



# A Comparative Study of Pulse Rate of Secondary School Girl Players participation in Kho-Kho, Kabaddi and Athletics

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## Abstract

The pulse rates of the 20 team members of three competitions were recorded and analysed statistically to find out significance of differences if any, in the variable among three conditions by applying one way analysis of variances (F-ratio).

The level of significances the F-ratio obtained by one way analysis of variances was fixed at 0.05 level of confidence. F-ratio obtained for different three conditions was less than the table value 3.00 required for the differences to be significant.

Thus hypothesis was rejected and it was concluded that at school level there is no significant difference in pulse rate of the players of the selected three different events i.e. Kho-Kho, Kabaddi and Athletics (girls), participating in the events conducted.

From the results of the data collected after statistical analysis, it is concluded that there is no significant difference in pulse rate of secondary school girls players participation in Kho-Kho, Kabaddi and Athletics.

*Keywords: Pulse Rate, Athletics, Kho-kho, Kabaddi, Secondary School Girls.*

## Introduction

The physical Education has been enriched through many critical and valid research work. Each and every phase of physical education should be analyzed minutely for the betterment of the profession.

In the field of physical education the knowledge of human physiology is very significant. Unless or until we can receive the actual scientific knowledge about human physiology concerning relevant functions, there will be no upliftment of our profession. The study of cardio-respiratory system is the central focal point of Physical Education. Pulse rate study is related to cardio and arterial system. Hence we require a sound knowledge about the heart and its functioning.

The cardio vascular system is a continuous vascular circuit consisting of a pump, a high pressure distribution circuit, exchange vessels and a low pressure collection and return. The heart is a muscular triangular organ. It consist of cardiac muscle which get impure blood and press out pure blood.

C.C. Chaterjee stated that the term pulse means the expansion and elongation of the arterial walls passively produced by the pressure changes – systole and diastole of ventricles. The frequency of pulse per minute is called pulse rate.

It has been proved that the pulse rate of a person; in standing position is highest and in lying position is lowest. If the normal pulse rate is to obtain, it is to feel in setting position. Hence research took the reading of pulse rate of the subjects in sitting position.

It is stated in Athletics Training and Sports Medicine that heart rate and blood pressure response at given workloads are reduced and contractibility of the heart and blood supply to the peripheral working successively improved.

It is said that the pulse rate of physically conditioned athletic subjects are lower than in the non-athletic subjects. But numerous tabulations of heart rate as related to physical fitness fall to show any correlation.

Frequency of heart beat influences cardiac output. However, even with a constant heart rate, an increase. Venus return will increase cardiac output. In order to accomplish this the heart must work harder, pumping a great volume with each stroke. The researcher attempted to take the physical consideration to undertake this study.

## Statement of the Problem

To find out the pulse rate of the players of Ramkrishna Krida Vidyalaya Secondary School of Amravati District participating in different competitive activities at district level competitions.

## Significance of the Problem

This study is hoped to find out the norms on pulse rate of the school level players of Ramkrishna Krida Vidyalaya Secondary School of Amravati District participating in different competitions and bears following significance :-

1. This study will help to select suitable students to participate in different competitions. At the time of selection, beside selection trial, we can tally the players pulse rate with pulse rate norms.
2. The result will also be useful for the medical personnel in diagnosis based on norms.
3. In coaching profession the result of the study will help a lot.
4. Student themselves can check their pulse rate and can suitable assess the condition of their heart.
5. It will help the students as well as the teachers and parents to get remedy for the tachycardia and brady cardia and strophied conditions of cardio functioning.

## Purpose of the study

The norms of the pulse rate of the players participating in different competitions will be found and that will be helpful in training, selection, health maintenance of the players of the respective competitions.

## Hypothesis

It is hypothesised that the pulse rate of players participating in different competitive activities will differ from activity to activity.

