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EFFECTS OF AEROBIC EXERCISE ON IMPROVING HEALTH RELATED PHYSICAL FITNESS COMPONENTS OF COLLEGE MEAL***Dr. K. Senthilkumar**

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Abstract

The study was conducted to investigate the effect of aerobic exercise on improving health related physical fitness components of college meal .Twenty males from Selvam group of institutions, were selected as study subjects and their age range were 18-23 years. All Selected subjects were participated in moderate intensity aerobic exercise for six consecutive weeks, i.e.3 days per week 60 minute duration per day. Pre, during and post training tests were conducted on the components of health related physical fitness variables The data collected from the study subject was analyzed using SPSS version 16 software. The data pertaining to health-related physical fitness components were analyzed by paired sample 't' test to determine the difference between initial and final mean for participant .According to analyzed data in 12meter run 724.8 mean difference was recorded. The mean difference value boosted in push up performance by 5.4 after six weeks aerobic exercise. In sit up and sit and reach test 4.7 and 4.52 increments were observed respectively. But in body mass index 2.18 decrement and in body weight 5.8 reduction were observed throughout the study period. The result obtained in this study indicated that there were significant improvement in cardiovascular endurance, muscular endurance, muscular strength and flexibility but in the case of body mass index and body weight there were reduction. Based on this finding, it can be concluded that Moderate aerobic exercise has positive effect on improvement of health related physical fitness components of sedentary female communities

Index Terms- Aerobic exercise, improving health related physical fitness components, sedentary males

INTRODUCTION

Fundamental movements of man, which they have achieved from their pre-human ancestors, are walking, running, jumping, climbing, throwing, pulling, pushing etc. By permutation and combination of these basic fundamental movements, man has developed various secondary movements essential for day-to-day living and for the use in games and sports. Physical fitness is important for all human beings, irrespective of their age. A given work may not be carried out if the required physical strength is not available.

Fitness is the first and foremost thing to enjoy the life fully (Reddy, 2012).Regular physical activity, fitness, and exercise are critically important for the health and wellbeing of people of all, whether they participate in vigorous exercise or some type of moderate health-enhancing physical activity. Even among frail and very old adults, mobility and functioning can be improved through physical activity (Butler *et al.*, 1998).Regular aerobic exercise will produce beneficial effects for any age group providing the exercise is specific and appropriate to the level of fitness of the

individual. Progressive exercise correctly performed will increase the level of fitness and improve health. It will also create a sense of well-being, produce greater energy and reduce the risk of developing many diseases. Exercise makes demands on the body systems over and above normal every day activities and as result the systems adapt anatomically and physiologically (Rosser, 2001). Appropriate regular daily physical activity is a major component in preventing chronic disease, along with a healthy diet and not smoking. For individuals, it is a powerful means of preventing chronic diseases; for nations, it can provide a cost effective way of improving public health across the population. Available experience and scientific evidence show that regular physical activity provides people, both male and female, of any conditions including disabilities with a wide range of physical, social and mental health benefits. (WHO 2003). Fitness for living in the house or on the farm or at office or factory or in work places or in any service implies freedom from disease, enough strength, endurance and other abilities to meet the demands of daily living. Doing physical activity everyday contributes to optimum health and quality of life. Life styles can be changed to improve health and fitness through daily exercises. Aerobic exercise stimulates heart, lungs and all working group of muscles and produces valuable changes in body and mind. Many physiological changes are determined by daily aerobic exercises (Shahana *et al.*, 2010).

MATERIALS AND METHODS

Study Design

In this study informal experimental design was applied. The layout for this study was as the follows

Table1. The study design layout

Treatment	Aerobic exercise program
Frequency	3days/week
Total duration	6 weeks
Duration /session	40-60 minutes
Intensity	Moderate (55-69HR _{max})
Exercise days	Monday, Wednesday and Friday
Time of training	Morning

Sample Size and Sampling Technique

For this study stratified random sampling was used to select subjects. Because of Selvam group of institutions male students, staff members and householders. Total number of males who willingly registered to participate in this study was 65. Based on medical history questionnaire as well as inclusion and exclusion criteria 5 participants were excluded and 60 sedentary male were full filled inclusion criteria. To select appropriate representative from those sedentary male community three strata were made and they were grouped in to Students.

Methods of Data collection and Data Analysis

The data collected through fitness tests like 12 minutes run/walk test for cardiovascular endurance, push up test for muscular strength, sit up test for muscular endurance, sit and reach test for flexibility, and body mass index (BMI) test for body composition and the collected data were analyzed Interpreted and tabulated in to a meaningful idea using manually and in computer in order to compare the health related physical fitness variable changes observed among participants that underwent aerobic exercise program. Data was analyzed using computerized statistical package software (SPSS). The paired t-test was used to compare the pre training and post training data. The level of significance was 0.05

RESULT AND DESCUSSION

To achieve the purpose of the study 20 males from Selvam Group of Institutions, male were selected as subjects and their age was 18-23years. Aerobic exercise was given for six consecutive weeks. The variables selected for this study were health related physical fitness components. Pre, during and posttest were conducted for all the 20 subjects on health related physical fitness components and the scores were recorded and then the collected data were analyzed by paired t-test by using SPSS. The results for each fitness variables are discussed below.

