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ANALYSIS OF SELECTED ANTHROPOMETRIC VARIABLES AMONG UNIVERSITY BASKETBALL AND HANDBALL PLAYERS

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The performance of players in various sports may be influenced by the anthropometric, physical and the physiological characteristics and may also aid in determining a suitable physique required for a sport. The physical variables such as Biceps and Triceps have been selected to assess the physical condition of the basketball players and handball players of different universities of Punjab. Data was collected from total 50 players and selected 25 each from both the basketball and handball players of Punjab The results revealed that there is insignificant difference found in both the selected anthropometrical variables i.e Biceps and Triceps between the basketball and handball players of Punjab region.

Keywords: Basketball, Handball, Biceps and Triceps

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Introduction

Anthropometry is the measurement of body size and proportions. The measurements include body weight, height, circumference, skin fold thickness, bony widths and lengths (Heyward, 2006). Specific physical characteristics or anthropometric profiles are required for the highest level of performance in a specialized sport (Claessens et al., 1999). Anthropometric properties as well as appropriate physical fitness are important prerequisites for outstanding performance of sports skills and play a distinguished role in sports successful achievements (Stamm et al., 2003). Basketball is an aerobic-based sport (Delextrat and Cohen, 2009; Meckell et al., 2009; Metaxas et al., 2009) which requires high intensity activities such as jumping (for rebounds, blocks and shots), turns, dribbles, sprints, screens and low intensity activities such as walking, stopping and jogging. Frequent stoppages in games allow players to recover between bouts of activity, thus allowing repeated high-intensity spells of play (Drinkwater, 2008). Aerobic capacity is positively associated with recovery during repeated high-intensity bouts (Castagna et al., 2008; Tomlin and Wenger, 2001). Moreover, the high intensity movements of basketball players are closely related to the development of strength, speed and agility (Castagna et al., 2007; Hedrick, 1993; Meckell et al., 2009). In sport such as basketball, handball, volleyball, soccer, rugby athletes perform intermittent exercises (Bangsbo. 2000). Workout capacity showing up through the use of anaerobic energy transfer systems of skeletal muscles during maximal and submaximal physical activity is defined as "anaerobic capacity". Anaerobic workout is a type of physical activity which means revealing explosive power, which is a workload over anaerobic threshold value and which manifests itself with fatigue. It is impossible to continue anaerobic activity for a long time (Yıldız, 2012) . Speed, Agility, Anaerobic strength and Anthropometric structure are some of the most important characteristics of the players in sports like Basketball and Handball which are generally played in intensive tempo with sudden accelerations and sudden directional swifts. As a result, this study was carried out in order to determine speed, agility, anaerobic strength and some anthropometric characteristics of male Basketball and Handball players (Bhadu and Singh, 2016). It has been suggested that success in many sports e.g. handball, basketball, volleyball, Soccer and rugby appears to include high anaerobic capacity, not aerobic power alone (Smith et al., 1992; Hoffman et al., 1996;Hoffman &Maresh 2000;Kirkendall2000; Norkowski 2000; Al-Hazzaa et al., 2001). Bangsbo (2000) states that aerobic metabolism contributes during both exercise and recovery phases, whereas anaerobic metabolism provides energy during the exercise bout. The assessment of physical work capacity is a major consideration in preparing athletes for high-level competition. Current information regarding physiological profiles is necessary to provide a quantifiable basis for the development and maintenance of conditioning and training programs (Tanaka et al., 1993; Bacharach et al., 1995; Kirkendall 2000; Norkowski 2000; Bulbulian et al., 2001).The purpose of this study is to compare anthropometric variables, aerobic and anaerobic fitness between university basketball and handball players. However, there is most of descriptive data concerning characteristics of handball and basketball players from America and Western Europe, although there is a lack of data from Eastern Europe and this study aims to check if this is true for Serbian athletes. Hence, many previous studies have evaluated ideal anthropometric profile of successful handball player (Srhoj, 2002; Chaouach et al., 2009) as well as basketball player (Hooper, 1997; Gualdi-Russo &Yaccagni, 2001; Bayios, Bergeles, Apostolidis, Noutsos and Koskolou, 2006;) that provide insights into the requirements for competing at top level in particular sports. Indeed, handball is team sport that is generally played in an indoor field and requires a high standard of aerobic and anaerobic fitness in order to complete 60 minutes of competitive play and to achieve success through an intermittent high intensity body-contact and well-coordinated activities (Buchheit, Lepretre, Behaegel, Millet and Ahmaidi, 2009). Team handball is one of the fastest and the most endurance required team sports and is epitomized by special maneuvers such as jumping, shooting under the pressure, faking against hard defense players and attempting fast breaks despite all the fatigue (Bilge, 2013). On the other hand, basketball is a team sport that is generally also played in an indoor field that is smaller than that of a handball field, and it requires a high standard of preparation in order to complete for 40 minutes of competitive play and to achieve success. In this game, movement patterns differ from handball, as it requires different

