

The Impact of Freestyle Aerobic Exercise and Step Aerobic Exercise on Cardio Vascular Endurance among College Female Students

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Abstract

The purpose of this study was to examine the impact of freestyle aerobic exercise and step aerobic exercise on cardiovascular endurance among college female students. To achieve this, forty five female students from Rajiv Gandhi Arts and Science College, Thavalakuppam, Puducherry, were selected as participants. Their ages ranged from 18 to 24 years. The participants were divided into three equal groups of fifteen: Experimental group I, experimental group II, and a control group. Over eight weeks, experimental group I underwent freestyle aerobic exercise, while experimental group II participated in step aerobic exercise. The control group did not receive any specific training. All participants were assessed on cardiovascular endurance before and after the training period. The data were analyzed using analysis of covariance (ANCOVA). The results revealed that freestyle aerobic exercise and step aerobic exercise had a significant positive impact on cardiovascular endurance among college female students.

Keywords: Aerobics, Cardio Vascular Endurance, Freestyle Aerobic Exercise, and Step Aerobic Exercise.

Introduction

The word "aerobic" literally means "with oxygen" or "in the presence of oxygen." Aerobic exercise refers to any activity that engages large muscle groups, can be sustained for an extended period, and follows a rhythmic pattern. This type of exercise strengthens the heart, lungs, and cardiovascular system, improving their ability to process and deliver oxygen efficiently throughout the body. As the heart muscle becomes stronger and more efficient, it pumps a larger volume of blood with each beat, reducing the number of strokes needed to transport oxygen effectively. As a result, individuals with good aerobic fitness can exercise longer, at higher intensities, and recover more quickly after a workout. Aerobic exercises is a form of physical exercise that combines rhythmic, continuous movement using large muscle groups with stretching and strength training. The primary goal of aerobic exercise is to enhance overall fitness. It is typically performed to music and may be practiced in a group setting led by an instructor or fitness professional, though it can also be done solo and without musical accompaniment. Aimed at promoting physical fitness and preventing illness, aerobics incorporates various dance-like routines. Formal aerobics classes are structured into different levels of intensity and complexity and generally consist of five key components: warm-up, cardiovascular conditioning, muscular strength and endurance training, cool-down, and flexibility exercises. Participants can usually adjust their level of involvement based on their fitness level.

Freestyle Aerobic Exercise

Many gyms now include freestyle and step aerobic exercise in their group fitness schedules, making it an effective way to get in shape. This workout consists of choreographed movements performed on a raised, adjustable platform. Freestyle and step aerobic exercise unique is its lack of fixed routines, steps, or moves. Instructors have the creative freedom to design their own choreography, showcase their personalities, and tailor the session to the abilities of participants. During a workout, individuals may perform movements such as the T-step, corner knee, straddle down, and split step.

Step Aerobic Exercise

Step aerobic exercise offers all the benefits of a high-intensity cardio workout without placing excessive stress on the joints. It enhances overall fitness by building strength, reducing fat, and improving cardiovascular health. Additionally, it burns calories efficiently, making it an excellent option for maintaining a healthy body weight.

Freestyle and step aerobic exercise is essential because it provides a full-body workout while strengthening the cardiovascular system over time. Regular cardio exercise can help prevent heart disease and high blood pressure.

Statement of the Problem

This study aims to examine the impact of freestyle aerobic exercise and step aerobic exercise on cardiovascular endurance among female college students.

Hypothesis

- The hypothesis proposed that both freestyle aerobic exercise and step aerobic exercise would result in a notable enhancement in fitness levels among female college students.
- 2. It was suggested that both experimental group I and experimental group II would exhibit greater improvements compared to the control group, attributed to the effects of freestyle aerobic exercise and step aerobic exercise among female college students.

Methodology

Selection of Subjects

For this study, forty-five participants were randomly chosen from Rajiv Gandhi Arts and Science College in Puducherry, with ages ranging from 18 to 24 years. The participants were divided into three equal groups: two experimental groups focused on freestyle aerobic exercise and step aerobic exercise, while the third group served as the control group.

Selection of Variables

Independent Variables	:	Freestyle Aerobic Exercise and Step Aerobic Exercise
Dependent Variables	:	Cardio Vascular Endurance

Experimental Design

The study was designed as a true random group design, incorporating both a pre-test and a post-test. A total of 45 participants were randomly distributed into three equal groups: Experimental group I, Experimental group II, and a control group. All subjects underwent a pre-test assessing cardiovascular endurance. The experimental groups then engaged in their designated freestyle aerobic and step aerobic exercises over a duration of eight weeks. After this period, a post-test was administered to evaluate the same dependent variables in line with the respective treatments.

Collection of Data

The participants in the study were randomly selected and divided into three equal groups. One of these groups served as the control group, which did not engage in any special activities. The other two groups, designated as experimental groups, received specific treatments. These groups were well-informed about the techniques assigned to them and

adhered to the experimental treatment prescribed for duration of eight weeks, all conducted under the direct supervision of the researcher.

Statistical Techniques

The data gathered from the subjects were processed. A statistical analysis of covariance was employed to determine the adjusted mean differences among the treatment groups.

Test	FAEG	SAEG	CG	Source of Variance	Sum of Squares	df	Mean Squares	F ratio			
Pretest											
Mean	2.00	2.95	2.99	Between	0.13	2	0.07	0.34			
	5.09			Within	8.45	42	0.20				
Posttest											
Mean	3.29	3.46	2.98	Between	1.8	2	0.90	8.20*			
				Within	4.61	42	0.11				
Adjusted Posttest											
Mean	3.29	3.46	2.98	Between	1.81	2	0.90	8.04*			
				Within	4.60	41	0.11				

 Table I: Computation of Analysis of Covariance on Cardio Vascular Endurance (Scores in Meters)

*Significant at .05 level of confidence.

(*The table values required for significant at 0.05 level of confidence for 2 and 42 and 2 and 41 are 3.72 and 3.72 respectively*)

Table I presents the statistical analysis of cardiovascular endurance scores.

Pretest Analysis: The mean scores for cardiovascular endurance before the intervention were 3.09 (freestyle aerobic exercise), 2.95 (step aerobic exercise), and 2.99 (control group). The obtained F-ratio of 0.34 is lower than the table value of 3.72 for df 2 & 42, indicating no significant difference in pretest scores among the groups.

Posttest Analysis: After the intervention, the mean scores increased to 3.29 (freestyle aerobic exercise), 3.46 (step aerobic exercise), and 2.98 (control group). The obtained F-ratio of 8.20 exceeds the table value of 3.72 for df 2 & 42, indicating a significant difference among the groups at the 0.05 level of confidence.

Adjusted Posttest Analysis: After adjusting for covariates, the posttest mean scores remained 3.29 (freestyle aerobic exercise), 3.46 (step aerobic exercise), and 2.98 (control group). The obtained F-ratio of 8.04 is greater than the table value of 3.72 for df 2 & 41, confirming a statistically significant difference among the groups at the 0.05 level of confidence.

Conclusion

Both freestyle and step aerobic exercises significantly improved cardiovascular endurance compared to the control group. However, there was no significant difference in effectiveness between freestyle aerobic and step aerobic exercises.

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