ISSN: 2349 - 4891

International
Journal of Recent Research and Applied Studies
(Multidisciplinary Open Access Refereed e-Journal)

Influence of Recreation Activity and Aerobic Exercise on Selected Health Related Physical Fitness Components and Physiological Variables of School Boys with Overweight

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Received 28th November 2019, Accepted 11th December 2019

Abstract

The objective of the study was to investigate the Influence of Recreation Activity and Aerobic Exercise on Selected Health Related Physical Fitness Components and Physiological Variables of School Boys with Overweight. To achieve this purpose, Forty Five Overweight School Boys from various schools in Thirunelveli District were selected at random. Their age ranged between 14 and 17. The selected subjects were randomly divided into three equal groups of 15 each, namely Recreation Activity Group (Group - A), Aerobic Exercise (Group - B) and Control Group (Group - C). The Experimental Group had undergone Recreation Activity and Aerobic Exercise for 12 weeks, five days a week and daily one session only in the morning, duration of session one hour, whereas the Control Group (Group - C) maintained their daily routine activities and no special training was given. Physical variable namely Flexibility and Physiological Variable Breath Holding time were chosen as variables for this study. The subjects of the three groups were tested using standardized tests and procedures on selected Physical and Physiological variables before and after the training period. The following test items namely sit and reach and Breath Holding time were used to collect relevant data. The collected data were analyzed statistically through analysis of Covariance (ANCOVA) to find out the pre and post training performances. To compare the significant difference between the Adjusted final means and better group. The Recreation Activity and Aerobics Exercise showed significant improvement due to 12 weeks of training on Flexibility and Breathe Holding Time compared to Control Group.

Keywords: Recreation Activity, Aerobic Exercise, Flexibility, Breath Holding Time and School Boys.

Introduction

World Health Organization (WHO), "Overweight and obesity are defined as abnormal or excessive fat accumulation that presents a risk to health. A crude population measure of obesity is the body mass index (BMI), a person's weight (in kilograms) divided by the square of his or her height (in meters). A person with a BMI of 30 or more is generally considered obese. A person with a BMI equal to or more than 25 is considered as overweight. Overweight and obesity are major risk factors for a number of chronic diseases, including diabetes, cardiovascular diseases and cancer. Once considered this problem is in high income countries, overweight and obesity are now dramatically on the rise in low and middle - income countries, particularly in urban settings".

The benefits of recreation activity and aerobics are numerous, including improved physical fitness, stress control, general wellbeing, mental clarity and greater self-understanding. People of all ages can do recreation activity, and it can also be adapted for people with disabilities or special needs. The poses enhance muscle strength, coordination, flexibility and agility and can help a bad back feel better.

Regular practice of recreation activity and aerobics helps to keep our body fit, controls cholesterol level, reduces weight, normalizes blood pressure and improves heart performance. According to the National Institutes of Health, when people actively seek to reduce the stress in their levels by quieting the mind, the body often works to heal itself. In this sense recreation activity and aerobic can be seen not only as a way to get into shape on several levels, but also as a tool for self-healing. The objective of the study was to investigate the influence of recreation activity and aerobics exercise on selected physical and physiological variables among the overweight school boys.

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Materials and Methods

Forty five overweight school boys from the various schools in Thirunelveli District were selected at random. Their age ranged between 14 and 17. The selected subjects were randomly divided to three equal

groups of 15 each, namely recreation activity group (group A), aerobic exercise group (group B) and control group (group C). The recreation activity and aerobic exercise were designed in consultation with the experts and were administered for a period of twelve weeks, five days a week; a session each day in the morning, session lasted an hour. The recreation activity and aerobic group underwent their respective experimental treatment, whereas the control group maintained their routine activities and no special training was given. Recreation Activity for experimental group A and selected aerobic exercise for experimental group B. Flexibility by using sit and reach and breath holding time by using stop watch were selected as Physical and Physiological variables for this investigation.The pretest, posttest and adjusted posttest were analyses by Analysis of Covariance (ANCOVA). The level of significance for the study was chosen as 0.05.

Results

Table 1

Analysis of covariance of the data on flexibility of pre, post and adjusted post tests scores of experimental and control groups

Test	Recreation Activity Group	Aerobic Exercise Group	Control group	Sources of variance	Sum of squares	df	Mean square	F ratio
Test Mean SD(±	14.87 4.78	18.53 4.44	17.07 4.54	BG WG	102.17 884.4	2 42	51.08 21.06	**2.43**
Post Test Mean SD(±)	21.4 4.31	22.8 4.16	18 4.61	BG WG	182.8 800	2 42	91.4 19.05	**4.8***
Adjusted post mean	23.229	21.199	17.771	BG WG	223.05 25.93	2 41	111.53 0.63	**176.37***

Significant at 0.05 level of confidence. (The table values required for significance at 0.05 level of confidence for 2 & 42 and 2 & 41 are 3.21 and 3.22 respectively).

