



Effect of Physical Exercise Programme on Muscular Endurance and Speed for Sedentary Men

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ABSTRACT

The purpose of the study was to investigate the effect of physical exercise programme on muscular endurance and speed for sedentary men. For the purpose of the study, 30 sedentary men were selected as subjects randomly from St.Xavier's College, Palayamkottai. The age of the subjects ranged from 18-24 years. The selected subjects were divided into two groups of 15 each. Group I underwent physical exercise for six weeks and Group II acted as control that takes part in any physical exercise, other than regular activity. The physical fitness variables such as muscular endurance and speed were selected as dependent variables for this study. The physical exercise programme was selected as independent variables for this study. Muscular endurance was tested by sit up test and speed was tested by using 10yard shuttle run. The study was based on the groups pre test and post test design. The subject chosen for the study were divided into experimental and control group of fifteen each at random. The data collected from the two groups were statistically analyzed for significance the analysis of covariance (ANCOVA) was significances, 0.05 levels of significances was fixed. It was concluded that, there was a significant improvement takes place on muscular endurance and speed. And also concluded that, there was a significant difference exists between experimental and control groups in the improvement on muscular endurance and speed.

KEYWORDS :

Introduction

Physical activity increases strength as well as aerobic fitness, alters hormonal level, and decreases risks of cardiovascular morbidity and mortality (Hackney, A. C. 1996., Galbo, H. 1983). The influence of long-term physical training on hormonal response has been well established in athletes, but not yet among healthy sedentary men. Long-term physical training at moderate intensity 3 times a week, however, may possibly discourage the sedentary individuals to comply with the program. The drop-out rate is about 50% during the first 6 to 12 months (Xu, D. Q., Hong, Y., & Li, J. X, 1986).

The current recommendation for all healthy adults aged 18 to 65 years old is to engage in moderate-intensity aerobic physical activity for a minimum of 30 minutes 5 days each week, or vigorous-intensity aerobic physical activity for a minimum of 20 minutes 3 days each week (Häkkinen, K., Kallinen, M., Linnamo, V., Pastinen, U. M., Newton, R. U., & Kraemer, W. J. 1996).

Undoubtedly, the effects of exercise also vary a great deal upon age and baseline fitness of the individuals. Generally, the benefits are more evident among the younger and unfitted individuals. As the prevalence of physically inactive adults is now increasing (Häkkinen, K., Kallinen, M., Izquierdo, M., Jokelainen, K., Lassila, H., Mäkiä, E., et al. 1998) rapidly, establishing a suitable exercise program to improve their hormonal level and fitness is quite crucial. They usually have low compliance and adherence to the generally recommended training programs. Therefore, the exercise program with low frequency perhaps fits better in their lifestyle and is easier to accomplish it for them (Pyka, G., Taaffe, D. R., & Marcus, R. 1994).

Statement of the problem

The purpose of the study was to investigate the effect of physical exercise programme on muscular endurance and speed for sedentary men.

Methodology

For the purpose of the study, 30 sedentary men were selected as subjects randomly from St.Xavier's College, Palayamkottai. The age of the subjects ranged from 18-24 years. The selected subjects were divided into two groups of 15 each. Group I underwent physical exercise for six weeks and Group II acted as control that takes part in any physical exercise, other than regular activity. The physical fitness variables such as muscular endurance and speed were selected as dependent variables for this study. The physical exercise programme was selected as independent variables for this study. Muscular endurance was tested by sit up test and speed was tested by using 10yard shuttle run. The study was based on the groups pre test and post test design. The subject chosen for the study were divided into experimental and control group of fifteen each at random. The data collected from the

two groups were statistically analyzed for significance the analysis of covariance (ANCOVA) was significances, 0.05 levels of significances was fixed.

Analysis of data

The influence of independent variables on each criterion variables were analyzed and presented below. Mean values for the pre and post tests on selected variables of experimental group and control group were represented in figure

TABLE - I
THE SUMMARY OF MEAN AND DEPENDENT 't' TEST FOR THE PRE AND POST TESTS ON SELECTED VARIABLES OF EXPERIMENTAL GROUP AND CONTROL GROUP

Variables	Group	Number	Mean		t-value
			Pre Test	Post Test	
Muscular Endurance	Experimental group	15	28.37	33.61	5.67
	Control group	15	32.05	30.90	1.08
Speed	Experimental group	15	8.10	7.60	4.87
	Control group	15	8.3	8.43	1.15

