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EFFECT OF RESISTIVE TRAINING ON SPEED AND EXPLOSIVE POWER AMONG SCHOOL BOYS

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Abstract

The purpose of the study was to find out the effect of parcourse training programme on cardio-respiratory endurance and flexibility among women students. To achieve this purpose, 20 women students were randomly selected as subjects from the Department of Physical Education and Sports Sciences, Annamalai University studying in various classes. The age of the subjects were ranged from 18 to 23 years. The subjects were further classified at random into two equal groups of 10 subjects each in which group - I underwent parcourse training programme for three days per week for eight weeks and group - II acted as control who were not undergo any special training programme. The selected criterion variables such as cardio-respiratory endurance and flexibility were assessed before and after the training period. Cardio-respiratory endurance was assessed by administering Cooper's 12 minutes run/walk test and flexibility was assessed by administering sit and reach test. The collected data was statistically analysed by using Analysis of Covariance (ANCOVA). From the results of the study, it was found that there was a significant improvement on cardio-respiratory endurance and flexibility for parcourse training group when compared with the control group.

Keywords: Resistive training, Speed and Explosive power.

INTRODUCTION

Resistance training is a training designed to increase the body's strength, power and muscular endurance through resistance exercise the most common form which is weight training. In other words, when we do a resistance training session, we are trying to get stronger by conditioning training our muscles to lift either heavier weights or a certain weight for a longer period of time. Resistance training is an extremely important component of our fitness programme, because as we age our muscle mass will naturally be lost, unless we exercise to counteract the aging effects.

Resistance training for enhancing jump performance and sprinting speed (Hrysomallis, 2012; Seitz, Reyes, Tran, de Villarreal, & Haff, 2014) these exercises provide an overload stimulus for the force aspect of power output, largely neglecting velocity. Even when following the widely-accepted recommendations of using a variety of external loads that span across the bodyweight-to-1 repetition maximum (1RM) spectrum (Cormie, McCaulley, Triplett, & Mcbride, 2007; Newton, & Kraemer, 1994), resistive exercises always place emphasis on overload, not over speed. It can be argued that body mass largely remains the same within individual athletes and therefore, the force requirements for most sport movements such as jumping and sprinting also remain relatively constant. According to this theory, the ability to express force quickly may be the pivotal factor during these athletic movements (Argus, Gill, Keogh, Blazevich, & Hopkins, 2011; Methenitis, Terzis, Zaras, Stasinaki, & Karandreas, 2016).

PURPOSE OF THE STUDY

The purpose of the study is to find out the effects of resistive training on speed and explosive power among school boys.

METHODOLOGY

To achieve this purpose, Twenty four school boys were selected from Chinmaya International Residential School, Coimbatore, Tamil Nadu, India and their age ranged 14-17 years. The selected subjects were divided into two groups of 12 each namely Group I Experimental and Group II control. The experimental group underwent the resistive training for six weeks and the control group did not take part in any training. The pretest was taken before the training programme and posttest was taken after the six weeks of training period. As per availability literature of and the personal knowledge of the investigator following variables were be chosen for this study such as speed and explosive power. 50 m Run and standing broad jump test were used to measure the selected variables such as speed and explosive power respectively.

The data collected from all the two groups were statistically analyzed. To find out the significant improvement between the pre and post test means, dependent t-test was used as statistical techniques. To find out the significant difference on adjusted post tests between the group, analysis of covariance (ANCOVA) was used. In all cases, the criterion for statistical significance was set at 0.05.

ANALYSIS OF DATA

TABLE I

THE SUMMERY OF MEAN AND DEPENDENT T-TEST FOR THE PRE AND POST TESTS ON SPEED AND EXPLOSIVE POWER OF EXPERIMENTAL AND CONTROL GROUPS

Variables	SPEED				EXPLOSIVE POWER			
Mean and Test	Experimental group		Control Group		Experimental group		Control Group	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Pre Test	7.71	0.21	7.73	0.21	1.70	0.10	1.70	0.11
Post Test	7.13	0.22	7.71	0.20	1.93	0.13	1.71	0.13
t-test values	24.20*		0.52		8.07*		0.11	

*Significant at .05 level of confidence. (The table value t_{11}=2.20)

The table I shows that the obtained dependent t-test values between pre-test and post test means of experimental and control groups on speed are 24.20 and 0.52 and Explosive power are 8.07 and 0.11 respectively. The table value required for significant difference with df 11 at .05 level is 2.20. Since, the obtained t-test value of experimental group is greater than the table value, it is understood that resistive training programme had significantly improved the performance of speed and explosive power and the control groups has not improved as the obtain t-test value lesser than the table value, because they were not subjected to any specific training.

