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Relation of selected anthropometric parameters with performance of off drive in cricket

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Abstract

Cricket is the second most popular game in the world. It has an eventful and colourful history also. The game of cricket has been the most popular among all kinds of sports in India for the past several years. The purpose of the present study was i) To locate the dependent variables of the techniques of off drive in cricket ii) To find out the effect of selected anthropometric variables to the technique of off drive in cricket. iii) To evaluate the relation between anthropometric variables and performance of off drive in cricket. In the present study 24 cricket players of different organization affiliated to the CAB (Cricket Association of Bengal) were selected randomly for the subject of the study. The selected anthropometric parameters were Age, Height, and Weight, Left upper arm length, Lower arm length, Total leg length, and the Performance were measured with the help of judges rating. Result revealed that the Age of the subject had significant positive correlation with performance. Weight of the subject had significant positive correlation with performance of off drive in cricket. Upper and Lower arm length and body height of the subjects exhibited positive relationship of the performance of off drive in cricket but it was not statistically significant. The total leg length of the subject exhibited negative but not significant correlation with the performance of off drive in cricket

Keywords: Anthropometric parameters, Performance

Introduction

The sport of cricket has a known history beginning in the late 16th century. Having originated in south-east England, it became the country's national sport in the 18th century and has developed globally in the 19th and 20th centuries. International matches have been played since 1844 and Test cricket began, retrospectively recognized, in 1877. Cricket is the world's second most popular spectator sport after association football. Governance is by the International Cricket Council (ICC) which has over one hundred members although only twelve play Test cricket. Only eleven play on ground. The origin of cricket is Britain. There is a consensus of expert opinion that it was probably created during Saxon or Norman times by children living in the Weald, an area of dense woodlands and clearings in south-east England that lies across Kent and Sussex. The first definite reference is dated Monday, 17 January 1597 (Julian date;)

There have been several speculations about the game's origins including some that it was created in France or Flanders. The earliest of these speculative references is dated Thursday, 10 March 1300 (Julian date) and concerns the future King Edward II playing at "creag and other games" in both Westminster and Newenden. It has been suggested that "creag" was an Old English word for cricket but expert opinion is that it was an early spelling of "craic", meaning "fun and games in general".

It is generally believed that cricket survived as a children's game for many generations before it was increasingly taken up by adults around the beginning of the 17th century. Possibly cricket was derived from bowls, assuming bowls is the older sport, by the intervention of a batsman trying to stop the ball from reaching its target by hitting it away. Playing on sheep-grazed land or in clearings, the original implements may have been a matted lump of sheep's wool (or even a stone or a small lump of wood) as the ball; a stick or a crook or another farm tool as the bat; and a stool or a tree stump or a gate (e.g., a wicket gate) as the wicket.

Cricket is a major world sport in terms of participants, spectators and media. It is a bat and ball

spectators and media. It is a bat and ball game, which includes a variety of skills. Of all cricket's skills, batting is the most glamorous. At the highest level of the game, scoring runs and not being dismissed will bring fame and glory of a kind that is possibly unique in the world of sports (Woolmer B., 2008). The drive is an elegant and graceful stroke and a delight to watch, especially if executed by proficient batsmen. The drive follows all the initial movements of a forward defensive stroke, but the difference here is that it is played in half volley or low full toss ball and the back lift becomes very high because the batsman would really like to smash the ball (Amarnath M., 1999) [13].

A batsman plays a cover drive off the front foot. Notice the stance of the batsman and position of his hands, body and head. A drive is a straight-batted shot, played by swinging the bat in a vertical arc through the line of the ball, hitting the ball in front of the batsman along the ground. It is one of the most common shots in a batsman's armoury and often the first shot taught to junior cricketers. Depending on the direction the ball travels, a drive can be a cover drive (struck towards the cover fielding position), an off drive (towards mid-off), straight drive (straight pass the bowler), on drive (between stumps and mid-on) or square drive (towards point). A drive can also be played towards midwicket, although the phrase "midwicket drive" is not in common usage. Drive can be played both off the front and the back foot, but back-foot drives are harder to force through the line of the ball. Although most drives are deliberately struck along the ground to reduce the risk of being dismissed caught, a batsman may decide to play a lofted drive to hit the ball over the infielders and potentially even over the boundary for six.

