Research Paper

Volume : 5 | Issue : 3 | March 2016 • ISSN No 2277 - 8179 | IF : 3.508 | IC Value : 69.48

"A Comparative Study on Selected Motor Fitness and Anthropometric Variables of Handball and Football Players"

Physical Education

KEYWORDS :

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ABSTRACT

Motor abilities and anthropometrical aspects play an important role in achieving proficiency in games and sports. It is assumed that with participation in sports, the level of motor ability also improves. For this study 25 male players each for Handball and Football were selected From Inter College level. The age group of subjects was ranging between 18-21 years. Standardized Tests were used to measure motor fitness components and anthropometric variables. To find out the difference between means of the Handball and Football groups't' test was applied. From the study it may be concluded that there is no significant difference in the motor fitness variables of handball and football players. Differences were observed on anthropometric variables in Leg length and Arm length variables between handball and football players but these were insignificant. It was found that handball players and football players are almost same in motor variables and handball player's higher in leg length and arm length than football players.

INTRODUCTION

Motor abilities are inherited; relatively stable traits that underlie various sport skills. The notion of abilities is similar to that of intelligence as a predictor of academic performance. Motor skills are deliberate and controlled movements requiring both muscle development and maturation of the central nervous system. The skeletal system too, needs to be strong enough to maintain the movement and weight involved in any new activity, once these conditions are met, children are able to learn new physical skills by practicing them until each skill is mastered. The development of motor skills is important for our daily living, and is a process that involves both inherent abilities and considerable practice during childhood and adolescence. Self selected, unplanned play is important for acquiring motor skill abilities, as well as structured movement instruction. Without this formalized learning, movement performance and improvement is really left to chance. In an article by Smith and O'Keefe (1999) they purport that, this factor is often not recognized and even some professional educators assume that such essential skills will emerge automatically. However, with many skills young children need to learn and practice these skills until they can proficiently participate in a variety of games and sports. Motor abilities plays important role in achieving proficiency in games and sports. It is assumed that with participation in sports, the level of motor ability also improves. Motor ability has been defined by Barrow (1964) as "the present acquired and innate to perform motor skills of a general and fundamental nature, exclusive of highly specialized sports and gymnastic techniques". Motor ability status would come about relatively slowly and over a period of time. 'Motor ability' and 'Physical fitness' are directly related each other and helps in achieving total fitness. Motor ability components play a vital role in achieving top level performance in different sports disciplines.

"Anthropometry" means the measurement of man, whether living or dead, and consists primarily in the measurement of the dimensions of the body (montage 1960). Anthropology the measurements of man provide scientific methods and observations on the living man and the skeleton. Anthropology represents the typical and traditional tool of human biology, physical Anthropology and axiology recently it has taken a strong bonded relationship with physical education and sports sciences.

The term anthropometry invented by J.S. Elsholtz a German physician in seventeenth century refers to measurement of human body and its various proportions. It encompasses a wide variety of measurement procedures for determining endless number of body dimensions each user in corporate a different set of anthropometric measurements to explain the problem under investigation besides a few common measurements like stature and body weight the set of measurements selected by one user rarely coincides with that of the other in general. But under specific circumstances where the goal to be achieved is more or less similar the measurements selected by two users may exhibit considerable similarity. It has been observed by various scholars that extrinsic motivational aspects are comparatively effective on the performance of the Handball and Football players.

A measurement of body includes such descriptive information of height, weght and surface area. These measurements of body proportion described the relationship between height and weight and among length, width and circumferences of various body segments. It has been found that top athlete in some sports tends to have those proportions that biomechanical required for particular performance. Athlete for superior performance in any event is selected on the basis of his physical structure and body size, which has proved to be appropriate for high performance in the sports. After the field of physical education one of the objective of testing and measuring is to place a proper person into a proper activity and thus to avoid miss-fit as far as possible.

Statement of the Problem

The main purpose of this study was to compare the selected motor fitness and anthropometrical variables of handball and football players.

Hypotheses

There was a no significant difference between football and handball players with respect to the motor fitness variables and anthropometric variables.

Limitations

1. The study was conducted in controlled condition but it is in natural environment.
2. Non considerable of doping of a sportsman.
3. While testing the subject, can't control the environment/ surrounding of the sportsman.
4. Factors like Nutrition, rest, practice were not considerable.
5. Regular activity pertaining to daily-routine was also not taken into consideration.

Delimitations

1. The study was restricted to Handball and Football games.
2. This study was delimited to Kerala University Inter-Collegiate Players.
3. The study confined to age ranges from 18-28 years.
4. The study was confined to motor fitness variables field tests and Anthropometric measurement.
5. This study considered only for Kerala state male sportsmen.

Significance of the Study

1. This study will help to know the Motor Fitness variables

and Anthropometrical variables of Handball and Football players.

2. It's possible to compare the Motor Fitness variables and Anthropometrical variables of handball and football players.
3. The study will be helps to coaches and physical education teachers while selecting to talented players for Handball and Football.
4. This study will help the players to assess and achieve their top performance.

