Volume : 2 | Issue : 1 | Jan 2013 • ISSN No 2277 - 8160

Research Paper | Physical Education

Comparative Effect of Aerobic Training With two Different Frequencies and Free Hand Exercise on Speed an Explosive Power Parameters of Men Volleyball Players

K. Manimaran — Ph.D Research Scholar, Director of Physical Education, Muthaiyammal Engineering College, Rasipuram, Namakkal – Dist Tamil Nadu, India

Dr. K. Angamuthu — Registrar, Periyar University, Salem, Tamil Nadu, India.

ABSTRACT

The purpose of this study was to find out the Comparative Effect of Aerobic Training with Two Different Frequencies and Free Hand Exercise on Speed and Explosive Power Parameters of Men Volleyball Players. The study was conducted on forty five (N=45) Volleyball players who were randomly selected from various Engineering Colleges of Zone-VIII Anna University, Chennai, Tamil Nadu, India during 2012-2013. 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

Training is good for the development of the cardiovascular system. "It enables athletes to recover from tough workouts and helps to develop the capacity to increase repetitions". (Singh, 1991).

"Training improves the functioning of the circulatory, respiratory and the muscular systems, while practice is largely aimed at improving the control of muscular activity by the nervous systems". (Kenneth, J. 1976)

Aerobic exercise is the type of moderate-intensity physical activity that one can sustain for more than just a few minutes with the objective of improving their cardiorespiratory fitness and your health. "Aerobic" means "in the presence of, or with, oxygen."

Anaerobic, on the other hand, means "the absence of, or without, oxygen." Anaerobic exercise is performed at an intensity that causes to get out of breath quickly and can be sustained for only a few moments. Weight lifting and sprinting are examples of anaerobic exercise.

Aerobic exercise is any extended activity that makes ones breathe hard while using the large muscle groups at a regular, even pace. Aerobic activities help make human heart stronger and more efficient. During the early part of exercise, body uses stored carbohydrate and circulating fatty acids (the building blocks of fat molecules) for energy.

METHODOLOGY

The purpose of this study was to find out the Comparative Effect of Aerobic Training with Two Different Frequencies and Free Hand Exercise on Speed and Explosive Power Parameters of Men Volleyball Players. The study was conducted on forty five (N=45) Volleyball players who were randomly selected from various Engineering Colleges of Zone-VIII Anna University, Chennai, Tamil Nadu, India during 2012-2013. 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.

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
ANALYSIS OF COVARIANCE 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	7.68	6.75	7.66	Between With in	8.55 8.47	2 41	4.27 0.21	20.68*
Explosive Power	1.54	1.55	1.49	Between With in	0.03 0.05	2 41	0.01 0.001	10.16*

***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 and Explosive power for Aerobic Training three days per week group, Aerobic Training five days per week group and Free Hand Exercises group are 7.68, 6.75, 7.66, 1.54, 1.55 and 1.49 respectively. The obtained F-ratios are 20.68 and 10.16 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 ADJUSTED POST 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	7.68	6.75		0.93*	0.42
	7.68		7.66	0.02*	0.42
		6.75	7.66	0.91*	0.42
Explosive Power	1.54	1.55		0.01	0.03
	1.54		1.49	0.05*	0.03
		1.55	1.49	0.06*	0.03

*** 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 five days per week group and Free hand exercises group are 0.93 and 0.91. The values are greater than the confidence interval 0.42, which shows significant differences at .05 level of confidence. The values between Aerobic Training three days per week group and Free hand exercises group are 0.02. It showed insignificant differences.

Table II further shows that the adjusted post test mean for differences on Explosive Power between Aerobic Training three days per week group and Free hand exercises group, Aerobic Training five days per week group and Free hand exercises group are 0.05, and 0.06. The values are greater than the confidence interval 0.03, which shows significant differences at .05 level of confidence. The values between Aerobic Training three days per week group and Aerobic Training five days per week group are 0.02. It showed insignificant differences.

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 were graphically represented in the figure I and figure II respectively.

SPEED IN SECONDS

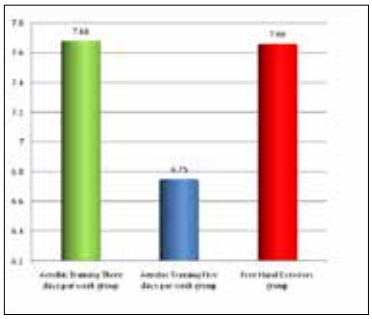

FIGURE I: adjusted post test means values of Aerobic Training three days per week group, Aerobic Training five days per week group and Free Hand Exercises group on Speed

EXPLOSIVE POWER IN METERS

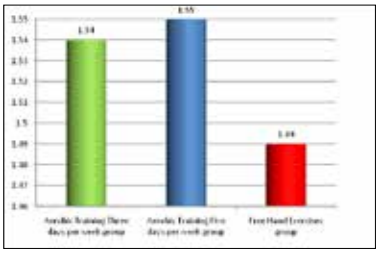

FIGURE II: ADJUSTED POST TEST MEAN VALUES OF Plyometric Training with and without resistance training group and control groups on EXPLOSIVE POWER

DISCUSSION ON FINDINGS

Resistance training, similarly to aerobic training, improves metabolic features and insulin sensitivity and reduces abdominal fat in type 2 diabetic patients. Changes after training in *V*O2peak and truncal fat may be primary determinants of exercise-induced metabolic improvement Bacchi et al(2012). Sigal et al(2007) suggested to aerobic training and resistance training alone each led to improvements in glycemic control, and combined aerobic and resistance training had effects that were greater than those of either method alone. These effects were more powerful among individuals with poor glycemic control at baseline. It is suggested that future research might usefully explore the particular contribution of different aspects of the training situation to these effects. Norris et al(1990).

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.

REFERENCES

Aerobic training retrieved from www.wikipedia.com on 12.12.2012. | Doherty Kenneth J, (1976), Modern Track and Field, Englewood Cliffs, New Jersey: Prentice Hall Inc.P. 87. | Elisabetta Bacchi, Carlo Negri, Maria Elisabetta Zanolin, Chiara Milanese, Niccolò Faccioli, Maddalena Trombetta, Giacomo Zoppini, Antonio Cevese, Riccardo C. Bonadonna, Federico Schena, Enzo Bonora, Massimo Lanza, and Paolo Moghetti, (2012) Metabolic Effects of Aerobic Training and Resistance Training in Type 2 Diabetic Subjects, Diabetes Care April, vol. 35 no. 4 676-682. | Hardayal Singh, (1991), Science of Sports Training, New Delhi: D.V.S. Publications, P.130. | Norris R, Carroll D, Cochrane R.(1990), The effects of aerobic and anaerobic training on fitness, blood pressure, and psychological stress and well-being, J Psychosom Res. 34(4):367-75. | Ronald J. Sigal, Glen P. Kenny, Normand G. Boulé, George A. Wells, Denis Prud'homme, Michelle Fortier, Robert D. Reid, Heather Tulloch, Douglas Coyle, Penny Phillips, Alison Jennings, and James Jaffey(2007), Effects of Aerobic Training, Resistance Training, or Both on Glycemic Control in Type 2 Diabetes: A Randomized Trial, Ann Intern Med. 18 September 2007;147(6):357-369 |