Anthropometry is study of measurements of human being whether living or dead. The study of "body types" has a significant place in the field of sports. An anthropometric measurement has revealed correlation between physical characteristics & sports capabilities. It helps in Identification of talent and selection of sports in the early age.

Methodology

For the present study 24 (Twenty four) cricket players were

selected randomly for the present study. The entire subjects have three to five years of training experience. They played different types of tournament regularly organized by CAB (Cricket association of Bengal). Some of them participated in school tournament namely Dattu Fathkar trophy under the CAB also. The subject's age were ranged from 16-24 years. All the data were collected from Sonarpur Sporting Union Ground, Kolkata. The main task was to find out the relation between Anthropometric parameters with Performance in off drive techniques.

Measurement of Anthropometric parameters

- i) Age was measured according to their date of the birth.
- ii) Height was measured with the help of Stadiometer,
- iii) Weight was measured with the help of weighing machine,
- iv) Left- upper arm length was measured by steel tape,
- v) Lower arm length was measured by the same manner,
- vi) Leg length was measured by the steel tape.

Measurement of Performance of the subject

The performance of the subject in off drive technique was measured by the judges rating. Three judges were appointed to assess the performance of the subjects in the form of mechanical scores of out of ten. Mean of the performance score determined by the three judges for a particular subject was considered as the average score.

These are considered as the measuring criteria for the present study. For measuring and collecting the data following instruments and tools were used.

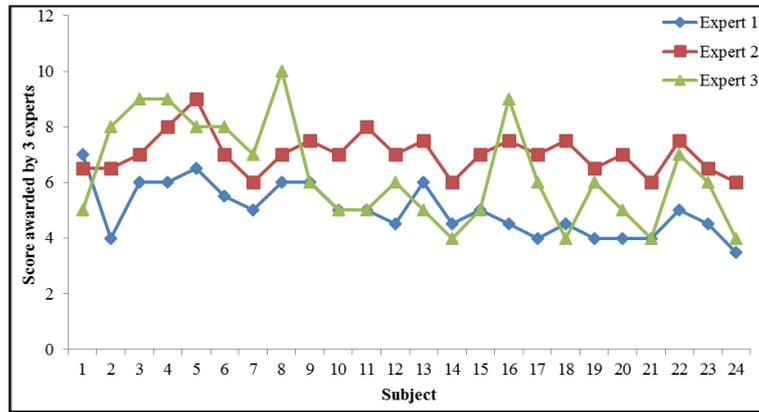
- a) Marker with the adhesive tape was used for marking the point of interest like cg, left knee, at hip, at left ankle joint, at left elbow.
- b) A standard cricket pitch was used for collecting the data, and other necessary equipment like Cricket kit bag and all other sports equipment.

Result and Findings

The data of the present study and the statistical analysis have been presented parameters wise in the following section

Table 1: Performance in off drive in cricket

Subject No.	Score awarded by expert – 1 out of 10	Score awarded by expert – 2 out of 10	Score awarded by expert – 3 out of 10	Mean Score	Mean	SD
1	7	6.5	5	6.16	6.10	0.93
2	4	6.5	8	6.16		
3	6	7	9	7.33		
4	6	8	9	7.66		
5	6.5	9	8	7.83		
6	5.5	7	8	6.83		
7	5	6	7	6.00		
8	6	7	10	7.66		
9	6	7.5	6	6.50		
10	5	7	5	5.66		
11	5	8	5	6.00		
12	4.5	7	6	5.83		
13	6	7.5	5	6.16		
14	4.5	6	4	4.83		
15	5	7	5	5.66		
16	4.5	7.5	9	7.00		
17	4	7	6	5.66		
18	4.5	7.5	4	5.33		
19	4	6.5	6	5.50		
20	4	7	5	5.33		
21	4	6	4	4.66		
22	5	7.5	7	6.50		
23	4.5	6.5	6	5.66		
24	3.5	6	4	4.50		



