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A comparative study of breath holding time between men and women kabaddi and kho-kho players

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Abstract

The purpose of this study was to compare the physiological variable namely breath holding time between men and women kabaddi and kho-kho players. To achieve the purpose of this study one hundred and twenty players of kabaddi and kho-kho games studying in the Department of Physical Education and Sports Sciences, Annamalai University, Annamalai Nagar, Chidambaram, Cuddalore District, Tamil Nadu and India were randomly selected as subjects. Among them sixty men players (thirty men kabaddi and thirty men kho-kho players) and sixty women players (thirty women kabaddi and thirty women kho-kho players) with an age of the subjects were ranged between 18 to 24 years were selected as subjects. Breath holding time was assessed by using standardized test item holding the breath for time and it was statistically analysed by using 2 x 2 factorial ANOVA. Whenever, the obtained 'F' ratio value for interaction effect was found to be significant, the simple effect test was applied as follow up test. In all cases, the .05 level of confidence was fixed to test the level of significance which was considered as an appropriate. There was significant difference between men and women players on selected physiological variable namely breath holding time irrespective of their games (kabaddi and kho-kho). Among them, men kho-kho players were better breath holding time than other categories of players.

Keywords: Physiological fitness, breath holding time, men and women kabaddi and kho-kho players

Introduction

Physiological systems are highly adoptable of exercise. Each task has major physiological components and fitness for the task requires effective functioning of appropriate systems. Much research has been conducted in this area and specific principles of training have been established of the basis of scientific findings for developing these aspects of physical process.

There are numerous variations of the breath holding time test. One test is most sensitive to body oxygen content and, therefore, the information in this article is based on this test. In order to measure body oxygenation, pinch your nose after your usual exhalation and hold your breath but only until first stress or discomfort. Your breathing pattern after the test should be the same as before the test. You should not gasp for air after the correct test. Practically, breath holding time depends on one factor only: the breathing pattern of the person. In sick people breathing is deep (up to 700-900 ml of air per breath) and frequent (about 15-20 breaths per minute). In healthy people, breathing is shallow (400-600 ml per breath) and slow (8-12 breaths per minute). While most modern people believe in deep breathing myth, hundreds of medical studies proved that chronic hyperventilation or over-breathing reduces body oxygenation, as we see it in sick people and causes abnormalities in the immune, nervous, hormonal and other systems of the human body.

Selection of Subjects

To achieve the purpose of the study one hundred and twenty players of kabaddi and kho-kho games studying in the Department of Physical Education and Sports Sciences, Annamalai University, Annamalai Nagar, Chidambaram, Cuddalore District, Tamil Nadu and India were randomly selected as subjects. Among them sixty men players (thirty men kabaddi and thirty men kho-kho players) and sixty women players (thirty women kabaddi and thirty women kho-kho players) with an age of the subjects were ranged between 18 to 24 years were selected as subjects.

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Selection of Variable

In the present study, the investigator selected the Physiological Variable namely breath holding time.

Statistical Technique

The collected data's were statistically analysed by using 2 x 2 factorial ANOVA. Whenever, the obtained 'F' ratio value for interaction effect was found to be significant, the simple effect test was applied as follow up test. In all cases, the .05 level of confidence was fixed to test the level of significance which was considered as an appropriate.

Analysis of the data

The mean and standard deviation values on breath holding time of men and women kabaddi and kho-kho players have been analysed and presented in Table I.

Table 1: The mean and standard deviation on breath holding time of men and women kabaddi and kho-kho players

Gender / Games		Kabaddi Players	Kh-Kho Players
Men	Mean	50.90	56.23
	SD	0.70	1.12
Women	Mean	44.70	47.40
	SD	1.32	0.71

Table I shows that the mean values on breath holding time of men kabaddi, men kho-kho, women kabaddi and women kho-kho players were 50.90, 56.23, 44.70 and 47.40 respectively.

The two way factorial ANOVA on breath holding time of men and women kabaddi and kho-kho players have been presented in Table II.

Table 2: Two way Factorial Anova on breath holding time of men and women kabaddi and kho-kho players

Source of Variance	Sum of Squares	DF	Mean Squares	Obtained "F" Ratio
A factor (Gender)	1695.01	1	1695.01	1644.40*
B factor (Games)	484.01	1	484.01	469.56*
AB factor (interaction) (Gender x Games)	52.01	1	52.01	50.46*
Error	119.57	116	1.03	

*Significant at .05 level of confidence.

(The table value required for significance at .05 level of confidence with df 1 and 116 was 3.924).

