

Effect of Aerobic Exercises on Selected Components of Physical Fitness of Adult Female

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Abstract

There has been relatively little Controlled investigation of the effects of Aerobics on general physical fitness, despite the widespread participation in this form of exercise. Aerobics as a discipline claims to develop physical, mental, moral and spiritual abilities and culminates into harmony and well being of individual in particular and Society in general. Aerobic practices induce more physical effects than ordinary physical exercises. **Objectives:** The purpose of the study was to determine the effect of six week Aerobic training on selected physical fitness components on adolescent girls. **Methods:** Thirty subjects (adolescent female) Thrissur district, Kerala in the age group of 15 to 19 yrs were selected randomly as subjects for the study. The subjects were randomly assigned as experimental and Control groups and each group consisted of 15 subjects. The study was further delimited to selected physical fitness components, that is height, weight, speed, abdominal strength and flexibility. To compare the mean difference between initial and final scores of experimental group, the 't' test was employed with respect of each of the selected physical variables. **Results:** After 6 weeks of Aerobic practice there was a significant increase in mean values of flexibility and abdominal strength and decrease in mean value of speed and weight in experimental group. There was no significant changes in the mean value of height in experimental group. Speed, abdominal strength, weight, height, flexibility remained unchanged in control group after 6 weeks. Within the limits of the study following **conclusions** were formed.1) The Result of the study has shown that the female adolescents who practiced aerobics have better physical fitness components. 2) the study shows that aerobic practice increases the speed, flexibility, abdominal strength in the subjects.3) there is significant decrease in weight of the subjects after the aerobic practice. Thus it has been concluded that practicing aerobics can be applied for the health promotion and physical fitness of female adolescent.

INTRODUCTION

The field of women's health is concerned with health issues and aging changes relating to post pubescent females. During adolescence (ages 12-20), a young woman's body begins to change as puberty sets in and menstrual cycles begin. At the same time, teenage girls also have changing nutritional needs and susceptibility to diseases.

Teenage girls need more calories and nutrients than at any other time in their lives as their body mass will almost double. Bone development and calcium requirements really reach the peak during these years; in fact, how much calcium a girl gets now will establish the lifelong pattern for how healthy her bones become. Yet this dramatic increase in food requirements comes at a time when many girls develop irregular eating habits. Concerned as their bodies begin to change and

become more mature, many teenagers start to diet. A few girls take dieting too far and develop eating disorders.

The position of women in any society is the true index of its culture and spiritual potential. In the word of Swami Vivekananda, ‘ The country and the nation which do not respect women are neither great nor will ever be in future.

Women’s fitness means different things to different women. While almost every woman know that exercise is beneficial, many of us are so busy with our families and our careers, we have very little time for ourselves. Heavy exercise is not necessary for good health. Moderate exercise levels are the most beneficial. Regardless of your lifestyle in the past, it should not be too late to begin small steps towards a healthier lifestyles. And women’s fitness should be one of those steps. Lack of women fitness may create an increased risk of chronic illness such as heart disease, arthritis, cancer, obesity, lack of energy and even hormone imbalance.

METHODOLOGY

In this chapter, procedures and methods were applied in selection of subjects, selection of variables, experimental design, criterion measures, reliability of the data, reliability of instruments, tester’s reliability, subject reliability, orientation to the subjects, training program, training schedule, selection of tests, administration of tests, collection of data and statistical procedure followed in this study.

SELECTION OF SUBJECTS

Thirty subjects (adolescent female) from Thrissur district, Kerala in the age group of 17 to 25 yrs were selected randomly as subjects for the study. The subjects were randomly assigned as experimental and Control groups each group consisted of 25 subjects. The requirement of the study was explained to all the subjects. All subject voluntarily agreed to undergo the testing and training programs. The study was formulated as pre post test pre experimental design.

SELECTION OF VARIABLES

The following variables were selected.

