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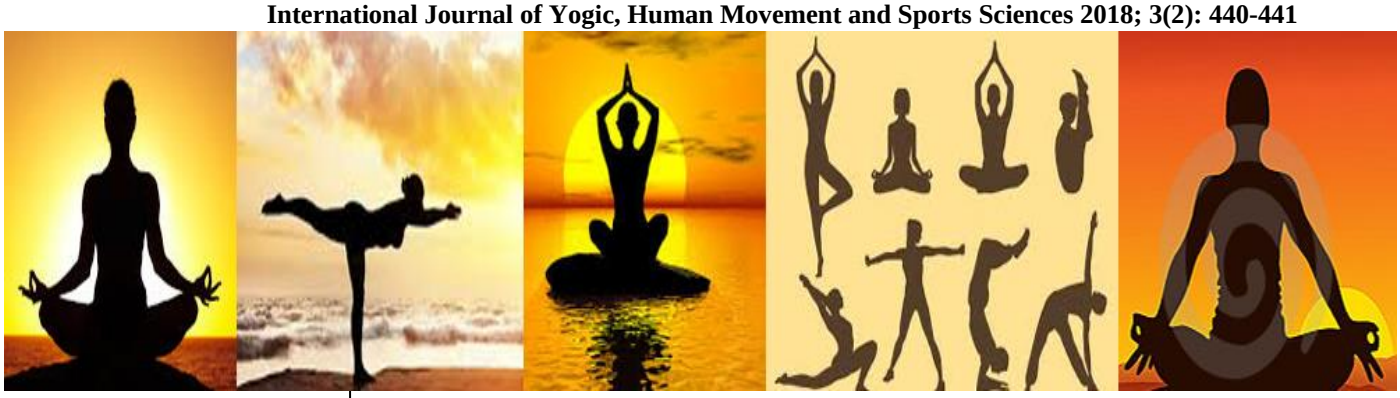

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Analytic study of anthropometric characteristics between handball and volleyball players

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Abstract
The researchers of this study aim to examine the anthropometric characteristics between Handball and Volleyball players. To obtain data, the investigator had forty (N=40) male inter-University Handball and Volleyball players between the age group of 20-26 years were selected as subjects. The subjects were purposively assigned into two groups: Group-A: Handball players (N I =20) and Group-B: Volleyball players (N2=20). All the subjects were informed about the objective and protocol of the study. The't' test was applied to find out the significant differences between Handball and Volleyball players with regards: to anthropometric Characteristics. In a nutshell it can be said that from the findings that insignificant differences were found between inter-University Handball and Volleyball players of Punjabi University Patiala on the sub-variables of anthropometric characteristics i.e., leg length, upper leg length, lower leg length, arm length, upper arm length and lower arm length.

Keywords: Anthropometric characteristics, handball, volleyball players

Introduction
Handball is an intermittent sport and has gained tremendous popularity worldwide because of its dynamic characteristics as a team sport Hoffman & Maresh, (2000) [1]. Understanding the anthropometric in every field is an important, determining and influential factor in the performance of athletes. It has been well established that an anthropometric profile indicate whether a player would be suitable for the competition at the highest level in a specific sport (Bourgois et al. 2000) [2]. In fact, the information regarding the anthropometric status of an athlete is essential for two main reasons, firstly, to design an effective training program, and, secondly to select the event-specific talents in the athletes. Some anthropometric characteristics, e.g. length and breadth measurements, are genetically determined and can hardly be changed with the effects of a training program. Various anthropometric characteristics were found to be closely associated with excellent performances (Mikulic, 2008) [3]. Several studies have been undertaken to ascertain specific physical, anthropometric profile of athletes in a variety of sports. For example, with respect to team sports, player profiling by position has been studied in Handball, field hockey, Handball, netball, and soccer (Marques et al., 2009). It requires players to participate in frequent short bouts of high-intensity exercise, followed by periods of low intensity activity (Gabbett, 2000) [4]. There is no definite answer to the question of whether sporting champions of these games have different characteristics at birth or whether they acquire them later through training. But successful participation in these sports requires from each player a high level of technical and tactical skills and suitable anthropometric characteristics. All ball games require comprehensive abilities including physical, technical, mental, and tactical abilities. Among them, physical abilities of the players are more important as these have marked effects on the skill of players and the tactics of the teams because ball games require repeated maximum exertion such as dashing and jumping. In Sports performance, an abundant variety of different factors influencing performance have been found (Reilly et al. 2000) [5]. Apart from physiological parameters, numerous anthropometric parameters show an effect on Sports performances in runners and tri-athletes, such as body mass, body mass index, body fat, length of the upper leg, length of limbs, body height, circumference of the thigh, total skin fold and skin fold thickness of the lower limb.