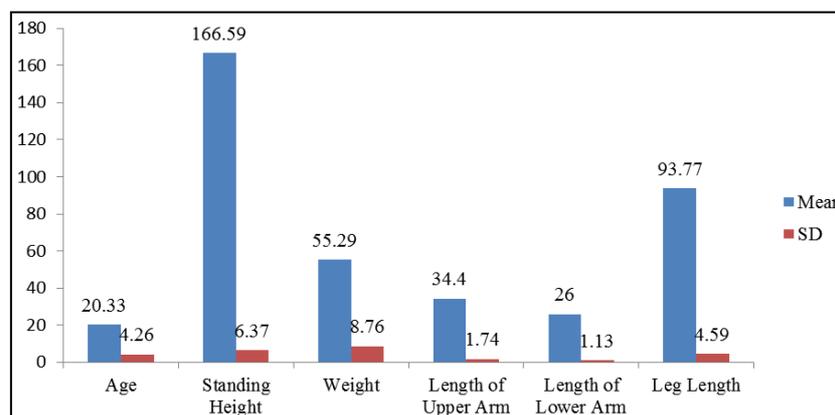
Graphical 1: Representation of the Scores of the Subjects in Off Drive Technique

The above table shows the performance of the subjects mean and SD 6.10 ± 0.93 during batting off drive technique. After collecting the data, the mean score was computed. The mean performance of the group was 6.10 ± 0.93 . From this value it appears the selected group of cricket was slightly better than the average in the performance in off drive in cricket.

In the present study there were six anthropometric parameter s selected for the analysis. There were Age, Standing height, Weight, Upper arm length, Lower arm length and leg length. The values of the selected parameters for different subject and over all mean values of the group for different parameters have shown in Table – 2.

Table 2: Mean and SD of the subjects in selected Anthropometric parameter

	Age (yrs.)	Standing Height (cm.)	Weight (Kg.)	Length of Upper Arm (cm.)	Length of Lower Arm (cm.)	Leg Length (cm.)
	27	153.67	50	30.5	25	84
	25	168.91	58	34	26	93
	24	172.72	60.5	36	26	90
	22	167.64	75	35	26.5	90
	25	176.53	67.5	36.5	28	101.5
	26	167.64	53	35	25.5	94
	26	166.37	54	36	26	95.5
	30	158.75	65.5	32	25.5	88
	19	172.72	56.5	35	27	98.5
	18	155.02	46	30.5	24	86
	17	170.26	70.5	34	26.5	94.5
	17	166.37	54	33.5	26	93
	16	173.99	58	35.5	28	100
	17	170.18	46	35	26	98
	19	176.53	57	37	27	98.5
	17	156.21	43.5	32	24	88
	22	166.37	61	35	27	95
	16	165.1	50	36	25	96
	18	158.75	47	33	25	92
	20	170.23	41	35	26	95
	17	162.56	45	34	25.5	91
	17	168.91	51.5	36	28	98
	18	167.64	62	34.5	26	99
	15	165.1	54.5	34.5	24.5	92
Mean	20.33	166.59	55.29	34.40	26.00	93.77
SD	4.26	6.37	8.76	1.74	1.13	4.59



Graphical 2: Representation of Mean and SD of Anthropometric Parameter of the Subject

The above table shows the Mean and SD of anthropometric parameters of the different subject. It is seen from the above table that the subject's Age ranged from 15 years to 30 years with the mean value of 20.33 ± 4.26 years. The subject's standing height ranged from 153.67cm to 176.53cm and the mean value was 166.59 ± 6.37 cm. The Weight of the subject ranged from 41 kg to 75 kg and the mean was 55.29 ± 8.76 kg. The subject's Length of upper arm ranged from 30.5cm to 36.5cm and the mean value was 34.40 ± 1.74 cm. Respectively. The subject's Length of lower arm ranged from 24cm. to 28cm. and the mean value was 26 ± 1.13 cm. The subject's total Leg length ranged from 84cm. to 101.5cm and the mean value was 93.77 ± 4.59 cm respectively.