Physical Variables

1. Abdominal strength
2. Flexibility
3. Speed
4. Weight
5. Height
6. B M I

Physiological Variables

1. Resting Heart Rate

ADMINISTRATION OF TREATMENT

In the present study, the specifically designed aerobic practices which were selected in consultation with the experts in the field of aerobic dance is given as treatment to the two experimental for 6 weeks in morning hours three days per week. For the better

understanding of the participants the designed aerobic dance practices were demonstrated and explained in systematic manner. The subjects were also instructed on the precautions to be taken while undergoing the intensive training treatment. In this way, the investigator was able to get successful application of interventions. Special care was taken to check that the training load of aerobic dance practices are well balanced at every session of the training.

EXPERIMENTAL DESIGN

The study was formulated as a true random group design. Consisting of a pre test and Post test, the subjects (n =25) were randomly divided into two equal groups of fifteen students each. The groups were assigned as experimental group and control group respectively. Pretest was conducted for all the subjects on selected Motor Ability Physiological Variables such as Flexibility, Muscular Strength, speed, height, weight, Resting Pulse Rate, BMI. The experimental groups participated in their respective aerobic dance Practices for a period of 12 weeks. The post test was conducted on the above said dependent variables after a period of 12 weeks in the respective treatments.

CRITERION MEASURES

Effect of various training on adolescent females selected Physical (Physiological) parameters. The following tests were selected and their scores were considered as criterion measures for the study.

1. Flexibility was measured through sit and reach test.
2. Muscular strength was measured through sit-ups
3. Speed was measured by 50 yards dash
4. Resting pulse rate measured manually
5. Weight is measured by standard weighing machine
6. Height was measured by standard stadiometer
7. Body Mass Index

RELIABILITY OF INSTRUMENTS

For training purpose, the equipments like music system, sit and reach box, stop watch, stadiometer, weighing machine used in the study were obtained from standard suppliers and are properly calibrated. The instruments available at the department of physical education were used in the present study. Therefore, it is considered as reliable and accurate. All the instruments were in good condition and workable.

TESTER'S RELIABILITY

To measure uniformity and reliability of the testing technique, the investigator had a number of practice session in the testing procedure with the guidance of their teacher. The investigator has done all the experimental parameters with the assistance of their teacher and laboratory experts.

ORIENTATION TO THE SUBJECTS

Before the collection of data, the subjects were oriented about the purpose of the study that was the effect of selected motor ability, physiological, hematological and biochemical variables. The scholars have explained the training methods and its

procedures, the training schedule and utility. The Procedure of the training was instructed to the subjects.

ADMINISTRATION OF TRAINING PROGRAMME.

Experimental group had undergone Aerobic training three days in a week ie; on Monday, Wednesday and Friday for a period of eight weeks. The control group did not involve in any Aerobic dance training. The data was collected before the start of experimental treatment (Pre test) and the end of the training (Post training) The Aerobic dance training activity included the exercise of whole body. The warm up work out in Aerobic dance, stretching, rotation, exercise with music and meditation was for one hour. The intensity of aerobic dance was started with low impact and gradually increased by using more difficult training after every one week.

ANALYSIS OF DATA AND THE RESULT OF THE STUDY

The analysis of the data collected with regard to the study is presented in this chapter. In this study, the influence of aerobic dance practices on the selected physical fitness component of adult female were investigated. The performance in the criterion measures were scored and recorded as described in the preceding chapter. The data pertaining to the weight, Height, 50m dash, sit-ups and Sit and reach of the experimental and control group were tested by 't' test. . The level of significance to test t-ratio obtained by the analysis of variance was fixed at 0.05 level of confidence which was considered to be an appropriate view of the fact that very high sophisticated equipments were used for stringent levels of significance

To find out significant mean differences between initial and final scores for experimental and control group 't' test was administered. The mean difference of the criterion measures for the control and experimental group is presented in the table .