Selection of Subjects

For the purpose of the present study, forty (N=40) male inter-University Handball and Volleyball players between the age group of 20-26 years were selected as subjects from Punjabi University Patiala. The subjects were purposively assigned into two groups: Group-A: Handball players (N_1 =20) and Group-B: Volleyball players (N_2 =20). All the subjects were informed about the objective and protocol of the study.

Selection of Variables

A feasibility analysis as to which of the variables could be taken up for the investigation, keeping in view the availability of tools, adequacy to the subjects and the legitimate time that could be devoted for tests and to keep the entire study unitary and integrated was made in consultation with experts. With the above criteria' 5 in mind, the following variables were selected for the present study:

Anthropometric Characteristics

I. Leg Length
II. Upper Leg Length
III. Lower Leg Length
IV. Arm Length
V. Upper Arm Length
VI. Lower Arm Length

Statistical Analysis

The't' test was applied to find out the significant differences between Handball and Volleyball players with regards to anthropometric Characteristics.

Results

Table 1: Significant difference in the Mean score of Handball and Volleyball players on the variable Anthropometric characteristics

	Handball Players = 20		**Volleyball players = 20**			
Variables	Mean	SD	Mean	SD	t-value	Sig.
Leg Length	95.90	3.61	95.50	3.80	0.341	0.73
Upper Leg Length	44.40	1.95	44.05	1.46	0.640	0.52
Lower Leg Length	51.50	3.70	51.45	3.76	0.04	0.96
Arm Length	76.00	4.09	75.65	4.25	0.265	0.79
Upper Arm Length	29.97	1.23	29.95	1.35	0.235	1.00
Lower Arm length	45.70	2.84	45.35	2.97	0.380	0.70

*Significant at 0.05 Degree of freedom = 38

The descriptive statistics shows the Mean and SD values of Handball Players on the sub variable leg length as 95.90 and 3.61 respectively. However, Volleyball Players had Mean and SD values as 95.50 and 3.80 respectively. The't'-value 0.341 as shown in the table above was found statistically insignificant (P>.05). But while comparing the mean values of both the groups, it has tablebeen observed that Handball Players have demonstrated better leg length than the Volleyball Players. The descriptive statistics shows the Mean and SD values of Handball Players on the sub variable upper leg length as 44.40 and 1.95 respectively. However, Volleyball Players had Mean and SD values as 44.05 and 1.46 respectively. The't'-value 0.640 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 Handball Players have demonstrated better upper leg length than the Volleyball Players. The Mean and SD values of Handball Players on the sub-variable lower leg length as 51.50 and 3.70 respectively. However, Volleyball Players had Mean and SD values as 51.45 and ' 3.76 respectively. The't'-value 0.04 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 Handball Players have demonstrated better lower leg length than the Volleyball Players. The Mean and SD values of Handball Players on the sub-variable arm length as 76.00 and 4.09 respectively. However, Volleyball Players had Mean and SD values as 75.65 and 4.25respectively. The't'-value 0.265 as shown in the table above was found statistically insignificant.05). But while comparing the mean values of both the groups, it has been observed that Handball Players have demonstrated better arm length than the Volleyball Players.

The Mean and SD values of Handball Players on the sub-variable upper arm length as 29.97 and 1.23 respectively. However, Volleyball Players had Mean and SD values as 29.95 and 1.35 respectively. The't'-value 0.235 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 have Handball Players demonstrated better upper arm length than the Volleyball Players. The Mean and SD values of Handball Players on the sub-variable lower arm length as 45.70 and 2.84 respectively. However, Volleyball Players had Mean and SD values as 45.35 and 2.97 respectively. The't'-value 0.380 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 have Handball Players demonstrated better lower arm length than the Volleyball Players.

Conclusion

In a nutshell it can be said that from the findings that insignificant differences were found between Inter-College Handball and Volleyball players of Punjabi University Patiala on the sub-variables of anthropometric characteristics i.e., leg length, upper leg length, lower leg length, arm length, upper arm length and lower arm length.

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