1. The samples were selected from Ramkrishna Krida Vidyalaya Secondary school in Amravati District.
2. The study was conducted on players participating at district level school team participating in different competition.
3. The study was conducted on the girls players only.
4. The study was delimited to senior school girls players i.e. of below 18 years as per the rules of school sport Federation of India.
5. The study was conducted to take the pulse rate of the players in sitting posture.
6. Twenty players of each game were taken for this study.

## Limitations of the study

1. The background experience of the players in competitions were not considered.
2. The atmospheric conditions such as heat air, pressure etc were not controlled.
3. Diet of the players were not controlled and the players were not provided equal diet.
4. The researcher did not control medicines taken by the players for any treatment.

## Review of Literature

**Shephard<sup>1</sup>** stated in his book "Alive Man". The physiology of physical activity that the resting heart rate varies from less than 30 beats per minute in a super athlete to as much as 100 beats per minute in a secondary middle aged students execute awaiting his annual medical examination. In general readings are greater in women and children than in men, they are also increased by standing, smoking and recent ingestion of food. However, if these variables are controlled or eliminated, then there is a fairly close inverse relationship between cardio respirator fitness and pulse rate. Training increases the resting volume without changing cardiac output, thus there is inevitable decrease of resting pulse rate.

**Yoshimitsu et.al.<sup>2</sup>** the following study was conducted to find a practical method for estimating total oxygen uptake of women during exercise based on total heartbeats and aerobic fitness level and examine the influences of the type of exercise on the estimation.

In the result of this study it was discussed the relationship between accumulated heart beats and accumulated oxygen uptake during light, moderate and heavy exercise in two subjects in the cycle ergometer test. The greater mean heart rate the stopper slope (S.R.) was in the same as found in other subjects.

Arthur C. Guyton explains the arterial circulation begins with the aorta the arises from the outflow tract of the left ventricle, then passes through small vessels in all the tissues of the body besides the lungs and finally terminates with the superior and inferior venae cavae entering the right atrium.

## Design of study

This study was designed to find out the pulse rates of the students aged below 18 years (Senior group).

The research study was delimited to the Ramkrishna Krida Vidyalaya Secondary School students.

<sup>1</sup> Roy J. Shephard, "Alive Man", (Spring field : Charles C. Thomas, Publisher, 1972), pp. 51-53

<sup>2</sup> Yoshimitsu et. al., "The Journal of Sports Medicine", (Vol. 30, No. 2, 1990)

## **Selection of Activities**

The researcher took the readings of pulse rate of the players of three events as follows – 1. Kho-Kho 2. Kabaddi 3. Athletics.

## **Selection of the Subjects**

The subjects were selected from the team of Kho-Kho, Kabaddi and Athletics of Ramkrishna Krida Vidyalaya Secondary School of Amravati District who were participating the competition at District level tournaments.

## **Sampling Procedure**

In Kho-Kho and Kabaddi to take the pulse rate reading of 20 subjects from each, selection of some more players were made and best 20 were taken for the study at random.

In case of Athletics, without considering event, 20 subjects were selected at random.

## **Data Gathering Instruments**

With the help of stop watch, the researcher took the pulse rates of the subjects in sitting position in a normal resting condition. The pulse had been felt on the radial artery for one minute twice.

In same way the pulse rates of all the subjects of respecting three events were taken separately.

## **Collection of Data**

The researcher attended the camps of respective competitions early in the morning to collect the data.

## **Analysis of Data and Interpretation**

The data pertaining to the variable were examined by one way analysis of variance (F-ratio) in order to determine the significance of the difference if any among the games : the same of pulse rate has been presented.

