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Effect of aerobic dance on the physical fitness among female

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Abstract

Purpose of the study was to find the effect of 9 weeks aerobic dance programme on the physical fitness of intercollegiate female players. The 30 intercollegiate female players of age ranging 18-22 from IGIPSS University of Delhi, University of Delhi were selected as the subjects for the present study. The collected data was analysed through descriptive statistics, independent t-test, and post-hoc (LSD) test on the Physical Fitness variables i.e. muscular endurance, and cardiorespiratory endurance at the level of confidence 0.05. No significant differences were founded in this study on the physical fitness variables i.e. muscular endurance, and cardiorespiratory endurance on female intercollegiate players. On the basis of the results and findings it was concluded that 5days per week for 20 minutes aerobics dance programme is not effective to gain a desirable changes in muscular endurance, and cardiorespiratory endurance female intercollegiate players.

Keywords: aerobic dance, cardiorespiratory endurance, metabolic processes

Introduction

Physical activity and exercise are important for everyone. People of every age need regular physical activity. Physical activity promotes healthiness and you ought to stay active throughout all stages of your life no matter your somatotype or BMI. Basic fitness can be classified into four main components i.e. strength, speed, endurance and flexibility. However, Rahila and Shelvam, (2015) [9] mentioned that training and exercise experts classified them into nine components that comprise the definition of fitness: strength, power, agility, balance, flexibility, local muscle endurance, strength endurance and coordination. Cardiorespiratory endurance affects physical health and it is the functional capacity of human body organs including lungs, heart, and blood vessels to work optimally in a rest state and provide the oxygen to the tissues used in the body's metabolic processes (Kusnanik, 2019) [8].

Aerobic dance is essential to a healthy cardiovascular system which combines fat burning aerobic movements, muscle-building exercises and stretching into routines that are performed according to music. In general Aerobic dance has blossomed into a sport for all to have fun while losing weight and keeping in shape. There are varied forms of aerobics including low-impact, swim and other water aerobics are popular. Dr Kenneth Cooper (1960s) [3] coined the term 'aerobics' when trying to describe all the activities performed in aerobic working conditions. Dance aerobic, as one of such forms of exercising, has attracted much attention for the reasons of its positive effects on the functional abilities of a man (Pantelić, *et al.*, 2007) [11] and it affects the cardiovascular, respiratory system and body composition. The American College of Sports Medicine (1998) [13] also defines "aerobics (aerobic exercising) as any form of physical activity performed by activating large muscle groups, in a relatively long time period (over 20 minutes) with a basically cycling character. This kind of activity is determined by a work intensity of: 50 to 85% of maximum oxygen consumption (VO₂max) or 60–90% of maximal heart rate (HR max)". Similar kind of researches were conducted and concluded positive effect of exercise on the muscular endurance and cardiorespiratory endurance (Gaesser and Rich, 1984; Pollock, *et al.*, 1987; Hagberg, *et al.*, 1989; Gaber, *et al.*, 1992; Ogawa, *et al.* 1992; Swain, *et al.*, 1994; Toraman and Ayceman, 2004; Toraman, *et al.*, 2004) [4, 13, 14, 16, 17].

Although, previously some researches were conducted on similar problem but researcher found there is still need to determine the effect of aerobic dance programme on the muscular endurance and cardiorespiratory of intercollegiate female players. That is the reason researcher have taken this study to find the results of effect of 9 weeks aerobic dance programme on the muscular endurance and cardiorespiratory of intercollegiate female players.

Purpose

The purpose of the study was to find out the effect of aerobic dance on the selected physical fitness variables viz. muscular endurance and cardiorespiratory endurance of intercollegiate female players of IGIPSS University of Delhi; Delhi..

Hypotheses

It is hypothesized that, there will be no significant effect of aerobic dancing on selected physical fitness variable viz. muscular endurance and cardiorespiratory endurance of intercollegiate female players of IGIPSS University of Delhi; Delhi.

Methodology

Design: Single group (Pre-Post) design.

Selection of subject: Total 30 intercollegiate female subjects were randomly selected for the study of Indira Gandhi Institute of Physical Education and Sports Science, University of Delhi, Delhi. The age of subjects ranged from 18-22 years. The subjects was selected by applying random sampling technique for measuring the effect of 9 weeks aerobic dance program on the selected the physical fitness variables.