Specific work/rest ratio and/or effort distributions during games. Hence, the purpose of this study was to describe anthropometric characteristics and body composition profiles of elite handball and basketball players and to detect possible differences in relation to competition level.

Materials and Method

Study area

This study will be conducted in Punjab on basketball and handball players of selected universities to observe the anthropometric variables,

The Study Design

The research design is descriptive where by the situation related to the performance of the basketball and handball players will be explained using descriptive statistical methods. Data will be collected one time from the study participants through different techniques to achieve the stated specific objectives.

Subject

The subject for this study will be selected by using stratified random sampling techniques. There are 26 universities in Punjab and out of which ten (10) universities are govt. funded and sixteen (16) universities are private universities (non-govt funded). The data will be collected from five (5) universities (4 government universities and 1 private universities). The total universities in Punjab are 26 and data will be collected from 5 universities. Therefore 5×10= 50 players will be the number of sample size in this study and their age range from 18 to 28 year.

Total sample size = 50 (basketball players 25 and handball players 25)

Inclusion Criteria

- Subjects who are currently playing regular basketball and handball in the university team will be taken in the study.
- Only male basketball and handball subjects will be included in the study.
- Subjects between the ages 18-28 years will be included in the study.
- Only fit players (free from injury or any type of disease) will be included in the study.

Exclusion Criteria

- Non-basketball and non-handball players will be excluded.
- Subjects greater than 28 years of age and less than 18 years will be excluded.
- Female players will be excluded.
- Unfit players (having injury or any kind of medical complication) will be excluded.

Selected Variables

01. Biceps Skinfold 2. Triceps Skinfold

Statistical Analysis: With regard to the purpose of the study, unpaired t test was calculated for selected Anthropometric Variables among University Basketball and Handball Players. The level of significance was set at 0.05 level.

Result

1.1 Mean, Standard Deviation, Standard Error and 'T' Value of Biceps skinfold measurement among University Basketball and Handball Players.

Enclosed as Annexure 01

Table 1.1 reveals the mean and standard deviation values with regard to biceps skinfold measurements of basketball players is 46.720± 8.35 whereas in the case of biceps skinfold measurements of handball players is 46.990±6.10 respectively. The calculated t- value is 0.287 which is less than the tabulated t- value (1.067) at 0.05 level. So it demonstrates that there is insignificant difference between the basketball and handball players for their bicep skinfold domain. The graphical representation shows mean, standard deviation, and standard error value of body is insignificant difference between the basketball and handball players for their bicep skinfold domain in fig 1.1

1.2 Mean, Standard Deviation, Standard Error and 'T' Value of triceps skinfold measurement among University Basketball and Handball Players.

Enclosed as Annexure 02

2.1 Mean, Standard Deviation, Standard Error and 'T' Value of Triceps skinfold measurement among University Basketball and Handball Players.