**Table 1****Pulse Rate of the players of three events**

Kho-Kho	Kabaddi	Athletics
82	78	60
84	76	72
76	78	66
68	72	70
84	68	74
80	94	64
90	80	82
86	72	78
80	84	82
80	84	81
88	96	75
90	88	74
78	86	67
70	72	89
82	78	78
85	92	68
90	79	76
83	95	78
79	83	77
87	86	90

**Table 2****Table showing the Statistical Analysis****Each observation is reduced by '80' and shown below**

Kho-Kho ( $X_1$ )	Kabaddi ( $X_2$ )	Athletics ( $X_3$ )
02	-02	-20
04	-04	-08
-04	-02	-14
-12	-08	-10
04	-12	-06
00	14	-16
10	00	01
06	-08	-02
00	04	02
08	04	01
10	16	-05
-02	08	-06
-10	06	-13
02	-08	09
05	-02	-02
10	12	-12
02	-01	-04
05	15	-02
10	03	-03
03	06	10
-01		
07		

**Table 3****ANOVA Table**

Source of variation	S.S.	D.F.	M.S.
Between groups	658.033	2	329.02
Within groups (Error)	3370.697	57	59.14

$$\text{Calculated } F = \text{MSB/MSW} = 329.02/59.14 = 5.563$$

The level of significance, F ratio obtained by one way analysis of variance was fixed at 0.05 level of confidence which was considered to be appropriate in view of the fact that highly sophisticated instruments and equipments were not used for more level of significance.

The analysis of data from the table shows that there was no significant difference in the selected variable as the F-ratio obtained for different conditions was less than the value of 3.00 (Tabulated F = 4.61) required for the F-ratio to be significant at 0.05 level.

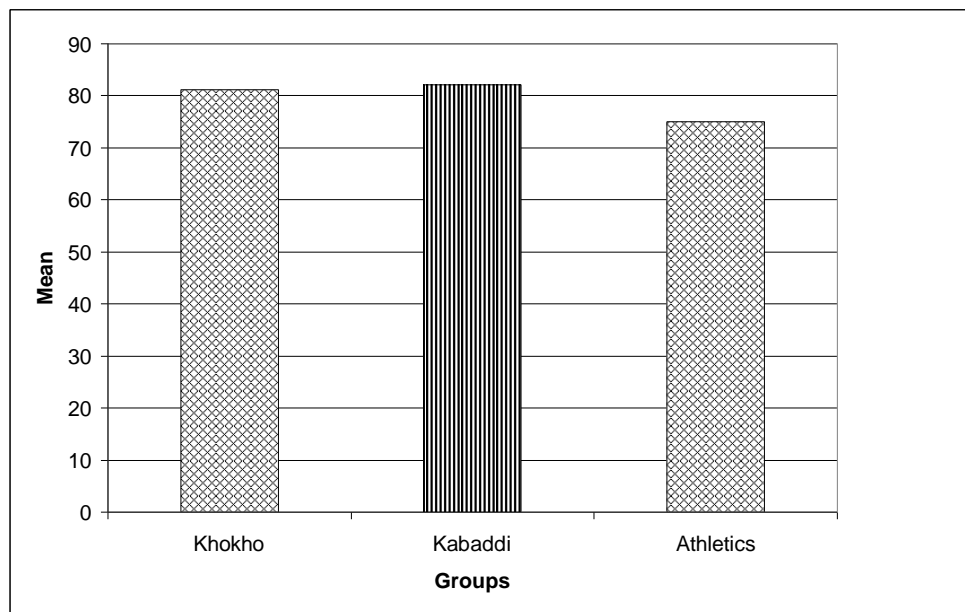
### **Discussion of Findings**

The analysis of data using one way analysis of variance (F-ratio) showed that there was no significant difference in the selected physiological variable among different condition. On the basis of the result obtained from analysis of the data pertaining to the pulse rate, the hypothesis was rejected as the variable did not show significant difference among the three different condition.

### **Conclusion**

From the results of the data collected after statistical analysis, it is concluded that there is no significant different in puberate of secondary school girls players participating in Kho-Kho, Kabaddi and Athletics in RamKrishna Krida Vidyalaya, Amrvati.





**Figure 1 Showing mean pulse rate of the players of three events**

### Recommendations

A similar study may be undertaken with larger number of subjects.

A similar type of study may be conducted with some other physiological variables.

### References

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