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Effect of aerobics and yoga training on body composition of school boys

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Abstract

Children become obese and overweight for a variety of reasons. The most common causes are genetic factors, lack of physical activity, unhealthy eating patterns or a combination of these factors. Only in rare cases is an overweight caused by a medical condition such as a hormonal problem. A physical exam and some blood tests can rule out the possibility of a medical condition as a cause of obesity. To achieve this purpose, sixty school boys will be chosen at random as a subject with an age range between 14 and 17 years. The subjects were randomly classified into three equal groups consisting of 20 in each group. Basic parameters such as weight and fat percentage were measured. Each subject was tested according to the Tanita body composition analyzer. Descriptive statistics, ANCOVA and post hoc LSD testing were used to analyze the data. The results showed a significant reduction in body composition (weight and percentage of fat) in the aerobic and yoga groups compared to the control group ($p < 0.05$). Overall, the results showed that aerobic and yoga training has a significant effect on body composition.

Keywords: Body composition, weight, fat percentage yoga, aerobic

Introduction

Obesity is becoming a serious global public health issue especially in developed countries. Children become obese and overweight for a variety of reasons. The most common causes are genetic factors, lack of physical activity, unhealthy eating patterns or a combination of these factors. Only in rare cases is an overweight caused by a medical condition such as a hormonal problem. A physical exam and some blood tests can rule out the possibility of a medical condition as a cause of obesity. A child's total diet and activity level plays an important role in determining a child's weight. Today many children spend a lot of time inactive. For example, the average child spends about four hours a day watching television. As computers and video games become more popular, the number of hours of inactivity can increase. Obesity and excessive body weight is associated with various diseases particularly cardiovascular diseases, type-2 diabetes mellitus, hypertension, hyperlipidemia, osteoarthritis, certain types of cancer etc. in reality, a major cause of all these diseases was found to be improper lifestyle and stress. The increase in fat mass in children has occurred with a decline in cardiorespiratory fitness (Tomkinson *et al.* 2003).

The report of National Family Health Survey (2007) [7], 17.7% female of Gujarat who is overweight or obese. Guidelines for diagnosis of obesity and abdominal obesity for India have been published in JAPI (2009) that a BMI over 25kg/m² is obesity.

It is widely accepted that regular physical exercises enable the individual to stay physically fit and to sustain the average individual in his daily activities. However anybody who wishes to participate successfully in games and sports; aspires to be a champion or to reach at the top level he must go beyond the simple rules of regular exercise. He must engage in intense and frequent physical drills and gear toward which are most necessary for success in particular sport endeavor.

Yoga asanas include better functionality of various systems of the human body and better physical fitness, general health and well-being. Regular yoga practice reduces body fat and oxidative stress. Yoga training can be helpful in reducing the possibility of various diseases and helps maintain a normal healthy lifestyle. Yoga training through Asana has been effective in achieving a significant improvement in terms of cardiovascular endurance, body

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composition, flexibility and muscle strength. It is scientifically proven that the effort made to practice yoga asanas can achieve maximum contractility of the entire muscular system and, consequently, increase tone and increase efficiency. Aerobic fitness can be the most important resource in emergency situations such as floods, earthquakes, desert losses and other crises. The ability to achieve safety or survive in such circumstances may depend on a person's resistance to walking, running, swimming, climbing and similar activities. Since participation in rhythmic aerobics programs can improve the function of all organs and systems of the body and in accordance with the undoubted effects of yoga in controlling the activity of the sympathetic system and its effects on health, let's try to examine and compare these two different types of training on the physiological indices mentioned. Therefore, this study will examine the impact of aerobic exercise and yoga, body composition among the obese school boys.

Materials & Method

Selection subject of variables

Sixty (60) school boys were randomly selected as subjects for this study with an age range of 14 to 17 years. The subjects were randomly classified into three equal groups consisting of 20 in each group. Basic parameters such as weight and fat percentage were measured. Each subject was tested according to the Tanita body composition analyzer.

Administration of Tests

Three out of the two groups, Aerobic training (Group - A) and yoga (Group-B) were given training and control group (Group-C) which were not given any experimental treatment.

Exercise amount: 45 minutes (10 min. warn-up, 30 min. exercises and 05 min. recovery)

Exercise intensity: Progressive intensity (50-75%).

Exercise duration: 4 weeks (5days per week)

Statistical Procedure

In order to examine the effect of aerobic training and yoga training on body composition between two experimental groups and the control group of obese male school students performed in this study, analysis of covariance statistics was applied. In the event of significant existence, the LSD post-hoc test was applied to investigate the existence of any significant differences between two experimental groups and one control group. The significant level was established at a confidence level of 0.05.

