

# Comparative Analysis of Selected Physiological Variables among University Men Basketball Football and Volleyball Players

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## Abstract

The purpose of this study was to compare the selected physiological variables among university men basketball football and volleyball players. To achieve the purpose each twenty university level basketball, football and volleyball players were selected as subjects from Pondicherry. Data were collected on the selected variables namely resting pulse rate, and breathe holding time. One way analysis of variance (ANOVA) was used for statistical analysis. The result of the study showed that there was significant difference among players in pulse rate and there was no significant difference in breathe holding time.

**Key words:** Resting pulse rate, Breathe holding time, Basketball, Football, Volleyball.

## Introduction

Sports have a very important role in modern society. It is important for an individual, a group, a nation and indeed the world. Sports performance is the result and expression of the total personality of a sports man. The development of a sports man enabling him to achieve high level of performance is usually concerned in four areas namely physical power, social adjustment, psychological development and physiological efficiency. Different activities make different demands on the organism with respect to circulatory, respiratory, metabolic and neurological and temperature regulating functions. (Anaheim David D, 1987)

The scientific study of exercise physiology is becoming increasingly important with the growing realization of the relation of exercise to health. Field and laboratory observations of exercise in human subject are being supplemented with physiology, biochemical and hematology studies on laboratory animals. With the result many of the phenomena associated with acute and chronic exercise can now be explained at cellular and molecular levels. (Guyton Arther C, 1976).

## Statement of Problem

The purpose of the study was to compare selected physiological variables among university men basketball, football and volleyball players.

## Hypothesis

It was hypothesized that there would be significant difference in selected physiological variables among university men basketball, football and volleyball players.

## Review of Literature

Anthony(2008) conducted a study to compare the selected physiological variables in breathe holding time, pulse rate and blood pressure of high altitude and sea level football players on the basis of analysis of data the following conclusions were drawn. The sea level football players showed significant difference than the high altitude football players on breathe holding time and also there was no significant difference between sea level and high altitude football players on pulse rate and blood pressure.

Aditya (2005) made an attempt to compare the selected physiological variables such as resting pulse rate and anaerobic power among all India inter university table tennis men players at different topography. To achieve the purpose sixty men inter university table tennis players from various zone like north, south east and west zones were selected as a subjects at randomly. The data were collected to analysis the significant difference among the table tennis players. On the basis of result following conclusions were drawn. There was significant difference in resting pulse rate among the North, South, East and west zone all Indian inter table tennis men players and also there was an insignificant difference in anaerobic power among the North, South, East and west zone all Indian inter table tennis men players.

## Methodology

The purpose of this study was to compare the selected physiological variables among university basketball, football and volleyball players. In order to achieve the purpose of this study twenty players each from basketball, football and volleyball players, who played in the inter-zonal university matches they were selected at randomly. These players had sufficient experience in the game. The subjects were more or less of the same age and their age group is between 18 to 24 years.

## Selection of Variables

The following physiological variables were selected to this study.

- i. Resting pulse rate
- ii. Breathe holding time

## Statistical Analysis

The data which were collected from the subjects were treated statistically with one way Analysis of Variance (ANOVA) was employed. To find out the paired means significant difference, the scheff'e's post hoc test was used.

**Result and Discussions**

**Table-I**  
**One Way Analysis of Variance of Resting Pulse Rate of Three Groups**  
**(Scores in Beats per Minutes)**

Mean values			Source of variance	Sum of squares	Degree of freedom	Mean squares	Obtain F- value	Table F-value
Volley ball	Basket ball	Foot ball	Sum of Total	885.6	59	15.01	18.56*	3.15
66.7	63.45	60.8	Sum of Between	349.30	2	174.65		
			Sum of With in	536.35	57	9.41		

Table F-ratio at 0.05 level of confidence for 2 and 57 (df) =3.15 \* Significant

Table I shows the obtained means in resting pulse rate for volleyball was 66.7, basketball players was 63.45 and football players was 60.8. The obtained F value on the scores 18.56 was greater than the required F value 3.15, to be significant at 0.05 level. This proved that there was significant differences existed among volleyball basketball and, football players in resting pulse rate.