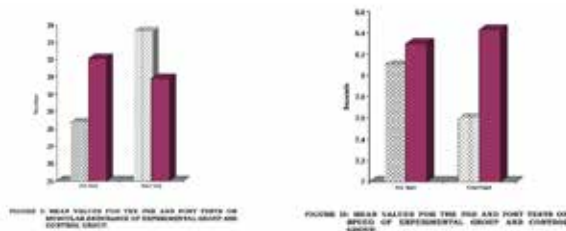
* Significant at 0.05 level

TABLE - II
ANALYSIS OF COVARIANCE (ANCOVA) ON MUSCULAR ENDURANCE OF EXPERIMENTAL AND CONTROL GROUP

variables	Adjusted post test Means		Source of variance	Sum of squares	df	Mean square	F - ratio
Muscular Endurance	Experimental group	Control group	Between	167.73	1	167.73	92.34*
	31.15	26.39	Within	49.05	27	1.82	
Speed	Experimental group	Control group	Between	0.43	1	0.43	53.88*
	7.65	8.11	Within	0.21	27	0.01	

* Significant at 0.05 level. (The table value required for significance at 0.05 level with df 1 and 27 is 4.21).

MEAN VALUES FOR THE PRE AND POST TESTS ON SELECTED VARIABLES OF EXPERIMENTAL GROUP AND CONTROL GROUP



Discussion on Findings

The result of study indicates that there was significant difference exists between the adjusted post test means of experimental and control groups on muscular endurance, and speed.

Some studies reported a tremendous increase in the speed, strength, power, agility and endurance level after the high-intensity exercise lasting 45 to 90 minutes (Viru, A., Karelson, K., & Smirnova, T. 1992).

While others reported unchanged or slightly increased fitness after moderate intensity exercise at the similar level and duration (Bonifazi, M., Bela, E., Carli, G., Lodi, L., Martelli, G., & Zhu, B, et al. 1995., Tremblay, M. S., Copeland, J. L., & Van Helder, W. 2005.).

A decline in general fitness levels were also noted after moderate- to high-intensity exercise (Izquierdo, M., Häkkinen, K., Ibañez, J., Garrues, M., Antón, A., & Zúñiga, A., et al. 2001., and Hoffman, J. R., Kang, J., Ratamess, N. A., & Faigenbaum, A. D. 2005). The duration and intensity of the program thus appear to play an important role. The possible explanations can be as follows. After initiating the sub maximal exercise, the level of serum total testosterone is elevated by the hemo concentration.

Kemmler, W., Wildt, L., Engelke, K., Pintag, R., Pavel, M., & Bracher, B., et al. (2003) reported that the exercise group also experienced an increase in muscle power of both upper and lower extremities after the training program. It is possible that this group had poorer strength than the control group at the beginning of the program; therefore, the changes became more apparent.

This was similar to previous reports (Harber, M. P., Fry, A. C., Rubin, M. R., Smith, J. C., & Weiss, L. W. 2004., and Bell, G. J., Syrotaik, D., Martin, T. P., Burnham, R., & Quinney, H. A. 2000). Strength improvement after 12-week exercise, may be due to changes in muscle fiber profile, metabolic adaptation, and neural recruitment in skeletal muscles (40–42). Unfortunately, this study did not evaluate these parameters because they were not variables of interest in this study.

Viru, A., Karelson, K., & Smirnova, T. (1992) reported that low-frequency (once a week) and moderate intensity exercise program did affect the level of fitness in sedentary young men after. There were also some positive effects of this protocol on muscle endurance and cardiovascular fitness. For that reason, the low-frequency and moderate-intensity exercise program is probably still beneficial for health promotion campaign in sedentary individuals who have poor compliance and adherence to the general exercise programs.

It is inferred from the literature and from the result of the present study, it was concluded that, make a physical activity and physical exercise is compulsory during their rest time of sedentary men. Also the limitations of this study were the individual characteristics of subjects and duration of exercise. The subjects were sedentary volunteers who prefer not to exercise even only once a week. However, this was a longitudinal controlled study in sedentary young men investigating the effects of exercise on muscular endurance and speed.

Conclusions

On the basis of the interpretation of the data, the following conclusions may be drawn.

1. There was a significant improvement takes place on muscular en-

durance and speed due to six weeks physical exercise training program.

2. There was a significant difference exists between experimental and control groups on muscular endurance and speed.

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