Effects of Aerobic and Anaerobic Training on Selected Hematological Variables of Anna University Men Players

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ABSTRACT
Selected Aerobic and Anaerobic training were applied as training methods on two different experimental groups of Anna University Men students with a control group of equal number for a period of twelve weeks for training significance of Total cholesterol. The status of Total cholesterol of all the three groups was measured through Blood sample test, before and after the training period. The obtained pre and post test scores were analyzed through Analysis of Covariance (ANCOVA) for statistical significance. Schefee's post hoc-test was applied to find out the better group among the three. The statistical significance detected on Aerobic Training 176.72 over the control group188.97 and anaerobic training group 181.91 reveals is a significant difference between the scorers of pre and post treatment. The significant difference between the scorers over the aerobic training and control group was due to the designed capsule of anaerobic training underwent by the anaerobic training group(Group-B)for a period of twelve weeks. The results prove that the designed aerobic training package had made a significant impact on the Total cholesterol of the anaerobic training group compared to the other two groups.

INTRODUCTION

Aerobic exercise refers to exercise that involves or improves oxygen consumption by the body. 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. To obtain the best results, an aerobic exercise session involves a warming up period, followed by at least 20 minutes of moderate to intense exercise involving large muscle groups, and a cooling down period at the end.

Aerobics included scientific exercise programs using running, walking, swimming and bicycling. The book came at a fortuitous historical moment, when increasing weakness and inactivity in the general population was causing a perceived need for increased exercise. It became a best seller. Cooper's data provided the scientific baseline for almost all modern aerobics programs, most of which are based on oxygen-consumption equivalency.

Anaerobic exercise is exercise intense enough to trigger anaerobic metabolism. It is used by athletes in non-endurance sports to promote strength, speed and power and by body builders to build muscle mass. Muscle energy systems trained using anaerobic exercise develop differently compared to aerobic exercise, leading to greater performance in short duration, high intensity activities, which last from mere seconds up to about 2 minutes (Medb o et al, 1988).

Hematology, also spelled haematology (from the Greek work "blood"), is the study of blood, the blood-forming organs, and blood diseases. Hematology includes the study of etiology, diagnosis, treatment, prognosis, and prevention of blood diseases that affect the production of blood and its components, such as blood cells, hemoglobin, blood proteins, and the mechanism of coagulation. The laboratory work that goes into the study of blood is frequently performed by a medical technologist.

PURPOSE OF THE STUDY

To assess the post training effect of designed aerobic training and anaerobic training on Total cholesterol among the Anna University men players.

METHODOLOGY

For this study forty five (N=45) men students studying Jayam College of Engineering and Technology, Dharmapuri, Tamilnadu, Inida were selected as subjects. This College is affiliated to Anna University Chennai. Subjects were divided in to three groups of fifteen each (n=15) namely aerobic training group, anaerobic training group and control group. The experimental groups underwent respective training for 12 weeks and the number of sessions per week was confined to four. The control group did not undergo any specific training. Among various Hematologic related parameters only Total cholesterol was selected as dependent variable and it was assessed by was assessed by Blood sample test.

TRAINING SCHEDULE

The training programme for Aerobic and Anaerobic Training were presented in the Table-1

Table-1
Training Schedule of Aerobic and Anaerobic Training

Twelve Weeks														
Pre test	1	2	3	4	5	6	7	8	9	10	11	12		Post Test
Familiarizing the testing procedure and conducted pre test	Monday		Wednesday		Friday		Tuesday		Thursday					Administered post test
	Stretching & Warming up(7Minutes)													
	1. General Aerobic Training(12Min) 2. Step Aerobic Training(12 Min) 3. Coordinative Abilities(12 Min) 4. Specific Aerobic training(12 Min)					1. General anaerobic Training (12 Min) 2. Strength Training (12 Min) 3. Coordinative Abilities with strength(12 Min) 4. Specific anaerobic training(12 Min)								
	Cool Down Exercises(5 Minutes)													

STATISTICAL ANALYSIS

The data collected from the experimental groups and control group on prior and after experimentation on selected variables were statistically examined by analysis of covariance (ANCOVA) was used to determine differences, if any among the adjusted post test means on selected criterion variables separately. Whenever they obtained f-ratio value in the simple effect was significant the Scheffe's test was applied as post hoc test to determine the paired mean differences, if any. In all the cases .05 level of significance was fixed.