Analysis of covariance of the data on flexibility of pre, post and adjusted post - tests scores of experimental and control groups are 14.87, 18.53 and 17.07 respectively. The obtained 'F' ratio 2.43 for pre - test scores was less than the table values 3.21 for df 2 and 42 required for significance at 0.05 level of confidence on flexibility. The post -test means values on flexibility of recreation activity, aerobic exercise and control groups are 21.4, 22.8 and 18 respectively. The obtained 'F' ratio 4.8 for post test scores was greater than the table values 3.21 for df 2 and 42 required for significance at 0.05 level of confidence on flexibility. The adjusted post - test mean values on flexibility of recreation activity, aerobic exercise and control groups are 23.229, 21.199 and 17.771 respectively. The obtained 'F' ratio 176.37 for adjusted post test scores was greater than the table values 3.22 for df 2 and 41 required for significance at 0.05 level of confidence on flexibility. The results of the study indicated that there was a significant difference among the adjusted post - test means of recreation activity, aerobic exercises and control groups on flexibility.Since the obtained 'F' ratio value was significant further to find out the paired mean difference, the Scheffe's post hoc test was employed and presented in table – 2.

Table 2

Scheffe's post-hoc test for the differences between paired means on flexibility

Mean Value			Mean Difference	CI
Recreation Activity Group	**Aerobic Exercise Group**	**Control Group**		
23.229	21.199	-	2.03*	0.17
-	21.199	17.771	3.43*	
23.229	-	17.771	5.46*	

The Table 2 shows that the mean difference values between recreation activity group and aerobic exercises group; recreation activity group and control group & aerobic exercises group and control group are 2.03, 3.43 and 5.46 respectively which are greater than the confidence interval value 0.17 at 0.05 level of confidence. The results of the study showed that there were a significant difference between recreation activity group & aerobic exercises group; recreation activity group & control group and aerobic exercises group & control group on flexibility. The pre, post and adjusted post - test means values of recreation activity group, aerobic exercises group and control group on flexibility are graphically represented in the Figure – I.

Figure I
The mean difference of the experimental and control groups on flexibility

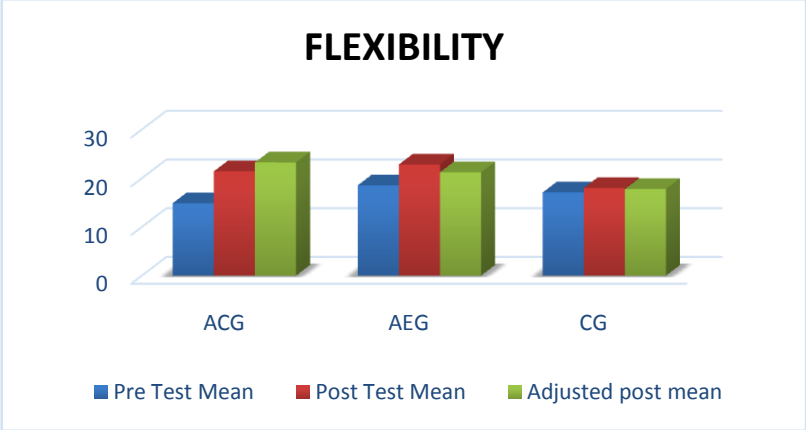


Table 3
Analysis of covariance of the data on breath holding time of pre, post and adjusted post tests scores of experimental and control groups

Test	Recreation Activity Group	Aerobic Exercise Group	Control group	Sources of variance	Sum of squares	df	Mean square	F ratio
Pre Test Mean SD(±)	21.43 3.73	18.78 4.69	19.35 3.89	BG	8.35	2	29.17	1.71
				WG	716.53	42	17.06	
Post Test Mean SD(±)	25.68 3.35	23.58 4.20	20.04 3.70	BG	248.53	2	124.26	8.73*
				WG	597.89	42	14.23	
Adjusted post Mean	24.283	24.808	20.486	BG	166.35	2	83.18	105.68*
				WG	32.27	41	0.76	

Significant at 0.05 level of confidence. (The table values required for significance at 0.05 level of confidence for 2 & 42 and 2 & 41 are 3.21 and 3.22 respectively).