Since significant differences were recorded, the results were subjected to post hoc analysis using scheffe’s confidence interval test. The result were presented in Table II

**Table-II**  
**Ordered Scheffe’s Post-Hoc Test Ordered Means and Difference between the**  
**Means for Resting Pulse Rate**  
**(Scores in Beats per Minutes)**

Volleyball	Basketball	Football	M.D	C.I
66.7	63.45	-	3.25*	2.98
66.7	-	60.8	5.9*	
-	63.45	60.8	2.65	

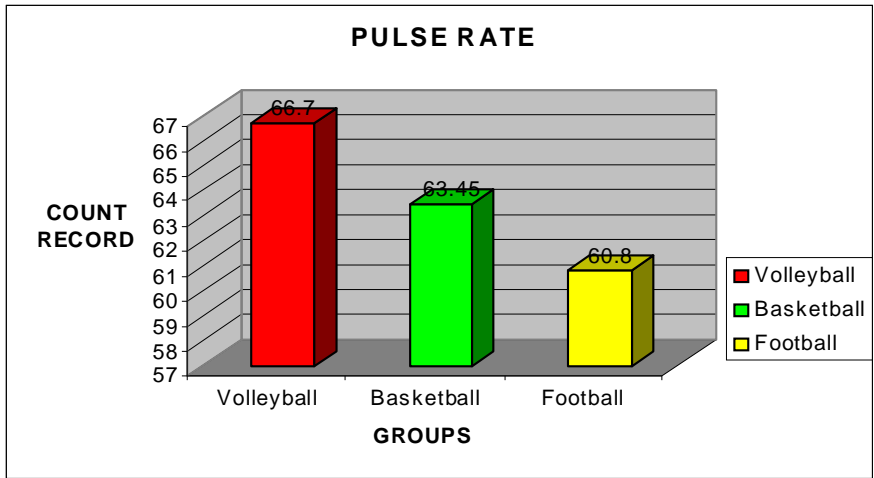
\* Significant at 0.05 level

Table II shows the comparison between volleyball, basketball and football in resting pulse rate. The differences between volleyball, basketball and football players were significant.

It was proved that the university football players were having low resting pulse rate than the basketball and volleyball players.

The mean values of resting pulse rate among volleyball, basketball and football players were presented through a bar diagram in figure 1, for better understanding of the results.

**Figure-1**  
**Bar Diagram Showing the Mean Differences among the**  
**Groups on Resting Pulse Rate**  
**(Scores in Beats/Minutes)**



**Table-III**  
**One Way Analysis of Variance of Breathe Holding Time of Three Groups**  
**(Scores in Minutes)**

Mean Value			Source of variance	Sum of squares	Degree of freedom	Mean squares	Obtain F-value	Table F-value
Volley ball	Basket ball	Foot ball						
1.0195	0.994	0.817	Sum of Total	3.750	59	0.0635	4.222	3.15
			Sum of Between	0.484	2	0.242		
			Sum of With in	3.266	57	0.0573		

Table III shows the obtained means in breathe holding time for volleyball was 1.0195, basketball players was 0.994 and football players was 0.817. The obtained F value on the scores 4.22 was greater than the required F value 3.15, to be significant at 0.05 level. This proved that there was significant differences existed among volleyball basketball and, football players in breathe holding time.

Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe’s confidence interval test. The result were presented in Table IV.

**Table-IV**  
**Ordered Scheffe's Post-Hoc Test Ordered Means and Difference between the Means for Breathe Holding Time (Scores in minutes)**

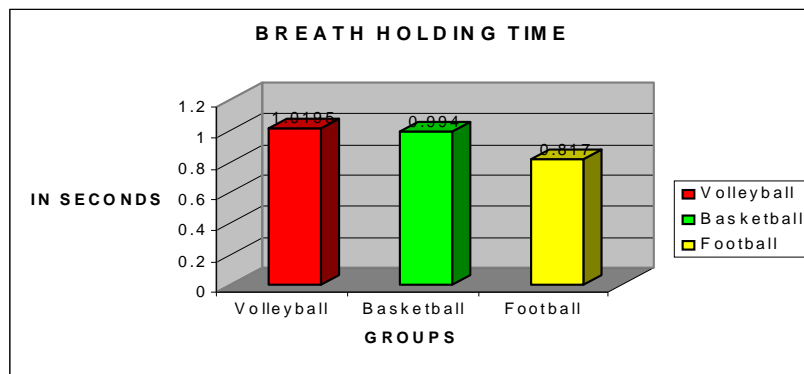
Volleyball	Basketball	Football	Mean differences	Confidence interval
1.0195	0.994	-	0.0255	0.23
1.0195	-	.817	0.2025	
-	.994	.817	0.177	

\* Significant at 0.05 level

Table IV shows the comparison between volleyball, basketball and football in breathe holding time. The differences between volleyball, basketball and football players were not significant.

The mean values of breathe holding time among volleyball, basketball and football players were presented through a bar diagram in figure 2, for better understanding of the results.

**Figure-2**  
**Bar Diagram Showing the Mean Differences among the Groups on Breathe Holding Time (Scores in minutes)**



## Conclusions

From the result and discussion the following conclusions were drawn.

1. It was concluded that there was significant differences among football basketball and volleyball players in resting pulse rate.
2. It was concluded that there was no significant differences among football basketball and volleyball players in breathe holding time.

## References

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