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Strength variables of cricketers with special reference to playing position

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Abstract

The purpose of the study was to assess the strength correlations of promising cricketers who were selected in the under -22 cricket team in Kerala Cricket Association (KCA). With the advent of one day and Twenty 20 Cricket, the game demands a high level of physical fitness to its players. For better performance an apt body build is a pre-requisite for a batsman, bowler, fielder and wicket keeper separately. India is a conglomeration of men and women of various castes and creed. The physical characteristics and body composition of people differ from one region to the other. The players of different zones in the national competitions and national teams have to accomplish the requirements of their physical fitness and performance.

Keywords: strength variables, cricket players

Introduction

Human body is designed for physical activity. He has to be physically fit for climbing, running, jumping and throwing for procuring needs and to escape constant threats of life. Anthropologists indicate that the need to be active is associated with the Flight or Fight response. In search of food primitive people sometimes had to fight with other predators or to flee for safety. In either case, the response was often vigorous activity. Even our more recent ancestors were required to do vigorous activity as a relatively major part of their normal daily routine. (Corbin, 1994)

The main aim of modern sports competitions are to detect and develop human ability at an early stage of life and channelize. It is the right direction to realize one's physical ability for a particular sports or game. The somatotype variables did not influence the incidence of injury, but mesomorphy and ectomorph did influence the different playing positions. (Hopper, 1997)^[8] The variance in release speed within this group may be accounted for by the difference in radial length between the axis of rotation at the glen humeral joint and the release point (Glazir *et al.*, 2000). Under the assumption that growth patterns depend on the environment an analysis follows that compares the growth data of the subpopulations living under diverse socio-economic conditions and it also attempts to outline the divergent trends in their physical development. The concluding section emphasizes the ways in which research results can be applied for practical purposes (Bodzsar, 2000)

The quality of excellence and outstanding performance depend upon numerous factors. A special feature amongst all is the quantity of body fat % that has drawn significant interest of many sports scientists. In a study by Sodhi, 1975-80) on the Indian athletes, it was found that the specific physique and body composition confirm the stability of specific sports events. Several studies conducted on Olympic athletes have revealed that various sports events differ from one another not only in their skill pattern organization and equipment requirement but also in requirement of the typical anatomical structure to athlete participation in them to excel in sports one must possess such typical characteristics, the lack of which is likely to affect once performance. The physical structure at the body built plays a very important role in the superior performance in training of sports and games or any events.

Most of the games and sports, which originated as a leisure pursuit and recreational activities

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have acquired a strong competitive and challenging form. The technological and scientific development has made it possible to select and train the athletes in many sports activities. Human motor performance is a composite of many variables one of which is structure of the body the specific measurement of the lymph length, circumference, breadths and build indices can reveal the relationship between anthropometry of the athletes and motor fitness.

The identification of the physical characteristics in a sports modality contribute to its success and enables to sports differences among athlete of different modalities, which is of great interest for both sports coaches and scientist. sports performance means based in a complex and intricate diversity of variables. Which includes physical (general and specific conditions) psychological (personality and motivation) and body (morphology, anthropometry, and body composition) factors. The relationship between morphological variable and sports performance is the object of study of anthropometry and is an important element to be analyzed.

It is a basic discipline for problem-solving in matters related to growth, exercise, performance and nutrition. The area has been defined as the quantitative interface between anatomy and physiology. It puts the individual athlete into objective focus and provides a clear appraisal of his or her structural status at any given time, or, more importantly, provides for quantification of differential growth and training influences Without an understanding of the growth of children and youth and their structural evolution, selection of talent and monitoring of training is largely a matter of sophistry and illusion. Kin anthropometry provides the essential structural basis for the consideration of athletic performance. Skeletal shape is genetically inherited, unlike Muscles or fat. Certain skeletal shapes suit certain sports by conferring a biochemical advantage. For example high board divers with shorter legs relative to their fore so will enable them to rotate quicker. Conversely, longer limbs can apply greater leverage where propulsion is a key factor for example in rowing or swimming” said Stewart.

Methodology

Selection of Subjects

The purpose of the study is to analyze the physical fitness variables of cricket players (under-22). The players selected for the study belongs to Kerala Cricket Association and their age ranged between 16-22 years. The subjects (30) were further grouped into; Batsmen (7), Slow Bowlers (04) Fast bowlers (04), All-rounders (12) and wicket keepers (3). The strength variables selected were push up for shoulder strength, sit up for abdominal strength and vertical jump for explosive power of the legs.

Collection of Data

Pull upsto measure the shoulder strength.The maximum number of pull ups one can perform in one chance. The subject was asked to stand under a horizontal bar and grip the bar with a jump and perform the pull ups at his best. The maximum number is recorded. In the case of sit up the measure the abdominal strength was recorded. The maximum numbers of correct sit ups in one minute.The subject was asked to lay in supine position bend the knees and keep the hands behind the neck and perform the bent knee sit ups for one minute.

In Vertical jump the explosive power of the leg was measured. The linier distance between the tips of the middle finger to the marked wall. Subjects make a mark on the finger

by dipping the hands on the chalk powder asked to stand in a relax standing position and stretch the hand and make a mark on the wall, then the subject were asked to bend the knees and then Swing the arms upward jumping vertically and marked a point at the maximum height of the wall.

Statistical Techniques

The data was analyzed by applying analysis of variance (ANOVA) technique to find out the differences on their physical fitness and anthropometric variables. The level of significance was set at 0.05.

