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A study of kin anthropometric characteristics of football and volleyball players

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Abstract

The present study was designed to determine the study of kin anthropometric characteristics of football and volleyball players. Total forty (N=40) Football (N=20) and Volleyball (N=20) players were selected to act as subjects for the present study, with the age ranging between 18-25 years. In consultation with the experts in the field, minutely gleaning through the literature available and considering the feasibility criteria in mind, especially the availability of instrument. The following components of Kin anthropometric variables were selected for the present study such as gross body weight and height, length of body parts such as arm length and leg length. Statistical analysis was performed using SPSS version 16.0 for windows (SPSS Inc, Chicago, IL, USA). All descriptive data were report as mean and standard deviation. Independent samples t-test was used to test if population means estimated by two independent samples differed significantly. The level of significance to test the hypothesis was set at 0.05. The results powerfully prove that, insignificant differences were observed between football and volleyball players for their weight. Whereas significant difference found in height. On the other hand the results strongly confirm that, insignificant differences were observed between football and volleyball players for their leg length and significant difference found in arm length.

Keywords: Volleyball, football, males, weight, height, leg length and arm length

Introduction

In the commencement of the 21st century, various theories about science and other disciplines were found. The contemporary scientific world saw an array of discoveries and inventions. The theories are being challenged every day paving way to the new theories either challenging the earlier ones or supporting them and making them more advanced.

Research is the systematic process of discovering new facts and verifying old facts, their sequences, inter-relationship, casual explanations and the natural laws which govern those (Young, 1966) [4].

The use of word “Kin anthropometry” has been gaining more popularity in the recent years. Kin anthropometry is a science which deals with measurements of body and those body parts which are related to kinetics and kinematics. The word kin anthropometry is an acronym of three Greek words “Kineein” means to move, “Anthrop” means man and “Metering” means to measure.

(Ross *et al.*, 1978) [3] defined kin anthropometry as the application of body measurements to the study of human size, shape, proportion, composition, maturation and gross functions so as to help to understand human movement in relation to growth, exercise, performance and nutrition.

Gabbett and Georgieff (2007) [1] examined the purpose of this study was to investigate the physiological and anthropometric characteristics of junior volleyball players competing at the elite, semi-elite, and novice levels and to establish performance standards for these athletes. One hundred and fifty-three junior national (N = 14 males; N = 20 females), state (N = 16 males; N = 42 females), and novice (N = 27 males; N = 34 females) volleyball players participated in this study. Subjects underwent measurements of standard anthropometry (body mass, height, standing reach height, and sum of 7 skinfolds), lower-body muscular power (vertical jump and spike jump), upper-body muscular power (overhead medicine ball throw), speed (5-m and 10-m sprint), agility (T-test), and estimated maximal aerobic power

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(multistage fitness test) during the competitive phase of the season, after obtaining a degree of match fitness. Significant differences ($p < 0.05$) were detected among junior national, state, and novice volleyball players for height, standing reach height, skinfold thickness, lower-body muscular power, agility, and estimated maximal aerobic power, with the physiological and anthropometric characteristics of players typically improving with increases in playing level. Male players were taller, heavier, leaner, and had greater standing reach height, speed, agility, muscular power, and estimated maximal aerobic power than female players. These findings provide normative data and performance standards for junior volleyball players competing at the elite, semi-elite, and novice levels. Given the improvements in lower-body muscular power, agility, and estimated maximal aerobic power with increased playing level, and given the importance of these qualities to competitive performances, conditioning coaches should train these qualities to improve the playing performances of junior volleyball players.

Garcia-Gil *et al.* (2018) [2] investigated in addition to technical, tactical, and psychological skills, performance in playing basketball depends on anthropometry and physical fitness. However, limited information is available regarding such features in women. We hypothesized that anthropometry and physical fitness are associated with female basketball performance, and consequently, performance could be predicted using the results of certain anthropometric measures and fitness tests. Body parameters (age, height, bodies mass, skinfold thicknesses, limb perimeters, and lengths) were measured. Physical fitness capacities (jumping, agility with and without the ball, and speed) were measured by specific tests. In addition, game performance was assessed using technical statistics (rebounds, assists, and points) and the performance index rating (PIR). Teams ranked better in the regular season had smaller mean fat skinfold thickness and spent less time in the agility tests (T-Drill). Correlation analyses indicated that players with better PIR were older, taller, and had a longer arm span and greater contracted arm perimeter (CAP). Furthermore, those players had better results in the T-Drill test. Multiple regression analysis indicated that combined age, height, CAP, fat skinfold thickness, and time in T-Drill test yielded a strong predictor of PIR per time played. In conclusion, the results of the present study indicate that some anthropometric and physical fitness characteristics of female elite basketball teams and players are highly associated with performance-related parameters. In addition, a regression model has been developed to predict the performance of female basketball players.

