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Impact of aerobic dance training on selected physiological parameters on school girls

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Abstract

This study was designed to investigate the impact of aerobic dance training on selected physiological parameters on school girls. To achieve the purpose of the study 30 school girls, Coimbatore. The subjects were randomly assigned to two equal groups (n=15). Group- I underwent aerobic experimental group (CTG) and Group - II was acted as control group (CG). The training was given to the experimental group for 3 days per week (Monday, Wednesday and Friday) for the period of six weeks. The control group was not be given any sort of training except their routine work. The physiological parameters were vo_2max (Queens College step test), breath holding timing (Lung function test) and vital capacity (Spirometer). The data collected from the subjects was statistically analyzed with 't' ratio to find out significant improvement if any at 0.05 level of confidence. The result of the vo_2max , breath holding timing, vital capacity improved significantly due to impact of aerobic dance training with the limitations of (diet, climate, life style) status and previous training the result of the present study coincide findings of the investigation done by different experts in the field of sports sciences. Aerobic dance training significantly improved cardio-respiratory fitness, lung capacity, and lung function ability of school girls.

Keywords: Aerobic dance, VO_2 max, breath holding timing and vital capacity

Introduction

Aerobic dance exercise is currently one of the most commonly practiced adult fitness activities. The majority of the research pertaining to this form of exercise supports its application as a valid cardiovascular training alternative, especially for adult females if performed according to the American College of Sports Medicine (ACSM) guidelines. If, however, the participant is interested in modifying body composition, training frequency, duration, or efforts toward caloric restriction may need to be increased or altered beyond those employed in the aerobic dance training investigations. The amount of energy expended during a bout of aerobic dance can vary dramatically according to the intensity of the exercise. 'Low intensity' dance exercise is usually characterized by less large muscle activity and/or less lower extremity impact, and music of slower tempo. Dance exercise representative of this variety requires a cost of approximately 4 to 5 kcal/minute. Several trials, however, have shown that vigorous 'high intensity' aerobic dance which entails using the large muscle groups can require 10 to 11 kcal/minute. The associated training outcomes could be affected by such differences in dance exercise intensity and style (Williford, 1989)^[11].

Because aerobic dance instructors typically also teach a number of other aerobic classes, many employers only require instructors to have general group fitness instructor training or certification. Group fitness instruction training and certifications come from industry associations like the American Council on Exercise and the Aerobics and Fitness Association of America. These groups offer group fitness instructor classes and certifications that include training in different types of group aerobic exercise, including dance aerobics, giving instructors enough general knowledge in a range of aerobic disciplines. Instructors can also find training and certification specific to aerobic dance. The Personal Trainers Association offers a Dance and Fitness Instructor training series and certification. Students can choose from a number of different class options, including online, at-home and on-site. Along with aerobic dance methods, the curriculum covers additional topics like CPR training, assessing a client's workout needs, setting up a business, and warm-ups and stretching.

For instructors teaching a specialty subset of dance aerobics like Zumba, Jazzercise or Dance Trance, training comes directly from that franchise. For example, Dance Trance instructors receive their training when they purchase a Dance Trance franchise. The one-year franchise includes rights to teach Dance Trance, along with program manual, instructor manual and DVD series that teaches the instructor 12 choreographed routines to use in class. Other sources for aerobic dance training include rec centers, fitness centers and gyms. In New York, the Hans borough Recreation Department offers a discounted aerobics instructors training program in return for the instructor agreeing to teach for the rec department for six months after they complete training. Dance aerobics instructors can also find online classes and certification from companies like Expert Rating, who offers an inexpensive online course instructors can do on their own time.

Methodology

Experimental Approach to the Problem

In order to address the hypothesis presented here in, we selected 30 school girls, Coimbatore. The subjects were randomly assigned in to two equal groups, namely, experimental group (n=15) and control group (n=15). The respective training was given to the experimental group the 3 days per week (alternate days) for the training period of six weeks. The control group was not given any sort of training except their routine.

Design

The evaluated physiological parameters were VO_2 max was assessed by Queens college step test and the unit of measurement was in beats per minutes, breath holding timing were assessed by lung function test the unit of measurement was in sec and vital capacity was assessed by Spirometer test the unit of measurement was in milliliter. The parameters were measured at baseline and after 6 weeks of aerobic dance training were examined.

Training programme

The training programme was lasted for 45 minutes for session in a day, 3 days in a week for a period of 6 weeks duration. These 45 minutes included 10 minutes warm up, 15 aerobic dance training for 25 minutes and 10 minutes warm down. Every three weeks of training 5% of intensity of load was increased from 65% to 70% of work load. The volume of aerobic dance training is prescribed based on the number of sets and repetitions. The aerobic dance training is the length of the time each action is held for and the number action in total 3 day per weeks (Monday, Wednesday and Friday). The selected subjects underwent regular physical exercise on other 3 days (Tuesday, Thursday, and Saturday).