The Analysis of covariance (ANCOVA) on Total cholesterol (TC) of Experimental Groups and Control group have been analyzed and presented in Table -2.

Table – 2
Values of Analysis of Covariance for Experimental Groups and Control Group on Total cholesterol (TC)

Certain Variables	Adjusted Post test Means			Source of Variance	Sum of Squares	df	Mean Squares	'F' Ratio
	Aerobic Training Group – (I)	Anaerobic Training Group – (II)	Control Group – (III)					
Total Cholesterol (TC)	176.72	181.91	188.97	Between	1133.03	2	566.51	33.72*
				With in	688.81	41	16.80	

* Significant at .05 level of confidence

(The table value required for Significance at .05 level with df 2 and 41 is 3.23)

Table 1 shows that the adjusted post test mean value of Total cholesterol (TC) for aerobic training, anaerobic training and control groups, are 176.72, 181.91 and 188.97 respectively. The obtained F-ratio of 33.72 for the adjusted post test mean is more than the table value of 3.23 for df 2 and 41 required for significance at .05 level of confidence. The results of the study indicate that there are significant differences among the adjusted post test means of experimental groups and control group on the decrease of Total cholesterol.

To determine which of the paired means had a significant difference, Scheffe's test was applied as Post hoc test and the results are presented in Table 2.

Table - 2
The Scheffe's test for the differences between the adjusted post tests paired means on Total cholesterol (TC)

| Certain Variables	Adjusted Post test Means			Mean Difference	Confidence Interval
	Aerobic Training Group – (I)	Anaerobic Training Group – (II)	Control Group – (III)		
Total Cholesterol (TC)	176.72	181.91		5.19*	3.75
	176.72		188.97	12.25*	3.75
		181.91	188.97	7.06*	3.75

* Significant at .05 level of confidence
Table 2 shows that the adjusted post test mean difference on aerobic training group and anaerobic training group, aerobic training group and control group, anaerobic training group and control group are 5.19, 12.25 and 7.06 respectively and they greater than the confidence interval value 3.75, which shows significant differences at .05 level of confidence.

It may be concluded from the results of the study that there is a significant difference in Total Cholesterol (TC) between the adjusted post test means of aerobic training group and anaerobic training group, aerobic training group and control group, anaerobic training group and control group. However, the improvement in Total Cholesterol (TC) was significantly decreased for aerobic training group than anaerobic training group and control group.

It may be concluded that the aerobic training group is better than the other anaerobic training group and control group in improving Total Cholesterol (TC).

The adjusted post test means values of experimental groups and control group on Total Cholesterol (TC) are graphically represented in the Figure -1.

FIGURE -1
BAR DIAGRAM ON ORDERED ADJUSTED MEANS OF TOTAL CHOLESTEROL (TC)
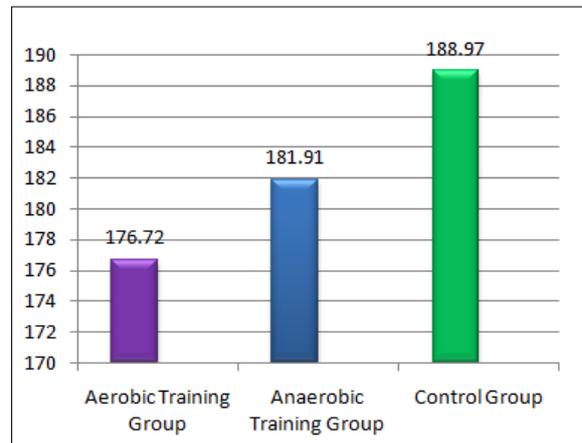
RESULTS AND DISCUSSION
The results of the study indicate that the experimental group's namely aerobic training and anaerobic training had significantly improved in the selected dependent hematological variables namely Total Cholesterol (TC). It is also found that the improvement achieved by the aerobic training was greater when compared to anaerobic training group and control group. These results are in conformity with the findings of the studies undertaken by the following sports scientists (John Parthiban (2012), Kodama et al (2007) and Narayani and Sudhan Paul Raj(2010).

CONCLUSION
The designed aerobic and anaerobic training made impacts on Total Cholesterol during post training assessment among Anna University men players. Statistically the aerobic training group has proved a better significance than anaerobic and control groups. Based on the findings, it is concluded that the designed aerobic training package could be of notable capsule training to decrease positive total cholesterol for college students.

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