



ORIGINAL RESEARCH PAPER

Physical Education

EFFECT OF VARIED AEROBIC TRAINING ON HEALTH RELATED FITNESS COMPONENTS OF COLLEGE WOMEN

KEY WORDS: Cardio Respiratory Endurance, Body Composition (BMI)

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ABSTRACT

The aim of the study was to compare the Health related fitness variables namely Cardio Respiratory Endurance and Body Composition (BMI) of college women. For the purpose of the study 90 college women students were selected as the subject. The age group of the subjects was ranged from 18-21 years. They were selected randomly. The subjects were further sub-divided into three groups namely Experimental Group-1, Experimental group-2 and the Control Group-3. Each group consists of 30 subjects. Cardio respiratory endurance were measured through cooper 12 minute run and walk test and Body composition were measured through subjects Body Mass Index by taking the subjects body weight and height. For the comparison, analysis of covariance was used and the significant level was set at 0.05 level of confidence. The study revealed significant increase in Cardio Respiratory Endurance and Body Composition (BMI) in the experimental groups as a result of six months progressive aerobic training programme.

INTRODUCTION

Simply put, the word aerobics means "with oxygen" while this definition may sound quite vague, once you have a better understanding of what aerobics actually is, it will make more sense. Aerobic training can be considered any physical activity that has the ability to elevate your heart rate to its target heart rate and maintain that level for a minimum of 20 consecutive minutes. Achieving an "aerobic effect" can be defined as participating in a physical activity that elevates your heart rate to your target heart rate and maintains that level for a minimum of 20 consecutive minutes.

Physical fitness is generally categorized into performance related fitness and health related fitness so as to distinguish general fitness from specific fitness. Fitness for sport is specific and essentially performance related. Health related fitness often called general fitness, is a generalized term referring to the ability of a person to carry out his/her life routines without undue fatigue with ample energy still left in him to enjoy leisure time activities and also to meet unforeseen exigencies and emergencies. It is a condition of general wellbeing. Health related fitness may be defined as that state of wellbeing in which every individual would:

- Seek protection against disease
- Tackle problems of being obese (over-weight)
- Manage muscle and joint disorders
- Strive to be mentally balanced; and socially well-adjusted.

Health related physical fitness refers to those components of fitness that benefit from a physically active lifestyle and relate to health. Components of fitness that are affected favorably or unfavorably by habitual physical activity and related to health status. This term has been defined as a state characterized by an ability to perform daily activities with vigor and demonstration of traits and capacities that are associated with a low risk of premature development of hypokinetic diseases and conditions.

(Bouchard, 2007) "Health related fitness is a measure of a person's ability to perform physical activities that require endurance, strength and flexibility. This type of fitness is achieved through a combination of regular exercise and inherent ability. The components of health related physical fitness is cardiovascular endurance, muscular strength, muscular endurance, flexibility and body composition as they relate specifically to health enhancement".

(Siedentop, 1998). According to current thinking in the physical education profession, physical fitness is either Health related or performance related. In keeping with wellness trend today and an emphasis on all aspects of healthful living in Addition to stressing performance or motor skill related to fitness. This aspect of physical Fitness concerns the development of qualities necessary to function efficiently and maintain a Healthy life style. Each if the

components of health related fitness cardio respiratory endurance, muscular strength and endurance, flexibility and body composition.

OBJECTIVE OF THE STUDY

The purpose of the study was to find out the effects of aerobic training On Health Related Fitness variables of college women.

METHODOLOGY

In this section the procedure for selection of subjects, selection of variables criterion measures, experimental design, procedure for administration of tests, administration of training programme and the statistical technique employed for analysis of data have been describe.

SELECTION OF SUBJECTS:

Since the purpose of the study was to analyze the changes that may occur in the adult person, as a result of aerobic training, it was considered necessary to choose untrained individuals who were not in any of the game or sports team or in any training or coaching programme. For this purpose ninety college women individuals free from deformities and ailments were selected randomly from Sagar Mahavidyalaya

The requirements of the project were explained to the entire subject and all of them agreed voluntarily to undergo the testing and training programmes. A through orientation of the rigid requirements of the experimental procedure, as well as the exercise schedule were explained to them so that there was no ambiguity of what effort was required on their part and what hardship they might have to endure.

SELECTION OF THE VARIABLES:

The research scholar had gone through both critical as well as allied literature related to the problem. Keeping in the mind, the availability of equipment's acceptability to the subjects and the legitimate time that would be devoted for test in relation to the treatment (experimental variables) requirements and to keep the entire study unitary and integrated, the following Health related fitness variables.

HEALTH RELATED FITNESS VARIABLES

1. Cardio respiratory endurance
2. Body composition

CRITERION MEASURES:

Cardio Respiratory Endurance was measured through cooper 12 min walk and run test and Body Composition was measured through subjects Body Mass Index by taking the subjects body weight and height.

