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## A comparative study of anthropometric characteristics between the college level male cricket and volleyball players of Chhattisgarh

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### Abstract

The purpose of present study was to discover the dissimilarities of anthropometric measures between the male Cricket and Volleyball players. The selected subjects were aged between 18-25 years. Significant differences were found between both groups with regard to the variables: Standing & Sitting Height, Body Weight, Leg-length, Arm-length, Bi-Acromial Diameter, Ankle Diameter, and Circumference of Upper-Arm & Calf, and Skin fold of- Biceps, Triceps and Calf. Findings indicated no significant differences between both groups for the variables: Bicondylar Humerus Diameter, Wrist Diameter, Bicondylar Femur Diameter, Forearm Circumference, Thigh Circumference, Subscapular skinfold and Suprailliac skinfold. Independent t-test was used to identify the differences of anthropometric measures between Cricket and Volleyball players. The level of significance was set at 0.05 level. The result of the study revealed that Cricketers had greater lengths whereas Volleyballers had greater diameters and skinfold score.

**Keywords:** Anthropometric measures, cricket, volleyball, skinfold, skinfold caliper

### 1. Introduction

Different sporting competitions need different styles of body to reach optimum performance (Masanovic and Vukašević, 2009) [7]. Because each sport has its own inimitable criteria, each athlete should have vibrant anthropometric features and body structure numbers for his or her own athletic discipline. Both competitive activities performed at an expert level enable the body to function at a finest biomechanical and physiological volume (Saavedra *et al.*, 2018) [8]. Logically, a junior competitor playing in the toughest leagues of his age group is fictional to have the highest health, power and stamina to fulfil the real-world criteria of the sport of question. Many research have shown that particular anthropometric features are substantially associated with performance in sport (Malina *et al.*, 2004) [12]. Morphological characteristics are of unusual significance for alignment and selection of most athletic disciplines, as morphological measurements hold one of the most significant roles in the equation of the condition of virtually any sport and even of each exclusive role in the group.

On the other hand, while children and adolescent sportsmen grow in a way similar to non-sportsmen (Rexhepi & Brestovci, 2010a) [16], it is broadly addressed in the scientific literature that sufficient profiles are primarily important in various sports, mostly due to the reason that absolute size contributes a substantial percentage of total variance concomitant with athletic success (Carvajal *et al.*, 2012) [3]. Therefore, scientists all over the world are observing for a standard formula that can improve the performance of elite players and discover talents as efficiently as possible. The anthropometrical features and body compositions of athletes has been the subject of many. Since each sport has its own detailed demands, every athlete should have exact anthropometrical characteristics and body composition figures for his or her own sports discipline. Some sports, such as martial arts, require much more knowledge regarding this focus than others, because of its weight limits. However, this fact does not decrease the need to investigate the anthropometrical features and body composition numbers of soccer and basketball players, as adequate body composition and body mass figures, among other factors, contribute to optimal exercise routines and performance (Massuça & Fragoso, 2011) [18].

### 1.1 The Purpose of the Study

The purpose of the study was to discover the dissimilarities of anthropometric measures between the male Cricket and Volleyball players.

### 1.2 Hypothesis

It was purported that there might be a significant difference of anthropometric measures between the male Cricket and Volleyball players.

## 2. Methodology

### 2.1 Selection of Subjects

The present study was an experimental study. In this study total of 100 college level male players, age ranged between 18 to 25 years from CG University was selected as subjects through purposive sampling method.

### 2.2 Collection of Data

The data were collect through administering of mentioned test measures. The research scholar explained the purpose of the study and detailed procedure of the test before the

collection of data, so that all the subjects could put their best efforts during tests.