Inclusion and exclusion criteria

Inclusion criteria

Sample: Intercollegiate female players, Sex: Female, Age Range: 18-22 Years, Physical Fitness Variable: Muscular Endurance and Cardiorespiratory Endurance, Institution: Indira Gandhi Institute of Physical Education and Sports Science, University of Delhi, Delhi, Language of Research: English

Exclusion criteria

Sample: Other than intercollegiate players, Sex: Male, Age Range: Less than 18 years & more than 22 years, Physical Fitness Variable: Other than muscular endurance and cardiorespiratory endurance, Institution: Other than Indira Gandhi Institute of Physical Education and Sports Science, University of Delhi, Delhi, Language of Research: Non-English

Selection of variables

Muscular endurance and cardiorespiratory endurance were the two dependent variables and aerobic dance was the independent variables in the selected study.

Criterion measures

S. No.	Variable	Tests	Scoring
1.	Muscular Endurance	Flex arm hang Test	Seconds
2.	Cardiorespiratory Endurance	9 minutes run/walk test	Seconds

Training programme

The training programme was lasted for 40 minutes for session in a day, 5 days in a week for a period of 9 weeks duration. 40 minutes Aerobic workout was divided in to three parts i.e. warm-up, Aerobic dance and cooling down. These 40 minutes included 10 minutes warm up, aerobic dance training for 20 minutes and 10 minutes cool down. Two days rest was provided after the 5 days schedule.

Collection of data

The data on the muscular endurance and cardiorespiratory endurance were collected on the university ground of IGIPSS with the permission of the ground authority. All the information regarding the administration of the test was provided to the subjects before conducting the test.

Statistical technique

The descriptive statistics and independent t-test was applied for the comparison the effect of 9 weeks aerobic dance program on muscular endurance and cardiorespiratory endurance (Pre-post) of females of IGIPSS. Further, the level of significance was set at the 0.05 level.

Table 1: Analysis of effect of 9 weeks aerobic dance programme on muscular endurance and cardiorespiratory endurance at intercollegiate female players

Variable	Pre-test	Post-test	Degree of freedom	t-ratio
Muscular Endurance	Mean±SD	Mean±SD	28	0.67
	28.74±20.74	32.52±22.78		
Cardiorespiratory Endurance	1407.33±190.92	1499.17±178.01	28	1.93

N = 30, *Significant at 0.05 level. t 0.05 (28) = 2.05

Table-1 exhibits the mean and standard deviation of muscular endurance (28.74±20.74) and mean and standard deviation cardiorespiratory endurance (1407.33±190.92) of pre-test of intercollegiate female players of IGIPSS. Further, the table also highlights the mean and standard deviation of muscular endurance (32.52±22.78), and mean and standard deviation of cardiorespiratory endurance (10.05±0.43) of post-test of intercollegiate female players of IGIPSS. Furthermore, the analysis of independent t- test of pre-test and post-test of muscular endurance and cardiorespiratory endurance as indicated in table no – 1 were found to be insignificantly, as

the obtained t – value of muscular endurance (0.67), and cardiorespiratory endurance (1.93), were lesser than the required value of 2.05 at 0.05 level of confidence.

Thus, no significant difference was found between pre and post treatment in muscular endurance and cardiorespiratory endurance of females of IGIPSS.

Further, the graphical representation of pre-test and post-test mean of selected physical fitness variables i.e. muscular endurance, and cardiorespiratory endurance are shown in figure no. 1.0 and 1.1 respectively.

