Analytic study of anthropometric parameters between handball and basketball players

Gursharan Singh Gill
Assistant Professor, Department of Physical Education, Khalsa College, Patiala, Punjab, India

Abstract
The researchers of this study aim to examine the anthropometric parameters between Handball and Basketball players. To obtain data, the investigator had forty (N=40) male inter-University Handball and Basketball players between the age group of 21-27 years were selected as subjects. The subjects were purposively assigned into two groups: Group-A: Handball players (N1 = 20) and Group-B: Basketball 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 Basketball players with regards to anthropometric parameters. In a nutshell it can be said that from the findings that insignificant differences were found between inter-University Handball and Basketball players of Punjabi University Patiala on the sub-variables of anthropometric Parameters i.e., leg length, upper leg length, lower leg length, arm length, upper arm length and lower arm length.

Keywords: Anthropometry, leg length, upper leg length, lower leg length and arm length

Introduction
Handball is an intermittent sport and has gained tremendous popularity worldwide because of its dynamic Parameters 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 Parameters 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. 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 Parameters 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 (Reillly 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 Basketball players between the age
21-27 years were selected as subjects from Punjabi University Patiala. The subjects were purposively assigned into two groups: Group-A: Handball players (N₁ =20) and
Group-B: Basketball players (N₂ =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:

<table>
<thead>
<tr>
<th>Anthropometric characteristics</th>
<th>II. Upper Leg Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Leg Length</td>
<td></td>
</tr>
<tr>
<td>III. Lower Leg Length</td>
<td>IV. Arm Length</td>
</tr>
<tr>
<td>V. Upper Arm Length</td>
<td>VI. Lower Arm Length</td>
</tr>
</tbody>
</table>

Statistical analysis
The ‘t’ test was applied to find out the significant differences
between Handball and Basketball players with regards to
anthropometric Characteristics.

Results
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, Basketball 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>0.05). But while comparing the mean values of both the groups, it has been observed that Handball Players have demonstrated better leg length than the Basketball Players. The descriptive statistics shows the Mean and SD values of Handball Players on the sub variable upper arm length as 29.97 and 1.23 respectively. However, Basketball 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 insignificantly significant (P>0.05).

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

References
1. Hoffman JR, Maresh CM. Physiology of Handball. In:
Garrett, W E. Jn, Kirkendall, D. 11 (Eds). Exercise and
& Wilkins. 2000, 733-744.
2. Bourgeois, Albrecht L, Claessens JV, Renaat P,
Renterghem BV, Thomis M et al. Anthropometric
Parameters of elite male junior rowers. British Journal
3. Mikulic P. Anthropometric and physiological profiles
of towers of varying ages and ranks. Kinesiology. 2008;
4. Gabbett TJ. Physiological and anthropometric Parameters
amateur rugby players. British Journal of Sports
5. Reilly T, Bangsbo, Franks A. Anthropometric and
physiological predispositions for elite soccer. Journal of

Table 1: Significant difference in the mean score of handball and basketball players on the variable anthropometric characteristics

<table>
<thead>
<tr>
<th>Variables</th>
<th>Handball Players = 20</th>
<th>Basketball players = 20</th>
<th>t-value</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leg Length</td>
<td>95.90</td>
<td>95.50</td>
<td>0.341</td>
<td>0.73</td>
</tr>
<tr>
<td>Upper Leg Length</td>
<td>44.40</td>
<td>44.05</td>
<td>0.640</td>
<td>0.52</td>
</tr>
<tr>
<td>Lower Leg Length</td>
<td>51.50</td>
<td>51.45</td>
<td>0.04</td>
<td>0.96</td>
</tr>
<tr>
<td>Arm Length</td>
<td>76.00</td>
<td>75.65</td>
<td>0.265</td>
<td>0.79</td>
</tr>
<tr>
<td>Upper Arm Length</td>
<td>29.97</td>
<td>29.95</td>
<td>0.235</td>
<td>1.00</td>
</tr>
<tr>
<td>Lower Arm length</td>
<td>45.70</td>
<td>45.35</td>
<td>0.380</td>
<td>0.70</td>
</tr>
</tbody>
</table>

*Significant at 0.05