The pre and posttest means of experimental and control groups on speed and explosive power were graphically represented in figure I. The analysis of covariance on resting heart rate and breath holding time of Suryanamaskar and control groups have been analyzed and presented in table II.

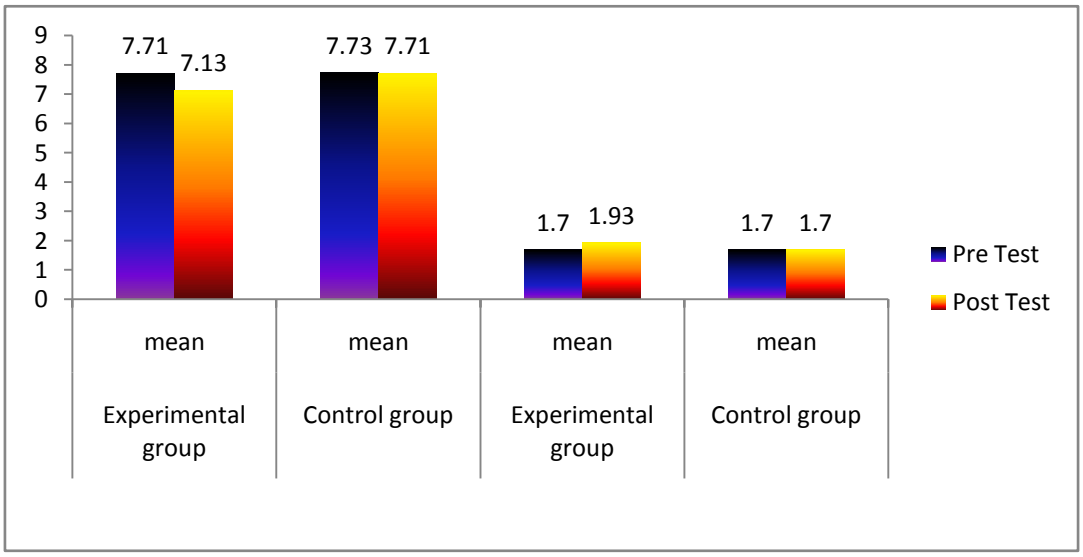

TABLE II
ANALYSIS OF COVARIANCE ON SPEED AND EXPLOSIVE POWER OF EXPERIMENTAL AND CONTROL GROUPS

variables	Adjusted Post Test Means		Source of Variance	Sum of Square	df	Mean Square	F-ratio
	Experimental Group	Control Group					
Speed	7.17	7.70	Between	1.89	1	1.89	116.29*
			Within	0.34	21	0.02	
Explosive power	1.93	1.70	Between	0.32	1	0.32	50.05*
			Within	0.13	21	0.01	

*Significant at .05 level of confidence. (The table value $F_{(1,21)}$=4.32)

Table II shows that the adjusted post test means of experimental and control groups on speed are 7.17 and 7.70 and explosive power are 1.93 and 1.70 respectively. The obtained F-ratio value is 116.29 and 50.05 which is higher than the table value 4.32 with df 1 and 21 required for significance at .05 level. Since, the value of F- ratio is higher than the table value it indicates that there is significant difference exists between the adjusted post-test means of experimental and control groups on speed and explosive power.

DISCUSSIONS

The result of the study indicated that, the experimental group had achieved significant improvement on speed and explosive power when compared to the control group. Significant differences were found between experimental and control groups towards improving the selected variables such as speed and explosive power among school boys

The results from this study were parallel with the results reported in the literature. Some evidence suggests that from a recently. According to Hrysomallis, (2012). The effectiveness of resistive movement training on sprinting and jumping performance. Newton, & Kraemer, (1994). Developing explosive muscular power: Implications for a mixed methods training strategy. Blazevich AJ., & Jenkins DG. (2002) studied to determine the effects of 7 weeks of high- and low-velocity resistance training on strength and sprint running performance in nine male elite junior sprint runners. The athletes continued their sprint training throughout the study, but their resistance training programme was replaced by one in which the movement velocities of hip extension and flexion, knee extension and flexion and squat exercises varied according to the loads lifted. Although velocity-specific strength adaptations have been shown to occur rapidly in untrained and non-concurrently training individuals, the present results suggest a lack of velocity-specific performance changes in elite concurrently training sprint runners performing a combination of traditional and semi-specific resistance training exercises.

CONCLUSIONS

From the analysis of the data the following conclusions were drawn:

1. The experimental group had achieved significant improvement on speed when compared to the control group.
2. The experimental have achieved significant difference on improvement of the explosive power and speed when compared to the control group.

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