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**A comparative study on selected anthropometric  
variables among college level male kabaddi and kho-  
kho players**

**Dr. S Muniraju and Santhosha C**

**Abstract**

Kho-Kho & Kabaddi are indigenous games played in a small area and it involves indigenous skilled players. India has established its name and fame in these games. Both the games are popular at State and National levels but are still to find access at International level. Research in the field of sports and games had proved that variables such as anthropometrical variables, psychological and physical fitness variables decide the playing ability of an individual. The purpose of the study was to compare the selected anthropometric variables among Kabaddi and Kho-Kho players. To achieve the purpose of this study 30 Kabaddi and 30 Kho-Kho players were selected from Presidency College and St. Joseph College, Bangalore as subjects. Their age ranged from 18 to 25 years. The research scholar reviewed the available scientific literature pertaining to the problem understanding from books, journals, magazines, research papers and also falling into considerations the feasibility of criteria and availability of instruments chosen for anthropometric variables BMI, Girth measurement, and Skin fold. The result of the study revealed that there was a significant difference observed on thigh fat among Kabaddi and Kho-Kho players except this all other variables showed insignificant difference among Kabaddi and Kho-Kho players in all the selected anthropometric variables.

**Keywords:** kho-kho, kabaddi, bmi, girth measurement, skin fold

**Introduction**

**Statement of the problem**

The purpose of the study was to compare the selected anthropometric variables among college level male Kabaddi and Kho-Kho players of Presidency College & St Joseph College, Bangalore.

**Significance of the study**

1. The study will be helpful to find out anthropometric variables among college level Kabaddi and Kho-Kho players.
2. The study will be helpful for the coaches and physical educationists to include anthropometric variables as one of the criteria while selecting the players for the team.
3. It is less expensive. The materials & equipments used for the test are very economic.

**Hypothesis**

It is hypothesized that there would be a significant difference in anthropometric variables among college level Kabaddi and Kho-Kho players.

**Selection of subjects**

The purpose of the study was to compare the selected anthropometric variables among

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Kabaddi and Kho-Kho players. To achieve the purpose of this study 30 Kabaddi and 30 Kho-Kho players were selected of Presidency College and St. Joseph College, Bangalore as subjects. Their age ranged from 18 to 25 years.

**Selection of variables**

The research scholar reviewed the available scientific literature pertaining to the problem understanding from books, journals, magazines, research papers and also falling into considerations the feasibility of criteria and availability of instruments chosen anthropometric variables, BMI, Girth measurement, Skin fold.

**Selection of test and criterion measure**

The tests used to assess the selected anthropometric variables are given in the below table.

**Table 1:** Selection of tests

S. No	Criterion Variables	Test Items
1.	BMI	Height and Weight
2.	Girth Measurement	Fore Arm, Arm Flexed, Thigh, Calf Girth,
3.	Skin fold caliber	Thigh

**Statistical technique**

Analysis of independent t- test was used in this study to find out the selected anthropometric variables among Kabaddi and Kho-Kho players. The level of significance was fixed at 0.05 level of confidence which was considered to be appropriate for this study.

**Statistical Procedure**

The collected data were analyzed using 't' ratio for dependent group by using the following formula.

- 't' =  $\frac{\bar{D}}{s\bar{D}}$
- Here  $\bar{D}$  = Mean of the difference between groups
- $s\bar{D}$  = Standard Error of the Mean
- $\bar{D}$  =  $\frac{\Sigma D}{N}$
- Here = Mean of the difference between groups
- $\Sigma D$  = Sum of difference between scores
- N = Number of scores
- S = SD /
- Here
- SD = Standard Deviation
- N = Number of scores
- SD =  $\frac{\Sigma D^2 - \frac{(\Sigma D)^2}{N}}{N}$
- Here  $\Sigma D^2$  = Square of score difference
- $\Sigma D$  = Sum of difference between scores.

**Test of significance**

This is the crucial point in the analysis of data in arriving at conclusions by examining the hypothesis. The procedure of accepting the hypothesis or rejecting the hypothesis in accordance with the result obtained relation to the level of significance was considered sufficient for the study. The test was usually called the "test of significance". Since the investigator tests whether the difference between two groups and interaction was significant or not of the obtained "t"-ratio was than the table, "t" ratio at 0.05 level of significance.

**Table 2:** Mean, standard deviation, and t-ratio on height of kabaddi and kho-kho players

Group	No. of. Subjects	Mean	Standard difference between the mean	Mean Difference	't'-ratio
Kabaddi Players	30	1.70	7.84	4.40	1.965
Kho-Kho Players	30	1.66	9.42		

\*significant at 0.05 level.

Table-2 shows that the calculated mean value on height of Kabaddi and Kho-Kho players, are 1.70 and 1.66 respectively. The obtained "t"-ratio value of height is 1.965 is less than the required table value 2.00 for significance with degrees

freedom 2,58 at 0.05 level of confidence, the result of the study shows that there is no significant difference in height between Kabaddi and khokho players.

