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Analysis of body composition between intercollegiate volleyball and football players

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Abstract

The purpose of the study is to analysis the body composition between intercollegiate Volleyball and Football players. To achieve the purpose, 10 intercollegiate men Volleyball and Football players each were selected from Manonmaniam Sundaranar University, Tirunelveli, Tamil Nadu, India and their age is ranged between 18 to 23 years. Height, weight and fat percentage were selected as criterion variables for this study and they were measured with standardized equipment. The collected data from the two groups were statistically analyzed with independent t-test to find out the significant difference. The level of significance was fixed at .05 levels, which was considered to be appropriate. It was concluded that there was significant difference between exists Volleyball and Football players on height and weight. Further there was no significant difference between Volleyball and Football players on fat percentage. Volleyball players are found better in Height and weight when compared with Football players.

Keywords: Body composition, football, volleyball

Introduction

Successful competition in sports has been associated with specific anthropometric characteristics, body composition and somatotype. For instance, the importance of tall stature in team sports athletes is universally accepted as it is well known that body height influences positively all body segment lengths and in turn, athletic performance. Thus there is a wealth of empirical evidence and a longstanding scientific interest regarding the existence of structural difference among athletes in various sports (Bayios, Bergeles, Apostolidis, Noutsos & Koskolou, 2006) ^[1, 2].

Body composition is defined as the proportion of fat, muscle, and bone in the body. It is usually given as a ratio of lean mass to fatty mass. Body composition will normally be expressed as either a percentage of fat or as a percentage of lean body mass. The body mass index (BMI) is a measure for human body shape based on an individual's weight and height. Body mass index is defined as the individual's body mass divided by the square of their height. The formulae universally used in medicine produce a unit of measure of kg/m². The WHO regards a BMI of less than 18.5 as underweight and may indicate malnutrition, an eating disorder, or other health problems, while a BMI greater than 25 is considered overweight and above 30 is considered obese (WHO, 2004) ^[6].

Purpose of the Study

The purpose of the study is to analyse the body composition between intercollegiate Volleyball and Football players.

Methodology

To achieve the purpose of the study, 10 intercollegiate men Volleyball and Football players each were selected randomly as subjects from the Manonmaniam Sundaranar University, Tamil Nadu, India and their age ranged 18 to 23 years. Members of these groups will consist of healthy men students who have represented the intercollegiate teams. The collected data from the two groups were statistically analyzed with independent test to find out the significant difference. The level of significance was fixed at 0.05 levels, which was considered to be appropriate.

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Analysis of Data

Table 1: Summary of mean and independent t-test value for Football and Volleyball players on Height, Weight and Fat Percentage

Variables	Height		Weight		Fat percentage	
	Volleyball players	Football players	Volleyball players	Football players	Volleyball players	Football players
Mean	1.76	1.66	68.80	63.20	22.11	26.74
S.d	0.58	0.45	4.08	6.60	0.67	13.49
T - value	4.17*		2.28*		1.08	

Significance at 0.05 level. The table value required for $t_{18} = 2.10$

From the table above, the mean values of Volleyball and Football players on height are 1.76 and 1.66, weight are 66.80 and 63.20 and fat percentage are 22.11 and 26.74 respectively. The obtained t-ratio values between Volleyball and Football players on height is 4.17 and weight is 2.28 which are greater than the required table value 2.10 with df 18 at 0.05 level of significance and fat percentage is 1.08 which are less than the required table value 2.10 with df 18 at 0.05 level of significance. Therefore, it was concluded that there was a significance difference exists between Volleyball and Football players on height and weight. In fat percentage, there was no significance difference between Volleyball and Football players. Volleyball players showed better in height and weight when compared with Football players.

