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EFFECT OF RESISTED SPRINT TRAINING ON RESTING PULSE RATE

W. VINU

Assistant Professor, Department of Physical Education and Sports Sciences, Annamalai University, TN.

ABSTRACT

The purpose of the study was to analyze the effect of resisted sprint training on resting pulse rate. To achieve the purpose of the study, thirty male students studying bachelor's degree in Physical Education from the Department of Physical Education and Sports Sciences, Annamalai University, Chidambaram, Tamilnadu, India were selected as subjects. The age, height and weight of the subjects ranged from 18 to 20 years, 162 to 173 centimetres and 56 to 67 kilograms respectively. They were divided into two groups; each group consisted of fifteen subjects. Group-I underwent resisted sprint training and group-II acted as control who does not participate in any training programme. The data collected from the two groups prior to and post experimentation were statistically analyzed by analysis of covariance (ANCOVA). The experimental group had significant decrease on resting pulse rate when comparing to the control group.

Key words: Resisted sprint training and resting pulse rate.

INTRODUCTION

The goal of any resistance work for maximum velocity running is to activate the motor units more quickly in order to cause a better neurological adaptation. One of the most important forms of training, which lead to improve reactivity of the central nervous system is plyometrics. A plyometric stimulus occurs when a load in one direction, which is greater than that which an athlete normally experiences, is abruptly decelerated and then re-accelerated in the opposite direction or another direction of all these methods for providing resistance during maximum velocity sprint training-parachutes, uphill running, running against the wind, running against cables and loads, and running in sand-none provide the classic plyometric stimulus. Resisted sprint towing has become a popular training method with many sports teams and athletes (Schnier 1982). This can involve an athlete towing a weighted sled, tyre, speed parachute, or some other device over a set distance (Faccioni, 1994).

Methodology

The purpose of the study was to analyze the effect of resisted sprint training on resting pulse rate. To achieve the purpose of the study, thirty male students studying bachelor's degree in Physical Education from the Department of Physical Education and Sports Sciences, Annamalai University, Chidambaram, Tamilnadu, India were selected as subjects. The age, height and weight of the subjects ranged from 18 to 20 years, 162 to 173 centimetres and 56 to 67 kilograms respectively. They were divided into two groups; each group consisted of fifteen subjects. Group-I underwent resisted sprint training and group-II acted as control who does not participate in any training programme. The training programmes were scheduled for one session a day each session lasted between one hour to one and half hour 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 twelve weeks. The resisted sprint training exercises included in this training programme was weighted vest, sprint parachutes and harness running. Resting pulse rate was measured by Digital device. The data collected from the two groups prior to and post experimentation were statistically analyzed by analysis of covariance (ANCOVA).

RESULTS

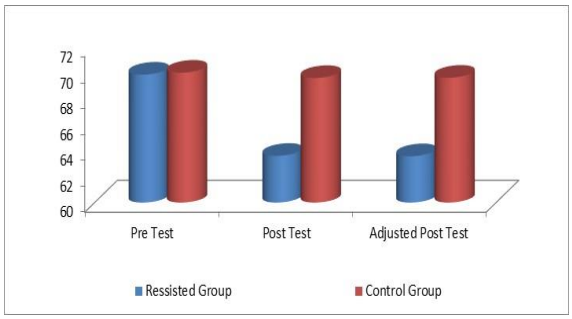
Table - I Analysis of Covariance on Resting Pulse Rate of Resisted Sprint Training and Control Groups

	Experimental Group	Control Group	SoV	Sum of Squares	df	Mean squares	'F' ratio
Pre-test Mean	69.86	70.01	B	0.13	1	0.13	0.089
SD	1.18	1.25	W	41.73	28	1.49	
Post-test Mean	63.60	69.60	B	270.01	1	270.01	33.57*
SD	3.35	2.19	W	225.20	28	8.04	
Adjusted Post-test Mean	63.57	69.62	B	273.11	1	273.11	33.42*
			W	220.63	27	8.17	

(The required table value for significance at 0.05 level of confidence with degrees of freedom 1 & 28 and 1 & 27 are 4.20 and 4.21 respectively) *Significant at .05 level of confidence

The adjusted post test means on resting pulse rate of resisted sprint training and control groups are 63.57 and 69.62 respectively. The obtained 'F' ratio value of 33.42 for adjusted post test means on resting pulse rate of resisted sprint training and control groups were higher than the required table value of 4.21 for the degrees of freedom 1 and 27 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 resting pulse rate. Due to the resisted sprint training the resting pulse rate of the subject's is significantly decreased.

FIGURE Cylinder Diagram on Resting Pulse Rate of Resisted Sprint Training and Control Groups



DISCUSSION AND FINDINGS

The results of the present study also produce the same result as there was significant decrease in resting pulse rate after 12 weeks of resisted sprint training. The following studies are supporting my study result. Pulse rate is acutely elevated immediately following a work bout and affected by the amount of resistance, the number of repetitions and the muscle mass involved in the contraction (Fleck, 1988).

Interestingly, in terms of chronic adaptations, there appears to be a reduction in pulse rate from resistance training, which is considered beneficial (Stone et al., 1991). Long term adaptations observed in the research, from no change up to a 11% decrease in heart rate, may be explained by the differences in intensity, volume, rest between sets, use of small vs. large muscle mass, duration of study and fitness level of the subjects.

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