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Effects of aerobic exercise on selected physical and physiological variables among school level adolescent obese male

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Abstract
The study aimed to explore the influence of effect of aerobic exercise on selected Physical and physiological variables among school level adolescent obese male. The hypothesis posited that eight weeks of aerobic exercise would significantly impact selected Physical and physiological variables among college obese women. For this investigation, 30 randomly selected school level adolescent obese male from ANSALDO Metric Hr. School, Chetpet, Tamilnadu, India, aged between 13 to 17 years, were chosen as subjects. The research employed a pretest–posttest random group design, incorporating an experimental group (Group ‘A’) and a control group (Group ‘B’), each comprising fifteen participants. Group ‘A’ underwent aerobic exercise, while Group ‘B’ received no training. Physical and physiological variables were assessed using the sit-ups and sit and reach test, radial pulse count and digital stop watch respectively. Before the eight-week experimental period commenced, we conducted pre-tests to assess the selected physical fitness and physiological variables in all 30 subjects. Subsequently, post-tests were carried out at the conclusion of the experimental period, with scores meticulously recorded. Statistical analysis was conducted with a predetermined level of significance set at a confidence level of 0.05. The study results revealed a significant improvement in Physical and physiological variables among participants in the aerobic exercise group.

Keywords: Aerobic exercise, muscular endurance, flexibility, resting heart rate and breath holding time

Introduction

Aerobic dancing is defined as a very good activity for people who want to be physically fit and stay fit. Dancing is moving accordingly to the beat with any musical complement. Aerobic dancing is the simple, normal, enjoyable and fulfilling form of exercise good for cardiovascular profit. It helps to be tension free, feel better, look better, self-confidence and provides the opportunity for self-expression. If the aerobic dance is done properly, it contributes to some degree in the maintenance of youthful fitness, thus helps to slow down aging.

Aerobic dancing can be performed in by anyone, but if the person is beyond 30 year of age and the life-style has been sedentary, it is always wise to consult a physician before embarking on an aerobic dance programme. Individuals with heart ailments are not advised to participate without consultation of doctor. This holds true to the obese where undue strain will be applied to the heart and body in the process. During the aerobic activity, the pulse is checked after every dance piece to see if the desired heart rate is reached and maintained for a period of about 12 to 20 minute. This will enable the heart to do the necessary workouts, to increase its endurance and efficiency. A pulse of 120 beats per minute. This heart rate is achieved gradually per session and maintained. Aerobic Dancing gives the formula for finding ones working or exercising intensity.

Working or exercising intensity = 220-Age x 70%

A 40-year person has a maximum heart of 180. Seventy percent of this is 126 of the working heart rate. One should not go beyond 144 beats or 80% of the maximum heart rate; otherwise she is going beyond her safe limits.

At this rate conversation is easy for performing an aerobic activity (Virginia, 2002) [7].

Aerobic dancing gives us the following effects namely, A firm lean body, A healthy heart, Muscle strength, Lower blood pressure, Fat burning time, A reduction in stress levels, Cardiovascular fitness, More energy, Better self image, and Self esteem.

Regular aerobic exercise has been documented to have a significant positive effect on the cardiopulmonary system, slowing and even reversing declines in efficiency that historically were associated with the ageing of this system (Boileau *et al*., 1999) [8].

Aerobic exercise is credited with increasing respiratory function, maintaining stroke volume, and reducing resting blood pressure in both young and old participants. Exercise reduces the level of blood lipids and increases glucose tolerance and insulin sensitivity, thus reducing the risk of atherosclerosis and adult-onset diabetes (Hornsby and Albright, 2003) [9].

Studies indicate that there is a greater decline with age in the efficiency of oxygen transfer in sedentary people than in those who are physically active. It is clearly documented that exercise has a significant impact on maintenance of aerobic power and endurance. It is encouraging to note that the cardiopulmonary system responds to training regardless of previous physical activity patterns (Spirduso *et al*., 2005) [10].

Methodology

The objective of this study was to investigate the of effect of aerobic exercise on selected Physical and physiological variables among school level adolescent obese male. It was hypothesized that eight weeks of aerobic exercise would significantly influence selected Physical and physiological variables among college obese women. For the present study, 30 school level adolescent obese male from ANSALDO Metric Hr. School, Chetpet, Tamilnadu, India, were randomly selected as subjects, with ages ranging from 13 to 17 years. A pretest–posttest random group design, incorporating an experimental group (Group 'A') and a control group (Group 'B'), was employed. Subjects were randomly assigned to two equal groups of fifteen each. Group 'A' underwent aerobic exercise, while Group 'B' received no training Physical and physiological variables were assessed using the sit-ups and sit and reach test, radial pulse count and digital stop watch respectively. Subsequently, the experimental group underwent an eight-week regimen involving yogic practice, while the control group did not partake in any training activities. After the completion of the eight-week training period, post-tests were conducted to measure the same dependent variables. The data obtained from these tests were subjected to statistical analysis using the dependent t-test to determine if any statistically significant improvements were observed. It is noteworthy that a level of significance was set at 0.05, ensuring a 95% confidence level for all analyses.

