

## ISOLATED AND COMBINED EFFECTS OF ANAEROBIC AND AEROBIC TRAINING ON VITAL CAPACITY PERFORMANCE OF COLLEGE MEN BOXERS.

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### Abstract:

*The purpose of the study was effects of anaerobic and aerobic training on Vital capacity performances of college men Boxers. 64 Boxers from various colleges in Tamilnadu. The selected subjects were of age group ranging from 18 to 25 years. The subjects were randomly divided into four groups and each group consisted of 16 subjects. Group-I underwent isolated aerobic exercises, Group-II was isolated anaerobic exercises, Group-III was combination of aerobic and anaerobic exercises and group-IV act as control group was not given any special treatment. The experimental period was 12 weeks. Pre-test and post test were taken before and after the training programme. The selected physical variables were vital capacity. During the intervention phase, a modified training program was offered by a well-trained Kabaddi coaches to the experimental group under the supervision of the researcher at a college in Tamilnadu, India. All participants were encouraged to continue their standard physical activities and routine procedures. The intervention phase 12 weeks and included morning 60 minutes and evening 60 minutes boxing coaching classes for alternative days in a week. To find out the significant effects of aerobic and anaerobic training on selected physical variable. The ANCOVA statistical technique was used to find the mean difference between the groups on physical variables. The results of the study revealed a significant group × test interaction ( $p < 0.05$ ). Follow-up analyses indicated that while no group differences in physical variables existed between the four groups of the pre-test. In post test all the experimental groups were found to have significantly ( $p < 0.05$ ) better performance on the physical variables than the control group. The findings of the present study suggest that combined effects of anaerobic and aerobic training improved the selected physical variables in vital capacity performance of college boxers.*

### KEYWORDS:

Isolated, Anaerobic And Aerobic Training, physical variables.

### INTRODUCTION

Sports are integral part of the system of education. Training is a system of process in which football players improve their fitness to meet the demands of their sport. Training uses both general and specific exercises to develop the boxing player for their sport. Aerobic means "with oxygen", and refers to the use of oxygen in the body's metabolic or energy-generating process. The major benefits of aerobic trainings are stronger and more efficiently operating the boxing players heart and lungs. Anaerobic energy is produced without the use of oxygen. The anaerobic energy system can provide great amounts of energy but this system fatigues quickly. People participating in speed or power events like football, hockey,

basketball, Kabaddi and boxing are very familiar with this form of energy production.

### **PROBLEM**

1. The study was intended to find out the isolated and combined effect of aerobic and anaerobic training on selected physical, physiological and performance variables of college men boxers.
2. As a Director of Physical Education and instructing boxing techniques to the boxers in city colleges and handling the college boxing at various age groups, he was much interested in prescribing metabolic training programmes for boxers. Therefore he had selected a study to get the difference between isolated and combined training.

### **SIGNIFICANCE**

1. The study may help in assessing the isolated effects of aerobic and anaerobic training on selected physical, physiological and performance variables of college men boxers.
2. This study may help in assessing the combined effects of aerobic and anaerobic training on physical, physiological and performance variables of college men boxers.
3. This study would be helpful to the college men boxers to know their physical, physiological and performance levels.
4. This study would be helpful to the coaches and administrators to determine which type of training they require to improve their specific physical fitness, physiological fit and performance level in boxing.

### **SCOPE AND LIMITATIONS**

1. To assess the isolated effects of aerobic and anaerobic training on physical, physiological and performance variables.
2. To assess the combined effects of aerobic and anaerobic training on physical, physiological and performance variables.
3. The investigator could not control life style, psychological stress and factors that affect metabolic functions of the subjects.
4. The player's anthropometric and psychological parameters were not considered.
5. The investigator could not control sleep/ wake cycle of the subjects.

### **METHODOLOGY**

To achieve the purpose of the present study, 64 men Boxers were selected from Tamil Nadu colleges, who had participated in the inter-collegiate level tournaments. They were selected at random as subjects. All the subjects were residents of Tamil Nadu state and they had a similar academic work and regular activities in accordance with the requirements of their college curriculum. The selected subjects were of age group ranged from 18 to 25 years. The subjects were randomly divided into four groups and each group consisted of 16 subjects. Group-I underwent aerobic training, Group-II underwent anaerobic training, Group-III underwent combined aerobic and anaerobic training and group IV as control group. The study was conducted 12 weeks training schedule. Vital capacity was selected as a dependent variable and it was tested through Pneumotachograph Spiro meter would display the amount of air blown by the subject and it is recorded in liters. the test. Pre test-post test-random group-research design was followed in this study.

### **STATISTICS USED**

To find out the significant effects of aerobic and anaerobic training on selected vital capacity , analysis of covariance (ANCOVA) was computed (Clarke and Clarke, 1972) for the data collected aerobic, anaerobic, combined and control groups during pretest and posttest separately for each variable. Further to state, since four groups were involved, whenever the F ratio was significant, Scheffe's post hoc test was used determine which of the paired mean differed significance 0.05 was fixed.

### **RESULT AND DISCUSSION OF VITAL CAPACITY**

The statistical analysis comparing the initial and final means of vital capacity due to isolated and combined effect of anaerobic and aerobic training on selected physiological fitness variable, vital capacity

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among college men Boxers is presented in Table I.

