



Effect of Aerobic and Anaerobic Training on Selected Physiological Parameters among University Men Students

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Abstract

The purpose of the study was to find out the effect of aerobic and anaerobic training on selected physiological parameters among university men students. To achieve this purpose of the study sixty men university men students were selected studying Bachelor's degree in the Department of Physical Education, Annamalai University from Chidambaram, Tamil Nadu, India at randomly. They were divided into three equal groups of each twenty players as Aerobic Training group (Group I), anaerobic training group (Group II) and act as control group (Group III). Group I and II were underwent their respective training programme for three days per week for twelve weeks who did not underwent any special training programme apart from their regular physical education curriculum. The following physiological variables such as resting pulse rate and vital capacity were selected as criterion variables. The resting pulse rate was assessed by In beats/ minute and vital capacity was assessed by using in millilitres. All the subjects of three groups were tested on selected criterion variables at prior to and immediately after the training programme as pre and post test selected. Analysis of covariance (ANCOVA) was used to find out the significant difference if any, among the groups on each selected criterion variables separately. In all the cases, .05 level of confidence was fixed to test the significance, which was considered as an appropriate. There was a significant difference among aerobic training group, anaerobic training group and control group on physiological variables among resting pulse rate and vital capacity.

Keywords: Aerobic, Anaerobic, Men Students.

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Introduction

Aerobic exercise is physical exercise of relatively low intensity that depends primarily on the aerobic energy-generating process. Aerobic literally means "living in air", and refers to the use of oxygen to adequately meet energy demands during exercise via aerobic metabolism. Anaerobic exercise is exercise intense enough to trigger lactic acid formation. It is used by athletes in non-endurance sports to promote strength, speed and power and by body builders to build muscle mass. The resting heart rate of the body (commonly called RHR) is the number of contractions of the heart that occur in a single minute while the body is at complete rest. This number will vary depending upon the age, gender, and general health of a person. There will also be a large different in the resting heart rate of athletes when compared to non-athletes. Vital capacity is the maximum amount of air a person can expel from the lungs after a maximum inhalation. It is equal to the sum of inspiratory reserve volume, tidal volume, and expiratory reserve volume. A normal adult has a vital

capacity between 3 and 5 litres and a human being vital capacity depends on age, sex, height, weight and ethnicity.

Methodology

The purpose of the study was to find out the effect of aerobic and anaerobic training on selected physiological parameters among university men students. To achieve this purpose of the study sixty men university men students were selected studying Bachelor's degree in the Department of Physical Education, Annamalai University from Chidambaram, Tamil Nadu, India at randomly. They were divided into three equal groups of each twenty players as Aerobic Training group (Group I), anaerobic training group (Group II) and act as control group (Group III). Group I and II were underwent their respective training programme for three days per week for twelve weeks who did not underwent any special training programme apart from their regular physical education curriculum. The following physiological variables such as resting pulse rate and vital capacity were selected as criterion variables. The resting pulse rate was assessed by in beats/ minute and vital capacity was assessed by using in millilitres. All the subjects of three groups were tested on selected criterion variables at prior to and immediately after the training programme as pre and post test selected. Analysis of covariance

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(ANCOVA) was used to find out the significant difference if any, among the groups on each selected criterion variables separately. In all the cases, .05 level of confidence was fixed to test the significance, which was considered as an appropriate.

Training Programme

During the training period, group I underwent aerobic training programme, group II underwent anaerobic training programme, for three days per week for twelve weeks in addition to their regular physical education activity, every day workout lasted about 45-60 minutes including warm-up and warm down exercises. Group III acted as control who did not participate any specific training, however, they performed regular physical education programme.

Statistical Analysis

The data was collected from three groups at prior to and after completion of the training period on selected criterion variables, were statistically examined for significant difference if any, by applying analysis of covariance (ANCOVA). The Scheffe's post hoc test was applied to know the significant difference between groups, if they obtained 'F' ratio was significant. In all cases .05 level of confidence was utilized to test the significance.

Result and Discussion

The analysis of covariance of the data obtained for resting pulse rate of pre-test and post-test of aerobic training group and anaerobic training group and control group have been presented in Table I.