METHODOLOGY

As discussed earlier the main purpose of the study was to compare the Motor fitness variables and Anthropometric variables of Handball and Football Kerala University Inter Collegiate Players. For this purpose players were tested with Motor fitness (Speed, Agility, Flexibility, and Strength) and Anthropometric variables (Height, Weight, Arm Length, and Leg Length). Selection of subject and procedure followed by the collection of data and analysis used in this study are described in the following sections.

Subjects:

For this study 25 Handball and 25 Football players were selected as subjects for the study. All players were selected from Kerala University Intercollegiate Tournaments in the year of 2015-16 and Age group of subjects was ranging from 18-28 years.

Table No-1 The number of subjects for each game is given below.

Game	Name of the College	No. of Players
Handball	University college Trivandrum and Fatima matha national college kollam.	25
Football	Mahatma Ghandi college Trivandrum and LNCPE kariavattom Trivandrum.	25
Total=		50

Test Administration:

STANDARDIZED TESTS WERE USED TO MEASURE:

A) Motor Fitness Components are Described Below:
   Speed: 30- Yard Dash Run test (sec)
   Flexibility: Sit and reach test (cms)
   Agility: 10*4 meter Shuttle run test (sec).
   Strength: Standing Broad Jump (meter)
B) Anthropometric variables are described below:
   Height: cm
   Weight: kg
   Arm length: cm
   Leg length: cm

Statistical Techniques Used for Analysis of Data

The data that was collected from the subjects was treated statistically, to test the hypothesis data was subjected to independent sample t-test which will locate significant difference between pair of means.

ANALYSIS AND INTERPRETATION OF DATA

Responses of the handball and football players to the motor fitness variables and anthropometric variables, constituted raw data for the present study. Data collected using the standard procedure in pursuance of the objectives of the study, as well as to test the research hypothesis set up; the data were subjected to organization, tabulation and statistical analysis. This chapter describes in detail the procedure followed to analysis of data.

However valid, reliable and adequate the data may be, it does not serve any useful purpose unless it is carefully processed, systematically classified and tabulated, scientifically analyzed, intelligently interpreted and rationally concluded.

After the data had been collected, it was processed and tabulated using Microsoft Excel - 2007 Software. The aim of the study is to **"A comparative Study on selected motor fitness and Anthropometric Variables of Handball and Football Players".** Then the data were analyzed with reference to the objectives and hypotheses by using un-paired "t" test. The statistical significance was set at 5% level of significance ($p<0.05$) and the results obtained thereby have been interpreted.

Hypothesis-1: There is no significant difference between handball and football players with respect to speed.

To achieve this hypothesis, the unpaired t test was applied and the results are presented in the following table.

Table-2: Results of 't' test between handball and football players with respect to speed.

Group	N	Mean	SD	t-value	P-value
Handball	25	5.0212	0.4425	-0.8160	0.4186
Football	25	4.9092	0.5171		

From the results of the above table, the Handball and football players do not differ significantly with respect to speed (in sec) ($t=-0.8160$, $p>0.05$) at 5% level of significance. Hence, the null hypothesis is accepted and alternative hypothesis is rejected. It means that, the Handball and Football players have similar speed.

Hypothesis-2: There is no significant difference between handball and football players with respect to agility.

To achieve this hypothesis, the unpaired t test was applied and the results are presented in the following table.

Table-3: Results of't' test between handball and football Players with respect to Agility.

Group	N	Mean	SD	t-value	P-value
Handball	25	10.8540	0.6888	-0.0630	0.9500
Football	25	10.8408	0.7723		

From the results of the above table, the handball and football players do not differ significantly with respect to agility (in sec) ($t=-0.0630$, $p>0.05$) at 5% level of significance. Hence, the null hypothesis is accepted and alternative hypothesis is rejected. It means that, the football and handball players have similar agility.

Hypothesis-3: There is no significant difference between handball and football players with respect to flexibility.

To achieve this hypothesis, the unpaired t test was applied and the results are presented in the following table.

Table-4: Results of t test between handball and football players with respect to flexibility.

Group	N	Mean	SD	t-value	P-value
Handball	25	44.6400	7.9890	0.0918	0.9273
Football	25	44.8333	6.6638		

Volume : 5 | Issue : 3 | March 2016 • ISSN No 2277 - 8179 | IF : 3.508 | IC Value : 69.48

From the results of the above table, the handball and football players do not differ significantly with respect to flexibility (in cm) (t=0.0918, p>0.05) at 5% level of significance. Hence, the null hypothesis is accepted and alternative hypothesis is rejected. It means that, the football and handball players have similar flexibility.

Hypothesis-4: There is no significant difference between handball and football players with respect to strength.

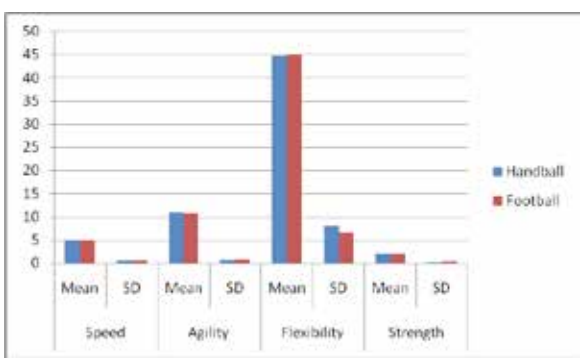
To achieve this hypothesis, the unpaired t test was applied and the results are presented in the following table.

