

Effect of moderate intensity aerobic training on selected strength parameters

D. SIVAMANI, S. ALAGESAN AND K. KRISNNASAMY

Received : July, 2011; Revised : August, 2011; Accepted : September, 2011

See end of the article for authors' affiliations

Correspondence to:

D. SIVAMANI

Department of Physical Education and Sports Sciences, Annamalai University, Annamalai Nagar CHIDAMBARAM (T.N.) INDIA
kichagk@yahoo.co.in

ABSTRACT

The purpose of the study was to find out the effect of moderate intensity aerobic training on selected strength parameter such as explosive strength and strength endurance. To achieve this purpose of the study, thirty men students (age between 19 to 23 yrs.) studying in department of Physical Education, Annamalai University, Tamil Nadu were selected randomly and divided into two equal groups, group I moderate intensity aerobic training group and group II control group. The duration of the experimental period 14 weeks. Pre test before commencement of training and post test after the training were conducted. Data were collected on explosive strength and strength endurance. It was assessed by vertical jump and bend knee sit ups. The difference between pre and post test scores of the two groups were statistically analysed by using 'analysis of covariance' (ANCOVA) and the results proved that there was significant improvement on explosive strength, strength endurance between the groups ($P < 0.05$) but there was no significant difference among the groups. The results of the study indicate that the moderate intensity aerobic training could be successfully implemented by runners for improving their explosive strength and strength endurance.

Sivamani, D., Alagesan, S. and Krisnnasamy, K. (2011). Effect of moderate intensity aerobic training on selected strength parameters. *Internat. J. Phy. Edu.*, 4(1) : 139-141.

Key words : Aerobic training, Explosive strength, Strength endurance

Physical fitness is one of the components of the total fitness of individual, which also includes mental, social and emotional fitness. Physical activity is an important and essential element in human health and well-being and its importance has achieved widespread acceptance by the public, professional's organization and medical community. Training is a systematic process of repetitive progressive exercise or work, involving the learning process and acclimatization. Sport training is a long, continuous and systematic process of physical and mental hard work, to attain high level performance in competitions of various levels by making the best use of the principles derived from other sports sciences. Today, sports training are mostly based upon the competitive motive. Each nation is trying to achieve top level performance and to win laurels on international competitions.

Sports training aims at improving the performance of sport persons. The sports performance depends on several factors like constitution, condition, technique, tactics, co-ordination and personality.

Sports trainings are the basic preparation of the sportsmen for better performance through physical exercise. It is based on scientific principles of aiming at education, performance and enhancement. Sports activities consist of motor movement and action and their success depend to a great extent on how correctly they

are performed. Techniques of training and improvement of tactical efficiencies play a vital role in training process.

The workout involves doing a group of exercises together, with little to no rest period before moving on to the next group of exercises. One group, or circuit, can contain anywhere from six to 10 exercises. This type of workout varies in intensity depending on your fitness level. Your fitness regain can benefit significantly when you incorporate training.

METHODOLOGY

The purpose of the study was to find out the effect of moderate intensity aerobic training on selected strength parameter such as explosive strength and strength endurance. For the study, fifteen for moderate intensity aerobic training group and fifteen for control group, were selected as subjects, who were studying in Department of Physical Education and Sports Sciences, Annamalai University, Tamil Nadu, India. The selected criterion variables such as explosive strength and strength endurance were tested by using vertical jump and bend knee sit-ups test, respectively. The duration of the experimental period was 14 weeks. The age of the subjects was 19 to 23 years. The collected data were analysed statistically by using 'Analysis of Covariance' (ANCOVA) to find out the significant differences, if any. In all the cases 0.05 level of confidence was fixed to test

the significance which was considered as appropriate based on the study Martel (2005).

OBSERVATIONS AND DISCUSSION

The results obtained from the the present investigations as well as relevant discussion have been presented under following heads:

Explosive strength:

Analysis of covariance of data on explosive strength between pre and post tests of experimental and control group was given in Table 1.