This study was done with the aim of kin anthropometric characteristics of football and volleyball players. Keeping in the mind the importance of kin anthropometric variables at football and volleyball players for attaining for development and enhance the performance of players, the investigators therefore, designed a study kin anthropometric characteristics of football and volleyball players.

Sampling Procedure

In this study, only those football and volleyball players were study, who was participated in inter college football and volleyball competition from year 2017 to 2018. The players from various colleges from all over Punjab were analyzed. The players falling under the age between 18 and 25 years were study. The players were divided into two groups in footballers and volley-ballers.

Selection of Variables

In consultation with the experts in the field, minutely gleaning through the literature available and considering the feasibility criteria in mind, especially the availability of instrument. The following components of Kin anthropometric variables were selected for the present study.

Gross Body Measurements

1. Weight (kg)
2. Height (cm)

Length of Body Parts (cm)

1. Arm Length
2. Leg Length

Tools Used

1. Pen
2. Copy
3. Weighing machine
4. Anthropometric rod
5. Steel Tape

Table 1: Comparison of Gross Body Mean, Standard Deviation and 't' Value of Football and Volleyball Players

Variables	Football Players		Volleyball Players		t-value
	Mean	S.D	Mean	S.D	
Weight	69.64	6.82	67.64	6.88	1.859
Height	174.06	6.14	178.05	6.12	2.766*

t.05 (38) = 2.02

The table & figure 1 reveals that the mean of football and volleyball players of gross body weight and height were recorded as 69.64 & 67.64, 174.06 & 178.05 whereas the standard deviation was 6.82 & 6.88, 6.14 & 6.12 respectively. The calculated t- value of gross body weight and height football and volleyball players of intercollege male were 1.859 & 2.766*, set at .05 level of significance. So, it implies that there was insignificant difference found between football and volleyball players of weight on the other hand height was found significant difference between football and volleyball players.

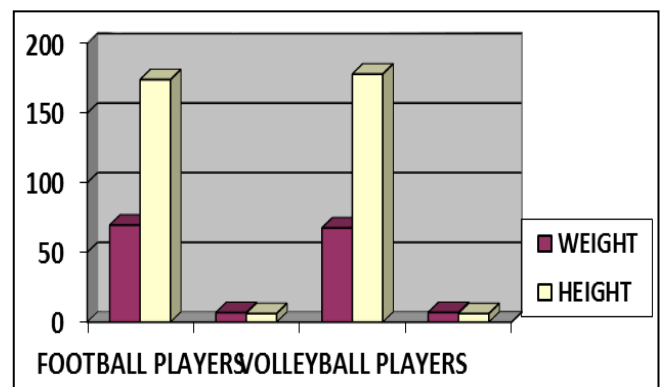


Fig 1: Comparison of Gross Body Mean, Standard Deviation and 'T' Value of Football and Volleyball Players

Table 2: Comparison of Length of Body Parts Mean, Standard Deviation and 'T' Value of Football and Volleyball Players

Variables	Football Players		Volleyball Players		t-value
	Mean	S.D	Mean	S. d	
Arm Length	76.06	3.75	80.06	3.70	4.583*
Leg Length	90.36	15.98	94.36	14.98	1.062

t.05 (38) = 2.02

The table & figure 2 reveals that the mean of football and volleyball players length of body parts arm length and leg length were recorded as 76.06 & 80.06, 90.36 & 94.36 whereas the standard deviation was 3.75 & 3.70, 15.98 & 14.98 respectively. The calculated t- value length of body parts (arm length and leg length) football and volleyball players of intercollege male were 4.583* & 1.062, set at .05 level of significance. So, it implies that there was significant difference found between football and volleyball players of arm length on the other hand leg length was found insignificant difference between football and volleyball players.

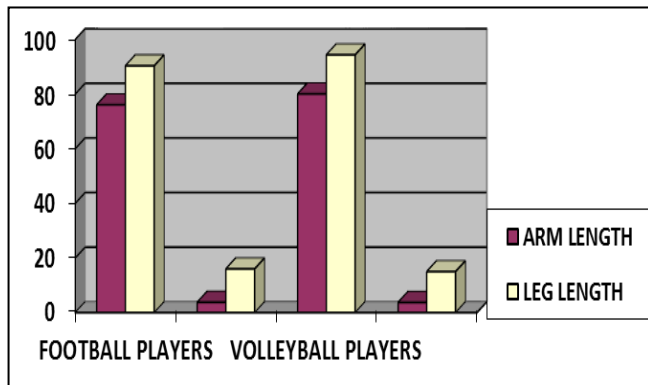


Fig 2: Comparison of Length of Body Parts Mean, Standard Deviation, Mean and 'T' Value of Football and Volleyball Players

Conclusion of the Study

On the basis of findings of present study, the following conclusions were drawn.

1. The results powerfully prove that, insignificant differences were observed between football and volleyball players for their weight. Whereas significant difference found in height.
2. The results strongly confirm that, insignificant differences were observed between football and volleyball players for their leg length and significant difference found in arm length.

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