**TABLE I**  
**COMPUTATION OF ANALYSIS OF COVARIANCE OF VITAL CAPACITY**  
**(Scores in milliliters)**

	Aero- bic	Anae- robic	Com- bined	Control	Source of Variance	Sum of Squares	df	Mean Squares	Obtained F
Pre Test Mean	3543	3745	3513	3443	Between	1011844	3	337281	1.36
					Within	18781625	76	247127	
Post Test Mean	3630	3838	3558	3485	Between	1389104	3	463035	1.95
					Within	18038795	76	237353	
Adjusted Post Test Mean	3648	3658	3604	3599	Between	52023	3	17341	4.11*
					Within	316448	75	4219	
Mean Diff	88	93	45	42					

Table F-ratio at 0.05 level of confidence for 3 and 76 (df)=2.73, 3 and 75 (df)=2.73 .

\*Significant

As shown in Table I, obtained F ratio of 1.36 on pre test means of the groups is not significant at 0.05 levels. This shows that there is no significant difference among the means of the groups at the initial stage and the random assignment of the groups is successful. The obtained F ratio on post test means is 1.95, which is not significant at 0.05 level, and is less than the required F value of 2.73 to be significant at 0.05 level. Taking into consideration of the pre test means and post test means, adjusted post test means are determined and analysis of covariance is done and the obtained F value 4.11 is greater than the required value of 2.73 and hence it is accepted that there are significant differences among the adjusted means on the college men Boxers. Since significant improvements were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results are presented in Table I.

**TABLE II**  
**SCHEFFE'S CONFIDENCE INTERVAL TEST SCORES ON VITAL CAPACITY**

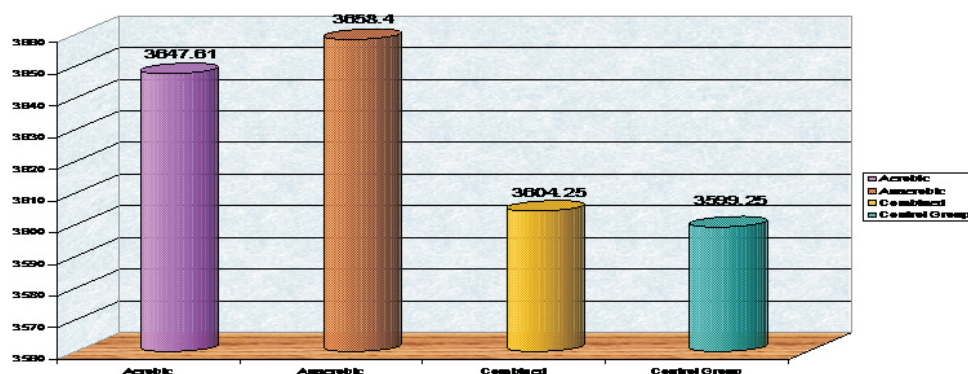
Aerobic	Anaerobic	Combined	Control Group	MEAN DIFF	C.I
3647.61	3658.40			-10.79	58.78
3647.61		3604.25		43.36	58.78
3647.61			3599.25	48.36	58.78
	3658.40	3604.25		54.15	58.78
	3658.40		3599.25	59.15*	58.78
		3604.25	3599.25	5.00	58.78

\* Significant at 0.05 level.

The post hoc analysis of obtained ordered adjusted means proves that there are significant differences between anaerobic and control group and all other comparisons are not significant.

The ordered adjusted means are presented through bar diagram for better understanding of the results of this study in Figure I.

**FIGURE I**  
**BAR DIAGRAM ON ORDERED ADJUSTED MEANS OF VITAL CAPACITY**



### DISCUSSIONS ON FINDINGS

As shown in Table I, the obtained F value on the scores of pre test means 1.36 is less than the required F value, which prove that the random assignment of the subjects is successful and their scores in vital capacity before the training were equal and there were no significant differences. Taking into consideration the pre test means and post test means adjusted post test means are determined and analysis of covariance is done and the obtained F value 4.11 is greater than the required value of 2.73 and hence it is accepted that the interventional programmes significantly improve vital capacity of the college men Boxers. The post hoc analysis of obtained ordered adjusted means proves that there are significant differences between anaerobic group and control group and all other comparisons are not significant. Thus, the results prove that anaerobic power significantly improves vital capacity of the college men Boxers while aerobic group and combined group do not improve vital capacity significantly. Specific effects of boxing on functional parameters of the loco motor system and detected significant differences in the analyzed functional parameters of the loco motor system that may be explained by boxing specific strains and which are prerequisites of optimal performance and suggested adequate compensational exercises should be integrated in the training. As compensational exercises, 12 weeks aerobic, anaerobic and combined training were experimented among college Boxers in this research (Kittel R et.al. 2005). Findings of this research proved that vital capacity of the subjects were significantly altered by 12 weeks anaerobic exercises. Selvalakshmi (2007) conducted a study on effect of varied aerobic training program on vital capacity and her results showed significant improvement. Shepard (1990) found enhanced physical education improved forced vital capacity. The findings of this research are in agreement with these of (Kittel R et.al. 2005), Selvalakshmi (2007) and Shepard (1990).

### CONCLUSIONS

1. It is concluded that isolated effect of aerobic and anaerobic training significantly improve vital capacity of the college men Boxers.
2. The comparing among the combined aerobic and anaerobic training would be better than isolated groups, aerobic and anaerobic training on vital capacity of collegiate men Boxers.

### RECOMMENDATIONS

The findings of this study have proved that there is significant improvement due to isolated and combined effects of aerobic and anaerobic training on selected physical, physiological and performance variables of college boxers. Hence, it is recommended to include combined aerobic and anaerobic training in the training schedule of the college boxers to improve their performance level in boxing. If this combined training is executed well, we can see significant difference in players who have undergone other training programmes, especially boxers. Boxers who have undergone this training will show consistent high level performance in raising the standard of boxing.

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