Table2. Mean values of 6th minute run/walk and push up

Dependent variables	PT Mean ±SD	DT Mean ± SD	POT Mean ± SD
12 minute run	1400 ±289.27	1738.9 ±253.9	2118.9 ± 261.265
Push up	5.400 ± 2.87	8.50 ± 2.688	10.67 0 ±3.591

Values are mean ± SD, PT = pre training test which was taken before aerobic exercise, DT=during training test which was measured at 3th week of aerobic exercise, POT= posttest which was taken after 6th week of aerobic exercise training.

The above table 2 showed that there was significant difference in-between the pre to post test score. The improvement in performance was due to the aerobic exercise in which they were engaged in. The mean score value for 12minute run/walk test before aerobic exercise was 1400,during training test was 1738.9m and after training mean score value was 2118.9m,. When we compare the mean value score of before training test with the mean score values of after six weeks aerobic exercise, the mean difference value increased by

724.8m(52%).This result indicated the effective change was observed on participants cardiovascular fitness level and muscular strength As indicated in the table 2 and figure 1 the push up Mean value of pre training test result was 5.400 during training test was 8.50 and post training test was 10.670.When we compare performance of an individual before training test result to after training test 5.4 mean difference was recorded. The improvement in pushup performance implies an enhancement in muscular strength. From this result it is possible to conclude that aerobic exercise has positive effects on push up performance, indeed in muscular strength. results matched with the finding of Selvam and his friend. They conducted a study on selected effect of aerobic exercise on selected physiological variables among college girls. Their study finding revealed that aerobic exercise uses large muscle groups rhythmically and continuously and elevates the heart rate and breathing for a sustained period.(Selvam and sudha 2008).

Table 3.Pre, during and Post training test Mean values of sit up (number/ minute) and, sit and reach test (cm).

Dependent variable	PT Mean ±SD	DT Mean ±SD	POT Mean ±SD
SU	6.4000 ±6.572 27	8.900 0±6.7 1134	11.150 0±7.02 833
STRT	- 1.2200 ±6.572 16	0.885 0±5.9 194	3.3000 ±5.229 87

Values mean ± SD, PT = pre training test which was taken before aerobic exercise, DT=during training test measured at 3th week of aerobic exercise, POT= posttest which taken after 6th week of aerobic exercise training, SU=sit up, STRT=sit and reach test

The data (table 3) showed that there

were significance difference before the exercise and after six weeks of aerobic exercise on individuals' sit up and sit and reach performance. The mean values of sit-ups (number/minute) were 6.40 in before aerobic exercise, which was improved to 8.90 in during test and improved by 11.15 after 12 week aerobic exercise test, this means the sit up performance improved by 4.75 (79%) after six weeks of aerobic exercise. The main reason for these improvements was due to aerobics exercise they took in the gymnasium. The above table also revealed the sit and reach performance. The mean value of sit and reach flexibility test was -1.22, 0.8850 and 3.30 for pre, during and posttest respectively. When we compare the mean value of pretest result with post test result 4.52 increments was observed .The improvement of the rate of this data was one indicator of the improvement of the participant's range of motion in the joints.

Table 4. Mean values for Bodyweight (kg), height (m) and body mass index (kg/m²) of meal before, during and after aerobic exercise program.

Dependent variable	PT	DT	POT
WT(KG)	66.5000 ±8.5992 7	63.90 00±8. 1686 2	60.70 00±8. 11172
HT(M)	1.6060± 0.06492	1.606 0± 0.064 92	1.606 0±0.0 6492
BMI	25.678± 2.4333	24.75 31±2. 3041 6	23.49 60±2. 24224

Values are mean ± SD, PT= pre training test which was taken before aerobic exercise, DT=during training test which was measured at 3th week of aerobic exercise, POT= posttest which is taken after 6th week of aerobic exercise training, WT =Weight, HT =height, BMI=body mass index.

As indicated in table 4, the mean values of participants' weight was 66.5 before aerobic exercise, this was reduced to 63.9 in during exercise and 60.7 after six weeks aerobic exercise. This mean totally the mean of weight was reduced by 5.8 kg throughout the study period. This was due to the six week's aerobic exercise under which the participants went through. The result also showed that the height was same throughout the study. Which indicates no significance difference was observed on height of participants.

CONCLUSIONS

Based on the major finding of the study, the following points are stated as conclusion. Moderate aerobic exercise has positive effect on improvement of cardiovascular endurance, muscular strength, muscular strength and flexibility of sedentary female communities. Aerobic exercise significantly reduced the body mass index and body weight of sedentary male. Moderate aerobic exercise has significant effects on improvement of health related physical fitness components.

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