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Effect of aerobic dance exercises on cardiorespiratory endurance of college women

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Abstract
This study was designed to investigate effect of aerobic dance exercises on cardiorespiratory endurance of college women. To achieve the purpose of the study 30 women were selected from affiliated colleges of Bharathiar University, Coimbatore. The subjects will be randomly assigned to two equal groups (n=15). Group-I Aerobic Dance Exercises (ADE) and Group-II was act as a control group (CG). The respective training was given to the experimental group for 3 days per week (Monday, Wednesday and Friday) the period of twelve weeks. The control group was not be given any sort of training except their routine. The selected parameter was cardiorespiratory endurance (9 Min Run & Walk in meters). The data collected from the subjects was statistically analyzed with 't' ratio to find out significant improvement at 0.05 level of confidence. The result of this study cardiorespiratory endurance improved significantly due to effect of Aerobic Dance Exercises. Due to the influence of Aerobic Dance Exercises significantly improved cardiorespiratory endurance of college women.

Keywords: Cardio respiratory endurance, aerobic dance exercise, college women

Introduction
Both the term and the specific exercise method were developed by Kenneth Cooper (1968), an exercise physiologist, and Col. Pauline Potts, a physical therapist, both in the United States Air Force. Dr. Cooper (1968) is an avowed exercise enthusiast, was personally and professionally puzzled about why some people with excellent muscular strength were still prone to poor performance in tasks such as long-distance running, swimming, and bicycling. He began measuring systematic human performance using a bicycle ergometer, and began measuring sustained performance in terms of a person's ability to use oxygen. His groundbreaking book, Aerobics, was published in 1968, and included scientific exercise programs using running, walking, swimming and bicycling. The book came at a fortuitous historical moment, when increasing weakness and inactivity in the general population was causing a perceived need for increased exercise. It became a bestseller. Cooper's data provided the scientific baseline for almost all modern aerobics programmes, most of which are based on oxygen-consumption equivalency. Aerobic exercise refers to exercise that involves or improves oxygen consumption by the body. Aerobic means "with oxygen", and refers to the use of oxygen in the body's metabolic or energy-generating process. Many types of exercise are aerobic, and by definition are performed at moderate levels of intensity for extended periods of time. To obtain the best results, an aerobic exercise session involves a warming up period, followed by at least 20 minutes of moderate to intense exercise involving large muscle groups, and a cooling down period at the end. Aerobic refers to a variety of activities like walking, jogging and running for a measured time. These produce beneficial changes in the body, especially the action of the lungs, heart and blood circulation. Aerobic training is a type of exercise that improves the cardiovascular system, strengthens the heart, and improves the body's ability to deliver oxygen to the muscles. The activities suitable for aerobic training include rapid walking, running, swimming, bicycling, rowing and skiing. Aerobic exercise is any physical activity that requires the heart rate to reach at least 60% of the maximal heart rate for an extended period of time. It is the activity that can be sustained for an extended period of time without developing an oxygen deficit. Aerobic exercises are basically physical exercises that intend to improve the oxygen system.

Aerobic means 'with oxygen' and refers to the use of oxygen in the bodies metabolic or energy generating process. Aerobic exercises are generally performed at moderate levels of intensity for extended periods of time. Many studies have reported that aerobic exercises would make the change in physiological, psychological and performance parameters in most of the sports disciplines. Reilly (2003) [2].

Methodology

This study was designed to determine the impacts of aerobic dance exercises on cardiorespiratory endurance of college women. To achieve the purpose of the study 30 college women were selected from affiliated colleges of Bharathiar University, Coimbatore. The subjects were randomly assigned to two equal groups, namely, aerobic dance exercises (ADE) group (n=15) and control group. The respective training was given to the experimental group the 3 days per week (alternate days) for the training period of twelve weeks. The control group was not given any sort of training except their routine. The health related parameter of cardiorespiratory endurance (9 Min Run & Walk in meters).

Criterion Measures

Variables	Test items	Unit of measurements
Cardiorespiratory Endurance	9 Min Run & Walk	In Meters

Training Programme

The training programme was lasted for 45 minutes for session in a day, 3 days in a week for a period of 12 weeks duration. These 45 minutes included 10 minutes warm up, 25 minutes aerobic dance exercises and 10 minutes warm down. Every three weeks of training 5% of intensity of load was increased from 65% to 80% of work load.