Statistical analysis

The collected data on above said variables due to the impact of aerobic dance training was statistically analyzed with ‘t’ test to find out the significant Improvement between pre and post test. In all cases the criterion for statistical significance was set at 0.05 level of confidence. ($P < 0.05$)

Table 1: Computation of t ratio on selected physiological parameters of school girls on experimental group

		Experimental Group				
		Mean	N	Std. Deviation	Std. Error Mean	T ratio
VO ₂ Max	Pre test	21.23	15	4.21	0.22	18.58*
	Post test	25.37	15	4.03	0.22	
Breath holding timing	Pre test	29.33	15	2.05	0.33	16.10*
	Post test	34.73	15	1.8	0.33	
Vital capacity	Pre test	3.18	15	0.33	0.02	15.67*
	Post test	3.60	15	0.30	0.02	

*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 physiological parameters, namely VO_2 max, breath holding timing and vital capacity of experimental group. The obtained ‘t’ ratio on VO_2 max, breath holding timing and vital capacity were 18.58, 16.10 and 15.67

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 were greater than the table value it was found statistically significant.

Table 2: Computation of t ratio on selected physiological parameters of school girls on control group

		Control Group				
		Mean	N	Std. Deviation	Std. Error Mean	T ratio
VO ₂ max	Pre test	20.10	15	4.42	0.86	1.55
	Post test	18.76	15	3.10	0.86	
Breath holding timing	Pre test	28.46	15	2.16	0.49	0.40
	Post test	28.26	15	2.54	0.49	
Vital capacity	Pre test	3.31	15	0.23	0.03	0.09
	Post test	3.31	15	0.27	0.03	

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

Table II reveals the computation of mean, standard deviation and ‘t’ ratio on selected physical fitness parameters, namely VO_2 max, breath holding timing and vital capacity of experimental group. The obtained ‘t’ ratio on VO_2 max, breath holding timing and vital capacity were 1.55, 0.40 and 0.09

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 were lesser than the table value it was found statistically not significant.

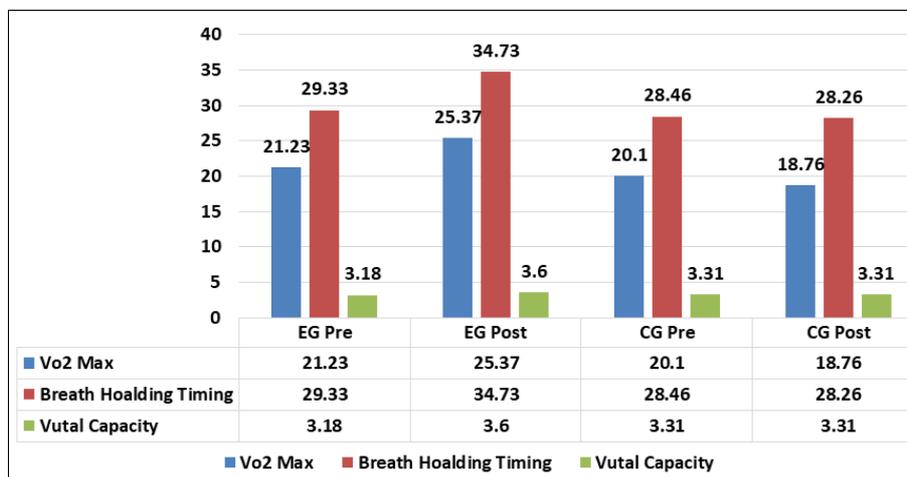


Fig 1: Bar diagram showing the mean value on selected physiological parameters of school girls on experimental and control group

Discussion and Findings

The present study experimented the impact of 6 weeks aerobic dance training significantly improved the selected Physiological parameters of school girls. The results of this study indicated that aerobic dance training is more efficient to bring out desirable changes over the vo_2max , breath holding timing and vital capacity of school girls. The finding of the present study had similarity with the findings of the investigators referred in this study. Williford, *et al.*, (1989)^[11]. The physiological effects of aerobic dance. Blessing, *et al* (1987)^[1]. The physiologic effects of eight weeks of aerobic dance with and without hand-held weights. McCord, *et al.*, (1989)^[5]. The effect of low impact dance training on aerobic capacity, submaximal heart rates and body composition of college-aged females. Krishnamoorthi, *et al.*, (2021). Effect of aerobic dance training on body composition and cardio respiratory endurance among obese. Schiffer, *et al.*, (2009)^[6]. Effects of aerobic dance and fitness programme on physiological and psychological performance in men and women. Watterson, V. V. (1984)^[10]. The effects of aerobic dance on cardiovascular fitness. Choe, M. A. (1988)^[2]. Effect of 8 week's aerobic dance training on the body composition, cardiopulmonary function and blood cholesterol concentration in young women.

Conclusions

From the results of the study and discussion the following conclusions were drawn.

1. Based on the result of the study it was concluded that the 6 weeks training of Aerobic dance training have been significantly improved Vo_2 max of school girls.
2. The 6 weeks training of Aerobic dance training have been significantly improved Breath holding time of school girls.
3. The 6 weeks training of Aerobic dance training have been significantly improved Vital Capacity of school girls.

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