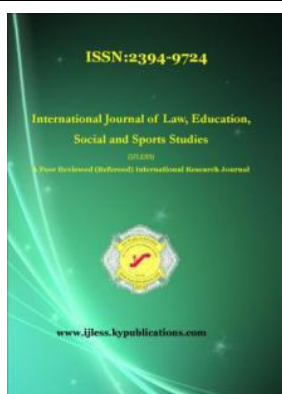




EFFECT OF EXERCISES ON SELECTED HEALTH RELATED PHYSICAL FITNESS VARIABLES OF ADULT WOMEN

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ABSTRACT

The aims of this study were to find out the effects of aerobic exercises on different health related physical fitness variables such as cardio respiratory endurance, flexibility, upper body strength endurance and abdominal strength endurance in adults women. About 32 collage girls (age ranges 21-25yrs) were enrolled as the subject of the study. Two groups were the experimental group, participated in an aerobic exercise programs and the control group. The experimental subjects group was continued for aerobic training for nine month, thrice in a week, 45min. in each time. Due to aerobic training there was no significant change occurs in case of flexibility, upper body strength endurance and abdominal strength endurance. Significant positive changes occurred in case of the cardio respiratory endurance as it was increased due to training.

Key words: exercise, aerobic, cardio respiratory endurance, flexibility, upper body strength endurance, abdominal strength endurance

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INTRODUCTION

'Fitness' is the ability to perform work satisfactorily under specific condition. Physical fitness is the ability to perform muscular work in full enjoyment with minimum effort and having some extra energy for emergency. This physical fitness can be dichotomized into health related and performance related physical fitness. Most authorities agreed that health related physical fitness consists of cardiorespiratory endurance, upper body strength endurance, abdominal strength endurance, flexibility and body composition. These factors are for better living, for fuller enjoyment of life, for add life in years and years in life. On the other hand the performance related fitness directly influence the performance in the sport field and they are speed, strength, speed and strength endurance, power, balance, co-ordination, agility etc. The effect of exercise to such health related physical fitness variables has been well established by different scientists in variety of health related field. Benefits of exercise are mainly four folded, as it promotes health, avoid diseases, recover quickly and ultimately add enjoyment in life.

It has found that the body fatness was inversely related to running speed, standing high jump, leg lift speed and maximal oxygen uptake. Physical activity was positively related to leg lift speed and maximal oxygen uptake and only in females to the standing high jump [15]. Thus body fatness is inversely related to most fitness items, while physical activity is positively related to only several fitness items. Further, body fatness and physical activity are independently related to physical fitness. It has aimed to assess dimensions of health related quality of life (HRQL) in women attending an obesity clinic and to rate differences in HRQL in those with the highest and lowest levels of Physical activity (PA) [10]. The findings indicate that a higher level of PA in an obese female clinical population was positively associated with diverse dimensions of HRQL. However, it

was not possible to determine if these favorable aspects of HRQL are the cause or the consequence of a higher PA level.

Aerobic exercise is performed at a moderate level of intensity over a relatively long period of time. For example, running a long distance at a moderate pace is an aerobic exercise, but sprinting is not. Actually the intensity depends upon ones' maximum oxygen consumption capacity. This capacity is higher in case of male than female. The energy consumption in case of mild exercises up to 30 min. comes from mainly the fatty acid and as the intensity increases the muscle glycogen takes place. Through training the maximum oxygen taking capacity may increase 20-30%. In case of college girl considering the socioeconomic condition and social culture prevailed in India, they are not habituated in engaging themselves in regular exercises. Here in this study the present researcher tried to show the benefit of aerobic exercises in terms of different health related physical fitness factor.

Purposes of the study

- To observe the present health related physical fitness status of adult women.
- To observe the effect of aerobic exercises on health related physical fitness factors.

Methodology

Subjects

About 32 collage girls' were considered as the subject of this study. The age of the subjects were ranging between 21-25yrs bearing normal BMI level. The group N=18, were the experimental group, participated in an aerobic exercise programs and another group of 14 students considered as control group.

Criterion measured and the instruments used:

The measured health related physical fitness components were as follows and for each criterion the standard tests according to the standard literature were conducted for evaluation. All the tests were valid. Following Tests and Measurements according to the Health Fitness Award (HFA) tests of President's Council on Physical Fitness & Sports in U.S.A. were considered here, which is as follows: -

- a. The cardio-respiratory endurance; One-mile run/walk (in sec.)
- b. Flexibility; V-Sit & Reach (in cm.)
- c. Abdominal Strength Endurance; Partial Curl Ups (in no.)
- d. Upper Body Strength Endurance; Right Angle Push Ups (in no.)

Design

The actual experimental period was of 09 month. Pre-test of all the subjects of two groups were conducted on the onset of the experimental period. The chronic exercise program was continued for 09 month considering 03 month in each phase. After 3 month the 1st post-test, after 6th month the 2nd post-test, after 9 month the 3rd and final post-test were conducted. The exercise program were of 45 min. consisting of general warm up, stretching exercises, long distance run as it planned. Some team game, relaxation exercises were also included to avoid monotony, to create interest but that were of target oriented and relevant. The exercises have fulfilled the individual need of the subjects. The exercise-program intensity was increased gradually with very slow pace considering the status of the experimental group. The frequencies of the exercise program were three days in a week.

