Cricket matches. The game is the inseparable part of our lives. It's the most refreshing game ever. The introduction of the twenty20 format has generated a lot of viewership for this game around the globe. The game has become faster and shorter in this format, there are also new rules which have been applied to this form of the game. One-day and tests have been the popular forms of the game.

### **Batting**

It is the ability of the batsman to select the correct ball either to drive or play defense or timing ball sense, concentration and confidence. Good batsman with a sound technique can stay for a longer time at the wicket and can score good runs ultimately helping his team either to win the match or to make a draw, particularly as the one day

matches are gaining so much popularity. A batsman with sound technique and using the bio-mechanical principles can score runs in the minimum number of balls. So this fundamental skill has an impact in the result. The following are the different types of batting namely forward defence, back foot defence, cover drive, mid off drive, straight drive, mid on drive, front foot leg glance, back foot leg glance, moving out drive, hook shot, pull shot, sweep, square cut, Late cut.

### **Bowling**

Bowling can be divided into two types.

1. Fast bowling
2. Spin bowling

No two bowlers are alike. The grip may be the same, the run up or the delivery action may differ. The common principles for good bowling are correct grip, smooth and economical run-up, well balanced delivery action making full use of height and body, fluent follow through action. The importance of bowling reflects on the results. The team that is not good in bowling will have a lesser chance of winning the match. The following are different types of bowling namely inswing, outswing, in cutter, leg cutter, off spin, leg spin, googly, top spin, reverse swing, slower and Chinaman.

### **Wicket Keeping**

Wicket-keeping is one of the most important jobs in a cricket team. Every side wants someone who has safe hands behind the wicket, as one mistake in that area can cost a team a match. A good wicket-keeper also keeps the morale of the team high by shouting constant words of encouragement to bowlers and fielders in all situations. Now-a-days, wicket-keepers are also expected to be more than handy batsmen, a requirement that started with the exploits of Australia's Adam Gilchrist. Gilchrist was one of the most dangerous attacking batsmen for Australia in all forms of the game. He came in at number seven in Test

cricket and won many matches for his team, even from difficult positions, with his stupendous hitting. It seems certain that the role of the wicket-keeper in the game of cricket will continue to evolve, with more responsibilities being added as time passes. But it is important for cricket boards and teams to remember that one cannot compromise with the primary role of a wicket-keeper. After all, “catches win matches”, and a good keeper can effect dismissals which an ordinary fielder cannot. Though batting skills will continue to be demanded from wicket-keepers, it is important that glove-work, which is one of cricket’s great skills, isn’t given secondary treatment. Only then will this specialized role have the perfect balance, and contribute most effectively to a team’s success.

The role of physique is very important in the view point that morphological constitutions and its proportions in the human body are genetically determined and it cannot be changed under normal circumstances. It is believed that physical fitness is trainable factor but the influence of one’s physique and body composition seem to play a great role in its determination as achievement of high level performance is only possible in an

individual with adequate genetic predisposition and under optimal environment condition. Studies have also shown that champions of different sports require different body proportions with respect to their events (Tanner, 1964, de Garry et al; 1974; Carter et al; 1982; 1984 Sharma, 1982; Luthra and Shaw, 1990; Sidhu et al.1990, Sodhi, 1991)

#### **METHODOLOGY**

The present study has been conducted on 30 male cricket players who represented their inter- district in their cricket championship. They were further classified in three equal groups as per their playing position i.e. 10-batsman, 10 bowlers and 10 wicket keepers. The grading and performance were judged in the light of ten point scale by a panel of three professional judges. The score was average rating of three experts. computerized package was used to analyze the data. Anthropometric measurements including linear measurements, diameters and circumferences were taken by following the standard techniques of Tanner et al. (1969). Coefficient of correlation was computed to find the relationship of various anthropometric measurements to performance in cricket. SPSS

