



EFFECT OF VARIED INTENSITIES OF AEROBIC TRAINING ON PERCENT BODY FAT OF PLAYERS

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ABSTRACT

The purpose of the study was to investigate the effect of varied intensity of aerobic training on percent body fat of college players. Sixty players from the Department of Arts and Sciences, Alagappa University were selected as subjects. The age, height and weight of the subjects ranged from 17 to 25 years, 162 to 175 centimeters and 56 to 70 kg respectively. The selected subjects were randomly assigned into four equal groups of 15 subjects each. Group I underwent low intensity aerobic training, group II underwent moderate intensity aerobic training, group III underwent high intensity aerobic training and group IV acted as control. Prior to and after the training the subjects were tested on selected criterion variables using standard test and procedures. Analysis of covariance was used to determine the significantly difference existing between pre test and post test on selected criterion variables. The result of the study proved that due to effect of varied intensity of aerobic training significantly decreased the percent body fat of players.

Key words: Varied intensity, percent body fat.

INTRODUCTION

Aerobic exercise is the best bet for those, who want to quit addictions like alcohol and smoking, because it reduces a person's craving for the habits. It is well established that in chronic lung disease, aerobic exercise capacity is decreased and is limited not only by pulmonary mechanisms, but also by poor nutritional status (Marcotte, *et al.*, 1986).

The human body consists of fat mass, lean muscle mass skeletal bone mass and total body water. The proportions of each of these components have important implications for present and future health outcomes including cardiovascular, nutritional and psychological status as well as physical performance capacity (Ribeiro *et al.*, 2003). Body composition is the amount of muscle, fat, bone, cartilage etc that makes up our bodies. In terms of health, fat is the main point of interest and everything else is termed lean body tissue. The amount of fat we carry varies from person to person and healthy averages vary with gender and age. A healthy amount of fat for a man is between 15% and 18% and for women is higher at 20-25%. It is important to maintain a healthy percentage of body fat because: Excess body fat can contribute to developing a number of health problems such as heart disease and diabetes.

METHODOLOGY

Subjects and Variables

The purpose of the study was to find out the effect of varied intensities of aerobic exercises on percent body fat of college players. To achieve the purpose of the study, sixty inter collegiate players were selected as subjects. The age, height and weight of the subjects ranged from 17 to 25 years, 162 to 175 centimeters and 56 to 70 kilograms respectively. The selected subjects were medically examined by a qualified physician and certified that they were medically and physically fit enough to undergo the sprint training programme. The selected subjects were randomly assigned into four equal groups of 15 subjects each. Group I underwent low intensity aerobic training, group II underwent moderate intensity aerobic training, group III underwent high intensity aerobic training and group IV acted as control. Percent body fat was measured by skin fold caliper.

Training Protocol

The training programmes were scheduled for one session a day each session lasted between thirty to forty five minutes approximately excluding warming up and warming down. During the training period, the experimental groups underwent their respective training programme three days per week (alternative days) for sixteen weeks in addition to their curriculum. The group-I concentrated on low intensity aerobic training, intensity starting from 20 minutes @ 30% of HRR to 35 minutes @ 45% HRR, followed from first week to sixteen weeks. Group-II on moderate intensity aerobic training, the intensity starting from 20 minutes

@ 50% of HRR to 35 minutes @ 65% HRR, followed from first week to sixteen weeks. Group-III on high intensity aerobic training, the intensity of the training increased progressively across the weeks. Intensity starting from 20minutes @ 75% of HRR to 35 minutes @ 85% HRR, followed from first week to sixteen weeks.

Experimental Design and Statistical Technique

The experimental design in this study was random group design involving 60 subjects, who were divided at random in to four group of fifteen each. All the four groups selected from the same population. No effort was made to equate the groups prior to the commencement of the experimental treatment. The pretest means of the selected dependent variable was used as a covariate. In order to nullify the initial differences the data collected from the four groups prior to and post experimentation on selected dependent variables were statistically analyzed to find out the significant difference if any, by applying the analysis of covariance (ANCOVA). Since four groups were involved, whenever the obtained 'F' ratio for adjusted post test means was found to be significant, the Scheffe's test was applied as post hoc test to determine the paired mean differences. In all the cases level of confidence was fixed at 0.05 for significance.