Table I. Analysis of covariance for the pre and post test scores on resting pulse rate of aerobic training group anaerobic training group and control group

Test	Aerobic Training Group	Anaerobic Training Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	F – Ratio
Pre Test Mean	69.22	69.75	70.25	Between	11.0	2	5.50	1.63
				Within	193.7	57	3.38	
Post Test Mean	66.61	64.81	70.35	Between	320.7	2	160.35	34.57*
				Within	264.5	57	4.46	
Adjusted Post Test Mean	66.69	64.80	70.72	Between	302.3	2	151.15	32.59*
				Within	259.6	56	4.46	

The required table value for significant at 0.05 level of confidence for 2 and 57 (df=3.15, 2 and 56 (df)=3.15 respectively).

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

ADJUSTED POST TEST MEANS				Confidence Interval
Aerobic Training Group	Anaerobic Training Group	Control Group	Mean Differences	
66.69	64.80		1.89*	1.73
67.48		70.27	3.58*	1.73
	64.80	70.27	5.47*	1.73

*Significant

While considering the two training methods, from the results presented in table-II it was found that

anaerobic exercise group was better than aerobic training group in reducing resting pulse rate.

Table III. Analysis of covariance for the pre and post test scores on vital capacity of aerobic training group anaerobic training group and control group

Test	Aerobic Training Group	Anaerobic Training Group	Control Group	Source of Variance	Sum of Squares	Df	Mean Squares	F – Radio
Pre Test Mean	3440.00	3450.00	3460.00	Between	3000.00	2	1500.00	0.01
				Within	8357000.00	57	198976.19	
Post Test Mean	3496.67	3603.33	3486.67	Between	125444.44	2	62722.22	0.31
				Within	8567000.00	57	203976.19	
Adjusted Post Test Mean	3506.74	3603.33	3476.59	Between	131511.64	2	65755.82	33.49*
				Within	80502.18	56	1963.47	

The required table value for significant at 0.05 level of confidence for 2 and 57 (df) = 3.15, 2 and 56 (df) = 3.15 respectively)

Table IV. The scheffe's test for the difference between paired means on vital capacity

ADJUSTED POST TEST MEANS				Confidence Interval
Aerobic Training Group	Anaerobic Training Group	Control Group	Mean Differences	
3506.74	3603.33		96.59*	41.88
3506.74		3476.59	30.15	41.88
	3603.33	3476.559	126.74*	41.88

*Significant

Table –IV shows that the adjusted post-test means differences on vital capacity between aerobic training and anaerobic training groups; aerobic training and control groups; and anaerobic training and control groups are 96.59, 30.15 and 126.74 respectively.

Discussion Findings

The analysis of covariance indicated the experimental group–I (aerobic exercise), experimental group–II (anaerobic exercise) were significantly improved the resting pulse rate. It may be due to the nature of varied regimens of aerobic exercise and anaerobic exercise. Which have influenced to increase the physiological level and function of various organs and systems. Further, finding of the study showed that the control group did not improve the resting pulse rate. However, the experimental group–II had more effect on the improvement of resting pulse rate greater than the improvement of resting pulse rate greater than the experimental group–I.

The analysis of covariance indicated that experimental group–II (anaerobic exercise) were significantly improved the vital capacity. It may be due to the nature of varied regimens of anaerobic exercise. Which would have influenced to increase the physiological level and function of various organs and systems. Further, finding of the study showed that the control group did not improve the vital capacity. However, the experimental group–II had more effect on the improvement of vital capacity greater than the experimental group –I.

Conclusion

Within the limitations of this study, the following conclusions were down:

1. Significant decreases on resting pulse rate have been observed following twelve weeks of aerobic and anaerobic training, when compared to control group.
2. When comparing the two experimental groups, anaerobic training was significantly better than the aerobic training in reducing resting pulse rate.
3. The participants of anaerobic training have exhibited significant increase on vital capacity when compared to aerobic training and control groups.
4. It was also concluded that the aerobic training group do not differ significantly when compared to control group in vital capacity.

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