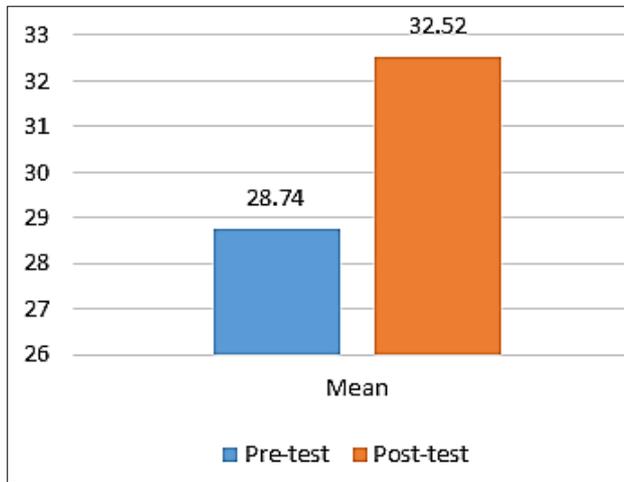


Fig 1.0: Graphical representation of mean (pre-test and post-test) on muscular endurance of intercollegiate female players

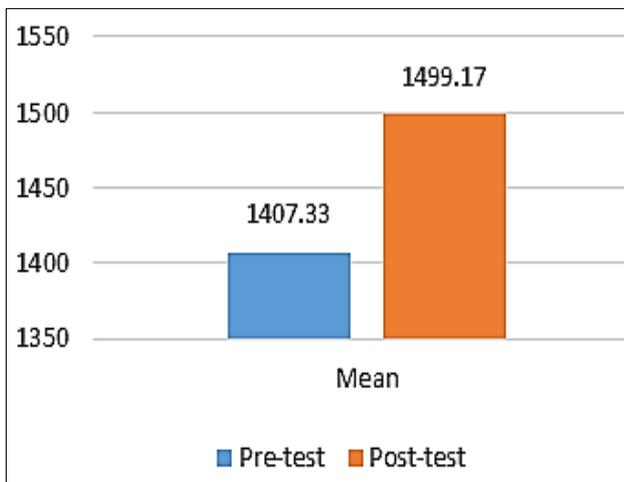


Fig 1.1: Graphical representation of mean (pre-test and post-test) on cardiorespiratory endurance of intercollegiate female players

Discussion of findings

The study was conducted to find out the effect of aerobic dance on the muscular endurance and cardiorespiratory endurance of intercollegiate female players of IGIPSS University of Delhi, Delhi. And, the findings of descriptive statistics from table no – 1 was indicated a higher mean values of post-test in muscular endurance and cardiorespiratory endurance of intercollegiate female players. Further, the statistical analysis of independent t- test revealed no significance difference were found among selected intercollegiate female subjects of IGIPSS University of Delhi, Delhi in muscular endurance and cardiorespiratory endurance respectively at 0.05 level of confidence from table no – 1. This insignificant difference in muscular endurance and cardiorespiratory endurance between pre-test and post-test of the present study is due to the fact that all the select female subjects are intercollegiate players so, they already have some level of physical fitness because of their training sessions. It could be possible that the intensity of the training provided to the intercollegiate female players are higher than the intensity of the aerobic dance sessions in that they were participated. It could be also attributed that the selected exercises of aerobic dance were not sufficient enough to develop the muscular endurance of the arm. Further, 40 minutes aerobics dance programme for nine weeks (5 day per week) was not sufficient for getting desirable changes in the cardiorespiratory endurance of the intercollegiate female

players. The ACSM (American College of Sport Medicine) also recommends that, 20 to 60 minutes of continuous or intermittent aerobic exercise at an intensity between 50% to 85% of oxygen uptake reserve, 3 to 5 days per week should be performed by an individual to improve cardio-respiratory endurance, control body weight, and reduce the risk of premature chronic disease (ACSM, 2000; Pollock, *et al.*, 1998) [13, 14]. According to the ACSM the minimum 40 minutes aerobic exercise of low or moderate level is beneficial for general population. This study findings were also supported the principle declared by Aerobic fitness experts and professionals i.e., F.I.T.T, principle namely frequency (3-5 times per week), intensity (preferably between 70-80% of maximum heart rate), type (moderate), and time (between 20- 60 minutes) to get optimal results and benefits.

Conclusion

The findings of this study revealed statistically no significant effect aerobic training on muscular endurance and cardiorespiratory endurance at the intercollegiate female players of IGIPSS, University of Delhi; Delhi. Based on the present study results and findings, it is concluded that intensity and selected exercises of 40 minutes aerobics dance programme for nine weeks (5 day per week) was not appropriate for the training of muscular endurance and cardiorespiratory endurance of intercollegiate female players.

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