Table II shows that the obtained 'F' ratio value on breath holding time 1644.40 for factor-A (Gender - men and women players) irrespective of their games which was greater than the table value of 3.924 with df 1 and 116 required for significance at .05 level of confidence. The results of the study indicated that there was a significant difference between men and women players irrespective of their games on breath holding time.

The obtained 'F' ratio value on breath holding time 469.56 for factor-B (Games – kabaddi and kho-kho) irrespective of their gender which was greater than the table value of 3.924 with df 1 and 116 required for significance at .05 level of confidence. The results of the study indicated that there was

a significant difference between the kabaddi and kho-kho players irrespective of their gender on breath holding time.

The obtained 'F' ratio value on breath holding time 50.46 for interaction [AB factor - (Gender × Games)] which was also greater than the table value of 3.924 with df 1 and 116 required for significance at .05 level of confidence. The results of the study showed that there was a significant difference between men and women kabaddi and kho-kho players on breath holding time.

Since, the obtained 'F' ratio for the interaction effect was found significant, the simple effect test was applied as follow up test and it was presented in Table III.

Table 3: The Simple Effect test for Gender and games ON breath holding time

Source of Variance	Sum of Squares	DF	Mean Squares	Obtained "F" Ratio
Gender and Kabaddi Players	576.6	1	576.60	559.38*
Gender and Kho-Kho Players	1170.42	1	1170.42	1135.47*
Games and Men	426.67	1	426.67	413.93*
Games and Women	109.35	1	109.35	106.09*
Error	119.57	116	1.03	

*Significant at .05 level of confidence.

(The table value required for significance at .05 level of confidence with df 1 and 116 was 3.924).

Table III shows that the obtained 'F' ratio values on breath holding time 559.38 and 1135.47 for gender and kabaddi players and gender and kho-kho players which are greater than the table value of 3.924 with df 1 and 116 required for significant at .05 level of confidence. The results of the study indicated that there was a significant difference between gender and kabaddi players and gender and kho-kho players on breath holding time.

Table III also revealed that the obtained 'F' ratio value on breath holding time 413.93 and 106.09 for games and men

players and games and women players which are greater than the table value 3.924 with df 1 and 116 required for significance at .05 level of confidence. The results of the study indicated that there was a significant difference between games and men players and games and women players on breath holding time.

The mean values of men and women kabaddi and kho-kho players on breath holding time are graphically represented in Figure I.

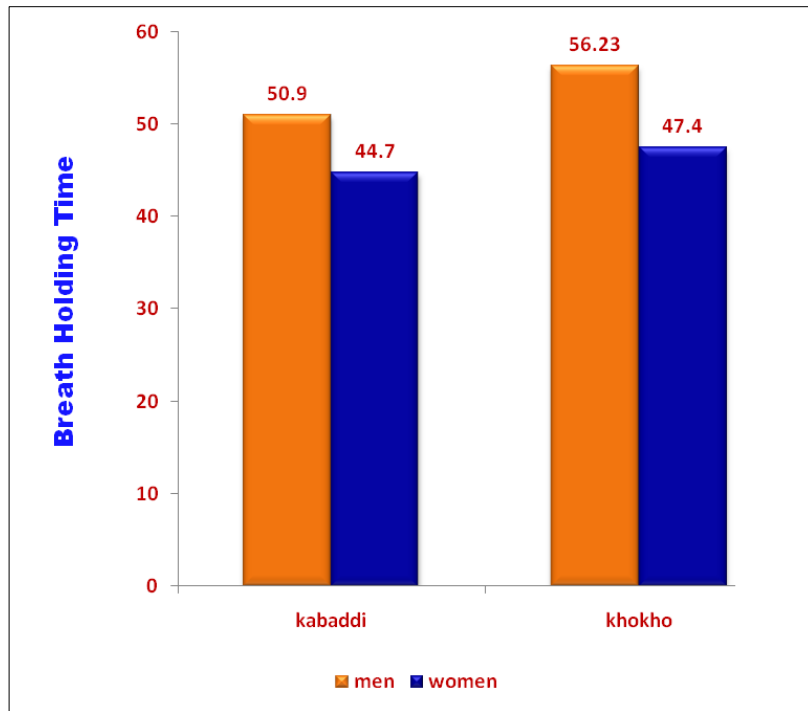


Fig 1: The mean values of men and women Kabaddi and Kho-Kho players on breath holding time

Conclusions

Based on the results of the study, the following conclusions were drawn.

1. There was significant difference between men and women players on breath holding time irrespective of their games (kabaddi and kho-kho).
2. There was significant difference between kabaddi and kho-kho players on breath holding time irrespective of their gender (men and women).
3. There was significant difference between men and women kabaddi and kho-kho players on selected breath holding time.
4. Among the groups, men kho-kho players were better on breath holding time than other categories of players.

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