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Effect of interval training on speed and explosive power among intercollegiate football players

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Abstract

The primary aim of this study is to find out the effect of interval training on speed & explosive power among inter collegiate football players. To achieve the purpose 20 football players those who participate in the intercollegiate tournaments were selected from PSN Engineering college, Meelathiediyoor, Tirunelveli, Tamil Nadu, India and their age ranged from 18 to 25 years. The participants were randomly divided into two groups with 10 participants each namely experimental and control groups. Experimental group underwent interval training programme for a period of 12 weeks. Speed and explosive power were selected as dependent variables. Speed was measured with 50 mts run and Explosive power measured with Standing broad Jump. Pre and post tests randomized control group design was used as experimental test. The collected data from the subjects were analyzed with the paired sample t- test and Analysis of covariance (ANCOVA) at 0.01 level of Significance. It was concluded that speed and explosive power had significantly improved due to 12 weeks of interval training and control group didn't produced any changes on selected dependent variables.

Keywords: Interval training, speed, explosive power, football players

Introduction

Interval training involves repeated short to long bouts of rather high intensity exercise (equal or superior to maximal lactate steady-state velocity) interspersed with recovery periods (light exercise or rest) (Billat, 2001) ^[1]. In these individuals, it appears that further improvements in performance can only be achieved through high-intensity interval training. (Londree, 1997) ^[7]. This is particularly true for athletes who participate in sports where the development of aerobic and/or anaerobic metabolic mechanisms is of particular importance interval training is that it is a type of training which includes alternate periods of exercise and recovery (Daniels, & Scardina, 1984) ^[4]. Interval training regimens are used to improved physical fitness. There is conflicting evidence as to which is the more effective in improving biochemical, physiological, and performance (Cremer, & Cunningham, 1979) ^[3].

The use of 30-s sprint interval training has been proposed as an innovative and time-efficient method to induce rapid changes in exercise capacity and skeletal muscle energy metabolism. (Gibala, & McGee, 2008) ^[6]. More recently, the use of sprints and all-out efforts has also emerged, both from the applied (team sport) field and the laboratory (Bishop, Girard, & Mendez-Villanueva, 2011) ^[2].

Explosive power is an essential of most athletic events, and college football is no exception. Much time is spent during both the off-season and in-season training periods attempting to enhance the power production of players. (Mayhew, Bird, Cole, & Koch, 2005) ^[8].

Statement of the problem

The purpose of the study is to find out the effect of interval training on speed and explosive power among engineering intercollegiate football players.

Methodology

The primary aim of this study is to find out the effect of interval training on speed & explosive power among inter collegiate football players. To achieve the purpose 20 football players those who participate in the intercollegiate tournaments were selected from PSN Engineering

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college, Meelathiediyoor, Tirunelveli, Tamil Nadu, India and their age ranged from 18 to 25 years. The participants were randomly divided into two groups with 10 participants each namely experimental and control groups. Experimental group underwent interval training programme for a period of 12 weeks. speed and explosive power were selected as dependent variables. Speed was measured with 50 mts run and Explosive power measured with Standing broad Jump. Pre and post tests

randomized control group design was used as experimental test.

The collected data from the subjects were analyzed with the paired sample t- test and Analysis of covariance (ANCOVA) was used between the adjusted post test means of experimental and control. In all cases the criterion for statistical significance was set at 0.05 level of confidence and SPSS 20.0 was used for analysis.

Table 1: Means, standard deviation and dependent 't' test values on speed and Explosive power of experimental and control groups

Tests	Speed				Explosive Power			
	Experimental group		Control Group		Experimental group		Control Group	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Pre Test	7.68	0.12	7.74	0.08	1.87	0.05	1.82	0.05
Post Test	7.17	0.12	7.73	0.87	2.11	0.12	1.83	0.06
t-test	11.34*		0.56*		8.09*		1.40	

*Significant at .05 level. The table value required at .05 level with df $t_{(9)}$ is 2.26.

From the above table, the obtained t-test value of experimental groups of speed and explosive power are 7.46 and 8.09 respectively which are greater than the tabulated t-value of 2.26 with df $t_{(11)}$ at .05 level of significant. This means the Experimental training groups had effects on

participants' speed and Explosive power. However, control group did not show any significant improvement on participants' speed and Explosive power because they were not underwent any special training.

Table 2: Results of analysis of covariance on speed and Explosive power among experimental and control groups

variables	Adjusted Post Test Means		Source of Variance	Sum of Square	df	Mean Square	F-ratio
	Experimental Group	Control Group					
Speed	7.19	7.72	Between	1.29	1	1.29	154.48*
			Within	0.14	17	0.01	
Explosive power	2.07	1.87	Between	0.16	1	0.16	37.28*
			Within	0.07	17	0.004	

*Significant at .05 level. The table value required at .05 level with df $F_{(1,17)}$ is 4.45.

The obtained F-ratio value of Speed and explosive power is 154.48 and 37.28, which is higher than the table value 4.45 with df 1 and 17 required for significance at 0.05 level. Since the value of F-ratio is higher than the table value, it indicates that there was significant difference among the adjusted post-test means experimental and control groups.

Discussion

The result indicates that the control group does not show any significant improvement on any of the selected variables such as speed and explosive power. The results of speed and explosive power had shown significant improvement due to effect of 12 weeks of interval training programmes among intercollegiate football players.

The results of this investigation are also supported by the following research studies conducted earlier with one and other dependent and independent variables. According to Dupont, Akakpo, & Berthoin, (2004) [5]. The effect of in-season, high-intensity interval training in soccer players. Wong, P. L., Chaouachi, A., Chamari, K., Dellal, A., & Wisloff, U. (2010) [10]. Effect of preseason concurrent muscular strength and high-intensity interval training in professional soccer players.

Conclusion

1. The control group did not show any significant improvement on none of the selected dependent variables speed and explosive power among intercollegiate football players.
2. The experimental group had shown significant improvement on speed and explosive power among intercollegiate football players due to 12 weeks of

interval training.

3. There was significant difference among experimental group and control group on speed and explosive power among intercollegiate football players due to 12 weeks of interval training

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