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Comparison of selected anthropometric variables among basketball and volleyball players

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Abstract

The main purpose of the study was to determine the Comparison of Selected Anthropometric Variables among basketball and volleyball players. In this study 24 male subjects, 12 from each game were selected from Pune city by adopting Simple Random Method (SRS). The age of the subjects were ranged from 20-25 years. Anthropometric variables that were used in this were Leg length Thigh circumferences, Calf Circumferences, upper body length.

The statistical technique independent 't' test was used to analyze the data and the level of significance was fixed at 0.05.

Keywords: Anthropometric, FIVB, basketball, volleyball

Introduction

Millions of people play volleyball across the world. In many countries, it has been ranked as one of the top-level competitive sport. William G. Morgan, an instructor at the Young Men's Christian Association (YMCA) in Holyoke, Massachusetts, invented volleyball in 1895. The game was designed to include aspects of baseball, basketball, and tennis. As a highly competitive sport, Volleyball arrived on the international level relatively late in the late 1950's. The International Olympic Committee (IOC) designated volleyball as an Olympic sport in 1957, to be included in the 1964 Olympic Games in Tokyo. FIVB (Federation of International de Volleyball) is the largest sports organization in the world with 220 affiliated member countries (Reeser, 2003) [2].

Volleyball involves frequent bouts of intense activities such as jumping, diving, and lateral movement, and these activities are coupled with short rest periods throughout a match duration that is typically 60-120 minutes (Sheppard *et al.*, 2007)

Basketball is the most beautiful game in the world. At the base of every basketball organization there must be people with a great passion and enthusiasm for work that they do. These people not only help to build a successful basketball team, but they also create a solid foundation upon which the future of upcoming basketball player, coaches, referees, managers and other official will also be built. Basketball is a sport played between two teams normally consisting of five or more players. Each team has five players on the basketball court at any given time. The objective is to score more points than the other team, with points being scored by shooting a ball through a basketball hoop (or basket), which is located ten feet above the ground. The two teams shoot at opposite goals. In order to move while in possession of the ball, a player must be dribbling, or bouncing the ball. (M. Gharardini, 2002-2003) [3].

Anthropometry (from Greek *Anthropos*, "man" and *Metron*, "measure") refers to the measurement of the human individual. An early tool of physical anthropology, it has been used for identification, for the purposes of understanding human physical variation. (Wikipedia "Anthropometry, 2014.") [4]

There are noticeable individual differences in anthropometric and physiological characteristics among apex players. Anthropometric measurements incorporate height, weight, body fat percentage, and waist and hip circumferences. Anthropometric measurement was the first type of testing used in physical education in the world. Fifty separate measurements were recommended by the American Association for the Advancement of Physical Education. Anthropometry is the science of measuring the size and proportions of the human body.

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Anthropometry' means the measurements of man, whether living or dead, and consists primarily in the measurements of the dimensions of the body. The ancient Egyptians also used a push sort of anthropometry during the period from the thirty-fifth to tenth century B.C. The study of 'Body Types' has a significant place in the field of sports. Anthropometric measurement has revealed correlation between body structure physical characteristics and sport capabilities. In all the games, height, weight, and other Anthropometric variables play a vital role in the player's performance. The physical structure, especially the height and arm length, have definite and decisive advantage in many games. Similarly, segmental length of individual body parts, the arm length specifically, is of considerable advantage in selected events in athletics and in certain games (Thirumagal, A 2013) [5]

Methodology

For the purpose of the study 24 male basketball and volleyball players belonging to 20-25 years of age were selected as subjects for this study. Purposive sampling technique was adopted for the selection of subjects.

Anthropometric Variables which were used in this study were Leg length Thigh circumferences, Calf Circumferences, upper body length.

't' test was employed and to test the hypothesis level of significance was fixed at 0.05

Observation and Discussion

The data collected on 20 subjects were computed by using 't' test statistical technique. The result pertaining to these data have been depicted in the following table.

Table: Comparison of Selected Anthropometric Variables among basketball and volleyball players are presented in the table below

Group	Variable	subject	Mean	SD	SEM	Df	M.D	t-value
Basketball	Calf	12	34	2.95	0.85	11	1.41	0.98
Volleyball		12	35.41	2.42	0.69	11		
Basketball	Thigh	12	51.08	3.27	0.94	11	1.33	0.24
Volleyball		12	49.75	2.31	0.66	11		
Basketball	Upper Body	12	70.5	1.56	0.45	11	0.66	0.82
Volleyball		12	71.16	1.64	0.47	11		
Basketball	Leg Length	12	99.41	2.77	0.80	11	1.5	0.12
Volleyball		12	100.91	3.91	1.13	11		

Discussion of findings

The study reveals that the Basketball players mean and SD of Calf muscle (34 ± 2.95), Volleyball player's calf muscle (35.41 ± 2.42) are more or less similar and there was no statistically significant difference. But while comparing the mean values of both the groups, it has been observed that Volleyball players have demonstrated better calf girth than the Basketball players.

The study reveals that the Basketball players mean and SD of thigh segment (51.08 ± 3.27), Volleyball player's thigh segments (49.75 ± 2.31) are more or less similar and there was no statistically significant difference. The-'t'-value 0.24 as shown in the table above was found statistically insignificant ($P > .05$). But while comparing the mean values of both the groups, it has been observed that Basketball players have demonstrated better thigh girth than the Volleyball players.

The study reveals that the Basketball players mean and SD of upper body (70.5 ± 1.56), Volleyball player's upper body (71.16 ± 1.64) is more or less similar and there was no statistically significant difference. But while comparing the mean values of both the groups, it has been observed that volleyball players have demonstrated better upper body than the Basketball players.

The study reveals that the Basketball players mean and SD of Leg length (99.41 ± 2.77), Volleyball player's Leg length (100.91 ± 3.91) are more or less similar and there was no statistically significant difference.

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