



Effect of Different Frequencies of Aerobic Training and Free Hand Exercise on Speed and Explosive power of College Men Players

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**ABSTRACT**

The purpose of this study was to find out the effect of different frequencies of Aerobic Training and Free Hand Exercise on Speed and Explosive power of College Men Players. The study was conducted on forty five (N=45) players who were randomly selected from various Arts and Science Colleges of Alagappa University, Karaikudi, Tamil Nadu, India during 2015-2016. The age of the subjects were ranged between 18 to 21. The selected players was assigned in to three groups of fifteen each(n=15) , Group –I underwent Aerobic training with three days per week, Group –II underwent Aerobic training with five days per week and Group III underwent free hand exercises. Speed and Explosive power were selected as dependent variables. Speed was assessed by 50 meters run test and Explosive power was assessed by Vertical Jump tests. All the subjects were tested prior to and immediately after the training period of twelve weeks for all the selected variables. The data collected data from the three groups prior to and immediately after the training programme on the selected criterion variables were statistically analyzed with Analysis of Covariance (ANCOVA). Whenever the 'F' ratio for adjusted post test means was found to be significant, Scheffe's post hoc test was followed to determine which of the paired mean differences was significant. In all the cases .05 level of confidence was fixed to test the hypotheses. Speed and Explosive Power showed significant difference among the groups. Aerobic training with five days per week group showed better performance than other selected groups.

**KEYWORDS** Speed, Explosive Power

INTRODUCTION

Exercise may be classified in one of two categories, anaerobic and aerobic, depending on where energy is derived from. There is a distinct difference between the two, and specific training techniques are used to enhance both. Anaerobic exercise does not require oxygen for energy. This is due to the intensity and duration of anaerobic events, which typically are high intensity and last only a few seconds to a minute or two. These activities range from tennis serve to an eight-hundred-meter run.

Present high sports performance levels are attributed to the superior physical fitness all over the world. Success in sports and games is directly proportional to the amount of quality work one is able to put in and this is obviously restricted by the amount of time available for training. Many training methods are in use for developing physical fitness and all of them have been employed successfully on various athletes to attain high sports performance standard. Some of these training methods are cross country, Fartlek, Internal training circuit training, weight training, continuous running repetition training competition and test method etc.

Physical exercise is any bodily activity that enhances or maintains physical fitness and overall health and wellness. It is performed for various reasons including strengthening muscles and the cardiovascular system, honing athletic skills, weight loss or maintenance, as well as for the purpose of enjoyment. Frequent and regular physical exercise boosts the immune system, and helps prevent the "diseases of affluence" such as heart disease, cardiovascular disease, Type 2 diabetes and obesity. (Stampfer et al., 2000)

Aerobic exercise does require oxygen for energy. This is observed during exercise that is less intense but of longer duration. This energy system is primarily used during events lasting longer than several minutes, such as a two-mile run or the Tour de France bicycle race. The potential does exist that one can use both systems, as in soccer, where a match requires ninety minutes of continual activity with short intense bursts of effort.

METHODOLOGY

The study was conducted on forty five (N=45) players who were

randomly selected from various Arts & Science Colleges of Alagappa University, Karaikudi, Tamil Nadu, India during 2015-2016. The age of the subjects were ranged between 18 to 21. The selected players was assigned in to three groups of fifteen each(n=15), Group –I underwent Aerobic training with three days per week, Group –II underwent Aerobic training with five days per week and Group III underwent free hand exercises. Among the physical fitness components speed and Explosive power were selected as dependent variables. Speed was assessed by 50 meters run test and Explosive power was assessed by Vertical Jump tests. All the subjects were tested prior to and immediately after the training period of twelve weeks for all the selected variables. The data collected data from the three groups prior to and immediately after the training programme on the selected criterion variables were statistically analyzed with Analysis of Covariance (ANCOVA). Whenever the 'F' ratio for adjusted post test means was found to be significant, Scheffe's post hoc test was followed to determine which of the paired mean differences was significant. In all the cases .05 level of confidence was fixed to test.

RESULTS AND DISCUSSION

The Analysis of covariance (ANCOVA) on Speed and Explosive power of aerobic training of two different frequencies and free hand exercise group have been analyzed and presented in Table -I.

TABLE –I  
VALUES ON SPEED AND POWER OF AEROBIC TRAINING OF TWO DIFFERENT FREQUENCIES AND FREE HAND EXERCISE GROUP

Certain Variables	Adjusted Post test Means			Source of Variance	Sum of Squares	df	Mean Squares	'F' Ratio
	Aerobic Training Three days per week Group-(I)	Aerobic Training Five days per week Group-(II)	Free Hand Exercises Group (III)					

Speed	7.12	6.79	7.51	Between With in	7.70 6.59	2 41	3.85 0.16	24.07*
Explosive Power	1.50	1.61	1.47	Between With in	0.06 0.08	2 41	0.03 0.0001	30.00*

**\*Significant at .05 level of confidence.**  
**(The table value required for significance at .05 level with df 2 and 41 is 3.23)**

Table I shows that the adjusted post test mean values of Speed for Aerobic Training three days per week group, Aerobic Training five days per week group and Free Hand Exercises group are 7.12, 6.79 and 7.51 respectively. The obtained F-ratio is 24.07; it is more than the table value 3.23 for df 2 and 41 required for significance at .05 level of confidence.