The Table 3 shows that the pre-test mean values on Breath holding time of recreation activity, aerobic exercise and control groups are 21.43, 18.78 and 19.35 respectively. The obtained 'F' ratio 1.71 for pre - test scores was less than the table values 3.21 for df 2 and 42 required for significance at 0.05 level of confidence on Breath holding time. The post - test mean values on Breath holding time of recreation activity, aerobic exercise and control groups are 25.68, 23.85 and 20.04 respectively.

The obtained 'F' ratio 8.73 for post test scores was greater than the table values 3.21 for df 2 and 42 required for significance at 0.05 level of confidence on Breath holding time. The adjusted post - test mean values on Breath holding time of recreation activity, aerobic exercise and control groups are 24.283, 24.808 and 20.486 respectively. The obtained 'F' ratio 105.68 for adjusted post test scores was greater than the table values 3.22 for df 2 and 41 required for significance at 0.05 level of confidence on Breath holding time. The results

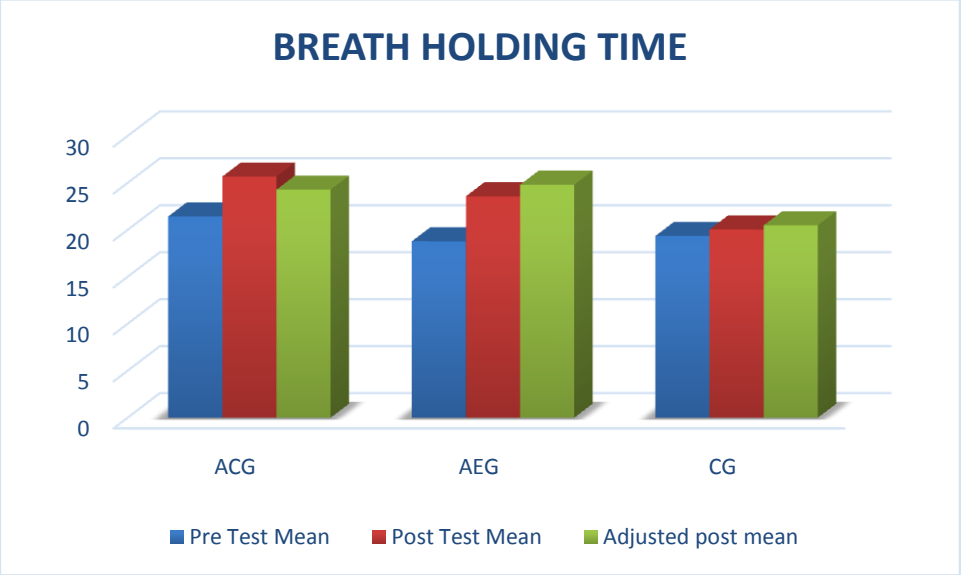
of the study indicated that there was a significant difference among the adjusted post - test means of recreation activity, aerobic exercises and control groups on Breath holding time.Since the obtained 'F' ratio value was significant further to find out the paired mean difference, the Scheffe's post hoc test was employed and presented in table 4.

Table 4
Scheffe's post-hoc test for the differences between paired means on breath holding time

Mean value			Mean difference	CI
Recreation Activity Group	Aerobic Exercise Group	Control group		
24.283	24.808	-	0.53*	0.19
-	24.808	20.486	4.32*	
24.283	-	20.486	3.80*	

The Table 4 shows that the mean difference values between recreation activity group and aerobic exercises group; recreation activity group and control group & aerobic exercises group and control group are 0.53, 4.32 and 3.80 respectively which are greater than the confidence interval value 0.19 at 0.05 level of confidence. The results of the study showed that there were a significant difference between recreation activity group & aerobic exercises group; recreation activity group & control group and aerobic exercises group & control group on Breath holding time. The pre, post and adjusted post - test means values of recreation activity group, aerobic exercises group and control group on Breath holding time are graphically represented in the Figure – II.

Figure II
The mean difference of the experimental and control groups on breath holding time



Discussion on Findings

From the analysis of the data, the following conclusions were drawn.

1. The result shows that there was no difference in all the three groups before training.
2. Significant differences were found in the two groups after the training.
3. Recreation activities group and aerobic exercise group show significant improvement on selected Physical and Physiological variables compared to control groups. These improvements occurred because of planned systematic training.
4. When compared to recreation activities group and aerobic exercise group, mean difference showed that significant improvement in Recreation activities group on flexibility (2.03) than aerobic exercise group.
5. When compared to recreation activities group and aerobic exercise group, mean difference showed that significant improvement in aerobic exercise group on Breath holding time (0.53) than Recreation activities group.

In the present study it was concluded that flexibility and Breath holding time were improved by yogic training and aerobic exercise. Hence it is recommended to the coaches, trainers and physical educators to adopt these findings to improve to flexibility and Breath holding time for their overweight children.

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