**Table 3:** Mean, standard deviation, and 't'-ratio on weight of kabaddi and kho-kho players

Group	No. of. Subjects	Mean	Standard difference between the mean	Mean Difference	't'-ratio
Kabaddi Players	30	59.76	12.10	3.66	1.24
Kho-Kho Players	30	56.16	10.24		

\*significant at 0.05 level.

Table-3 shows that the calculated mean value on weight of Kabaddi and Kho-Kho players, are 59.76 and 56.16 respectively. The obtained "t"-ratio value of weight is 1.24 is less than the required table value 2.00 for significance with

degrees freedom 2,58 at 0.05 level of confidence, the result of the study shows that there is no significant difference in weight between Kabaddi and kho-kho players.

**Table 4:** Mean, standard deviation, and 't'-ratio on forearm of kabaddi and kho-kho players

Group	No.of.Subjects	Mean	Standard difference between the mean	Mean Difference	't'-ratio
Kabaddi Players	30	25.60	2.14	0.43	0.56
Kho-Kho Players	30	25.16	3.35		

\*significant at 0.05 level.

Table-4 shows that the calculated mean value on fore arm of Kabaddi and Kho-Kho players are 25.60 and 25.16 respectively. The obtained 't'-ratio value of fore arm is 0.56 is less than the required table value 2.00 for significance with

degrees freedom 2,58 at 0.05 level of confidence, the result of the study shows that there is no significant difference in forearm between Kabaddi and Kho-Kho players.

**Table 5:** Mean, standard deviation, and 't'-ratio on arm flexed of kabaddi and kho-kho players

Group	No.of.Subjects	Mean	Standard difference between the mean	Mean Difference	't'-ratio
Kabaddi Players	30	26.43	3.00	1.13	1.50
Kho-Kho Players	30	25.30	2.83		

\*significant at 0.05 level.

Table-5 shows that the calculated mean value on arm flexed of Kabaddi and Kho-Kho players, are 26.43 and 25.30 respectively. The obtained "t"-ratio value of arm flexed is 1.50 is less than the required table value 2.00 for significance

with degrees freedom 2,58 at 0.05 level of confidence, the result of the study shows that there is no significant difference in arm flexed between Kabaddi and Kho-Kho players.

**Table 6:** Mean, standard deviation, and 't'-ratio on thigh of kabaddi and kho-kho players

Group	No.of.Subjects	Mean	Standard difference between the mean	Mean Difference	't'-ratio
Kabaddi Players	30	48.26	5.12	1.73	0.98
Kho-Kho Players	30	46.53	8.22		

\*significant at 0.05 level.

Table-6 shows that the calculated mean value on thigh of Kabaddi and Kho-Kho players, are 48.26 and 46.53 respectively. The obtained "t"-ratio value of thigh is 0.98 is less than the required table value 2.00 for significance with

degrees freedom 2,58 at 0.05 level of confidence, the result of the study shows that there is no significant difference in thigh between Kabaddi and Kho-Kho players.

**Table 7:** Mean, standard deviation, and t-ratio on calf girth of kabaddi kho-kho players

Group	No.of.Subjects	Mean	Standard difference between the mean	Mean Difference	't'-ratio
Kabaddi Players	30	33.53	3.32	1.60	1.86
Kho-Kho Players	30	31.93	3.33		

\*significant at 0.05 level.

Table-7 shows that the calculated mean value on calf of Kabaddi and Kho-Kho players, are 33.53 and 31.93 respectively. The obtained "t"-ratio value of calf is 1.86 is less than the required table value 2.00 for significance with

degrees freedom 2,58 at 0.05 level of confidence, the result of the study shows that there is no significant difference in calf between Kabaddi and Kho-Kho players.

**Table 8:** Mean, standard deviation, and 't'-ratio on thigh fat of kabaddi and kho-kho players

Group	No.of.Subjects	Mean	Standard difference between the mean	Mean Difference	't'-ratio
Kabaddi Players	30	29.60	11.54	2.19	3.39*
Kho-Kho Players	30	22.13	3.46		

\*significant at 0.05 level.

Table-8 shows that the calculated mean value on thigh skin fold caliber of Kabaddi and Kho-Kho players are 29.60 and 3.46 respectively. The obtained "t"-ratio value of thigh fat is 3.39\* is greater than the required table value 2.00 for significance with degrees freedom 2,58 at 0.05 level of confidence, the result of the study shows that there is no significant difference in thigh skin fold caliber between Kabaddi and Kho-Kho players.

in BMI on height and weight among Kabaddi and Kho-Kho players.

2. It was concluded that there was no significant difference in girth measurement on fore arm, arm flexed, thighs and calf girth among Kabaddi and Kho-Kho players.
3. It was also concluded that there was a significant difference in skin fold measurement among Kabaddi and Kho-Kho players.

### Discussion on findings

The result of the study reveals that, there was a significant difference observed only on thigh fat among Kabaddi and Kho-Kho players. Except this all other variables shows insignificant difference among Kabaddi and Kho-Kho players in all the selected anthropometric variables.

### Conclusions

From the results of the study the following conclusions were drawn.

1. It was concluded that there was no significant difference

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