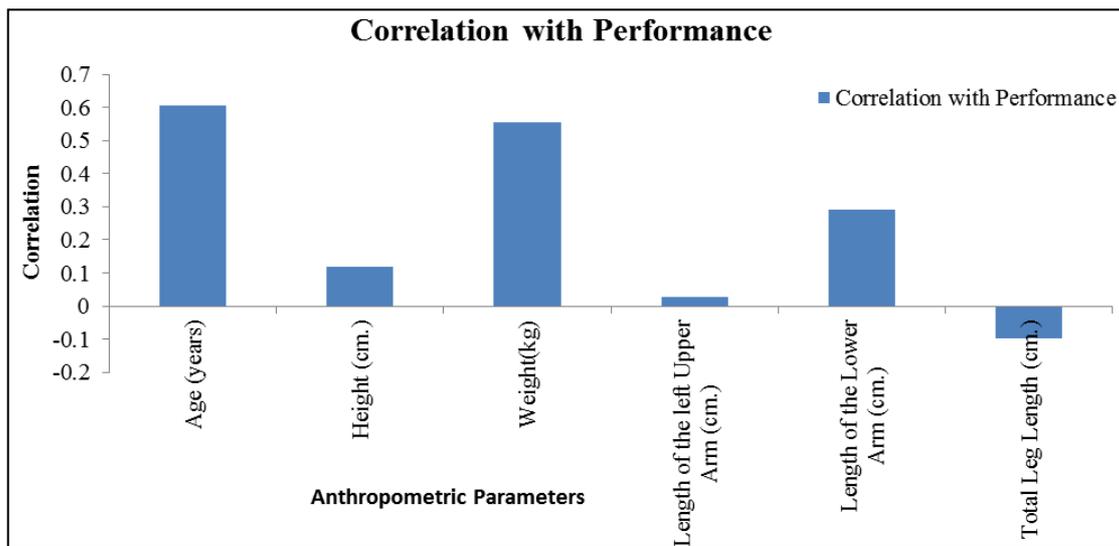
The relation between selected anthropometric parameter and the performance in off drive was correlated and the result have been shown in the Table- 3

Coefficient of correlation between Anthropometric measure and Performance

Table 3: Relationship of the selected anthropometric parameters with performance off drive in cricket

Anthropometric Parameter	Coefficient of Correlation with Performance
Age (years)	0.607**
Height(cm.)	0.120 ^{NS}
Weight(kg)	0.555*
Length of the left Upper Arm(cm.)	0.029 ^{NS}
Length of the Lower Arm(cm.)	0.292 ^{NS}
Total Leg Length(cm.)	-0.096 ^{NS}

*Sig. at 0.05 level, **Sig. at 0.01 level, NS = Not Significant



Graphical 3: Representation showing the correlation of different anthropometric parameters with performance

It is to be noted from the table values that the age and weight of the subjects had a positive significant correlation with performance of off drive. The height and upper and lower arm length exhibited in significant positive correlation. On the other hand the leg length executed a negative insignificant correlation in performance in off drive.

The above table represents coefficient of correlation between Performance and different anthropometric parameter. It is seen from the table that the height of the subject was not significantly correlated with performance. The age, weight of the subject was significantly correlated with the performance. Length of upper arm, length of the lower arm and the total leg length of the subject was not significantly correlated with the subject's performance.

Conclusion

On the basis of result analysis of the obtained data, within the limitation of the present study following conclusions were drawn

- a) There is a significant positive correlation between age of the subject with the performance of off drive in cricket.
- b) There is a significant positive correlation between weights of the subject with the performance of off drive in cricket.
- c) The subject's upper and lower arm length and body height exhibits positive relationship with performance of off drive in cricket but it is not statistically significant.
- d) The total leg length of the subject shows negative not

significant correlation with performance of off drive in cricket.

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