Subjects were tested for their anthropometric dimensions in order to make assessments. The anthropometric dimensions were: Height in (cm), Sitting height in (cm), Weight in (Kg), Leg length in (cm), Arm length in (cm), Biacromial Diameter in (cm), Bicondylar Humerus Diameter in (cm), Ankle Diameter in (cm), Wrist Diameter in (cm), Bicondylar Femur Diameter in (cm), Chest Circumference in (cm), Upper Arm Circumference in (cm), Calf Circumference in (cm), Forearm Circumference in (cm), Thigh Circumference in (cm), Biceps skinfold in (mm), Triceps skinfold in (mm), Subscapular skinfold in (mm), Suprailliac skinfold in (mm) and Calf skinfold in (mm).

### 3. Analysis of Data

Statistical analysis Descriptive statistics were described as means and standard deviation. Independent t-test was used to identify the differences of anthropometric measures between Cricket and Volleyball players. The level of significance was set at 0.05 level.

**Table 1:** Comparisons of anthropometric characteristics between Cricketers and Volleyball Players

Variable	Volleyball Players		Cricket Players		P-Value
	Means	Standard Deviation	Means	Standard Deviation	
Height in (cm)	177.56	4.19	175.44	6.54	0.001*
Sitting height in (cm)	87.46	3.13	86.65	1.15	0.004*
Body Weight in (Kg)	75.14	6.41	72.86		0.005*
Leg length in (cm)	90.16	6.12	88.61		0.004*
Arm length in (cm)	74.52	2.69	72.98	36.68	0.001*
Biacromial Diameter in (cm)	37.68	1.73	36.68	2.36	0.001*
Bicondylar Humerus Diameter in (cm)	5.97	.89	5.90	.88	0.489
Ankle Diameter in (cm)	5.15	1.28	6.26	1.32	0.001*
Wrist Diameter in (cm)	4.86	.82	5.06	.76	0.350
Bicondylar Femur Diameter in (cm)	8.96	.86	8.97	.80	0.888
Chest Circumference in (cm)	79.56	5.88	79.71	5.50	0.321
Upper Arm Circumference in (cm)	22.12	2.10	23.41	2.33	0.003*
Calf Circumference in (cm)	28.77	2.11	30.48	2.71	0.003*
Forearm Circumference in (cm)	22.10	3.77	22.56	4.11	0.274
Thigh Circumference in (cm)	45.65	3.88	45.66	4.20	0.800
Biceps skinfold in (mm)	6.05	1.11	6.80	2.07	0.001*
Triceps skinfold in (mm)	10.25	1.22	10.70	2.33	0.003*
Subscapular skinfold in (mm)	11.88	2.46	10.80	2.66	0.789*
Suprailliac skinfold in (mm)	13.62	2.56	12.02	2.44	0.389
Calf skinfold in (mm)	9.22	2.33	8.91	2.21	0.005*

\*Significant at 0.05 level.

### 3.1 Discussion on Findings

The aim of the study was to discover the dissimilarities of anthropometric measures between the male Cricket and Volleyball players. In above mentioned table-1, the findings shows there exist significant difference at some extents but not for all measures. They are differently varying with other groups subjects.

### 3.2 Discussion of Hypothesis

The Hypothesis stated earlier was accepted at the 0.05 level of significance.

### 3.3 Result and Conclusion

The result of the study shows that Volleyball players had more height, sitting height, body weight, leg length and arm length than the Cricket players. Volleyball is game that demands more heighted players as compared to Cricketers, hence these results were expected. With regard to diameters,

it was found that Volleyballers had more Biacromial diameter than their counterparts whereas Cricketers has more ankle breadth. However, Bicondylar humerus diameter, wrist diameter, Bicondylar femur diameter were not significantly varying between the two groups. For circumferences, upper arm circumference and calf circumference were higher in Cricketers than Volleyballers. Similar results were found for skinfolds as the Cricketers showed higher scores for biceps skinfold, triceps skinfold and calf skinfolds. On the contrary, both groups showed equal characteristics with respect to Bicondylar humerus diameter, wrist diameter, Bicondylar femur diameter, forearm circumference, thigh circumference, subscapular skinfold and suprailliac skinfold.)

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