Table 1: Computation of t ratio on cardiorespiratory endurance of college women on EXPG and control group

Experimental Group						
Group	**Mean**	**N**	**Std. Deviation**	**Mean difference**	**Std. Error Mean**	**T ratio**
Pre test	937.66	15	35.49	81.34	11.45	7.098*
Post test	1019	15	51.20			
Control Group						
Pre test	970	15	25.07	3.34	4.10	0.813
Post test	966.66	15	17.99			

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

Table I reveals the computation of mean, standard deviation and 't' ratio on selected health related parameter cardiorespiratory endurance variable of aerobic dance exercises. The obtained 't' ratio on cardiorespiratory endurance were 7.098. The required table value was 2.14 for the degrees of freedom 14 at the 0.05 level of significance. Since the obtained t value was greater than the table value it was found statistically significant.

Table I reveals the computation of mean, standard deviation and 't' ratio on selected health parameter of cardiorespiratory endurance variable of aerobic dance exercises. The obtained 't' ratio on cardiorespiratory endurance was 0.813 respectively. The required table value was 2.14 for the degrees of freedom 14 at the 0.05 level of significance. Since the obtained t values was lesser than the table value, so it was found statistically insignificant.

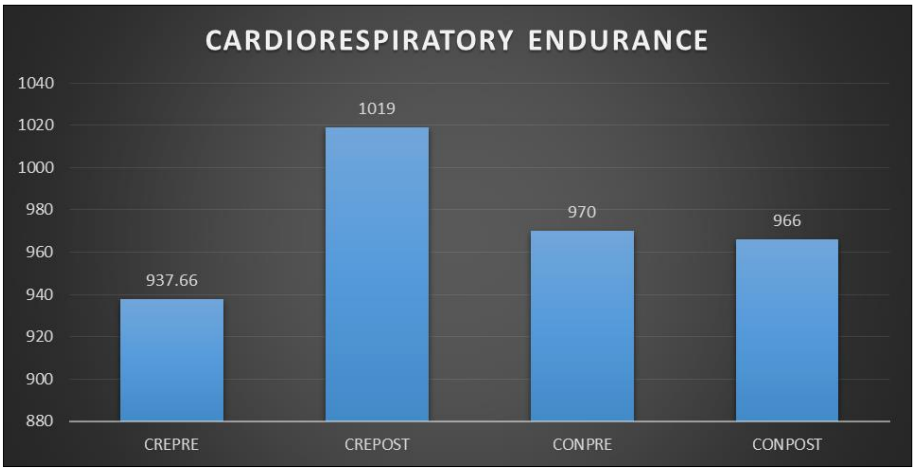

Fig 1: Bar diagram showing the mean value on cardiorespiratory endurance of college women on ADEG and control group

Discussion and Findings

The results of the study reveal that there is a significant difference in the cardio respiratory endurance of aerobic dance (experimental group 'A') between the pre-test and post-test. The results of the study indicate that there is a significant difference in the cardio respiratory endurance of aerobic dance exercises training group (experimental group 'B') between the pre-test and post-test. But there is no significant difference in the cardiorespiratory endurance of control group between pre-test and post-test.

The results indicate that the improvement in cardio respiratory endurance performance is due to the impact of aerobic dance training programme. The results agree with the studies done by McCord et al. (1989) the findings of the study is in par with the literatures that a relatively low impact aerobic dance is as effective as other endurance training regimens in improving cardiovascular fitness and decreasing body fat. Kulothungan (2016) [9] conducted a study on effect of aerobic cross training and aerobic training on cardiovascular endurance. This studying that both training groups have

increased the level of cardio respiratory endurance significantly. However the increase was higher for aerobic training group than aerobic cross training groups. Sandeep Kumar and Priyanka (2016) assessed the effect of zumba & aerobics exercises on physical fitness variables of college girls. The finding of the study were found that after the twelve weeks training programme there was a significant improvement in the cardiovascular endurance and skin fold measurement of college girls. Umar Rashid Dar (2016) examined the study on the effect of aerobic training on physical fitness components of cricket players. The study concluded that the result of the study revealed that there was a significant change in the Cardio-Vascular efficiency of cricket players. Nikolai & Dalleck (2009) evaluated the study was the cardiovascular and metabolic responses to water aerobic exercise and to determine if water aerobic exercise meets the American College of Sports Medicine guidelines for improving and maintaining cardio respiratory fitness. The results indicated that water aerobics is a feasible alternative to land-based exercise for middle-aged and older adults that fulfils the guidelines for improving and maintaining cardio respiratory fitness. Boileau & Talbot (1999) [6] conducted to examine the effect of moderate aerobic exercise training on cardio respiratory fitness. The results indicate that cardio respiratory fitness as measured by peak VO_2 Max modestly improves in the elderly with a moderate intensity, relatively long-term aerobic exercise program.

Conclusion

It was concluded that 12 weeks aerobic dance exercises significantly improved the cardiorespiratory endurance of college women.

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