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## Exploration of Medium Intensity Aerobic Training on $VO_2$ Max of Men

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### Abstract

*The purpose of the study was to exploration of medium intensity aerobic training on  $VO_2$  Max of men. To achieve the purpose of this study, thirty students from Bachelor of agriculture, Annamalai University, Tamilnadu, India. The age, height and weight of the subjects ranged from 18 to 21 years, 156 to 170 centimetres and 50 to 60 kilograms respectively. They were divided into two groups; each group consisted of fifteen subjects. Group-I underwent aerobic training and group-II acted as control who does not participate in any training programme. The data collected from the two groups prior to and post experimentation were statistically analyzed by analysis of covariance (ANCOVA). The experimental group had significant improvement on  $VO_2$  Max when comparing to the control group.*

**Keywords:** Aerobic training and  $VO_2$  Max.

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### Introduction

Intensity level is a very important part of any exercise program. Exercising at correct levels can make a big difference in the effectiveness of a program. Intensity can be defined as speed or workload of an activity. Many people, such as walkers, do not exercise at the correct intensity level for cardiovascular and fat burning enhancement. Oxygen provides the catalyst for a chemical reaction in our muscles that generates aerobic energy. If it were not for other factors such as insufficient muscle fuel over-heating and dehydration, we could theoretically continue to exercise aerobically indefinitely. Aerobic workouts are often also called 'steady state'. This is because, during them, the body's energy demands are balanced by energy supply. This allows us to continuously exercise hence the steady state. When the steady state is breached, for example, by increasing our effort and using more energy, our body will change the way it produces energy. The health benefits and the performance benefits, or "training effect", require a minimum duration and frequency of exercise. Most authorities suggest at least twenty minutes performed at least three times per week (Kent, 1997).

### Methodology

The purpose of the study was to exploration of medium intensity aerobic training on  $VO_2$  Max of men. To achieve the purpose of this study, thirty students from Bachelor of agriculture, Annamalai University, Tamilnadu, India. The age, height and weight of the subjects ranged from 18 to 21 years, 156 to 170 centimetres and 50 to 60 kilograms respectively. They were divided into two groups; each group consisted of fifteen subjects. Group-I underwent aerobic training and group-II acted as control who does not participate in any training programme. The experimental group subjects were participated in medium intensity aerobic training three days per week for twelve weeks, duration of the training programme on 40 minutes (including warm up and warm down) per day. The intensity of aerobic training starts from 60% of HRR and finished to 70% HRR. Once in two weeks the training load was increased 5% of their HRR for medium intensity aerobic training increased.  $VO_2$  Max was measured by Astrand – Astrand Nomogram test. The data collected from the two groups prior to and post experimentation were statistically analyzed by analysis of covariance (ANCOVA).

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## Results

Table 1

Analysis of covariance on  $VO_2$  max of experimental and control groups

	Experimental Group	Control Group	SoV	Sum of Squares	df	Mean squares	'F' ratio
Pre-test Mean SD	2.17	2.20	B	0.005	1	0.005	0.51
	0.11	0.08	W	0.25	28	0.009	
Post-test Mean SD	3.32	2.28	B	8.14	1	8.14	43.64*
	0.56	0.22	W	5.22	28	0.18	
Adjusted Post-test Mean	3.33	2.28	B	8.13	1	8.13	42.31*
			W	5.19	27	0.19	

(The required table value for significance at 0.05 level of confidence with degrees of freedom 1 & 28 and 1 & 27 are 4.20 and 4.21 respectively)