RESULTS AND DISCUSSION

Table 1

DESCRIPTIVE STATISTICS OF PRE -TEST AND POST-TEST OF EXPERIMENTAL GROUP AND CONTROL GROUP IN HEIGHT

		No.	Mean	SD	't' ratio
Experimental group	Pre-test	15	1.57	4.51	0.041
	Post test		1.57	4.51	
Control group	Pre-test	15	1.57	4.506	0.167
	Post test		1.57	4.506	

Table – I shows that the pre-test and post test mean values on height of aerobic dance practice Groups are 1.57 respectively. The obtained 't' ratio 0.041 for pre test and post test scores of experimental group is lesser than the table value 2.14 with the (df 14). Since the obtained t ratio is lesser than the table value there is be no significant at 0.05 level of confidence on height. The pre test and post test mean values on height of control group are 1.57 respectively. The obtained 't' ratio 0.167

for pre test and post test scores of control group was lesser than the table value 2.14 with the (df 14). Since the obtained t ratio is lesser than the table value there is no significant at 0.05 level of confidence on height. The results of the study indicates that there was statistically no significant mean difference among the pre test and post test means of aerobic dance group and control group in height

Table-2

DESCRIPTIVE STATISTICS OF PRE –TEST AND POST-TEST OF EXPERIMENTAL GROUP AND CONTROL GROUP IN WEIGHT

		No.	Mean	SD	't' ratio
Experimental group	Pre-test	15	54.93	24.02	0.484
	Post test		52.27	22.8	
Control group	Pre-test	15	53.57	23.649	0.4952
	Post test		53.73	23.67	

Table – 2 shows that the pre-test and post test mean values on weight of aerobic dance practice Groups are 54.93 and 52.27 respectively. The obtained 't' ratio 0.484 for pre test and post test scores of experimental group scores was lesser than the table value 2.14 with the (df 14). Since the obtained t ratio is lesser than the table value, there is no significant at 0.05 level of confidence on weight. The pre test and post test mean values on weight of control group are 53.57 and 53.73 respectively. The obtained 't' ratio 0.495 for pre test and post test scores of control group was lesser than the table value of 2.14 since the obtained 't' ratio is lesser than the table value there is no significant at 0.05 level of confidence on weight. The results of the study indicates that there was statistically no significant mean difference among the pre test and post test means of aerobic dance group and control group in weight.

Table-3

DESCRIPTIVE STATISTICS OF PRE –TEST AND POST-TEST OF EXPERIMENTAL GROUP AND CONTROL GROUP IN SIT-UPS

		No.	Mean	SD	't' ratio
Experimental group	Pre-test	15	10.2	4.4	0.23
	Post test		16.7	5.86	
Control group	Pre-test	15	10.2	4.487	0.422
	Post test		10.53	4.439	

Table – 3 shows that the pre-test and post test mean values on Sit-ups of aerobic dance practice Groups are 10.2 and 16.7 respectively. The obtained 't' ratio 0.23 for pre test and post test scores of experimental group scores was lesser than the table value 2.14 with the (df 14). since the obtained t ratio is lesser than the table value

there is no significant at 0.05 level of confidence on Sit-ups. The pre test and post test mean values on sit-ups of control group are 10.2 and 10.53 respectively. The obtained 't' ratio 0.422 for pre test and post test scores of control group was lesser than the table value of 2.14 since the obtained 't' ratio is lesser than the table value there is no significant at 0.05 level of confidence on Sit-ups. The results of the study indicates that there was statistically no significant mean difference among the pre test and post test means of aerobic dance group and control group in Sit-ups.

