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RESEARCH ARTICLE

COMPARITIVE STUDY ON SELECTED PHYSIOLOGICAL VARIABLES BETWEEN FOOTBALL AND HANDBALL PLAYERS

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ABSTRACT

The purpose of the study was to compare the physiological variables between football and handball players of Pondicherry University. We have selected thirty (30) male students from Department of Physical Education and Sports, Pondicherry University. The age of the subjects ranged from 19 to 22 years. The selected subjects were tested on cardio vascular endurance by 1 mile run or walk test, resting pulse rate by radial arteries beats per minute and breath holding time by mercury manometer which was selected as criterion variable. The collected data was analyzed using independent 't' test to find out the significant difference between football and handball players. The result of our study showed that football players have greater cardio vascular endurance than handball players. No significant difference in other variables. It is concluded that football players scored higher scores in cardio vascular endurance but no difference in other variables.

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INTRODUCTION

Exercise is the performance of activities in order to develop or maintain physical fitness and overall health. It is often directed toward also the honing of athletic ability or skill. It is what happens to the body as it exercises a single time, how these changes are brought about, what changes in function occur after repeated bouts of exercise and how these changes come to pass, and finally, what can be done to improve the body's response to exercise and its adaptation to training. It is the identification of physiological mechanisms underlying physical activity, the comprehensive delivery of treatment services concerned with the analysis, improvement, and maintenance of health and fitness, rehabilitation of heart disease and other chronic diseases and/or disabilities, and the professional guidance and counsel of athletes and others interested in athletics, sports training and human adaptability to acute and chronic exercise.

The physiology of exercise can be defined as the study of how the body reacts and adjusts to exercise and an important part of this study is the identification of physiological characteristics that explain rather than simply define performance. This identification applies both to competitive athletes and to those whose interests are in the role of physical activity in the promotion and maintenance of health. The continued rise in performance standards in sport underscores the need to develop

knowledge and understanding of related mechanisms to optimize athletes' training. Such optimization ensures that training maximizes adaptations but not at the expense of developing unexplained underperformance syndromes – previously known as overtraining. Similarly, the frequency, intensity and duration of physical activity required to promote and sustain health is important; concerns about the possible inactivity of our children and adolescents give rise to anxiety about possible long-term problems such as diabetes and cardiovascular disease that might ensue from hypo kinesis. In this study, the researcher made an attempt to compare the selected physiological variables between football and handball players.

METHODS AND MATERIALS

Selection of Subjects

The purpose of this study was to determine the comparative study on selected physiological variables between football players and handball players. The study was conducted on 30 men players out of which 15 were football and 15 were handball players. Their age ranged from 19 to 22 years. The nature and importance of this study was explained to the subjects and they were expressed their willingness to participate as a subjects for this study. The subjects were selected from Pondicherry University, Puducherry.

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Selection of Variables

The investigator reviewed the available scientific literature on the basis of discussion with experts, feasibility criteria, and availability of equipment's and relevance of the present study variables.

Variables and Tests

The following motor fitness elements were selected as variables for this study.

Table I

Variables	Tests
Cardio Vascular Endurance	1 mile run or walk test
Resting pulse rate	Radial arteries beats per minute
Breath holding time	Mercury manometer

Statistical Technique

The data collected from the two groups on the selected variables was statistically examined using independent t-test. As highly precise sophisticated instruments were not used in this study for testing purpose, the level of significance was fixed at 0.05 level of confidence. The "t" ratio analyzing with the help of SPSS software.

RESULTS

The purpose of this study was to find out the significant difference between football and handball players on selected criterion variables such as cardio vascular endurance, resting pulse rate and breath holding time.

The collected data on selected criterion variables were statistically analyzed by using independent 't' ratio to find out the significant difference between district football players and hockey players. In all the cases, 0.05 level of confidence was fixed to test the significance, which was considered as an appropriate.

Table-1 Mean comparison of Football Players and Handball Players on selected variables

Variables	Football			Handball			t-ratio
	N	Mean	SD	N	Mean	SD	
Endurance	15	7.09	0.83	15	8.30	0.98	7.305*
Resting pulse rate	15	64.60	6.18	15	63.80	4.84	0.39
Breath holding time	15	1.24	0.09	15	1.19	0.20	0.88

* Significant at the P<0.05 level of confidence (t.05 (14) =2.145)

It is observed from table II that the mean value of football and handball players are 7.09, 8.30(endurance),64.60, 63.80 (resting pulse rate) and 1.24, 1.19 (breath holding time).Since the calculated 't' values 7.305 (endurance) is greater than tabulated 't' value of 2.145 at 0.05 level of significant with 14 degrees of freedom.

There are no significant difference in resting pulse rate and breathe holding time between football players and handball players.

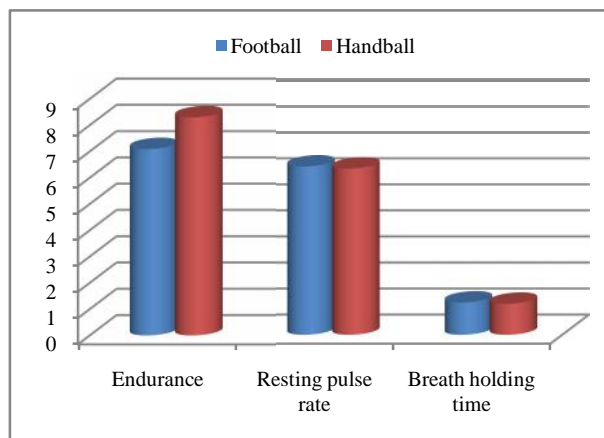


Figure- 1 Graphical Representation of Mean scores of Football and Handball Players

DISCUSSION

The statistical analysis of data revealed that there was significant difference in endurance between football and handball players. The previous investigators have reported Cardio Vascular Endurance is required for a player to perform well during an indoor soccer game because a high level of aerobic fitness decreases the probability of reaching fatigue (Alvarez *et al.*, 2009). Castagna *et al.* (2009) investigated the physiological demands during an indoor soccer game and reported high oxygen uptake rates and heart rates, indicating that aerobic fitness is a predominant requirement for success in indoor soccer. The results of the present study are also in line with the observation by Alcaraz and others (2008) that heavy resistance circuit training may be an effective training strategy for the promotion of both strength and cardiovascular adaptations. Senthil kumar P (2015) It was concluded that due to the effect of high intensity circuit resistance training the selected strength (back strength and muscular strength), and physiological parameters (vo2max, resting pulse rate and breathe holding time) have significantly altered.

CONCLUSION

With the limitations of the study it may be concluded that, there is a significant difference in endurance between football and handball players and it shows that football players are better in the endurance than handball players. Football players scored higher scores in endurance, but on the other hand there was no difference in resting pulse rate and breath holding time. Endurance, resting pulse rate and breath holding are vital to the performance of fundamental motor skills like running and walking.

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