Analysis of data and results of the study

Table 1: Mean and standard deviation of push ups

Sl No	Category	Mean	Std. Deviation
1.	Batsman	49.0000	6.42910
2.	Fast bowler	42.5000	5.06623
3.	Slow bowler	52.2500	10.14479
4.	Wicket keeper	43.6667	14.57166
5.	All rounder	49.4167	5.53433
	Total	48.2000	7.59946

Table 1 clearly indicates the mean, standard deviation of Push-ups among All Rounders, Batsmen, Fast bowlers, slow bowlers and Wicket keepers based on their play positions

Table 2: Analysis of variance among mean scores of cricket groups on their push- ups

Source of variance	Sum of Squares	df	Mean Square	F
Between Groups	279.467	4	69.867	1.252
Within Groups	1395.333	25	55.813	
Total	1674.800	29		

Not significant at 0.05 level.

Required table value at 0.05 level of significance for 4&25 degrees of freedom =2.76

Table 2 reveals that the calculated f ratio (1.252) is less than the required table value (2.76). Therefore there is no significant difference among groups on their push-ups.

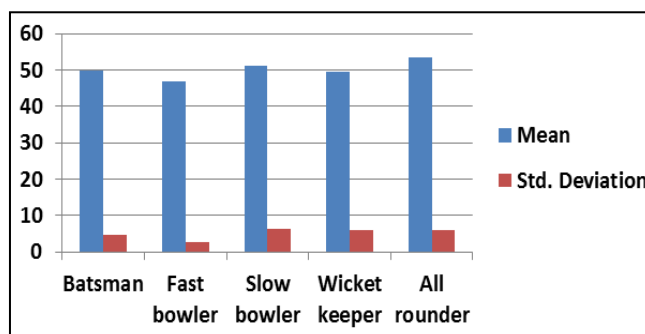


Fig 1: Mean and standard deviation of push ups

Table 3: Mean and standard deviation of sit ups

Sl No	Category	Mean	Std. Deviation
1.	Batsman	49.7143	4.82059
2.	Fast bowler	47.0000	2.70801
3.	Slow bowler	51.0000	6.37704
4.	Wicket keeper	49.3333	5.85947
5.	All rounder	53.5833	5.83809
	Total	51.0333	5.54283

Table 3 shows the mean, standard deviation of Sit-ups among All Rounders, Batsmen, Fast bowlers, slow bowlers and

Wicket keepers based on their play positions

Table 4: Analysis of variance among mean scores of cricket groups on their sit- ups

Source of variance	Sum of Squares	df	Mean Square	F
Between Groups	163.955	4	40.989	1.409
Within Groups	727.012	25	29.080	
Total	890.967	29		

Not significant at 0.05 level.

Required table value at 0.05 level of significance for 4&25 degrees of freedom =2.76

Table 20 reveals that the calculated f ratio (1.409) is less than the required table value (2.76). Therefore there is no significant difference among groups on sit ups

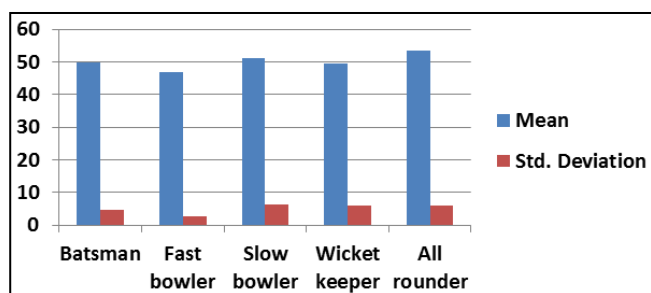


Fig 2: Mean and standard deviation of sit ups

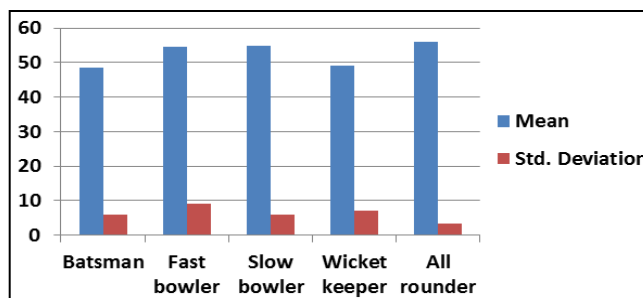


Fig 3: Mean and standard deviation of vertical jumps

Conclusions

The group wise mean scores showed that the slow bowlers (52.25) had maximum and fast bowlers (42.50) minimum number of push-ups performed during the test. The group wise mean scores showed that all-rounder (53.58) had better abdominal strength and fast bowlers (47.00) showed less abdominal strength.

The slow bowlers and wicket keepers are better in their strength measurement such as shoulder strength, abdominal strength and lower body strength.

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Table 5: Mean and standard deviation of vertical jumps

Sl No	Category	Mean	Std. Deviation
1.	Batsman	48.4286	6.10620
2.	Fast bowler	54.5000	9.11043
3.	Slow bowler	54.7500	5.90903
4.	Wicket keeper	49.0000	7.00000
5.	All rounder	56.0833	3.36988
	Total	53.2000	6.23892

Table 3 representing the mean, standard deviation of vertical jumps among All Rounders, Batsmen, Fast bowlers, slow bowlers and Wicket keepers based on their play positions

Table 6: Analysis of variance among mean scores of cricket groups on vertical jumps

Source of variance	Sum of Squares	Df	Mean Square	F
Between Groups	328.419	4	82.105	2.565
Within Groups	800.381	25	32.015	
Total	1128.800	29		

Not significant at 0.05 level.

Required table value at 0.05 level of significance for 4&25 degrees of freedom =2.76

Table 21 reveals that the calculated f ratio (2.565) is less than the required table value (2.76). Therefore there is no significant difference among groups on their vertical jump.

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