Table 4

DESCRIPTIVE STATISTICS OF PRE -TEST AND POST-TEST OF EXPERIMENTAL GROUP AND CONTROL GROUP IN SIT ANSD REACH

		No.	Mean	SD	't' ratio
Experimental group	Pre-test	15	9.66	4.76	0.3
	Post test		13.1	4.8	
Control group	Pre-test	15	9.27	5.571	0.231
	Post test		9.6	4.313	

Table – 4 shows that the pre-test and post test mean values on Sit and reach of aerobic dance Groups are 9.66 and 13.1 respectively. The obtained 't' ratio 0.3 for pre test and post test scores of experimental group scores was lesser than the table value 2.14 with the (df 14). since the obtained 't' ratio is lesser than the table value there is no significant at 0.05 level of confidence on Sit and reach. The pre test and post test mean values on sit and reach of control group are 9.27 and 9.6 respectively. The obtained 't' ratio 0.231 for pre test and post test scores of control group was lesser than the table value of 2.14 since the obtained 't' ratio is lesser than the table value there is no significant at 0.05 level of confidence on Sit and reach. The results of the study indicates that there was statistically no significant mean difference among the pre test and post test means of aerobic dance group and control group in Sit and reach.

Table-5

DESCRIPTIVE STATISTICS OF PRE -TEST AND POST-TEST OF EXPERIMENTAL GROUP AND CONTROL GROUP IN 30 M DASH

		No.	Mean	SD	't' ratio
Experimental group	Pre-test	15	6.82	3.19	0.49
	Post test		6.31	3.26	
Control group	Pre-test	15	6.82	3.177	0.22
	Post test		6.98	3.182	

Table – 5 shows that the pre-test and post test mean values on 30m dash of aerobic dance practice Groups are 6.82 and 6.31 respectively. The obtained ‘t’ ratio 0.49 for pre test and post test scores of experimental group scores was lesser than the table value 2.14 with the (df 14). since the obtained ‘t’ ratio is lesser than the table value there is no significant at 0.05 level of confidence on 30m dash. The pre test and post test mean values on 30m dash of control group are 6.82 and 6.98 respectively. The obtained ‘t’ ratio 0.22 for pre test and post test scores of control group was lesser than the table value of 2.14 since the obtained ‘t’ ratio is lesser than the table value there is no significant at 0.05 level of confidence on 30m dash. The results of the study indicates that there was statistically no significant mean difference among the pre test and post test means of aerobic dance group and control group in 30m dash.

Table-6

DESCRIPTIVE STATISTICS OF PRE –TEST AND POST-TEST OF EXPERIMENTAL GROUP AND CONTROL GROUP IN B M I

		No.	Mean	SD	‘t’ ratio
Experimental group	Pre-test	15	21.50		0.168
	Post test		31.66		
Control group	Pre-test	15	21.05		0.375
	Post test		21.02		

Table – 6 shows that the pre-test and post test mean values on B M I of aerobic dance practice Groups are 21.50 and 31.66 respectively. The obtained ‘t’ ratio 0.168 for pre test and post test scores of experimental group scores was lesser than the table value 2.14 with the (df 14). since the obtained ‘t’ ratio is lesser than the table value there is no significant at 0.05 level of confidence on B M I. The pre test and post test mean values on B M I of control group are 21.05 and 21.02 respectively. The obtained ‘t’ ratio 0.375 for pre test and post test scores of control group was lesser than the table value of 2.14 since the obtained ‘t’ ratio is lesser than the table value there is no significant at 0.05 level of confidence on B M I. The results of the study indicates that there was statistically no significant mean difference among the pre test and post test means of aerobic dance group and control group in 30m dash.

CONCLUSION

conclusions were formed. 1) The Result of the study has shown that female adolescents who practiced aerobic dance have better physical fitness components . 2) The study shows that aerobic dance practice increases the speed, flexibility and abdominal strength in the subjects.3) there is significant decrease in weight of the subjects after the aerobic dance practice. Thus it has been concluded that practicing aerobic dance can be applied for the health promotion and physical fitness of female adolescent.

Within the limitation of the present experimental study, the following conclusions have been made in the light of the findings from the present study. The

selected aerobic dance practice group had a better training effect than the control group in the following variables. In the overall training effects in terms of improved number of physiological variables and the magnitude of improvement through training, aerobic dance practice group is found to be the better group when compared to control groups. One who has good physiological fitness automatically has the endurance, speed, strength, co-ordination, reaction time and mental alertness.

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