STATISTICAL PROCEDURE:

To compare the significance of mean difference among the experimental and control group on the selected variables, the analysis of covariance was applied. The label of significance was set at .05.

RESULTS OF THE STUDY

TABLE-1

ANCOVA TABLE FOR THE CARDIO RESPIRATORY ENDURANCE FOR EXPERIMENTAL GRP-1, EXPERIMENTAL GROUP-2 AND CONTROL GROUPS-3 DURING TRAINING.

SOURCE	SUM OF SQUARES	DF	MEAN SQUARE	F	SIG
PRE	16626.737	1	16626.737	.617	.434
TRAINING	775356.902	2	387678.451	14.390	.000
ERROR	2316963.263	86	26941.433		
CORRECTED TOTAL	3142410.00	89			

Shows the f-value [$F(2,86)=14.390$] for comparing the adjusted means of the criterion variable in three aerobic training groups experimental group-1, experimental group-2 and control group-3. F statistics computed for aerobic training was significant because p-value associated with it was .000 which is less than .05. thus the null hypothesis of no difference among the adjusted means for the data on criterion variable in three training groups may be rejected at 5% level.

Since F-statistics is significant, post-hoc comparison has been made for the adjusted means of the three training groups, which is shown in table-

TABLE-2 CARDIO RESPIRATORY ENDURANCE

GROUP	PRE TEST MEAN	POST TEST MEAN	ADJUSTED MEAN
EXP. GRP. 1	1837	2118	2114.63
EXP. GRP. 2	1775	1982	1985.67
CONT. GRP. 3	1810	1887	1986.70

CARDIO RESPIRATORY ENDURANCE

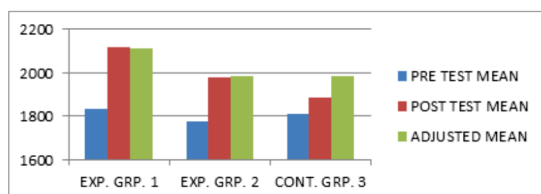


FIGURE-1: PRE, POST AND ADJUSTED MEAN OF THE EXP. GRP. 1, EXP. GRP. 2 AND CONT. GRP. 3

- There was a significant difference between the adjusted means of criterion variable in experimental group-1 and Experimental group-2.
- There was no significant difference between the adjusted means of criterion variable in experimental group-2 and control group-3.
- There was a significant difference between the adjusted mean of criterion variable in experimental group-1 and control group-3

TABLE-3 ANCOVA TABLE FOR THE BMI FOR EXPERIMENTAL GRP-1, EXPERIMENTAL GROUP-2 AND CONTROL GROUPS-3 DURING TRAINING.

SOURCE	SUM OF SQUARES	DF	MEAN SQUARE	F	SIG
PRE	134.106	1	134.106	124.928	0
TRAINING	5.279	2	2.639	2.459	0.092
ERROR	92.318	86	1.073		
CORRECTED TOTAL	255.587	89			

Shows the f-value [$F(2,86)=2.459$] for comparing the adjusted means of the criterion variable in three aerobic training groups experimental group-1, experimental group-2 and control group-3. F

statistics computed for aerobic training was significant because p-value associated with it was 0.092 which is less than .05. thus the null hypothesis of no difference among the adjusted means for the data on criterion variable in three training groups may be rejected at 5% level.

Since F-statistics is significant, post-hoc comparison has been made for the adjusted means of the three training groups, which is shown in table-

TABLE-4 BMI

GROUP	PRE TEST MEAN	POST TEST MEAN	ADJUSTED MEAN
EXP. GRP. 1	16.35	15.83	16.02
EXP. GRP. 2	16.25	15.78	16.04
CONT. GRP. 3	17.29	17.01	16.56

BMI

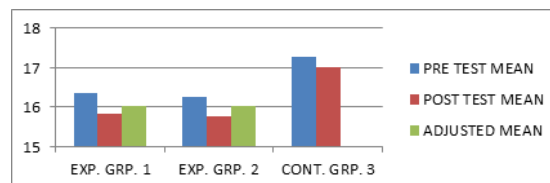


FIGURE-2: PRE, POST AND ADJUSTED MEAN OF THE EXP. GRP. 1, EXP. GRP. 2 AND CONT. GRP. 3

- There was no significant difference between the adjusted means of criterion variable in experimental group-1 and Experimental group-2.
- There was no significant difference between the adjusted means of criterion variable in experimental group-2 and control group-3.
- There was no significant difference between the adjusted mean of criterion variable in experimental group-1 and control group-3.

DISCUSSION OF FINDINGS

The performance of cardio respiratory endurance was developed significantly by aerobic training of experimental groups. The BMI was decreased significantly by aerobic training of experimental groups.

CONCLUSIONS

With the limitation of the present study, the following conclusion is enumerated:

- The six months of aerobic training employed in the present study indicated favorable effects in increasing the Cardio respiratory endurance levels and in decreasing BMI levels.

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