

Physiological Differentials between University Men and Women Football and Hockey Players

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Abstract

The purpose of the study was to compare the physiological variables between university men and women football and hockey players. To achieve this purpose of the study, only sixty players were selected. Among them, fifteen men football players, fifteen men hockey players, fifteen women football players and fifteenth women hockey players studying in the Department of Physical Education and Sports Sciences, Annamalai University, Chidambaram, Cuddalore District, Tamil Nadu and India with an age group of 18 to 24 years were selected at random. The following physiological variables such as breath holding time and resting pulse rate were selected as criterion variables. The data were collected on breath holding time and resting pulse rate by using holding the breath for time and taking radial pulse respectively. 2x2 factorial ANOVA was used to analyze the significant difference, if any among the groups. The .05 level of confidence was fixed to test the level of significance which was considered as an appropriate. The results of the study showed that there was significant difference exist between men and women players irrespective of the game on selected criterion variables such as breath holding time and resting pulse rate and also significant differences found exist between football and hockey players irrespective of the gender on selected criterion variables namely breath holding time and resting pulse rate. The results of the study further showed that there was no significant difference between men and women football and hockey players on selected criterion variables such as breath holding time and resting pulse rate.

Keywords: Physiological Variables, Football, Hockey, breath holding time, resting pulse rate

Introduction

"A sound mind in a sound body" is a short but full description of a happy state in this world. This state can be brought about by not merely "not being sick" or "being well". It is a positive quality extending from death to abundant life (Clarke, 1976).

Physiology is the study about the function of human body. Physiological developments determine one's abilities, capacities and potentialities that an individual does exhibit. There are other various physiological factors such as pulse rate, breath holding time, etc., which determine the physiological development as

a whole. The resting pulse rate or heart rate varies greatly among different people and in the same person under different situations. When the whole body is subjected to regular muscular activity, requiring vigorous stress on the heart, lungs and muscles, the general efficiency of physiological functions is being improved. Research now strongly has the theory that regular and vigorous exercise helps to keep the heart healthy and may prevent cardiovascular diseases. A physically fit heart beats at a lower rate and pumps more oxygen, which denotes the substantial increase of ability to do more physical work. Breath holding time is the time taken by one who holds his breath at rest. The physiology of breath holding involves respiratory, circulatory and cardio changes, all of which are important in the light of recent research.

Methodology

The purpose of the study was to compare the physiological variables between university men and women football and hockey players. To achieve this purpose of the study, only sixty players were selected. Among them, fifteen men football players, fifteen men hockey players, fifteen women football players and fifteen women hockey players studying in the Department of Physical Education and Sports Sciences, Annamalai University, Chidambaram, Cuddalore District, Tamil Nadu and India with an age group of 18 to 24 years were selected at random. The following physiological variables such as breath holding time and resting pulse rate were selected as criterion variables. The data were collected on breath holding time and resting pulse rate by using holding the breath for time and taking radial pulse respectively. 2x2 factorial ANOVA was used to analyze the significant difference, if any among the groups. The .05 level of confidence was fixed to test the level of significance which was considered as an appropriate.

Analysis of the Data

Breath Holding Time

The mean and standard deviation values on breath holding time of university men and women football and hockey players have been analyzed and presented in table I.

Table-I

The Mean and Standard Deviation Values on Breath Holding Time of Men and Women Football and Hockey Players

Gender / Game		Football players	Hockey players
Men	Mean	51.87	51.73
	Standard Deviation	0.88	0.85
Women	Mean	46.07	45.53
	Standard Deviation	1.00	1.09

Table I shows that the mean values of men football players, men hockey players, women football players and women hockey players on breath holding time were 51.87, 51.73, 46.07 and 45.53 respectively.

The 2x2 factorial ANOVA values on breath holding time of university men and women football and hockey players have been presented in table II.