Table 1 shows that the pre-test mean values on explosive strength for experimental and control group values were respectively, 48.46 and 48.45. The obtained “F” ratio value 4.27 for pre-test scores on explosive strength was less than the required table value, which was significant with df 1 to 28.

The post-test mean values on explosive strength for experimental and control group were respectively, 52.36 and 49.01. The obtained “F” ratio value 0.412 for post test scores on explosive strength was higher than the required table value which was significant with df 1 to 28.

The adjusted post-test means value on explosive strength for experimental and control groups were respectively, 50.01 and 48.80. The obtained “F” ratio value 3.46 for explosive strength which was greater than the required table value for significance with df 1 and 27

The results of the study showed that there was significant difference between experimental and control groups on explosive strength. Further the results of the study showed that there was a significant improvement on explosive strength due to fourteen weeks of training period. However, the improvement was in favour of experimental group.

The adjusted post test mean value of moderate intensity aerobic training and control group on explosive strength are graphically presented in Fig. 1.

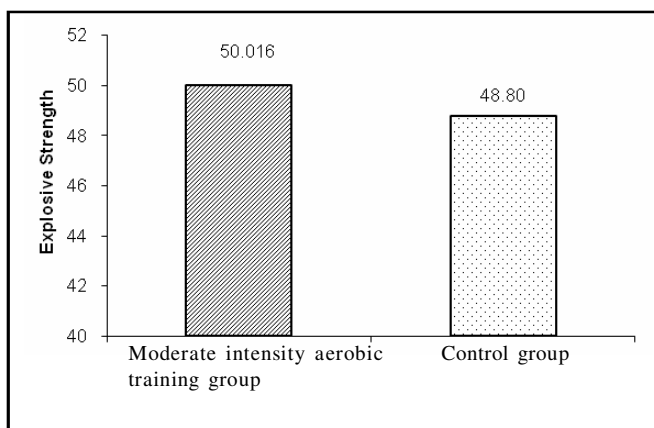


Fig. 1: Adjusted post test mean value od moderate intensity aerobic training and control group of explosive strength

Strength endurance:

Analysis of covariance of data on strength endurance between pre and post tests of experimental and control groups is given in Table 2.

Table 2 shows that the pre-test mean values on explosive strength for experimental and control group values were respectively, 32.43 and 32.40. The obtained “F” ratio value 1.36 for pre-test scores on explosive strength was less than the required table value which was significant with df 1 to 28.

The post-test mean values on strength endurance for experimental and control group were respectively, 38.10 and 32.48. The obtained “F” ratio value 1.13 for post test scores on strength endurance was higher than the required table value which was significant with df 1 to 28. The adjusted post- test mean value on strength endurance for experimental and control groups were respectively, 35.26 and 32.43.

The obtained “F” ratio value 3.46 for adjusted post test mean value on strength endurance was greater than the required table value for significance with df 1 and 27.

Table 1: Analysis of convariance of data on explosive strength between pre and post tests of experimental and control group

	Moderate intensity training group	Control group	SOV	Sum of square	d.f.	Mean square	‘F’ ratio
Pre-test							
Mean	48.46	48.45	B	48.60	1	48.60	4.27
S.D	9.365	9.321	W	318.13	28	11.36	
Post-test							
Mean	52.366	49.01	B	6.017	1	6.017	0.412
S.D	9.52	9.461	W	407.97	28	14.57	
Adjusted post test							
Mean	50.016	48.80	W	371.808	27	13.70	

*The table value for significance at 0.05 level of confidence for 1 and 28 and 1 and 27 are 3.37 and 3.36, respectively.

*indicates significance of value at P=0.05.

Table 2: Analysis of covariance of data on strength endurance between pre and post tests of experimental and control group

	Moderate intensity training group	Control group	SOV	Sum of square	d.f.	Mean square	'F' ratio
Pre-test							
mean	32.43	32.40	B	45.067	1	45.06	1.36
S.D	8.78	8.67	W	925.67	28	133.05	
Post-test							
mean	38.10	32.48	B	33.07	1	33.07	1.13
S.D	8.68	8.70	W	819.67	28	29.25	
Adjusted post test							
mean	35.26	32.43	B	67.025	1	67.02	3.46
			W	527.15	27	19.50	

*The table value for significance at 0.05 level of confidence for 1 and 28 and 1 and 27 are 3.37 and 3.36.