Further the above table shows that the adjusted post test mean values of Explosive power for Aerobic Training three days per week group, Aerobic Training five days per week group and Free Hand Exercises group are 1.50, 1.61 and 1.47 respectively. The obtained F-ratio is 30.00. The value is more than the table value 3.23 for df 2 and 41 required for significance at .05 level of confidence.

The results of the study indicate that there is a significant difference exists among the adjusted post test means of experimental groups showing the decrease in speed and increase of Explosive power.

To determine which of the paired means had a significant differences, Scheffe's test was applied as Post hoc test and the results are presented in Table II.

**Table - II**  
**THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN THE ADJUSTEDPOST TESTS PAIRED MEANS ON DEPENDENT VARIABLES**

Certain Variables	Adjusted Post test Means			Mean Difference	Confidence Interval
	Aerobic Training Three days per week Group-(I)	Aerobic Training Five days per week Group-(II)	Free Hand Exercises Group (III)		
Speed	7.12	6.79		0.33*	0.31
	7.12		7.51	0.39*	0.31
		6.79	7.51	0.72*	0.31
Explosive Power	1.50	1.61		0.11*	0.01
	1.50		1.47	0.03*	0.01
		1.61	1.47	0.14*	0.01

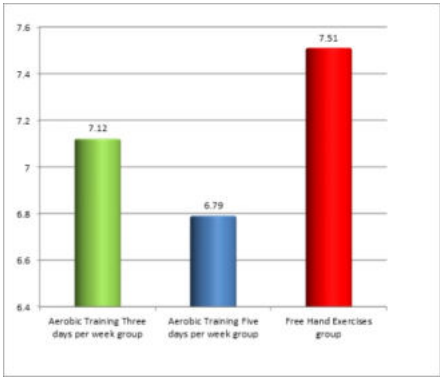
**\* Significant at .05 level of confidence**

Table II shows that the adjusted post test mean for differences on speed between Aerobic Training three days per week group and Aerobic Training five days per week group, Aerobic Training three days per week group and Free hand exercises group and Aerobic Training five days per week group and Free hand exercises group are 0.33, 0.39 and 0.72. The values are greater than the confidence interval 0.31, which shows significant differences at .05 level of confidence.

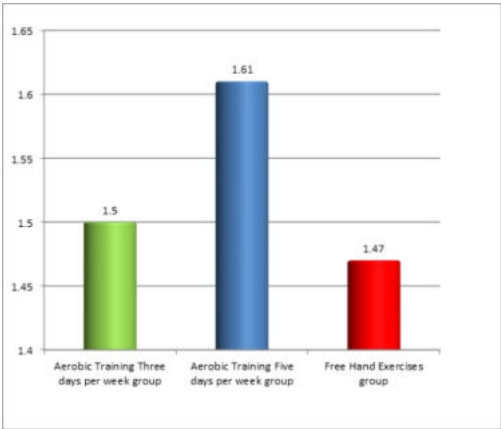
Further table II shows that the adjusted post test mean for differences on Explosive power between Aerobic Training three days per week group and Aerobic Training five days per week group, Aerobic Training three days per week group and Free hand

exercises group and Aerobic Training five days per week group and Free hand exercises group are 0.11, 0.03 and 0.14. The values are greater than the confidence interval 0.01, which shows significant differences at .05 level of confidence.

The adjusted post test means values of Aerobic Training three days per week group, Aerobic Training five days per week group and Free Hand Exercises group on Speed and Explosive Power are graphically represented in the figure I and figure II respectively.



**FIGURE I: ADJUSTED POST TEST MEANS VALUES OF AEROBIC TRAINING THREE DAYS PER WEEK GROUP, AEROBIC TRAINING FIVE DAYS PER WEEK GROUP AND FREE HAND EXERCISES GROUP ON SPEED**



**FIGURE II: ADJUSTED POST TEST MEAN VALUES OF PLYOMETRIC TRAINING WITH AND WITHOUT RESISTANCE TRAINING GROUP AND CONTROL GROUPS ON EXPLOSIVE POWER**

**CONCLUSION**

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

- 1. The Experimental groups had registered significant improvement on the selected criterion variables namely Speed and Explosive Power.
- 2. It may be concluded that the aerobic training five days per week group is better than aerobic training three days per week group and Free hand exercises group in improving Speed and Explosive Power.

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