Results

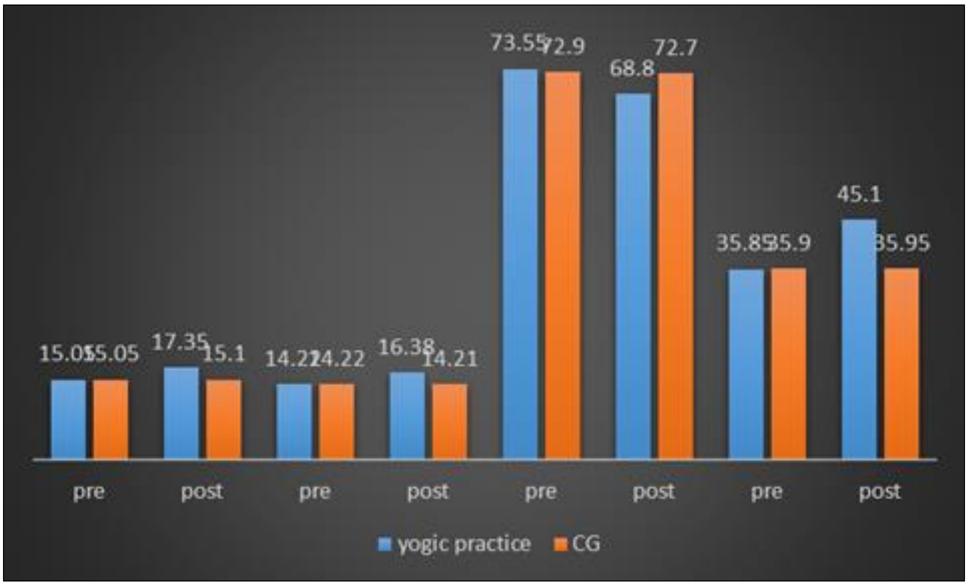
Table 1: Mean and Dependant 'T' – ratio for the Pre and Post Tests on aerobic exercise Group and control Group on Physical and physiological variables

S.No	Group	Variables	Pre-Test Mean	Post-Test Mean	Mean Difference	Standard error mean	T- ratio
1	Yogic practice	Muscular Endurance	15.05	17.35	2.3	0.21	10.51*
2		Flexibility	14.22	16.38	2.16	0.17	12.43*
3		Resting Heart rate	73.55	68.80	4.75	0.20	23.33*
4		Breath holding time	35.85	45.10	9.25	0.26	35.53*
1	Control Group	Muscular Endurance	15.05	15.10	0.05	0.05	1.00
2		Flexibility	14.22	14.21	0.01	0.05	1.00
3		Resting Heart rate	72.90	72.70	0.2	0.11	1.1
4		Breath holding time	35.90	35.95	0.05	0.16	0.29

*Significant level 0.05 level degree of freedom (2.14, 1 and 14)

Table 1 displays the computation of the t ratio comparing the means of pre-test and post-test for among school level adolescent obese male. The mean Physical and physiological variables values for the experimental group were 15.05 before training and 17.35 after, 14.22 before training and 16.38 after, 73.55 before training and 68.80 after and 35.85 before training and 45.10 after, while the control group had means of 15.05 and 15.10, 14.22 and 14.21, 72.90 and 72.70 and 35.90 and 35.95 for the respective tests. The calculated t ratio of 10.51, 12.43, 23.33 and 35.53 exceeded the critical table value of 2.14, indicating statistical significance for 1 degree of freedom and 14 participants at a 0.05 level of confidence. This finding strongly suggests that the Physical and physiological variables of the experimental group significantly improved due to the influence of in-and-outs aerobic exercise. Conversely, the computed t ratio of 1.00, 1.00, 1.10 and 0.29 fell short of the critical table value of 2.14, rendering it statistically non-significant for 1 degree of freedom and 14 participants at a 0.05 level of confidence. This result clearly demonstrates that the Physical and physiological variables of the control group did not exhibit significant improvement following the intervention.

The bar diagram shows the mean values of pretest on Physical and physiological variables of experimental group and control group.



Finding of Results

The study findings reveal a significant improvement in the selected variables, namely Muscular Endurance and Flexibility, Resting Heart rate and Breath holding time within the experimental group, which consisted of individuals undergoing aerobic exercise, in comparison to the control group. Furthermore, the study indicates that the enhancements achieved by the aerobic exercise are notably superior to those observed in the control group. For further insights into this topic, one can refer to the research conducted by Nithiya *et al*., (2017) [11] studied was to find out the effect of different intensity of step aerobic training on selected physiological variables among school girls. In conclusion, the study the study results underscore the positive impact of aerobic exercise on Muscular Endurance and Flexibility, Resting Heart rate and Breath holding time, emphasizing their effectiveness in enhancing athletic performance.

Conclusions

Within the limitations of the present study, the following conclusions were drawn:

1. The experimental group, comprised of individuals who underwent aerobic exercise, achieved a notably significant improvement in Muscular Endurance and Flexibility, Resting Heart rate and Breath holding time, school level adolescent obese male.
2. In contrast, the control group exhibited insignificant improvement in physical fitness variables, specifically Muscular Endurance and Flexibility, Resting Heart rate and Breath holding time, school level adolescent obese male.

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