Table II

The 2X2 Factorial Anova on Breath Holding Time of University Men and Women Football and Hockey Players

Source of Variance	Sum of squares	df	Mean squares	Obtained 'F' ratio
A factor (Gender)	1.67	1	1.67	1.69
B factor (Game)	540.00	1	540.00	546.51*
AB factor (Interaction)	0.60	1	0.60	0.61
Within or Error	55.33	56	0.99	

* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for df 1 and 56 is 4.012 respectively).

Table II shows that the obtained 'F' ratio value 1.69 for rows (men and women) irrespective of games (football and hockey players) on breath holding time which is lesser than the required table value 4.012 for significance with df 1 and 56.

It also shows that the obtained 'F' ratio value 546.51 for columns (football and hockey players) irrespective of gender (men and women) on breath holding time which is greater than the required table value 4.012 for significance with df 1 and 56.

Table II shows that the obtained 'F' ratio value 0.61 for interaction effect (gender x game) on breath holding time which is lesser than the required table value 4.012 for significance with df 1 and 56.

The results of the study indicated that there was no significant difference between men and women players irrespective of games (football and hockey) on breath holding time.

The results of the study further showed that there was a significant difference between football and hockey players irrespective of their gender (men and women) on breath holding time. And also from the mean, it was concluded that the improvement of breath holding time in favor of men football players.

The results of the study indicated that there was no significant difference between university men and women football and hockey players on breath holding time.

Resting Pulse Rate

The mean and standard deviation values on resting pulse rate of university men and women football and hockey players have been analyzed and presented in table III.

Table III
The Mean and Standard Deviation Values on Resting Pulse Rate
of University Men and Women Football and Hockey Players

Gender / Game		Football players	Hockey players
Men	Mean	66.67	67.00
	Standard Deviation	1.30	1.03
Women	Mean	69.60	69.07
	Standard Deviation	0.95	1.18

Table III shows that the mean values of men football players, men hockey players, women football players and women hockey players on resting pulse rate were 66.67, 67.00, 69.60 and 69.07 respectively.

The 2x2 factorial ANOVA values on resting pulse rate of university men and women football and hockey players have been presented in table IV.

Table-IV

Source of Variance	Sum of squares	df	Mean squares	Obtained 'F' ratio
A factor (Gender)	0.15	1	0.15	0.11
B factor (game)	93.75	1	93.75	69.20*
AB factor (Interaction)	2.82	1	2.82	2.08
Within or Error	75.87	56	1.35	

* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for df 1 and 56 is 4.012 respectively).

Table IV shows that the obtained 'F' ratio value 0.11 for rows (men and women) irrespective of games (football and hockey players) on resting pulse rate which is lesser than the required table value 4.012 for significance with df 1 and 56.

It also shows that the obtained 'F' ratio value 69.20 for columns (football and hockey players) irrespective of gender (men and women) on resting pulse rate which is greater than the required table value 4.012 for significance with df 1 and 56.

Table IV shows that the obtained 'F' ratio value 2.08 for interaction effect (gender x game) on resting pulse rate which is lesser than the required table value 4.012 for significance with df 1 and 56.

The results of the study indicated that there was no significant difference between men and women players irrespective of games (football and hockey) on resting pulse rate.

The results of the study further showed that there was a significant difference between football and hockey players irrespective of their gender (men and women) on resting pulse rate. Hence, it was concluded from the mean values that the improvement of resting pulse rate in favor of men hockey players.

The results of the study also indicated that there was no significant difference between university men and women football and hockey players on resting pulse rate.

Conclusions

From the analysis of the data, the following conclusions were drawn.

1. There was no significant difference between university men and women players on selected physiological variables such as breath holding time and resting pulse rate irrespective of their games (football and hockey).
2. There was a significant difference between football and hockey players on selected physiological variables such as breath holding time and resting pulse rate irrespective of their gender (men and women).
3. There was no significant difference between university men and women football and hockey players on selected physiological variables such as breath holding time and resting pulse rate.
4. Among the groups men football players were better on selected criterion variables namely breath holding time and resting pulse rate.

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