EFFECT OF STEP AEROBIC AND DANCE AEROBIC TRAINING ON PERCENT BODY FAT AMONG OBESE ADOLESCENT BOYS

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Abstract

The purpose of the study was to analyze the impact of step aerobic and dance aerobic training on percent body fat among obese adolescent boys. Forty-five (45) obese adolescent boys were selected from Government Boys Higher Secondary School, Yaripora of (UT) Jammu & Kashmir. They were assigned into three groups. each group consists of fifteen subjects. The three groups namely Group I acted as Experimental Group (step aerobic), Group II acted as Experimental Group (dance aerobic) and Group III acted as control group. The duration of the exercise period was 12 weeks. At the end of 12-weeks of the training, post-tests were taken. To find out the significant differences between the groups, an analysis of covariance (ANCOVA) was applied. When the f-ratio of the adjusted post-test mean was found to be significant, Scheffe's post hoc test was applied to find out paired mean differences. The level of confidence was fixed, at 0.05 level of significance. Percent body fat was assessed by skin fold caliper test. The result suggested that dance aerobic was more effective than step aerobic and significantly reduces percent body fat among adolescent obese boys.

Keywords: step aerobic, dance aerobic, percent body fat, obese, adolescent.

Introduction

The high prevalence of overweight and obesity in adolescents constitutes a huge public health burden. It is estimated that over 340 million children and adolescents aged 5 to 19 are obese or overweight Ahmad and Imam, (2015). The early onset of obesity leads to an increased likelihood of obesity into adulthood and links to an increased prevalence of obesity-related disorders such as coronary diseases, insulin resistance, diabetes mellitus, hypertension, sleep apnea, arthritis, cancer, stroke, and heart failure in later life Hughes-Austin, et al., (2013). Step aerobic exercise is aerobic training method which has a great role in the improvement of aerobic

fitness, physical health, cardiovascular fitness, and body composition profiles. Step aerobic exercise includes a series of dance movements in the step-by-step form which are repeated frequently by music. Dance Aerobic exercise training would cause a decrease in cardiovascular risk factors such as low-density lipoprotein cholesterol, total cholesterol, body fat percent, and waist circumference Hallage et al., (2010). Step aerobic exercises were executed at 80-90 percent of maximum heart rate. Lower body part power exercises were done before aerobic step exercises and upper body part power exercises were done after aerobic step exercises. Aerobic step exercises would lead to a significant decrease in body fat percent, sub-skin folds fat, and lipids profiles Cornelissen, (2005). Body fat is most commonly estimated from anthropometric measurements Himes et al., (2009). BMI is often used as a surrogate marker but does not provide an accurate assessment of body fat and this is especially true in children and adolescents Prentice et al., (2001). Waist circumference is gaining popularity as an indicator of childhood obesity but is more related to visceral fat than total body fat Mc, Carthy et al., (2007). Skinfold thicknesses have long been used as measures of subcutaneous fat and are usually more accurate than BMI at predicting body fat Durnin et al., (1967). However, whenever possible, the anthropometric assessment of body composition should include a direct body fat estimate. Adolescence is a critical period for the onset of obesity and for obesity-associated morbidity in later life. During adolescence, obesity is often associated with metabolic complications. Psychological problems and a reduced capacity for physical activity Dietz. et al., (1997).

Methods and Materials

The purpose of the study was to find out the impact of selected step aerobic and dance aerobic on percent body fat among obese adolescent boys. Forty-five (45) obese adolescent boys were selected from Government Boys Higher Secondary School, Yaripora of (UT) Jammu & Kashmir. The age of the subjects ranged from 13 to 18 years only. They were assigned into three groups. Each group consists of fifteen (15) subjects. The groups namely Group I- acted as Experimental group (step aerobic), Group II-acted as Experimental group (dance aerobic). Group III- acted as a control group. The research design of the study was a random group design. The duration of the experimental training period was 12 weeks. After the experimental treatment, all forty-five (45) subjects were administered on the selected percent body fat. To find out the significant differences between the groups, Analysis of covariance (ANCOVA) was applied.

When the f-ratio of the adjusted post-test mean was found to be significant, Scheffe's post hoc test was applied to find out paired mean differences. The level of confidence was fixed, at 0.05 level of significance.

Statistical Analysis:

To find out the significant differences between the groups, an analysis of covariance (ANCOVA) was applied. When the f-ratio of the adjusted post-test mean was found to be significant, Scheffe's post hoc test was applied to find out paired mean differences. The level of confidence was fixed, at 0.05 level of significance.

Analysis of Percent Body Fat

The descriptive analysis shows the mean, percentage of improvement, and 't' ratio of the collected data on percent body fat among experimental and control groups are presented in the table-1.

Table-1

Analysis of Covariance on the Percent Body Fat of Experimental and Control Groups.

