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Effect of six weeks aerobic training on selected physical fitness variables among men students

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Abstract

The purpose of the study was to find out the impact of 6 weeks aerobic training on selected physical fitness variables among men students. To achieve the purpose of these study thirty men students were selected from different colleges in Chennai, within the aged range from 18 to 25 years. The selected subjects were randomly assigned into two equal groups of 15 each, such as experimental and control group. The experimental group participated in the aerobic training for 6 weeks, practice session for thrice a week, each section lasted 45minutes and the control group did not participate in any kind of special training programme apart from the daily physical activities. The selected variables such as speed and endurance were measured by 35meter speed and 12min cooper test. The subjects of two groups were tested on selected variables prior and immediately after the training period. The collected data were analysed statistically through analyze of covariance (ANCOVA) to find the significance difference. The 0.05 level of confidence was fixed to test the level of significance difference, the result of the study showed that systematic practice of 6 weeks aerobic training significance differences on selected physical fitness variables such as speed and endurance among collegiate men students.

Keywords: Aerobic training, speed and endurance

Introduction

Aerobic literally means "with oxygen", and refers to the use of oxygen in muscles' energy-generating process. Aerobic exercise includes any type of exercise, typically those performed at moderate levels of intensity for extended periods of time, that maintains an increased heart rate. In such exercise, oxygen is used to "burn" fats and glucose in order to produce adenosine triphosphate, the basic energy carrier for all cells. Initially during aerobic exercise, glycogen is broken down to produce glucose, but in its absence, fat metabolism is initiated instead. The latter is a slow process, and is accompanied by a decline in performance level. The switch to fat as fuel is a major cause of what marathon runners call "hitting the wall." There are various types of aerobic exercise. In general, aerobic exercise is one performed at a moderately high level of intensity over a long period of time. For example, running a long distance at a moderate pace is an aerobic exercise. Training-induced adaptations in aerobic fitness have been extensively studied in adults, and some exercise scientists have recommended similar training programmes for young people. However, the subject of the response to aerobic training of children and adolescents is controversial. The effects of exercise training on prepubertal children are particularly debatable. The latter may be partly explained by different training designs, which make comparisons between studies very problematic (Baquet, G., Van Praagh, E., & Berthoin, S., 2003) ^[1]. Further Kostrzewa-Nowak, D., *et al.* (2015) ^[2] revealed that Twelve-week-long fitness training programme of two alternating styles (low and high impact) has a beneficial effect on overweight young men.

Methods

To achieve the purpose of this study thirty men students were selected from different colleges in Chennai Chennai. The selected subjects age range from 18 to 25 years and they were divided into two equal groups of fifteen each in which the group I (n=15) underwent aerobic training for six weeks in thrice a day per week and group II (n = 15) acted as control which did not participate in any special training apart from the regular day programme of their curriculum.

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For every training programme there would be a change in various structure and systems in human body. So, the researchers consulted with the experts and then selected the following physical fitness variables as criterion variables such as speed and endurance.

Training Programme

During the training period the experimental group (ATG) underwent 6 weeks of aerobic training programmes in addition to their daily routine activities as per the schedule. The duration of training were planned for 45 minutes that is from 7.00am to 7.45am on Mondays, Wednesdays and Fridays. All the subjects involved in this study were carefully monitored throughout the training programmes, Each session 45 minutes consist of 5 min warm up exercise followed by aerobic training such as brisk walking, low, medium and fast

pace running, 30⁰ inclination and 30⁰ declination running, static cycle and finally cool down and stretching exercises for recovery purpose. After completion of 6 weeks of aerobic training period, the participants were retested as the pre-test.

Statistical Technique

The collected data were analysed statistically through analyze of covariance (ANCOVA) to find the significance difference.

Analysis of the Data

The data collected prior and after the experimental periods on speed and endurance of aerobic training group and control group were analysed and presented in table – 1 & 2. The level of significance was fixed at 0.05 level of confidence to test the 'F' ratio obtained by analysis of covariance.

Table 1: Analysis of Covariance for Pre and Post Data On Speed

Test	Aerobic Group	Control Group	Source of variance	Sum of Squares	df	Mean square	F
Pre-test mean	6.42	6.45	Between	.007	1	.007	0.19
			Within	1.05	28	.037	
Post-test mean	6.13	6.46	Between	0.83	1	0.83	14.07*
			Within	1.66	28	0.59	
Adjusted mean	6.14	6.45	Between	0.71	1	0.71	19.59*
			Within	0.97	27	0.36	

* Significant at 0.05 level of confidence. (The table value required for significance at 0.05 level of confidence with df 2 and 28 and 2 and 27 were 3.34 and 3.35 respectively).

Discussion on Findings of Speed

The obtained F value on pre-test scores 0.19 was lesser than the required F value of 3.34 to be significant at 0.05 level. This proved that there was no significant difference between the groups at initial stage and the randomization at the initial stage was equal. The post-test scores analysis proved that there was significant difference between the groups as the obtained F value at 14.07 was greater than the required F

value at 3.34. This proved that the differences between the post-test mean at the subjects were significant. Taking into consideration the pre and post-test scores among the groups, adjusted mean scores were calculated and subjected to statistical treatment. The obtained F value at 19.59 was greater than the required F value at 3.35. This proved that there was Significant differences among the means due to six weeks of aerobic training on speed.

Table 2: Analysis of Covariance for Pre and Post Data on Endurance

Test	Aerobic Group	Control Group	Source of variance	Sum of Squares	df	Mean square	F
Pre-test mean	1625	1623	Between	20.83	1	20.83	0.04
			Within	155183.33	28	5542.26	
Post-test mean	1716	1626	Between	60750	1	60750	12.01*
			Within	141566.66	28	5055	
Adjusted mean	1715	1627	Between	58952.27	1	58952.27	37.99*
			Within	41897.02	27	1551.74	

* Significant at 0.05 level of confidence. (The table value required for significance at 0.05 level of confidence with df 2 and 28 and 2 and 27 were 3.34 and 3.35 respectively).

Discussion on Findings of Endurance

The obtained F value on pre-test scores 0.04 was lesser than the required F value of 12.01 to be significant at 0.05 level. This proved that there was no significant difference between the groups at initial stage and the randomization at the initial stage was equal. The post-test scores analysis proved that there was significant difference between the groups as the obtained F value at 12.01 was greater than the required F value at 3.34. This proved that the differences between the post-test mean at the subjects were significant. Taking into consideration the pre and post-test scores among the groups, adjusted mean scores were calculated and subjected to statistical treatment. The obtained F value at 37.99 was greater than the required F value at 3.35. This proved that there was Significant differences among the means due to six weeks of aerobic training on endurance.

increased due to six weeks of aerobic training among men student while comparing to the control group.

- The physical fitness variable endurance was significantly increased due to six weeks of aerobic training among men student while comparing to the control group.

Reference

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Conclusion

- The physical fitness variable speed was significantly