Comparative study of selected Anthropometrical and Physiological Variables of Basketball and Handball Players

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Abstract

Anthropometry and physiology play an important role in deciding the particular build of the body with various measurements of the segments of the body. It has also its importance in the field of basketball and handball game. Altogether the body height length of various level and measurements of the various body segments, blood pressure have definite effects on the performance of these players. The researcher in the present study made an effort to test this to compare the difference between the various physiological and anthropometrical measurements of handball and basketball players. The present comparative study is related to basketball and handball players in relation to anthropometry and physiological variables. In the present study 20 male handball players and 20 male basketball players were selected through simple random technique from Pune district who participated in district level tournament. To know the difference between basketball and handball players in relation to anthropometry and physiological variables independent sample "t" test was applied.
From the results it may be concluded that there is a significant difference in body height, body weight and leg length of handball and basketball players but no significant difference found in hand length, systolic blood pressure, diastolic blood pressure and body mass index.
Keywords - Handball and Basketball, anthropometry and physiology.

Introduction:

Handball is a 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. 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 distributionsduring games.

Body composition and body mass contribute among other factors to optimal exercise and performance, body mass can influence an athlete's speed, endurance, and power, whereas body composition can affect strength and agility. The anthropometrical characteristics and body composition of athletes has been the subject of many investigations as many re- searchers hypothesized the practicing athletes might be expected to exhibited structural and functional characteristics that are specific favorable for the sport (S. Singh, K. Singh, & M. Singh, 2010).

Hence, the purpose of this study was to describe anthropometric characteristics and physiological characteristics of handball and basketball players and to detect possible differences.

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Objective of the study:

To describe anthropometric characteristics and physiological characteristics of handball and basketball players and to detect possible difference.

Methods:

Subjects:

For this study 20 Handball and 20 Basketball players were selected from Pune District. Handball and Basketball players of age group between 18 to 25 years were selected as subjects.

Selection of Variables:

This study was taken to pinpoint the Anthropometry and Physiology variables. Therefore, based on literary evidence and scholars own understanding the following variables were selected for the study.

Test	Tools	Unit
Body Height	Stadiometer	cm
Body Weight	Weighing scale	kg
Hand Length	Meter tape	cm
Leg Length	Meter tape	cm
Heart rate	Stethoscope/ Stopwatch	Minute
Systolic blood pressure	Sphygmomanometer	High/low
Diastolic blood pressure	Sphygmomanometer	High/low
Body Mass Index	Omron body fat monitor	Percentage

For this research, descriptive comparative method was used. Descriptive statistics (mean, standard deviation) and independent sample "t" test was used for the evaluation of the differences between both the groups, to test the hypothesis at 0.05 level of significance.

Procedure of the study:

All subjects were clinically healthy and had no recent history of infectious disease, asthma or cardio-respiratory disorders. The researcher explained details about the conducted test to selected Handball and Basketball players. For the collected data score compute mean, standard deviation (SD) and compared using Independent "t" test to find out the difference between Handball and Basketball players.

Result of the study:

Purpose of the study to find out the comparison of Basketball and handball players among the Pune district level tournament participated.

Table no. 1

Test	Players	No.	Mean	SD
Body height	Basketball	20	173.9	4.5
	Handball	20	169.9	5.9
Body weight	Basketball	20	61.8	7.2
	Handball	20	60.3	6.9
Hand length	Basketball	20	71.8	5.4
	Handball	20	76.4	3.8

Leg length	Basketball	20	92.3	3.5
	Handball	20	88.4	6.3
Heart rate	Basketball	20	78.9	9.4
	Handball	20	81.6	12.2
Systolic blood pressure	Basketball	20	106.3	11.6
	Handball	20	104.2	11.9
Diastolic blood pressure	Basketball	20	62.4	13.5
	Handball	20	59.8	10.4
Body mass index	Basketball	20	18.7	4.7
	Handball	20	19.3	3.6

Given in table no. 1, which shows the descriptive statistics, where mean score of Anthropometry and physiological variables for Basketball and handball players were shoe above table with standard deviation.

Table No.2: Comparison between Basketball and Handball Players using independent sample test

	Levene's Test for Equality of Variances			t- test for equality of means			
Test		F	Sig.	t	Df	Sig. (2-tailed)	Mean difference
Body height	Equal variances assumed	1.17	0.28	2.36	38	0.02	3.95
	Equal variances not assumed			2.36	35.48	0.02	3.95
Body weight	Equal variances assumed	0.00	0.96	2.03	38	0.04	4.40
	Equal variances not assumed	-		2.03	37.51	0.04	4.40
Hand length	Equal variances assumed	6.29	0.01	1.28	38	0.20	4.55
	Equal variances not assumed			1.28	21.39	0.20	4.55
Leg length	Equal variances assumed	3.97	0.05	2.31	38	0.02	3.75
	Equal variances not assumed			3.31	30.03	0.02	3.75
Heart rate	Equal variances assumed	0.57	0.45	0.76	38	0.44	2.65
	Equal variances not assumed			0.76	35.71	0.44	2.65

Systolic blood pressure	Equal variances assumed	0.10	0.74	0.57	38	0.56	2.15
	Equal variances not assumed			0.57	37.98	0.56	2.15
Diastolic blood pressure	Equal variances assumed	0.39	0.53	0.66	38	0.50	2.55
	Equal variances not assumed			0.66	35.63	0.50	2.55
Body mass index	Equal variances assumed	1.62	0.21	0.44	38	0.65	0.60
	Equal variances not assumed			0.44	35.92	0.65	0.60

Table no.2 shows comparison between basketball and handball players from Pune district. Since the significance value is less than 0.05, body height, body weight, and leg length tests. Which shows significant difference between basketball and handball players at 0.05 level of significance (p=0.04), (p=0.02). Hence the null hypothesis is rejected and research hypothesis is retained. But no significant difference found in hand length, heart rate, systolic blood pressure and diastolic blood pressure tests. Which shows no significant difference between Basketball and Handball players at 0.05 level of significance (p=0.20), (p=0.44), (p=0.56), (p=0.50), (p=0.65), Hence the research hypothesis is rejected and null hypothesis is retained.

Discussion of the study:

The present study shows that there is exists significance difference between Basketball and Handball Players which was similar to the study by Parvinder Singh (2012). In his study he had studied physiological and anthropometrical variables of Kabaddi and Kho-Kho players and the purpose was to assess if both groups differ in each other. Researcher concluded that there was significant difference between body height, body weight and leg length variables of Basketball and Handball Players. Hence the null hypothesis is rejected and research hypothesis is retained. But no significant difference found in hand length, heart rate, systolic blood pressure and diastolic blood pressure, variables of Basketball and Handball Players. Hence the research hypothesis is rejected and null hypothesis is retained.

Conclusion of the study:

On the basis of the result obtained in the study, the researcher made the conclusion that significant difference exist between Body Height, Body weight and Leg Length variables of Basketball and Handball players. It was further concluded that Body height, body weight and leg length variables of Basketball players was better than Handball Players. But no significant difference exists between hand length, heart rate, systolic blood pressure and diastolic blood pressure, variables of Basketball and Handball Players. It was further concluded that hand length, heart rate, systolic blood pressure and diastolic blood pressure, variables of handball players is better than basketball players.

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