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Effect of Aerobic Dance on Selected Physiological and Biochemical Variables of Obese Adolescent Girls

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Abstract

The purpose of the study was to find out the effect of aerobic dance on selected physiological and biochemical variables among obese adolescent girls. To achieve the purpose of this study fifteen students from Vidya Mandir Institute of Technology, Perundurai, Erode were randomly selected as subjects. They were clinically confirmed cases of obesity and their age ranged between 17 and 19 years. The selected subjects were undergone aerobic dance training for the period of 6 weeks. The subjects were free to withdraw their consent in case of feeling any discomfort during the period of their participation, but there was no dropout during the study. The following physiological variables such as resting pulse rate, vital capacity and respiratory rate and biochemical variables such as Low Density Lipoprotein (LDL), High Density Lipoprotein (HDL) and Triglycerides were selected as dependent variables. The selected physiological and biochemical variables were tested with standardized tests. The pre test data were collected before the training programme and the post-test data were collected after the training programme. In both the cases the data were collected in a single day at the same time. Through this study we find out that the selected aerobic dance training improve the selected physiological variables such as resting pulse rate in 8.5%, Respiratory rate in 9.26% and vital capacity in 19.5%, and biochemical variables such as LDL in 2.84%, HDL 19.64% and triglycerides in 4.94%. So we can suggest the aerobic dance to all the obese adolescent girls for improving the selected physiological and biochemical variables among them.

Keywords: Aerobic Dance, Obese, Adolescent Girls, Physiological, Bio-chemical.

Introduction

Over the past three decades, the number of young people who are obese has nearly tripled. Children 6-11 the statistic for obesity (not overweight) should be 19.6%; for ages 12-19, the statistic for obesity (not overweight) should be 18.1 %;(National Center for Health Statistics, 2010). The consequences of childhood overweight and obesity are serious. Being overweight or obese increases the risk for heart problems, high blood pressure, and other medical problems, and the psychological impact of being overweight can be devastating. Obesity during childhood and adolescence has been associated with higher rates of sickness and death in adulthood, even when adult weight is considered (Must, Jaques, Dallal, Bajema & Dietz, 1992). Aerobic dance is the fitness sport that combines the health and figure benefits of jogging with the fun of dancing. Aerobic dancing is a fun way to get fit. It combines fat burning aerobic movements, muscle building exercises and stretching into routines that are performed according to music. Aerobic dancing is challenging for college level boys. They fell as though they were performing, while firming up their body and strengthening their cardiovascular system. Aerobic dancing is a series of callisthenic exercise movements, accompanied by music, the use of music is a technique of motivation that has been increased in recent years. Aerobic dance is essential to a healthy cardiovascular system. Briefly, aerobic dance is an activity that can be sustained for an extended period of time without building and oxygen debt in the muscles. It is a type of dance that overloads the heart and lungs and causes them to work harder than they do when a person is at rest. Aerobic literally means “with air”. Aerobic dance is the type of activity in which the amount of oxygen taken in equal to the amount of oxygen required.

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Methodology

The study under investigation was intended to find out the effect of aerobic dance on selected physiological and biochemical variables among obese adolescent girls. It was hypothesized that there might be significant improvement on the selected physiological and biochemical variables among obese adolescent girls due to the effect of aerobic dance training. To achieve the purpose of this study fifteen students from Vidya Mandir Institute of Technology, Perundurai, Erode were randomly selected as subjects. They were clinically

confirmed cases of obesity and their age ranged between 17 and 19 years. The selected subjects were undergone aerobic dance training for the period of 6 weeks. The subjects were free to withdraw their consent in case of feeling any discomfort during the period of their participation, but there was no dropout during the study. The following physiological variables such as resting pulse rate, vital capacity and respiratory rate and biochemical variables such as Low Density Lipoprotein (LDL), High Density Lipoprotein (HDL) and Triglycerides were selected as dependent variables. The selected physiological and biochemical variables were tested with standardized tests. The pre test data were collected before the training programme and the post-test data were collected after the training programme. In both the cases the data were collected in a single day at the same time.

