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Impact of Aerobic Training with Different Intensities on Resting Heart Rate

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Abstract

The purpose of the study was to find out the impact of aerobic training with different intensities on resting heart rate. To achieve this purpose of the study, forty-five men students studying in the Department of Physical Education and Sports Sciences, Annamalai University, Annamalai nagar, Chidambaram were selected as subjects at random. The selected subjects were divided into three equal groups of fifteen subjects each, such as low intensity aerobic training group, high intensity aerobic training group and control group. The group I underwent low intensity aerobic training programme and group II underwent high intensity aerobic training programme for three days per week for twelve weeks. Group III acted as control who did not participate any special training programmes apart from their regular physical education activities as per their curriculum. The following variable namely resting heart rate was selected as criterion variable. All the subjects of three groups were tested on selected dependent variable at prior to and immediately after the training programme. The analysis of covariance was used to analyze the significant difference, if any among the groups. The .05 level of confidence was fixed as the level of significance to test the "F" ratio obtained by the analysis of covariance, which was considered as an appropriate. The results of the study revealed that there was a significant difference among low intensity aerobic training group, high intensity aerobic training group and control group on resting heart rate. And also it was found that there was a significant reduction on resting heart rate due to high intensity aerobic training.

Keywords: Aerobic, Intensity, Resting Heart Rate.

Introduction

Aerobic exercise is physical exercise that intends to improve the oxygen system. Aerobic means "with oxygen", and refers to the use of oxygen in the body's metabolic or energy-generating process. Many types of exercise are aerobic, and by definition are performed at moderate levels of intensity for extended periods of time. In general, Aerobic exercise is performed at a moderate level of intensity over a relatively long period of time. For example, running a long distance at a moderate pace is an aerobic exercise, but sprinting is not. Playing singles tennis, with near-continuous motion, is generally considered aerobic activity, while golf or two person team tennis, with brief bursts of activity punctuated by more frequent breaks, may not be predominantly aerobic. Some sports are thus inherently "aerobic", while other aerobic exercises, such as fartlek training or aerobic dance classes, are designed specifically to improve aerobic capacity and fitness.

Methodology

The purpose of the study was to find out the impact of aerobic training with different intensities on resting heart rate. To achieve this purpose of the study, forty-five men students studying in the Department of Physical Education and Sports Sciences, Annamalai University, Annamalai nagar, Chidambaram were selected as subjects at random. The selected subjects were divided into three equal groups of fifteen subjects each, such as low intensity aerobic training group, high intensity aerobic training group and control group. The group I underwent low intensity aerobic training programme and group II underwent high intensity aerobic training programme for three days per week for twelve weeks. Group III acted as control who did not participate any special training programmes apart from their regular physical education activities as per their curriculum. The following variable namely resting heart rate was selected as criterion variable. All the subjects of three groups were tested on selected dependent variable at prior to and immediately after the training programme. The analysis of covariance was used to analyze the significant difference, if any among the groups. The .05 level of confidence was fixed as the level of significance to test the "F" ratio obtained by the analysis of covariance, which was considered as an appropriate. The low intensity aerobic training group and high intensity aerobic training group underwent their respective training programme for twelve weeks for

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three days per week. Training was given in the morning session. The training session includes warming up and limbering down. Every day the workout lasted for 45 to 60 minutes approximately. The subjects underwent their respective training programmes as per the schedules under the strict supervision of the investigator. During experimental period control group did not participate in any of the special training.

Results

The influence of low intensity aerobic training and high intensity aerobic training on resting heart rate was analyzed and presented below.

Table I. Analysis of covariance of the data on resting heart rate of pre and post tests scores of low intensity, high intensity aerobic trainings and control groups.

Test	Low Intensity Aerobic Training Group	High Intensity Aerobic Training Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test								
Mean	67.33	67.47	67.28	Between	201.07	2	100.54	0.183
S.D.	0.812	0.718	0.653	Within	23093.3	42	549.84	
Post Test								
Mean	66.47	65.38	67.13	Between	3621.07	2	1810.54	3.35*****
S.D.	0.718	0.808	0.618	Within	22703.3	42	540.55	
Adjusted Post Test								
Mean	66.35	65.29	67.26	Between	5302	2	2651	42.83*****
				Within	2537.43	41	68.89	

* Significant at .05 level of confidence.
(The table values required for significance at .05 level of confidence for 2 and 42 and 2 and 41 are 3.222 and 3.225 respectively).

The table V shows that the pre-test mean values on resting heart rate of low intensity aerobic training group, high intensity aerobic training group and control group are 67.33, 67.47 and 67.28 respectively. The obtained "F" ratio of 0.183 for pre-test scores is greater than the table value of 3.222 for df 2 and 42 respectively for significance at .05 level of confidence on resting heart rate. The post-test mean values on resting heart rate of low intensity aerobic training group, high intensity aerobic training group and control group are 66.47, 65.38 and 67.13 respectively. The obtained "F" ratio of 3.35 for post-test scores is greater than the table value of 3.222 for df 2 and 42 respectively for significance at .05 level of confidence on resting heart rate. The adjusted post-test means on resting heart rate of low intensity aerobic training group, high intensity aerobic training group and control group are 66.35, 65.29 and 67.26 respectively. The obtained "F" ratio of 42.83 for adjusted post-test means is greater than the table value of 3.225 for df 2 and 41 required for significance at .05 level of confidence on resting heart rate. The results of the study indicated that there was a significant between the adjusted post-test means on resting heart rate of low intensity aerobic training group, high intensity aerobic training group and control group. Since, three groups were compared whenever the obtained "F" ratio for adjusted post test was found to be significant the Scheffe's test to find out the paired mean difference and it was presented in table II.

Table II. The scheffe's test for the differences between paired means on resting heart rate

Low Intensity Aerobic Training Group	High Intensity Aerobic Training Group	Control Group	Mean differences	Confidence interval value
66.35	65.29	-	1.06*	0.86
66.35	-	67.26	0.91*	0.86
-	65.29	67.26	1.97*	0.86

* Significant at .05 level of confidence.

The table II showed that the mean difference values between low intensity aerobic training and high intensity aerobic training groups, low intensity aerobic training and control groups and high intensity aerobic training and control groups on resting heart rate were 1.06, 0.91 and 1.97 respectively. The results of the study showed that there was a significant difference between low intensity aerobic training and high intensity aerobic training groups, low intensity aerobic training and control groups and high intensity aerobic training and control groups on resting heart rate.

Conclusions

On the basis of the results obtained in the present study, the following conclusions were drawn:

1. There was a significant difference among low intensity aerobic training group, high intensity aerobic training group and control group on resting heart rate.
2. There was a significant reduction on resting heart rate due to high intensity aerobic training.

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