STUDY ON HIGH AEROBIC AND LOW AEROBIC CAPACITIES ON RESTING CARDIAC RATE OF BOYS IN RAYALASEEMA REGION

Dr. S. Ravi Sankar

Rayalaseema College of Physical Education

Proddatur, Kadapa District, Andhra Pradesh, INDIA

Abstract: The purpose of this study was to investigate the study on high aerobic and low aerobic capacities on the resting cardiac rate in boys in rayalaseema region. To achieve this, upper 30th percentile 250 students were randomly selected for high aerobic capacity group and from the lower 30th percentile 250 students were randomly selected for low aerobic capacity group. resting cardiac rate was chosen as the dependent variable for the study. The selected subjects were divided into two groups. Experimental Group I high aerobic capacities (HAC), Group II low aerobic capacities (LAC) for a period of one academic year. Data on the dependent variable were collected through pre-tests and post-tests. Resting cardiac rate was assessed using the heart rate monitor method. The collected data from the two groups were statistically analysed for significance if any, by employing uncorrelated t-ratio. All the data was analysed by using computer with SPSS statistical package. The level of confidence is fixed at 0.01 levels for significance. The study found that systematic and well-planned high aerobic capacity and low aerobic capacity significantly improved the resting cardiac rate in boys in rayalaseema region.

Key Words: Aerobic Capacity, Rayalaseema Region, Resting Cardiac Rate.

I. INTRODUCTION

Physical fitness encompasses the capacity to execute any task with vitality and mental acuity, free from excessive weariness, while possessing abundant energy to relish recreational activities and tackle unexpected challenges with ease **(Robert v Hockey, 1993)**. Resting heart rate (RHR) is the number of times your heart beats per minute when you are at rest, and it's a crucial health indicator that predicts cardiovascular disease and mortality risk in both healthy individuals and those with existing conditions. An elevated RHR is associated with increased mortality, poorer health, and accelerated biological aging, while a lower RHR, achieved through physical fitness and interventions like vagal activation or sympathetic inhibition, is linked to longevity. RHR is determined by factors such as intrinsic sinus rate, autonomic nervous system activity, hormones, and cardiorespiratory fitness. The number of times heart contracts and relaxes in each minute while the body is at rest is called as resting cardiac rate. (**Robert V. Hokey (1993**).

II. METHODOLOGY

For the purpose of this research, To achieve this, upper 30th percentile 250 students were randomly selected for high aerobic capacity group and from the lower 30th percentile 250 students were randomly selected for low aerobic capacity group were studying Under Graduate course during the academic year 2007-08 in the colleges located in Rayalaseema region, Andhra Pradesh, India. In order to ensure a balanced distribution, the subjects were divided into two groups, with each group consisting of 250 individuals. These groups were designated as the Experimental Group I high aerobic capacities (HAC), Group II low aerobic capacities (LAC). To evaluate the results, a comparative analysis was conducted between the pre-test and post-test data within the high aerobic capacity and low aerobic capacity groups. The

resting cardiac rate data collected from all two groups. Given the limited number of participants, the significance level was 0.05. It is important to acknowledge that various external factors may influence the selected variables, as mentioned in the limitations. Moreover, if the F ratio of adjusted post-test means demonstrated statistical significance, Scheffe's posthoc test was employed to examine the paired mean differences among the groups for each specific variable individually.

III. ANALYSIS OF THE DATA AND RESULTS OF THE STUDY

The analysis of the data on resting cardiac rate of High and low aerobic groups were carried out and presented in table 1.

Table 1: ***Analysis of Covariance for the Pre Test, Post Test and Adjusted Post Test Data on Resting Rate of Aerobic Training, Yogic Practices and Control Groups***

Groups	Mean	Mean difference	S.D	't' ratio
High aerobic	**69.280**	**3.096**	**1.880**	**4.124***
Low aerobic	**72.376**		**2.951**	

The table value for significance at 0.01 level with df 2 and 498 is 2.576.