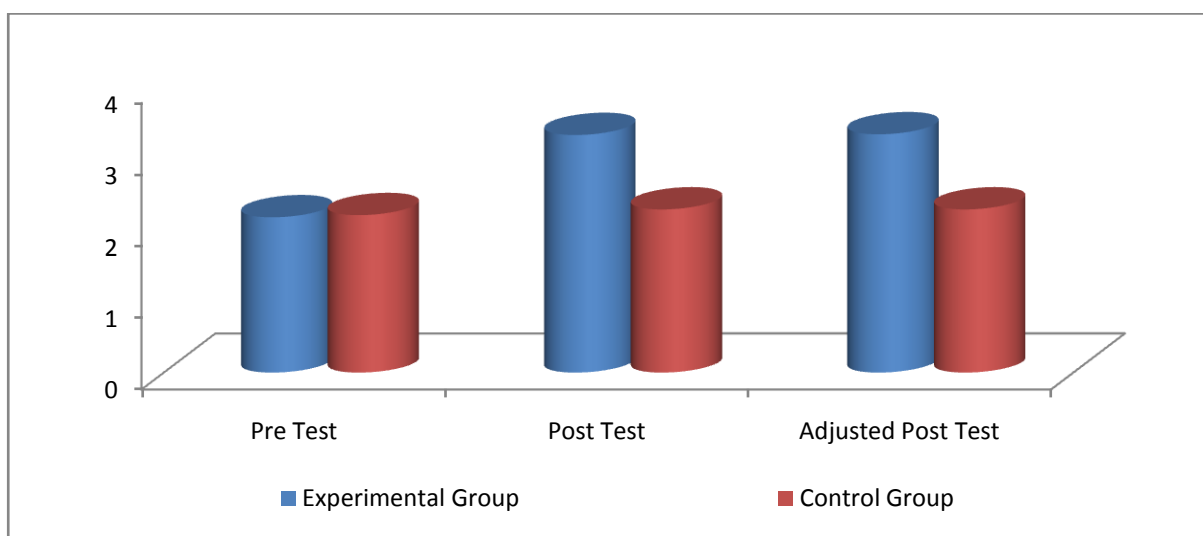
\*Significant at .05 level of confidence

Table 1 shows that the pre test mean and standard deviation on  $VO_2$  Max of medium intensity aerobic training and control groups are  $2.17 \pm 0.11$  and  $2.20 \pm 0.08$  respectively. The obtained 'F' ratio value of 0.51 for pre test means on  $VO_2$  Max of medium intensity aerobic training and control groups were less than the required table value of 4.20 for the degrees of freedom 1 and 28 at 0.05 level of confidence. It reveals that there is statistically insignificant difference among the experimental and control groups during pre test period. It indirect that the random assignment of the subjects for the two groups is successful. The post test mean and standard deviation on  $VO_2$  Max of medium intensity aerobic training and control groups are  $3.32 \pm 0.56$  and  $2.28 \pm 0.22$  respectively. The obtained 'F' ratio value of 43.64 for post test means on  $VO_2$  Max of medium

intensity aerobic training and control groups were higher than the required table value of 4.20 for the degrees of freedom 1 and 28 at 0.05 level of confidence. The adjusted post test means on  $VO_2$  Max of medium intensity aerobic training and control groups are 3.33 and 2.28 respectively. The obtained 'F' ratio value of 42.31 for adjusted post test means on  $VO_2$  Max of medium intensity aerobic training and control groups were higher than the required table value of 4.21 for the degrees of freedom 1 and 27 at 0.05 level of confidence. It is observed from this finding that significant differences exist among the adjusted post test means of experimental and control groups on  $VO_2$  Max. Due to the of medium intensity aerobic training the  $VO_2$  Max of the subject's is significantly improved.

Figure 1

Cylinder diagram on  $VO_2$  max of experimental and control groups



### Discussion and Findings

The results of the study showed that there was a significant improvement on  $\text{VO}_2$  Max of medium intensity aerobic training group when compared to the control group. The following studies are supporting with my study results. Hamid and others (2012) stated that effects of eight weeks morning aerobic exercise showed that there was significant increase on  $\text{VO}_2\text{max}$  of sedentary overweight females. Katzarzyk and others (2001) stated that 20 weeks of aerobic exercise training increase of 17.5% (mean) in  $\text{VO}_2\text{max}$  for men and women. Leon and Sanchez (2001) examined the effects of aerobic exercise training influence to increase  $\text{VO}_2\text{max}$ .

### Conclusion

The conclusion of the study stated that there was a significant improvement on  $\text{VO}_2$  Max of medium intensity aerobic training group when compared to the control group.

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