*indicates significance of value at P=0.05.

The results of the study showed that there was significant difference between experimental and control groups on strength endurance. Further the results of the study showed that there was a significant improvement on strength endurance due to fourteen weeks of training period. However, the improvement was in favour of experimental group.

The adjusted post test mean value of moderate intensity aerobic training group and control group on strength endurance are graphically presented in Fig. 2.

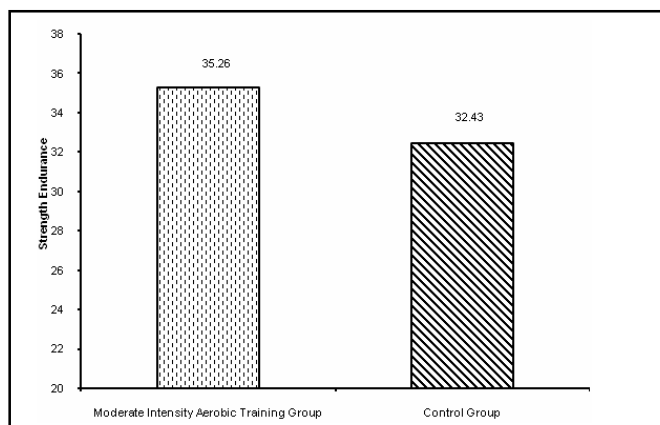


Fig. 2: Adjust post test mean value of moderate intensity aerobic training and control group of strength endurance

The results of the study showed that there was significant difference between moderate intensity aerobic training group and control group on explosive strength. There was significant difference between moderate intensity aerobic training group and control group on strength endurance. There was a significant improvement on selected criterion variable such as explosive strength and strength endurance due to moderate intensity aerobic training. Lyons *et al.* (2006) and Curl and Hopkins (2004) also have made some contributions on the effect of training on the performance of subjects selected for the purpose.

Conclusion:

It can be concluded based on the results that was a significant improvement on explosive strength between moderate intensity aerobic training group and control group. There was a significant improvement on strength endurance between moderate intensity aerobic training group and control group.

Authors' affiliations:

S. ALAGESAN AND K. KRISHNASAMY,
Department of Physical Education and Sports Sciences,
Annamalai University, Annamalainagar,
CHIDAMBARAM (T.N.) INDIA

REFERENCES

- Curl, D. Paton and Opkins, G.H. (2004).** Effect of high intensity training on performance and physiology of endurance athletes. *Sports Sci.*, **8**:25-40
- Eble, Ikekpeazu J. (2009).** Effect of sedentary work and exercise on lipid and lipoprotein metabolism in middle-aged male and female african workers. *Asian J. Medical Sci.*, **1**(3):117-120.
- Edje, J. (2005).** Effect of high moderate intensity training on metabolism and reputed sprints. *Medicine Sci. Sports Exercise*, **37**(11):1975-1982.
- Halvestadt, A. (2007).** Endurance exercise training raises high-density lipoprotein cholesterol and lower small low-density lipoprotein and very low-density lipoprotein independent of body fat phenotypes in older men and women, *Metabolism*, **56**(4):444-450.
- Lyons, M., AL-Nakeeb, Y. and Neuill, A. (2006).** Performance of soccer passing skills under moderate and high-intensity localized muscle. *J. Strength Conditioning Res.*, **20**(1): 197-202.
- Martel, G.F. (2005).** Aquatic plyometric training increases vertical jump in female volley ball players. *J. Medicine Sci. Sports Exercise*, **37**(10): 1814-1819.
- Scheers, T. (2008).** Lipid profile in men and women different levels of sports participation and physical activity, *Public Health Nutr.*, **11**(11):1098-1106.