Results

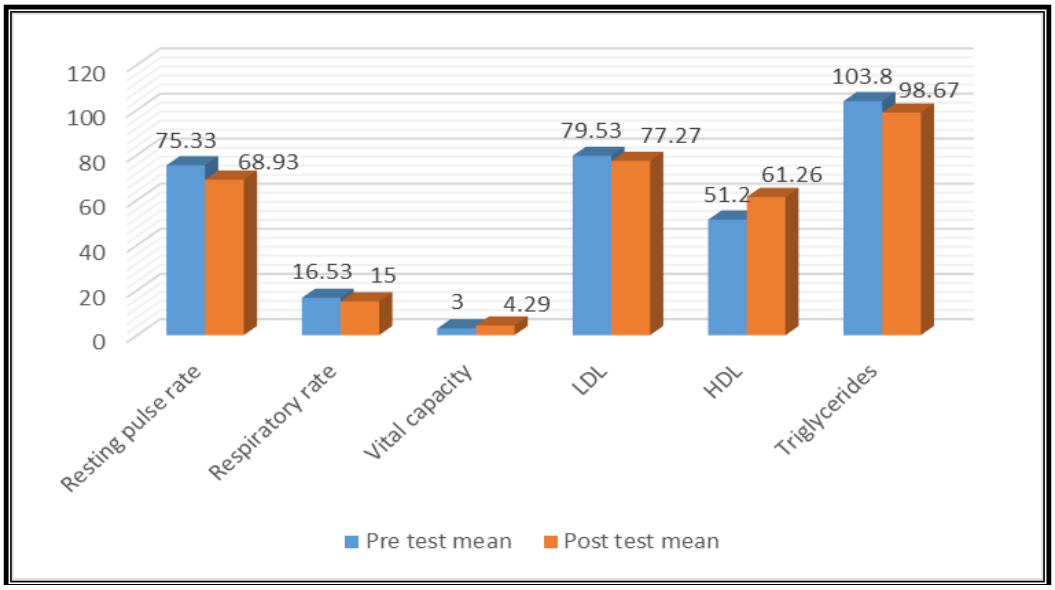
The collected data were statistically analyzed with dependent't' test to find out the significant difference between the pre and post test.

Table I. Table shows that the computation of 't' test between pre and post test means of the following variables

S.No	Variables	Pre test		Post test		't'	Table value
		Mean	SD	Mean	SD		
1	Resting pulse rate	75.33	7.20	68.93	3.26	3.472*	2.09
2	Respiratory rate	16.53	1.25	15.00	1.31	5.002*	2.09
3	Vital capacity	3.00	0.50	4.29	0.68	6.057*	2.09
4	LDL	79.53	9.72	77.27	9.46	4.900*	2.09
5	HDL	51.20	5.05	61.26	9.82	3.729*	2.09
6	Triglycerides	103.80	17.33	98.67	16.12	5.264*	2.09

Above table shows the obtained 't' ratios for pre and post test mean difference in the selected variable of resting pulse rate (3.472), respiratory rate (5.002), vital capacity (6.057), LDL (4.900), HDL (3.729) and triglycerides (5.264). The obtained ratios when compared with the table value of 2.09 of the degrees of freedom (1, 19) it was found to be statistically significant at 0.05 level of confidence. It was observed that the means gain and losses made from pre to post test were significantly improved the motor fitness and performance variables. So it was found to be significant. The results of this study showed that statistically significant and explained its effects positively.

Figure I. Graphical representation shows that the mean value of pre and post test on selected variables



Discussion on Findings

Results of the study shows that the selected physiological variables such as resting pulse rate, respiratory rate and vital capacity and biochemical variables such as LDL, HDL and triglycerides were improved due to the effect of the aerobic dance training.

Conclusion

Through this study we find out that the selected aerobic dance training improve the selected physiological variables such as resting pulse rate in 8.5%, Respiratory rate in 9.26% and vital capacity in 19.5%, and biochemical variables such as LDL in 2.84%, HDL 19.64% and triglycerides in 4.94%. So we can suggest the aerobic dance to all the obese adolescent girls for improving the selected physiological and biochemical variables among them.

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