RESULTS

Table-I shows that the pre test mean and standard deviation on percent body fat of high, moderate and low intensity aerobic exercise and control groups are 102.33 ± 4.54 , 102.66 ± 7.22 , 101.93 ± 4.63 and 102.80 ± 5.14 respectively. The obtained 'F' ratio value of 0.97 for pre test means on percent body fat of high, moderate and low intensity aerobic exercise and control groups were less than the required table value of 2.77 for the degrees of freedom 3 and 56 at 0.05 level of confidence. It reveals that there is statistically insignificant difference among the high, moderate and low intensity aerobic exercise and control groups during pre test period. It inferred that the random assignment of the subjects for the four groups is successful. The post test mean and standard deviation on percent body fat of high, moderate and low intensity aerobic exercise and control groups are 86.06 ± 4.52 , 87.26 ± 4.35 , 88.33 ± 4.89 and 100.26 ± 5.81 respectively. The obtained 'F' ratio value of 26.80 for post test means on percent body fat of high, moderate and low intensity aerobic exercise and control groups are greater than the required table value of 2.77 for the degrees of freedom 3 and 56 at 0.05 level of confidence.

TABLE-I Analysis of Covariance on Percent Body Fat of Experimental and Control Groups

	High Intensity Aerobic Exercise	Moderate Intensity Aerobic Exercise	Low Intensity Aerobic Exercise	Control Group	S O V	Sum of Squares	df	Mean squares	'F' ratio
Pre test Mean	18.69	18.20	18.11	18.37	B	2.95	3	0.98	0.21
SD	1.81	2.09	2.24	2.30	W	252.22	56	4.50	
Post test Mean	14.52	15.82	16.87	18.15	B	107.22	3	35.74	16.56*
SD	0.89	1.32	0.74	2.35	W	120.84	56	2.15	
Adjusted Post test Mean	14.46	15.84	16.90	18.14	B	109.84	3	36.61	17.52*
					W	114.91	55	2.08	

(The required table value for significance at 0.05 level of confidence with degrees of freedom 3 and 55 is 2.77 and degree of freedom 3 and 56 is 2.77)

*Significant at .05 level of confidence

The adjusted post test means on percent body fat of high, moderate and low intensity aerobic exercise and control groups are 86.07, 87.25, 88.36 and 100.24 respectively. The obtained 'F' ratio value of 26.29 on percent body fat were greater than the required table value of 2.77 for the degrees of freedom 3 and 55 at 0.05 level of confidence. It is observed from this finding that significant differences exist

among the adjusted post test means of experimental and control groups on percent body fat.

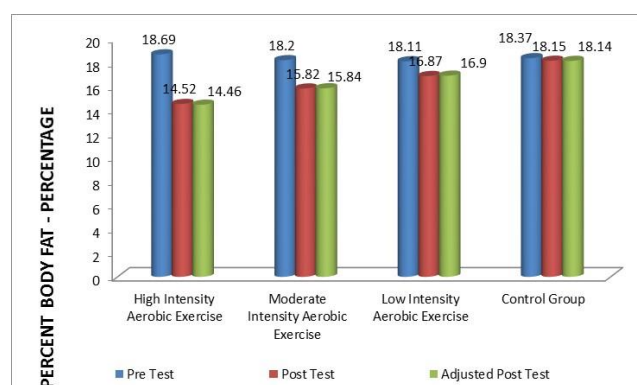
Since, the adjusted post test 'F' ratio value is found to be significant the Scheffe's test is applied as post hoc test to determine the paired mean differences, and it is presented in table-II.

TABLE-II Scheffe's Test for the Difference Between the Adjusted Post Test Paired Means of Percent Body Fat

Adjusted Post Test Means				DM	CI
High Intensity Aerobic Exercise	Moderate Intensity Aerobic Exercise	Low Intensity Aerobic Exercise	Control Group		
14.46	15.84			1.38*	1.07
14.16		16.91		2.45*	1.07
14.16			18.14	3.68*	1.07
	15.84	16.91		1.07*	1.07
	15.84		18.14	2.3*	1.07
		16.91	18.14	1.23*	1.07

*significant

Table-II shows the Scheffe's test results that there are significant differences between the adjusted post test means of high, moderate and low intensity aerobic exercise and control groups on percent body fat. Also the result of the study reveals that there are significant differences between the high and moderate intensity aerobic exercise groups, high and low intensity aerobic exercise groups, moderate and low intensity aerobic exercise groups on percent body fat.

Figure – II Cylinder Diagram Showing the Mean Value on Percent Body Fat of Experimental and Control Groups

DISCUSSION AND CONCLUSIONS

The result of the present study indicates that effect of varied intensity aerobic exercise reduced the percent body fat. These findings are supported by the following studies. Husamettin and Evrim (2010) found that eight weeks aerobic exercises made significant alteration on body weight, percent body fat, body mass index and waist to hip ratio of obese females. Hamid

and others (2012) stated that effects of eight weeks morning aerobic training showed that there were significant changes on body fat percentage.

CONCLUSIONS

The conclusion of the present study indicates that effect of varied intensity of aerobic training reduced on percent body fat of college players.

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