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Effect of Aerobic Training on Vo_2max in College Men

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Abstract
The purpose of the study was to investigate the effect of aerobic training on VO_2max of college men. Thirty students from Department of Engineering and Technology, Annamalai University were selected as subjects. The age, height and weight of the subjects ranged from 17 to 25 years, 162 to 175 centimeters and 56 to 70 kg respectively. The selected subjects were randomly assigned into two equal groups of 15 subjects each. Group I underwent aerobic training, group II acted as control. Prior to and after the training the subjects were tested on VO_2max using standard test and procedures. Analysis of covariance was used to determine the significantly difference existing between pre test and post test on selected criterion variables. The result of the study proved that due to effect of aerobic training significantly increased the VO_2max of college men.

Keywords: Aerobic training, Physiological Variable and VO2max

Introduction
Aerobic exercise comprises innumerable forms. In general, it is performed at a moderate level of intensity over a relatively long period of time. The word training has been a part of human language since ancient times. It denotes the process of preparation for some task. This process invariably extends to a number of days and even months and year. The basic training procedures will serve better when utilized with modification suited to individuals or a group dealt with. The training programme should look into improving the performance of the athletes and at the same time should prevent injury from taking place (Fox, 1985) [1].

It is a physiological fact that the human organism needs stimulating exercise. When the whole body is subjected to regular muscular activity, requiring vigorous stress on the heart, lungs and muscles, the general efficiency of physiological functions is being improved. Research now helps to keep to keep the heart health and may prevent cardio-vascular diseases. A physically fit heart beats at a lower rate and pumps more oxygen, which denotes the substantial increase of ability to do more physical work. People who keep fit greatly enlarge their fullness of living.

Methodology
Subjects and Variables
The purpose of the study was to investigate the effect of aerobic training on VO_2max of college men. Thirty students from Department of Engineering and Technology, Annamalai University were selected as subjects. The age, height and weight of the subjects ranged from 17 to 25 years, 162 to 175 centimeters and 56 to 70 kg respectively. The selected subjects were randomly assigned into two equal groups of 15 subjects each. Group I underwent aerobic training, group II acted as control. Prior to and after the training the subjects were tested on VO_2max using standard test and procedures. Analysis of covariance was used to determine the significantly difference existing between pre test and post test on selected criterion variables. VO_2max was measured by Astrand – Astrand Nomogram.

Training Protocol
The training programmes were scheduled for one session a day each session lasted between thirty to forty five minutes approximately excluding warming up and warming down. During the training period, the experimental group underwent their aerobic training programme three days per week (alternative days) for eight weeks in addition to their curriculum. The group–I concentrated on aerobic training, the intensity starting from 20minutes @ 50% of HRR to 35 minutes @ 65% HRR, followed from first week to eight weeks.

Experimental Design and Statistical Technique
The experimental design in this study was random group design involving 30 subjects, who were divided at random in to two groups of fifteen each. Both groups selected from the same population. No effort was made to equate the groups prior to the commencement of the experimental treatment. The pretest means of the selected dependent variable was used as a covariate. In order to nullify the initial differences the data collected from the four groups prior to and post experimentation on selected dependent variables were statistically analyzed to find out the significant difference if any, by applying the analysis of covariance (ANCOVA). In all the cases level of confidence was fixed at 0.05 for significance.

Results

Table-1: Analysis of Covariance on Vo_2max of Experimental and Control Groups

	Aerobic Training Group	Control Group	SOV	Sum of Squares	df	Mean squares	'F' ratio
Pre test Mean	2.89	2.92	B	0.009	1	0.009	0.32
SD	0.15	0.18	W	0.82	28	0.029	
Post test Mean	3.39	2.87	B	2.01	1	2.01	26.75*
SD	0.17	0.34	W	2.10	28	0.07	
Adjusted Post test Mean	3.39	2.87	B	2.08	1	2.08	28.22*
			W	1.99	27	0.07	

(The required table value for significance at 0.05 level of confidence with degrees of freedom 1 and 27 is 4.21 and degree of freedom 1 and 28 is 4.20.)

*Significant at .05 level of confidence

It was found from the result of this study that significant differences existing between experimental and control groups, since the obtained 'F' ratio value of adjusted post test means of 28.22 on Vo_2 max was greater than the required table value of 4.21 for degrees of freedom 1 and 27 at 0.05 level of confidence. Hence, it concluded that due to the effect of eight weeks of aerobic training, the Vo_2 max of the subjects was significantly increased.

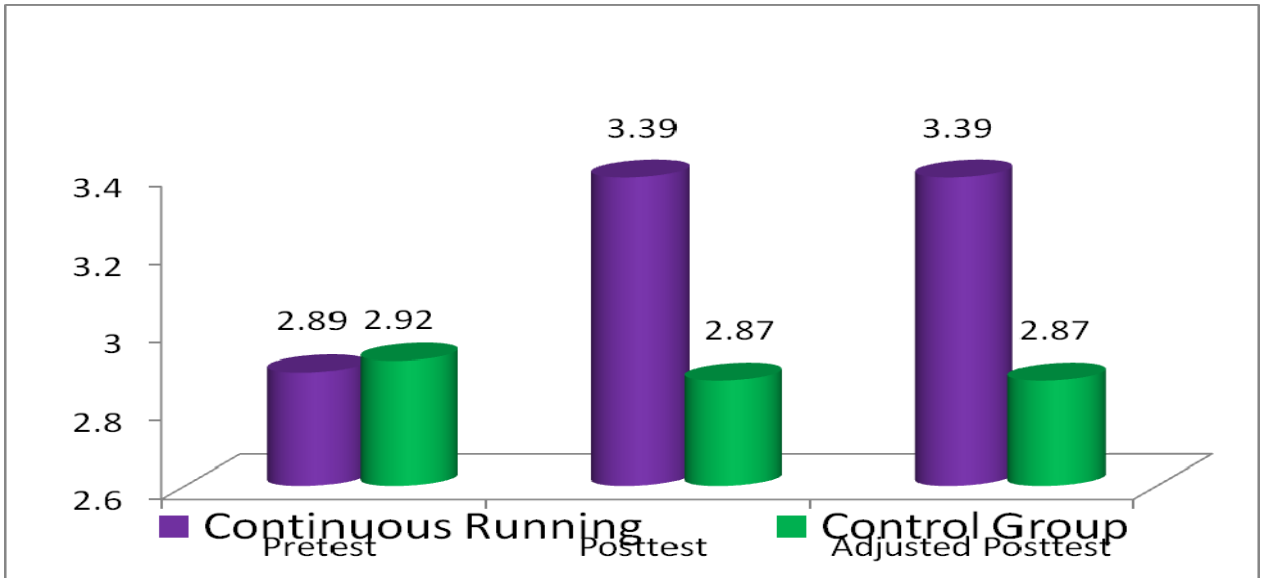

Fig 1: Cylinder Diagram of the Data on Vo_2 Max of Experimental and Control Groups

Discussion and Conclusions

The result of the present study indicates that effect of aerobic training induced on VO_2max to the experimental group. This result was conformity with the following findings. Figueroa and others, (2011) [2] documented that combined resistance and endurance exercise training, resulted in decreased arterial pressure. The maximal oxygen uptake (VO_2max) is the best overall measure of aerobic power (Reilly, 2005; Popadic *et al.*, 2009) [4, 3]. Aerobic capacity certainly plays an important role in soccer and has a major influence on technical performance and tactical choices.

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