Enclosed as Annexure 03

Table 2.1 reveals the mean and standard deviation values with regard to triceps skinfold measurements of basketball players is 42.933± 5.543 whereas in the case of Triceps skinfold measurements of handball players is 44.516±2.752 respectively. The calculated t- value is 1.27 which is less than the tabulated t- value (1.067) at 0.05 level. So, it demonstrates that there is insignificant difference between the basketball and handball players for their triceps measurement domain. The graphical representation shows mean, standard deviation, and standard error value of body is insignificant difference between the basketball and handball players for their triceps anthropometric component.

2.2 Mean, Standard Deviation and Standard Error Mean of basketball and handball players for their triceps domain.

Enclosed as Annexure 04

DISCUSSION

The finding revealed that the mean and standard deviation of basketball players in the terms of biceps and triceps is showed 46.720± 8.35 and 42.933± 5.543 respectively and in the terms of handball players for their biceps and triceps variables is 46.990±6.10 and 42.933± 5.543 respectively. There was insignificant difference found both the anthropometrical variable chosen for the study i.e. Biceps and Triceps. As per review of related literature consultation, researcher seen there is study done by (Singh, M. V, 2018)whichsupported the findings of the study.

Conclusion

The results authenticated that, insignificant differences observed in both anthropometrical variables i.e Biceps and Triceps of University Basketball and Handball Players of Punjab.

Annexure

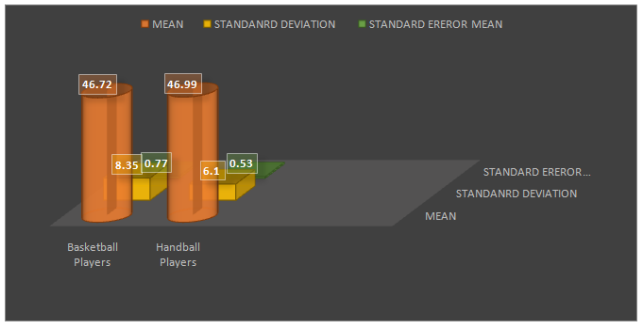
Annexure 01

1.1 Mean, Standard Deviation, Standard Error and 'T' Value of Biceps skinfold measurement among University Basketball and Handball Players.

Group	N	Mean	Std. Deviation	Std. Error Mean	't' value
Basketball players	25	46.720	8.35	0.77	0.2874
Hand ball players	25	46.990	6.10	0.53	

Annexure 02

1.2 Mean, Standard Deviation, Standard Error and 'T' Value of triceps skinfold measurement among University Basketball and Handball Players.



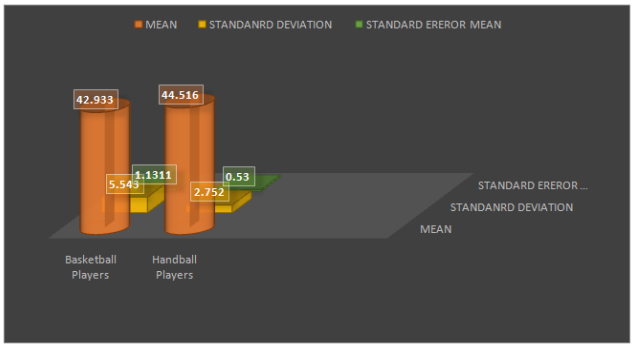
Annexure 03

2.1 Mean, Standard Deviation, Standard Error and 'T' Value of Triceps skinfold measurement among University Basketball and Handball Players.

Group	N	Mean	Std. Deviation	Std. Error Mean	't' value
Basketball players	25	42.933	5.543	1.131	1.27
Hand ball players	25	44.516	2.752	0.550	

Annexure 04

2.2 Mean, Standard Deviation and Standard Error Mean of basketball and handball players for their triceps domain.



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