The table 1 show that means of high and low aerobic groups are 69.280 bpm and 72.376 bpm respectively. The mean difference is 3.096. The standard deviation of high and low aerobic groups are 1.880 and 2.951 respectively. The obtained 't' ratio 4.124 is greater than the table value of 2.576 for degree of freedom 2 and 498 required for significance at 0.01 level.

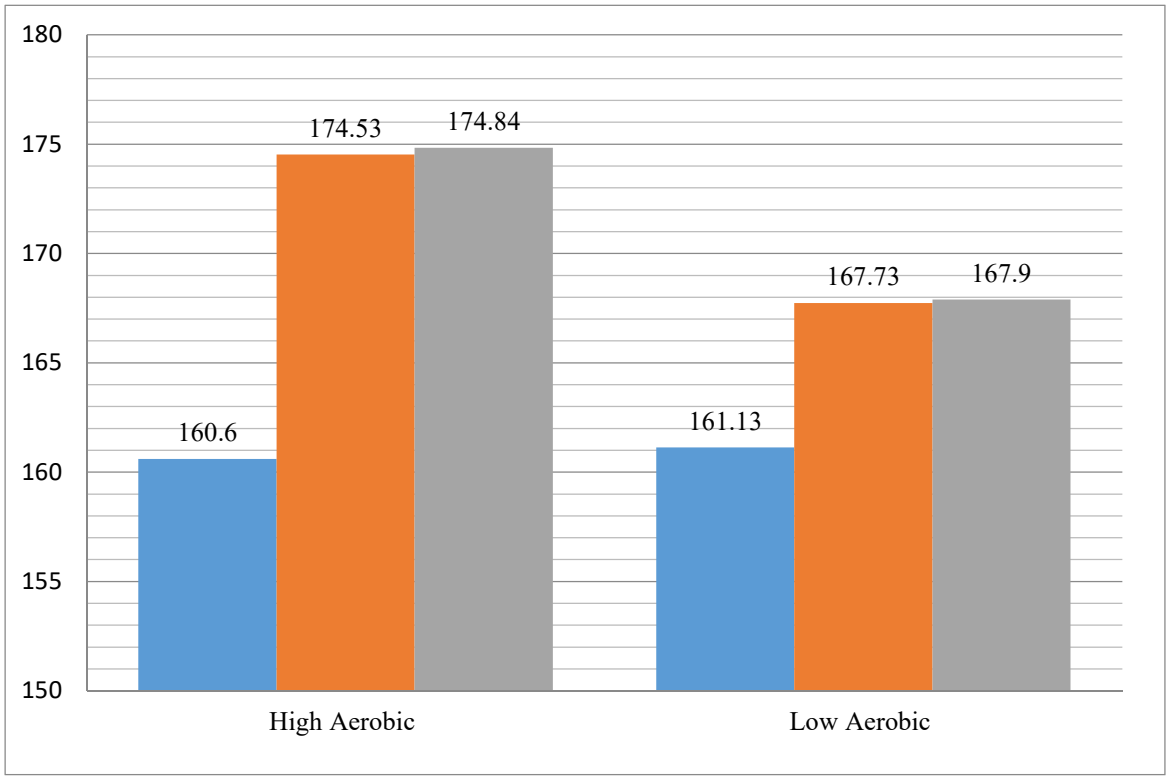

***Figure V**: Line Graph Showing Pre Test, Post Test and Adjusted Post Test Means of Aerobic Training Group, Yogic Practices Group and Control Group on Basal Metabolic Rate*

DISCUSSION AND CONCLUSIONS:

The result of the study indicated that there is a significant difference between high and low aerobic groups on resting heart rate.

It may be concluded from the results that significant difference exists in resting cardiac rate between high and low aerobic group i.e., the resting cardiac rate in high aerobic group is lower as compared to low aerobic group. Mean values on resting cardiac rate of high and low aerobic group are graphically depicted in figure 1.

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