Training Protocol

Daily for 45 min. thrice a week.

- Daily distribution: 15%- Strength, 70%- Endurance, 15% Flexibility
(10 min warm up – stretching, joint mobility, slow jogging)
(30 min – training: 5 min. strength, 20 min. Endurance, 5 min. Flexibility)
(5 min cooling down – stretching, joint mobility)
Total weekly hours 135 min

Strength training with own body weight. Push up, sit up, pull up and squat.

Endurance: Continuous running at a level of 5 km/hr., Interval running.

Flexibility: self-free hand

The intensity of exercises was gradually increased.

Results and Discussion

The following table shows the results after statistical calculation on the collected data of different variables through the tests and measurements after different phases of aerobic training of the experimental group and the control group. Here Phase-1, 2, 3, 4 denoted the result of the collected data at onset of exercise, after 3, 6 and 9 months respectively.

Table-1: the mean and S.D. of Cardio Respiratory Endurance indifferent stages

C.R.E.(sec.)		Phase-1	Phase-2	Phase-3	Phase-4
EXP.	Mean±S.D.	590.17±90.13	587.22±87.19	647.39±165.48	517.56±78.71
CONT.	Mean±S.D.	963.43±105.46	1019.21±114.10	996.64±70.54	943.21±75.20

0.05 level of significance

Posthoc test: Bonferroni-Holm				
Group1	Group 2	Critical	P	Significant?
VAR3	VAR4	0.008	0.005	Yes

Significant differences were found in cardio respiratory endurance in relation to different stages training. The endurance capacity was significantly increased in 3rd stage of training in comparison to the other two stages of training. No such significant differences were found in Cardio Respiratory Endurance in different phases of measurements of the control group.

Table-2: the mean and S.D. of Flexibility indifferent stages of aerobic training.

Flexibility(Cm.)		Phase-1	Phase-2	Phase-3	Phase-4
EXP.	Mean±S.D.	17.89±10.71	17.29±8.43	20.83±9.50	22.03±9.10
CONT.	Mean±S.D.	15.53±6.80	15.39±6.85	15.13±7.04	15.16±7.27

No significant differences were found in Flexibility in relation to different stages training and in case of the control group.

Table-3: the mean and S.D. of Abdomen strength endurance indifferent stages of aerobic training

Abd. S. E.(no.)		Phase-1	Phase-2	Phase-3	Phase-4
EXP.	Mean±S.D.	24.06±9.55	26.17±10.07	24.67±9.73	27.28±8.46
CONT.	Mean±S.D.	17.29±7.92	17.14±8.17	17.07±7.27	18.50±6.19

No significant differences were found in Abdomen strength endurance in relation to different stages training and as well as in case of control group also.

Table-4: the mean and S.D. of Upper Body Strength endurance indifferent stages of aerobic training.

U. B. S. E. (No.)		Phase-1	Phase-2	Phase-3	Phase-4
EXP.	Mean±S.D.	3.00±4.74	4.94±5.84	3.94±4.57	4.89±5.92
CONT.	Mean±S.D.	1.00±1.47	0.57±0.85	0.50±1.02	0.64±1.08

No significant differences were found in upper body strength endurance in relation to different stages training and in different phases of measurements of control group.

Discussion

In case of flexibility, abdominal strength endurance and upper body strength endurance there were no significant changes. The possible reason for the lack of improvement in flexibility is duration of sustaining the stretch. In this study, the protocol was to stretch all major muscle groups for 15 to 20 seconds for 5 times every session as part of warm-up and cool-down movement. Previous studies which included stretching alone

showed that 15-second to 60-second stretch enhanced flexibility of the lower limb. The development of flexibility is mainly acquired through stretching programs. Stretches can be categorized on a continuum from static (no motion) to ballistic (rapid motion) [13]. In case of other two strength factors there were also no such possibility of significant development as the training were also not targeted to that direction.

Only significant changes occurred in case of cardiorespiratory endurance. The training modules were so framed that only the aerobic effect in terms of cardio respiratory endurance can be judged. The other factors such as the strength and flexibility training were so framed only to stimulate the acceptability of the aerobic training. The cardiorespiratory endurance was increased significantly in the third phase of training. In the first two phases the athletes were mentally prepared themselves and adjusted their daily lifestyle with the training. As they were sedentary students and were not habituated to go through the systematic training process no significant development were observed in the first two phases. In the third phase they were conditioned enough after continuing six month general endurance type of training and motivated them to accept the strenuous training and thus significant changes occur regarding the cardio respiratory endurance. A significant positive change occurs in case of cardiorespiratory endurance considering aerobic training on 30 adult ladies having age 30-35 [1]. Traditionally cyclists begin training by performing extended durations of low intensity endurance training, resulting in both central and peripheral adaptations to the aerobic energy system [14]. These adaptations occur within those specifically recruited muscles through increases in the capillary and mitochondrial density allowing for more oxygen to be processed by the working muscles [17].

Conclusions:

From the findings of the study and discussion accordingly it may be concluded that except cardio respiratory endurance the long term low intensity aerobic exercises has no such significant positive effect on the upper body strength endurance, flexibility and abdominal strength endurance.

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