



EFFECT OF AEROBIC TRAINING PROGRAMME AMONG OBESE FEMALE STUDENTS ON SELECTED PHYSIOLOGICAL VARIABLES

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Cite This Article: P. Ganesh Kumar, J. P. Desiga Srinivasan, K. Tamilarasi & S. Dharmalingam, "Effect of Aerobic Training Programme Among Obese Female Students on Selected Physiological Variables", *International Journal of Scientific Research and Modern Education*, Volume 11, Issue 2, July - December, Page 3-4, 2026.

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Type of Review: Peer Reviewed as per [C|O|P|E] Guidance.

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DOI: <https://doi.org/10.5281/zenodo.21778619>

Abstract:

Step aerobic exercise increases the heart rate substantially but does not allow it to reach its maximum level. Aerobic exercise improves stamina and endurance, making it beneficial for sports performance and overall health. It enhances the efficiency of the heart, circulatory system, and skeletal muscles. Obesity is generally defined as an excessive accumulation of body fat resulting from a metabolic imbalance caused by excessive caloric intake. It is commonly classified as having a body fat percentage exceeding 20% in men and 30% in women. Obesity is associated with several adverse health conditions, including diabetes mellitus, chronic cardiovascular diseases, impaired brain function, accelerated aging, and deterioration of the musculoskeletal system. For the present study, thirty obese women employed in various organizations in Chennai were randomly selected. The participants belonged to the age group of 25-30 years and were randomly assigned to three groups (Group A, Group B, and Group C), with ten subjects in each group. The findings of the study revealed that the two aerobic exercise interventions, namely aerobic exercise and step aerobic exercise, significantly improved the vital capacity of the obese women. However, no significant reduction was observed in their resting heart rate.

Key Words: Aerobic Exercises, Floor Exercises, Step Exercises and Obese Women.

Introduction:

Aerobic exercise refers to a variety of physical activities that stimulate the heart and lungs over a sustained period, producing beneficial physiological changes in the body (Cooper, 1970). It is a system of exercise designed to enhance the body's ability to supply and utilize oxygen efficiently. Step aerobics, developed by Gin Miller, became a major trend in the fitness industry due to its effectiveness and popularity. This form of exercise involves stepping up and down on a platform ranging from 15 to 30 centimeters (6 to 12 inches) in height while performing a variety of coordinated step combinations.

Aerobic exercise improves stamina and endurance, making it highly beneficial for sports performance and overall health. It enhances the efficiency of the cardiovascular and respiratory systems by improving the functioning of the heart, lungs, circulatory system, and skeletal muscles. During step aerobic exercise, the heart rate increases substantially but generally remains below its maximum level, making it an effective and safe form of moderate- to vigorous-intensity physical activity.

Obesity is generally defined as an excessive accumulation of body fat resulting from a metabolic imbalance caused by excessive caloric intake. It is commonly classified as having a body fat percentage exceeding 20% in men and 30% in women. Obesity is associated with several adverse health conditions, including diabetes mellitus, chronic cardiovascular diseases, impaired brain function, accelerated aging, and deterioration of the musculoskeletal system. Because of these health risks, regular participation in aerobic exercise is widely recommended as an effective strategy for weight management and the improvement of overall physical fitness and health.

Statement of the Problem:

The purpose of the study was to assess the changes on selected physiological variables with the effect of varied aerobic training programme among obese Female Students in different places of Namakkal District.

Methodology:

To achieve the purpose of the study a total of thirty obese Female Students who studying in various places of Namakkal were selected at random for this study. They belonged to the age group of 25 to 30 years. The subjects were assigned to three groups (Group X, Y, and Z) with each group comprising of ten subjects. The training programme started with 5 minutes of warm-up exercise, which comprised flexibility exercises, involving a range of motion exercises to all joints of the upper and lower limbs and trunk. Each training session was supervised by the study investigators. Group X was exposed to selected floor aerobic exercises namely, Marching, Touch Out, Step Touch, Double Step Touch, Grapevine, Cross Over Step, Jump on the Spot, Arm Curl, Front Kick, Knee and Arm Lift. Group Y was exposed to step aerobics exercises namely, „V“ Step, Leg Curl, Toe Tap, Front Kick, Slice, 90 Degree Turn, Side Kick, „V“ Step with Flexed Knees, Straddle Down, Trunk twist with Extended and Arms. Group Z served as control group and was restricted from participating in the training programme. To assess the effect, 12 weeks varied aerobic training programme, was given. Dependent variables such as Vital Capacity and Resting Heart Rate were chosen

for this study. During the first two-week subjects exercised for 40 minutes at 50% to 55% of age-predicted HRmax (HRmax = 220-age). The intensity of training was then increased by 5% every 2 weeks. The duration was also increased 10 minutes per session every 12 week so the subjects exercised for 70 min at 80% of HRmax by the end of the training period. Participants cooled down for 5 minutes as they performed the active full range of motion exercises of all joints of the upper limbs, lower limbs, and trunk after the aerobic exercises. The experimental design used in this study is pre test, post test randomized group design. The data were analyzed by using Analysis of Covariance (ANCOVA) as recommended by Clarke and Clarke (1972). In all the cases 0.05 level was fixed as level of significance which was considered as appropriate.

Results:

The data obtained for vital capacity and resting heart rate were statistically analyzed using Analysis of Covariance (ANCOVA), and the results are presented in Tables I and II. The obtained F-ratio for vital capacity was 18.90, which was significantly higher than the required table value of 3.37 at the 0.05 level of significance. This indicates that the aerobic training intervention significantly improved the vital capacity of the subjects. In contrast, the obtained F-ratio for resting heart rate was 1.20, which was lower than the required table value of 3.37 at the 0.05 level of significance. Therefore, it was concluded that the aerobic training intervention did not produce a statistically significant effect on the resting heart rate of the subjects.

Table 1: Computation of Analysis of Covariance of Pre and Post Test Scores on Vital Capacity

Source of Variance	Df	SSx	SSy	SSxy	MSy.x	SDy.x	F-ratio
Between sets	2	0.5	3.3	1.6	0.8	0.2	18.90*
Within sets	26	3.1	3.2	1.1	0.042		

Table 2: Computation of Analysis of Covariance of Pre and Post Test Scores on Resting Heart Rate

Source of Variance	Df	SSx	SSy	SSxy	MSy.x	SDy.x	F-ratio
Between sets	2	2.1	2.6	1.7	0.8	0.8	1.2
Within sets	26	125.4	86.1	18.6	0.7		

Conclusions:

The results of this study show that the varied aerobic exercises, namely aerobic and step aerobic exercises significantly improved the Vital Capacity of the obese women where as there was no changes in their Resting Heart Rate.

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