**Table- 1**

**Relationship of selected anthropometric measurements with the performance of batsmen**

<b>Sl. No.</b>	<b>Measurements</b>	<b>Coefficient of Correlation( r)</b>
1.	Body Weight	0.37
2.	Height	0.31
3.	Arm Length	0.71*
4.	Fore Arm Length	0.62
5.	Upper Arm Length	0.58
6.	Foot Length	-0.40
7.	Leg Length	0.65*
8.	Fore Length	0.35
9.	Thigh Length	0.61
10.	Trunk Length	-0.21
11.	Shoulder Width	0.65*
12.	Upper Arm Girth	0.57
13.	Fore Arm Girth	0.69*
14.	Thigh Girth	0.41
15.	Calf Girth	0.58

performance of batsmen have presented in Table 1. It is evident from the table that except, foot length and trunk length all the measurements have shown positive correlation with performance of the batsmen. Since the calculated value of 'r' in case of leg length, arm length, shoulder width and fore arm girth with performance

is greater than tabulated value ( $r = 0.632$ ) therefore significant positive relationship ( $p < 0.05$ ) of bating performance with leg length, shoulder width and fore arm girth was observed. It may be seen that performance in bating is more a function of arm length, leg length, and shoulder width and fore arm girth.

**Table – 2**

**Relationship of selected anthropometric measurements with the performance of bowlers**

Sl. No.	Measurements	Coefficient of Correlation (r)
1.	Body Weight	-0.24
2.	Height	0.66*
3.	Arm Length	0.69
4.	Fore Arm Length	0.64
5.	Upper Arm Length	0.67
6.	Foot Length	-0.19
7.	Leg Length	0.42
8.	Fore Length	0.24
9.	Thigh Length	0.50
10.	Trunk Length	-0.17
11.	Shoulder Width	0.67*
12.	Upper Arm Girth	0.33
13.	Fore Arm Girth	0.64
14.	Thigh Girth	0.61
15.	Calf Girth	-0.31

The data of coefficient of correlation between various anthropometric measurements and performances in bowling have been presented in Table 2. It is evident from the table that except body weight, foot length, trunk length and calf girth all the measurements have shown positive relationship with performance of the bowlers. Since the calculated value of 'r' between performance and height, arm length, fore arm length, upper arm length. Shoulder width and fore arm girth are greater than tabulated value ( $r = 0.632$ )

therefore significant positive relationship ( $p < 0.05$ ) of bowling with above said measurements was observed. Speed and arm power effect the performance in bowling It may be due to the reason that arm length, fore arm length, upper arm length and fore arm girth helps an individual to gain more speed where as excess body weight becomes the hindrance. It has been established that attainment of such characteristics helps the cricketers to perform better during competition.

**Table – 3**  
**Relationship of selected anthropometric measurements with the performance of wicket keepers**

Sl. No.	Measurements	Coefficient of Correlation (r)
1.	Weight	0.44
2.	Height	-0.65*
3.	Arm Length	0.24
4.	Fore Arm Length	0.33
5.	Upper Arm Length	0.49
6.	Foot Length	-0.23
7.	Leg Length	0.13
8.	Fore leg Length	-0.20
9.	Thigh Length	0.04
10.	Trunk Length	0.50
11.	Shoulder Width	0.61
12.	Upper Arm Girth	0.09
13.	Fore Arm Girth	0.45
14.	Thigh Girth	0.44
15.	Calf Girth	0.25

Table -3 depicts the relationship between various anthropometric measurements and performance of wicket keepers. It is observed from the results that height, foot length and fore leg length have negative ( $p < 0.05$ ) relationship with performance and positive relationship with rest of the bodily measurements. However significant negative relationship was analyzed between height of the wicket keepers and performance. Advantage of short height of wicket keeper and performance may be because of the reason that one has to bend and roll over frequently during wicket keeping.

#### CONCLUSION

It was concluded that apart from the many factors affecting the performance in cricket the body structure has also important role to play. Performance in batting is more a function of arm length, leg length, and shoulder width and fore arm girth. Whereas height and shoulder width help the bowlers to perform better and wicket keeper need to be shorter in height to excel in the game of cricket. It has been established that

attainment of these anthropometric characteristics helps the cricketers to perform better during competition.

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