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Naveena Priya D
Director of Physical Education,
Women's Christian College,
Chennai, Tamil Nadu, India

Glory Darling Margaret J
Assistant Professor, YMCA
College of Physical Education,
Chennai, Tamil Nadu, India

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Impact of aerobic and traditional dance on cardiorespiratory endurance among female adolescents

Naveena Priya D and Glory Darling Margaret J

Abstract

Physical activity is an important factor for the growth and development of children and adolescents. Dance is a highly prevalent type of physical activity among adolescent girls. The study was conducted in order to investigate the effects of aerobic dance and traditional dance on cardiorespiratory endurance on female adolescents. 150 subjects were selected for the study and were divided into three groups of 50 each: the aerobic dance group, the traditional dance group and the control group. The experimental program of the aerobic dance and traditional dance lasted for a period of twelve weeks and it included sixty-minute training sessions three times a week. The dance training session of each workout lasted 40 minutes, and it involved high, low and moderate impact segments. The cardiorespiratory endurance was evaluated through the Harvard Step Test. The finding of this study showed that twelve weeks of aerobic dance and traditional dance training had significant effects on the cardiorespiratory endurance of the subjects in the experimental group.

Keywords: Aerobic dance, traditional dance, cardiorespiratory endurance and female adolescents

Introduction

The human body needs a combination of both aerobic and anaerobic movements to maintain high level fitness. Dance is a great form of exercise. In dance, aerobic exercise can be achieved by jumping, swaying, twirling and the like. Aerobics and dance, as a typical "feminine" activity, hold a high desirable place among female students, as it enables most of them in achieving personal success. "Dance, on the other hand, is an enjoyable and sociable form of exercise where participants report very high levels of motivation (Nordin and Hardy 2009) [4].". Exercise is a particular form of physical activity which is characterized by 'structured and repetitive bodily movement done to maintain one or more components of physical fitness'. [Cherubini, 1998] [1] Dance, with a structured and repetitive movement increases heart and breathing rates thus enhancing the body's ability to take in, transport and use oxygen. It has physical health benefits including improvements in balance, strength and gait, which help reduce the risk of falls, a significant health hazard in later life.

Methodology

The purpose of the study is to find the effect of aerobic and traditional dance training on cardiorespiratory endurance among female adolescents. To achieve the purpose, 210 female adolescent students aged 17 and 18 were selected as subjects for the study. The subjects were assigned into three groups of seventy each. Group I served as the aerobic dance group, group II as the traditional dance group and group III as the control group. Pre-test and post-test were administered using the Harvard Step Test to find out the cardiorespiratory endurance of female adolescents. The training program was conducted by professional experts under the supervision of the investigator, three days a week with sixty minutes per session for twelve weeks in four phases with varied intensities. (50-55%, 55-60% and 60-65% of maximal heart rate). The collected data was analysed using Analysis of Covariance.

Results and Discussion

The computation of analysis of covariance of aerobic dance, traditional dance and control group on cardiorespiratory endurance is given below in table1. Exposed to physical fitness programme.

Correspondence
Naveena Priya D
Director of Physical Education,
Women's Christian College,
Chennai, Tamil Nadu, India

Table 1: Computation of analysis of covariance of aerobic dance, traditional dance and control dance on cardiorespiratory endurance

	Aerobic Dance Group	Traditional Dance Group	Control Group	Source of Variance	Sum of Square	df	Mean Square	Obtained F ratio
Pre Test Mean	79.15	78.94	82.63	Between	602.05	2	301.03	2.89
				Within	21585.53	207	104.28	
Post Test Mean	100.02	99.67	87.48	Between	8831.22	2	4415.61	20.55*
				Within	44482.69	207	214.89	
Adjusted Post Test Mean	100.03	99.86	87.12	Between	9267.485	2	4633.74	21.69*
				Within	44004.53	206	213.61	

Table F-ratio at 0.05 level of confidence for 2 and 207 (df) = 3.04, 2 and 206 (df) = 3.04

*Significant

The post-test means of the aerobic dance, traditional dance and control group were 100.02, 99.67 and 87.48 respectively. The obtained F-ratio for the post-test was 20.55 and the table F-ratio was 3.04. Hence, the post-test mean F-ratio was significant at 0.05 level of confidence for the degree of

freedom 2 and 207. This proved that the differences between the post test means of the subjects were significant. Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's post hoc test. The results are presented in Table II.

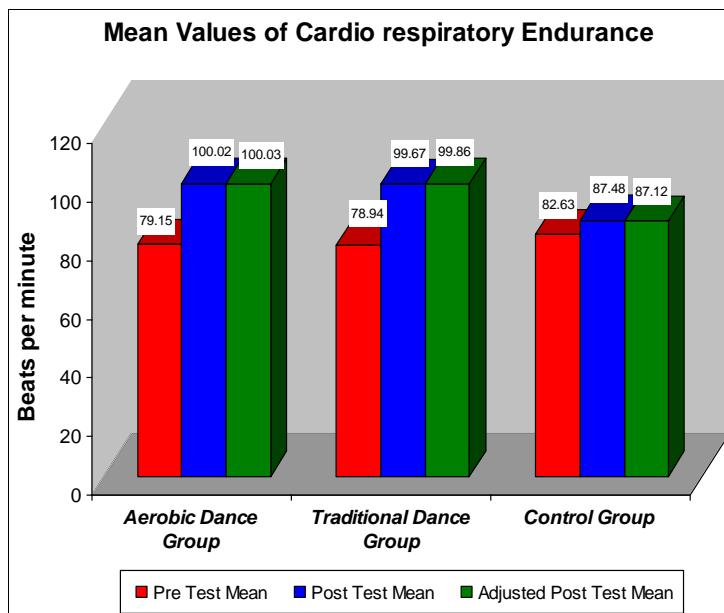
Table 2: Scheffe's test scores on Cardiorespiratory Endurance

Adjusted Post-Test Means			Mean Difference	Required CI
Aerobic Dance Group	Traditional Dance Group	Control Group		
100.03	99.86	---	0.17	3.61
---	99.86	87.12	12.74*	
100.03	---	87.12	12.91*	

* Significant at 0.05 level of confidence

The multiple comparisons showed in Table II proved that there existed significant differences between the adjusted means of traditional dance and control group (12.74), aerobic dance and control group (12.91). There was no significant

difference between aerobic dance and traditional dance (0.17) at 0.05 level of confidence with the confidence interval value of 3.61.

**Fig 1:** Pre, Post and Adjusted Post Mean of the Aerobic dance, Traditional dance and Control group on Cardiorespiratory Endurance

Aerobic dance (100.03) and traditional dance (99.86) significantly improved the cardiorespiratory endurance of the selected adolescent subjects than the control group (87.12).

The findings of the study were in relation to the findings of the research study conducted by Gillett PA and Eisenman PA (1987)^[3] which suggested that cardiorespiratory endurance greatly improves for overweight, middle-aged women when exercise intensity and progression are tailored to their age and fitness level.

Conclusion

It was concluded that aerobic dance and traditional dance

training programmes improved cardiorespiratory endurance in female adolescents.

Recommendation

- The result of the study would recommend participation of aerobic or traditional dance for the promotion and maintenance of physical health.
- The result of the study would also help female students to choose any other form of dance to improve their overall health and fitness.

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