Table-5: Results of t test between handball and football players with respect to strength.

Group	N	Mean	SD	t-value	P-value
Handball	25	2.0528	0.2280	-0.6492	0.5194
Football	25	2.0058	0.2770		

From the results of the above table, the handball and football players do not differ significantly with respect to strength (t=-0.6492, p>0.05) at 5% level of significance. Hence, the null hypothesis is accepted and alternative hypothesis is rejected. It means that, the football and handball players have similar strength.

The mean and SD of motor fitness are also presented according to players in the following figure.



Hypothesis-5: There is no significant difference between handball and football players with respect to height.

To achieve this hypothesis, the unpaired t test was applied and the results are presented in the following table.

Table-6: Results of t test between handball and football players with respect to height.

Group	N	Mean	SD	t-value	P-value
Handball	25	1.6660	0.0796	0.0917	0.3264
Football	25	1.6871	0.0686		

From the results of the above table, the handball and football players do not differ significantly with respect to height (in meter) (t=0.0917, p>0.05) at 5% level of significance. Hence, the null hypothesis is accepted and alternative hypothesis is rejected. It means that, the football and handball players have similar height.

Hypothesis-6: There is no significant difference between handball and football players with respect to weight.

To achieve this hypothesis, the unpaired t test was applied and the results are presented in the following table.

Table-7: Results of t test between handball and football players with respect to weight.

Group	N	Mean	SD	t-value	P-value
Handball	24	57.2800	7.7110	0.3695	0.7134
Football	25	58.0833	7.5002		

From the results of the above table, the handball and football players do not differ significantly with respect to weight (in kg) (t=0.3695, p>0.05) at 5% level of significance. Hence, the null hypothesis is accepted and alternative hypothesis is rejected. It means that, the football and handball players have similar weight.

Hypothesis-7: There is no significant difference between handball and football players with respect to leg length.

To achieve this hypothesis, the unpaired t test was applied and the results are presented in the following table.

Table-8: Results of t test between handball and football players with respect to leg length.

Group	N	Mean	SD	t-value	P-value
Handball	25	87.8000	16.5101	-4.0630	0.0002*
Football	25	69.5417	14.8616		

From the results of the above table, the handball and football players differ significantly with respect to leg length (in cm) (t=-4.0630, p<0.05) at 5% level of significance. Hence, the null hypothesis is rejected and alternative hypothesis is accepted. It means that, the handball players have higher leg length as compared to football players.

Hypothesis-8: There is no significant difference between handball and football players with respect to arm length.

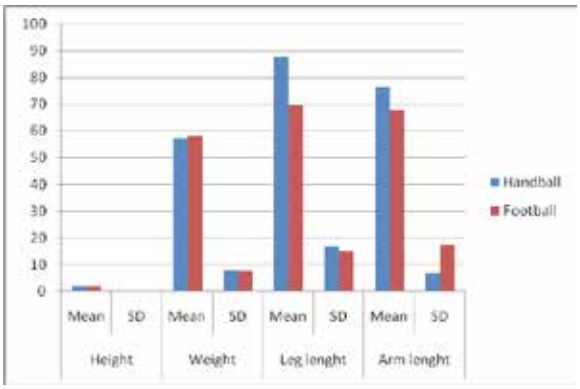
To achieve this hypothesis, the unpaired 't' test was applied and the results are presented in the following table.

Table-9: Results of t test between handball and football players with respect to arm length.

Group	N	Mean	SD	t-value	P-value
Handball	25	76.3200	6.7868	-2.3288	0.0242*
Football	25	67.6250	17.3426		

From the results of the above table, the handball and football players differ significantly with respect to arm length (in cm) (t=-2.3288, p<0.05) at 5% level of significance. Hence, the null hypothesis is rejected and alternative hypothesis is accepted. It means that, the handball players have higher arm length as compared to football players.

The mean and SD of Anthropometric variables are also presented according to players in the following figure.



SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary

Purpose of the study

The purpose of the study was to compare the Motor fitness variables and Anthropometric variables of Kerala University Inter Collegiate Handball and Football Players.

Method

In order to accomplish the purpose of the study standardized tests and equipments were administered.

Data collection

Data was collected during the Kerala University Intercollegiate Tournaments 2015-16. Handball-25 and Football-25 players were selected as subjects for this study and age of the subject were ranged between 18-28 years.

Conclusion

From the statistical analysis it is concluded that in the motor fitness components handball and football players are most similar but in anthropometric variables handball and football players are similar in height and weight but compared to leg length and arm length handball players are better than football players.

Recommendations.

1. The study may be repeated by selecting subjects belonging to different age groups.
2. A similar study may be conducted taking variables other than the variables chosen for this study.
3. A similar study may be conducted only girls or both genders of different level sportsmen.
4. Similar study may be conducted for sportsmen and Non-sportsmen.

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