Result

The results were given in the following tables & figures.

Table 1: Means and S.D. of Two Experimental and one Control Group on Body Composition

Groups	Aerobic Group		Yoga Group		Control Group	
Variables	Pre-test Mean ± SD	Post-test Mean ± SD	Pre-test Mean ± SD	Post-test Mean ± SD	Pre-test Mean ± SD	Post-test Mean ± SD
Weight	47.84 ± 13.70	45.36 ± 13.42	49.03 ± 13.71	47.52 ± 13.12	46.21 ± 12.88	46.25 ± 12.88
Fat	7.58 ± 6.76	7.37 ± 6.58	7.80 ± 6.57	7.55 ± 6.23	6.92 ± 5.58	6.94 ± 5.58

Table 2: Analysis of Covariance on Body Composition among Experimental and Control Groups

Variables	Adjusted Post Test Means			Sources of Variance	Sum of Square	df	Mean Squares	F-ratio	Sig.
	Aerobic Group	Yoga Group	Control Group						
Weight	45.210	46.218	47.702	B	62.650	2	31.325	57.33*	0.00
				W	30.597	56	0.546		
Fat	7.239	7.191	7.440	B	0.718	2	0.359	9.11*	0.00
				W	2.205	56	0.039		

*Significant at 0.05.

Results from Weight and Fat Percentage showed that the experimental groups achieved a significant increase compared to the controls group F=57.33 and 9.11 (p<0.05). To find out

which of the three paired means had a significant different, the LSD post-hoc test was applied

Table 3: LSD test results on Body Composition among experimental and control groups

Variables	Training Groups	Groups	Mean Differences	Std. errors	Significance
Weight	Aerobic	Yoga	-1.00*	0.234	0.00
		Control	-2.49*	0.234	0.00
	Yoga	Aerobic	1.00*	0.234	0.00
		Control	-1.49*	0.234	0.00
Fat Percentage	Aerobic	Yoga	0.039	0.063	0.54
		Control	-0.211*	0.063	0.00
	Yoga	Aerobic	-0.039	0.063	0.54
		Control	-0.219*	0.063	0.00

The LSD test showed, mean of weight in aerobic group, yoga groups and control group significantly different at 0.05 level. The mean of fat percentage in the aerobic group and yoga

group compared to the control group significantly decreased. However, the two experimental groups were not significantly different at 0.05 level.

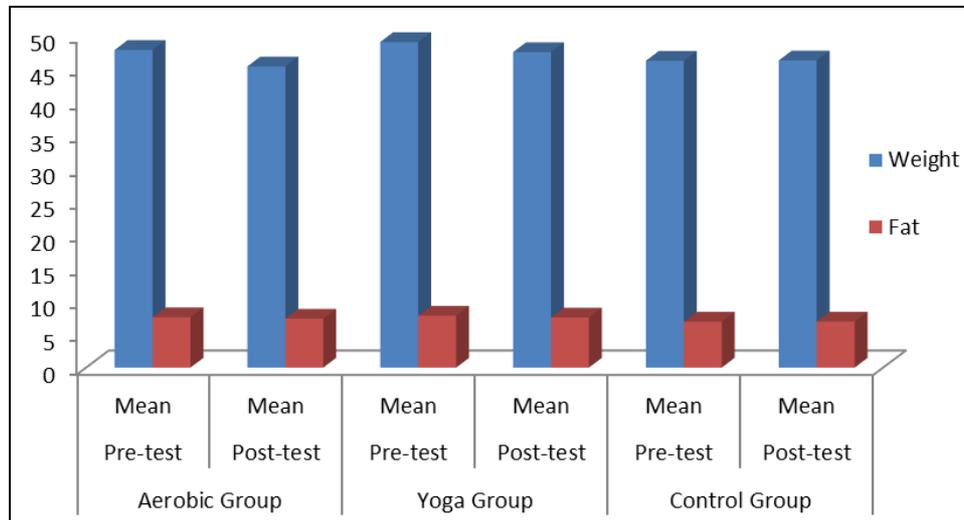


Fig 1: Show the all group of Aerobic yoga control

Discussion

The results of this study showed a significant reduction in weight and fat after a four-week period of yoga and aerobic training compared to the control group. In addition, the indicated weight levels decrease by 5.18% in the aerobic group and 3.08% in the yoga group, as well as fats in the aerobic and yoga groups indicate a decrease of 2.77% and 3.20% respectively.

This finding is consistent with investigations by H Craner (2016), MH Bagheri (2014) [3], Marandi SM (2013) [8] and V Ramesh (2011) (9-12) based on a significant decrease in Body Composition.

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