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Effect of different training methods on VO₂ Max: A study

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Abstract

The purpose of the study is to find the effect of different training methods on VO₂ Max of school students studying in eight standard having age group between 14-16 years from different KV's. To fulfill the objective of the study 60 school going students of Gwalior of age group 14-16 were selected (Out of 60 students three groups, each comprising of 20 subjects were made. One group was given training with interval method; second group was trained on slow continuous running whereas third group served as control group.) In order to analyze the data ANCOVA was used with level of significance at 0.05 level and investigator observed that there is no significance difference between experimental groups (continuous and interval method) and control group in VO₂ max.

Keywords: Training methods, Interval Training, Slow Continuous Running, VO₂ Max, etc.

Introduction

Sports have gained tremendous popularity all over the globe during the last few decades. The popularity of sports is still increasing at a fast pace and this happy trend is likely to continue in the future also. The American Medical Association defines fitness as "the general capacity to adapt and respond favourably to physical effort. This implies that individuals are physically fit when they can meet ordinary as well the unusual demand of daily life safely and effectively without being overly fatigued and still have energy left for leisure and re-creational activities.". Clarke has expressed that physical education must recognize the basic needs of physical fitness for boys and girls under their charge and this recognition should become a determination formulate and conduct a sound and effective physical fitness programme for them. Adequate levels of physical fitness should be developed early in life and then continuously maintained through regular participation in a well-designed activity programme to promote the total wellbeing of an individual. Children should be fit for participation in the play activities of childhood, through which they develop organic vigour, physical strength and other fitness qualities.

Objective of the study

"The purpose of the study is to determine the effect of different training methods on VO₂ max".

Methodology

The study is designed to find out the effect of different training on VO₂ max of 60 school going students of Gwalior, Students are of eighth standard from different KVs, age is between 14-16 years. The design of the experiment had been planned in three phase's viz., Phase – I: Pre-test, Phase – II: Training or Treatment, and Phase – III: Post-test. Out of 60 students three groups, each comprising of 20 subjects were made. One group was given training with interval training method, second group was trained on slow continuous running whereas third group served as control group. The experimental groups were imparted 60 minutes of training thrice a week for duration of six weeks.

Criterion Measures

➤ The criterion measures chosen for testing hypothesis were:-

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- Heart rate was recorded from 0 to 1 minute in terms of number of beats/minute.
- Maximum oxygen consumption (max) was recorded in ml.kg.⁻¹ min⁻¹ using Astrand rhying sub-maximal aerobic step test.
- Body weight was recorded in kilogram.

Experimental Design

Random group design was used for this study because it was considered as the most appropriate. The 60 subjects were equally divided into 2 experimental groups and one control group and each group consisting of 20 subjects. The experiment treatment to each of the two group was assigned randomly by drawing lots. The experimental groups were given interval and continuous training programme for a period of six weeks excluding the period utilized for pre-test & post test. The control group did not participate in any activity during the experimental period. The training programme for both experimental groups was different. The training for two experimental groups was given thrice a week for a period of six weeks.

Continuous Method:	Week	Stimulus Intensity
	1st And 2nd	60% (840 Mt.)
	3rd And 4th	75% (1050 Mt.)
	5th And 6th	85% (1190 Mt.)
Interval Method:	Week	Stimulus Intensity
	1st And 2nd	60% (840 Mt.)
	3rd And 4th	75% (1050 Mt.)
	5th And 6th	85% (1190 Mt.)

Statistical procedure used in the study

To find out the effect of different training on VO₂ max ANCOVA test was used. The level of significance was set at 0.05 level.

Results of the study

Table 1: Anova table for the data on Vo₂ Max. (PRE-TEST)

Source of Variations	D.F.	S.S.	M.S.S.	F-value
Treatment	r-1=2	1.25	.62	1.33
Error	N-r=58	22.56	.47	

Significant at .05 level.

Tab. F_{.05} (2, 58) = 3.19

Since the values of Calculated F (1.33) for pre-test is less than tabulated F (3.19). So it indicates that the all three groups are homogeneous in nature initially.

Table 2: Analysis of Covariance

Source of Variation	D.F.	SSX	SS _Y	SS _{XY}	SS _{YX}	MSS _{YX}	F _{YX}
Treatment	2	1.25	1.73	1.46	.14	.07	.78
Error	57	22.56	21.25	19.57	4.29	.09	
Total	59	23.81	22.99	21.03	4.44		

Significant at .05 level of confidence.

Tab. F_{.05} (2, 57) = 5.1

Since obtained F- value (.78) is less than the tabulated value F- value (5.1) of VO₂ max, it indicates that there is no difference in VO₂ max as a result of training by continuous and interval method.

Discussion of Findings & Conclusion

It has been found that there is no significance difference

between experimental groups (continuous and interval method) and control group in VO₂ max. The insignificant difference may be due to duration of the training period as opined by various experts working in field of physical education that significant change may only occur in VO₂ max after at least 10 week of training. Hence insignificant difference in pre and post means of experimental and control group seems justified. Another reason for insignificant difference may be due to lack of whole hearted sincere and dedicated effort on part of subjects while undergoing training as there monthly exams fall in between the training program. So it was observed that interval method and continuous method group had no significant difference in pre and post test mean and same was observed in case of control group and So it shows that both the methods failed to improve VO₂ max significantly in six weeks of training.

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