Test	Step aerobic Group (SAG)	Dance Aerobic Group (DAG)	CG	SOV	S O S	DF	MS	F-ratio
Pretest Mean	30.13	30.06	30.26	BG	0.311	2	0.156	
SD (±)	1.45	1.48	1.33	WG	85.600	42	2.038	0.76
Post-test Mean	29.20	28.73	30.33	BG	20.311	2	10.156	
SD (±)	1.47	1.83	1.11	WG	94.677	42	2.254	4.50*
Adjusted Post-test Mean	29.21	28.79	30.25	BG	16.961	2	8.480	
				WG	54.642	41	1.333	6.36*

**Significant, Table value, 2 to 42 & 2 to 41 is 3.22 &3.23*

Table-1 shows that the pre-test means values on percent body fat of step aerobic group, dance aerobic group, and control group are 30.13, 30.06, and 30.26 respectively. The obtained 'F' ratio value of 0.76 pre-test score was lesser than the required table value of 2.14 for df 2 and 42 for significance at 0.05 level of confidence on percent body fat. The post-test means values on the percent body fat of the step aerobic group, dance aerobic group, and control group are 29.20, 28.73, and 30.33 respectively. The obtained 'F' ratio value of 4.50 for the post-test score was greater than the required table value of 3.22 for the df of 2 and 42 for significance at 0.05 level of confidence on percent body fat.

The adjusted post-test means of the step aerobic group, dance aerobic group, and control group are 29.21, 28.79, and 30.25 respectively. The obtained 'F' ratio value of 6.36 for the adjusted post-test score was greater than the required table value of 3.22 for df 2 and 41 for the significance at 0.05 level of confidence on percent body fat. It was concluded that differences subsist among the adjusted post-test means of step aerobic group, dance aerobic group, and control group on percent body fat. The 'F' value in the adjusted post-test means was found significant, hence Scheffe's test was applied to assess the paired mean difference and the results are presented in table -2.

Table -2

Scheffe's test for the Differences between Paired Means on Percent Body Fat

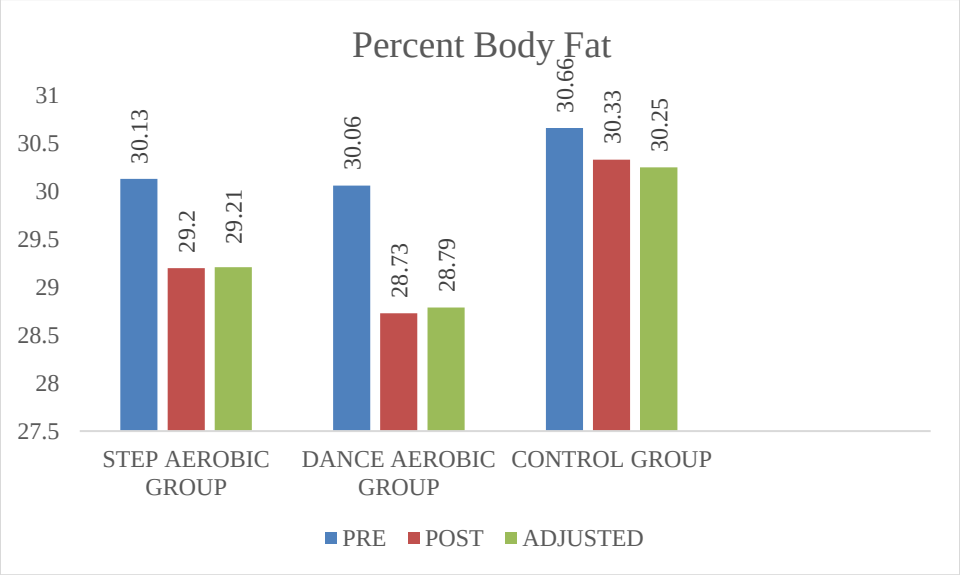
SAG	DAG	CG	M.D	C.I
29.21	28.79	-	0.42	0.45
29.21	-	30.25	1.04*	
-	28.79	30.25	1.46*	

From table-2, it was imperative that both the experimental groups differed significantly from the control group in percent body fat. Significant differences were found between the step aerobic group (SAG) and the dance aerobic group (DAG) decreasing percent body fat.

Therefore, twelve weeks of dance aerobic training showed a decrease than step aerobic training in obese adolescent boys. The findings of the study imply that both the groups decrease percent body fat but the dance aerobic group was significantly better in decreasing percent body fat than other groups confined to this study. The changes in percent body fat are presented in figure-1.

Figure-1

The Pre, Post and Adjusted Post Test Means of Experimental and Control Groups on Percent Body Fat



Discussion and Findings:

The result of the study indicates that the experimental group namely the step aerobic and dance aerobic training group has decreased percent body fat. The findings of the study are in conformity with the findings of the earlier studies; Jang, (2019) evaluated 8 weeks of aerobic and resistance exercises decreasing the percentage of body fat in obese middle-aged women. Jin et al, (2018) have investigated that eight weeks of combined training of aerobic and resistance exercises decrease the percentage of body fat. Kelley, (2019) has discovered that exercise interventions decrease the percentage of body fat. Bupesh, (2021) has evaluated 12 weeks of resistance training decreasing the percentage of body fat among obese male students.

Conclusion:

The purpose of this study was to demonstrate the step aerobic and dance aerobic program among obese adolescent boys. Dance aerobic significantly decreased the percent body fat than step aerobic. Therefore, physical fitness can be achieved with a training program implemented at a school level. So, the twelve-weeks training program was given to decrease the percent body fat of obese adolescent boys.

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