The figures shows that the summary of mean values between Volleyball and Football players on height, weight and fat percentage

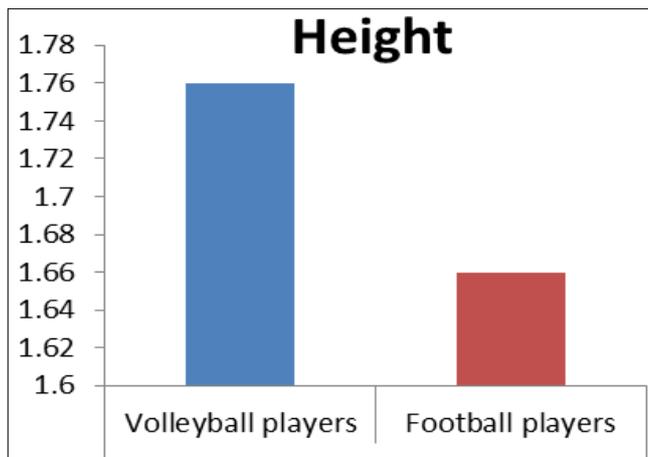


Fig 1: Mean value on Height between Volleyball and Football Players

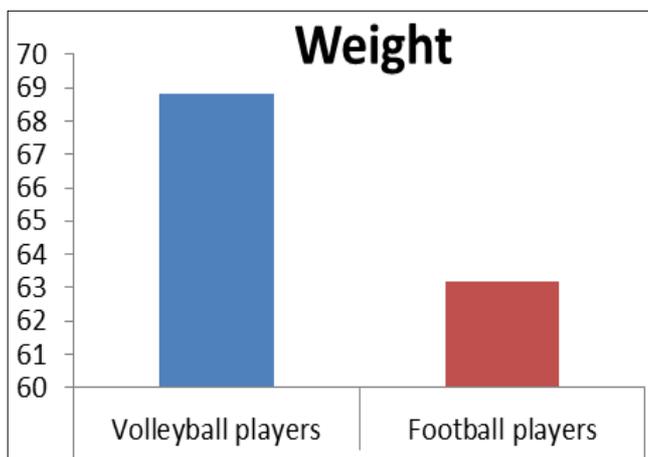


Fig 2: Mean value on Weight between Volleyball and Football Players

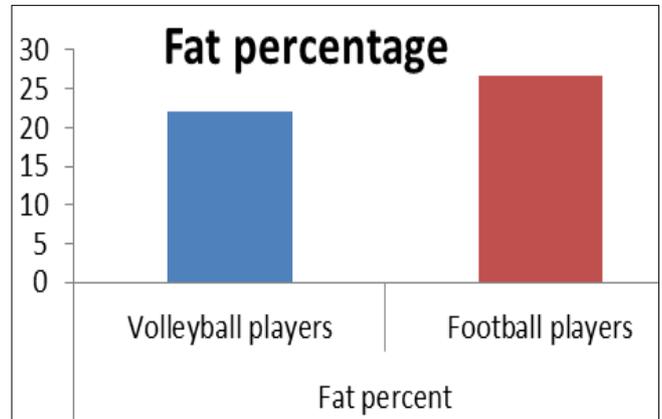


Fig 3: Mean value on Fat percentage between Volleyball and Football Players

Discussion on Finding

The result indicates that the body composition such as height and weight had shown significant difference between Volleyball and Football players and also insignificant results was found between Volleyball and Football players. The results of this investigation are also supported by the following studies conducted by Bayios *et al.* (2006) ^[1, 2] conducted a study to determine the anthropometric profile, body composition and somatotype of elite Greek female basketball, volleyball and handball players, and compared the mean scores among sports and also to find possible differences in relation to competition level. Few more studies also said Frenkl *et al.* (2001) ^[3], Grant *et al.* (2001) ^[4], Ibnziaten *et al.* (2002) ^[5].

Conclusions

The following conclusions were derived from the present study.

1. There was significance difference between Volleyball and Football players on height
2. There was significance difference between Volleyball and Football players on weight
3. There was no significance difference between Volleyball and Football players on fat percentage.
4. Volleyball players are found to be better in height and weight when compared with Football players.

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