Research Paper

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Effect of Progressive, Fluctuated and Regressive Resistance Training on Speed Performance Among School Level Soccer Players

Physical Education

KEYWORDS : Progressive Training, Fluctuated Training Regressive Resistance Training, Speed

K. Ilanchurian Ph.D Part time Research Scholar, Department of Physical Education, Ganesar College of Arts & Science, Melaisivapuri, Pudukkottai, Tamilnadu.

Dr. N. Vijayaregunathan Director of Physical Education(Rtd), Ganesar College of Arts & Science, Melaisivapuri, Pudukkottai, Tamilnadu.

ABSTRACT

Aim of the study was designed to determine the effect of progressive, fluctuated and regressive resistance training on Speed performance among school level Soccer players. To attain the purpose, sixty (N=60) school soccer players from various schools in Tiruppatur, Sivagangai District, Tamilnadu India were randomly selected as subjects. The subjects were assigned at random into four groups of fifteen each (n=15). Group-I underwent Progressive Resistance Training, Group-II underwent Fluctuated Resistance Training, Group-III underwent Regressive Resistance Training and Group-IV acted as Control. The dependent variable selected for this study was Speed and it was assessed by 50 meters run test. All the subjects were tested prior to and immediately after the training for the selected variable. Data were collected and statistically analyzed using ANCOVA. Scheffe's post hoc test was applied to determine the significant difference between the paired means. In all the cases 0.05 level of significance was fixed. The results of the study showed that there was a significant difference among all the Experimental groups' namely progressive resistance training, fluctuated resistance training and regressive resistance training. Further the results, showed progressive resistance training was found to be better than the fluctuated resistance training and regressive resistance training in Speed.

INTRODUCTION

Training is the main component and the basic form of preparing the athlete for higher level of performance. It is a systematically planned preparation with the help of the exercise which realizes the main factors of influencing the athlete's progress. The content of training includes all the basic types of preparation of the sportsmen such as physical, technical, tactical and psychological. Through systematic training, the athletes' "fitness level", his acquisition of vital knowledge and skill are improved.

Sportsmen undergo various types of training to improve their performance and physical fitness. Training means a systematic scientific programme of conditioning exercise and physical activities designed to improve the physical fitness and skill of the players ***(Baechle, 1994).***

Resistance training improves the functional performance of the neuromuscular system, the system of muscles and nerve pathways that directs and controls movement. Resistance training produces increased strength, superior movement performance and general fitness, including enhanced function of the respiratory, cardiac and metabolic systems. Other improvements include an increase in muscle mass, strengthening of connective tissue and supportive tissue as well as improvements in posture and physique.

Resistance training is used to increase the strength levels of the muscles. It is used for performance enhancement as well as injury prevention. The main goal for Resistance training is to be able to withstand the rigors of competition and enhance the confidence levels of athletes.

The importance of resistance training to sports performance has been supported by studies which have demonstrated that resistance training in the form of weight training and more recently, plyometric training have enhanced some competitive performances. Most typically this has been reported as an improvement in vertical jumping ability. Many studies have reported that resistance training has enhanced muscular strength, but failed to induce changes in dynamic sporting performance ***(Bloomfield, 1994).***

METHODOLOGY

The study was conducted on sixty (N=60) School boys students studying in various schools in Tiruppatur, Sivagangai District, Tamilnadu India during the year 2014-2015 were selected as subjects. Subjects were randomly assigned equally into four groups. Group-I underwent Progressive Resistance Training, Group-II underwent Fluctuated Resistance Training, Group-III underwent Regressive Resistance Training and Group-IV acted as Control. The experimental groups underwent the respective training for a period of 12 weeks (3 days/week), whereas the control remain as normal with the sedentary life. Speed was selected as dependent variable and it was assessed by 50 Meters Run test. All the four groups were tested on selected Speed was analyzed before and after the training period.

ANALYSIS OF THE DATA

The data collected from the experimental groups and control group on prior and after experimentation on selected variables were statistically examined by analysis of covariance (ANCOVA) was used to determine differences, if any among the adjusted post test means on selected criterion variables separately. Whenever they obtained f-ratio value was significant the Scheffe's test was applied as post hoc test to determine the paired mean differences, if any. In all the cases 0.05 level of significance was fixed.

The Analysis of covariance (ANCOVA) on Speed of Experimental Groups and Control group have been analyzed and presented in Table -1.

Table – 1 Values of Analysis of Covariance for Experimental Groups and Control Group on Speed

Certain Variables	Adjusted Post test Means				Source of Variance	**Sum of Squares**	**df**	**Mean Squares**	**'F' Ratio**
	Progressive Resistance Training Group	Fluctuated Resistance Training Group	Regressive Resistance Training Group	Control Group					

Speed	8.31	8.37	8.36	8.91	Between With in	3.57 2.77	3 55	1.19 0.05	23.62*

**** Significant at.05 level of confidence***

(The table value required for Significance at 0.05 level with df 3 and 55 is 2.77)

Table-1 shows that the adjusted post test mean value of Speed for Progressive Resistance Training group, Fluctuated Resistance Training group, Regressive Resistance Training group and Control group is 8.31, 8.37, 8.36 and 8.91 respectively. The obtained F-ratio of 23.62 for the adjusted post test mean is more than the table value of 2.77 for df 3 and 55 required for significance at 0.05 level of confidence. The results of the study indicate that there are significant differences among the adjusted post test means of experimental groups on the increase of Speed.

To determine which of the paired means had a significant difference, Scheffe's test was applied as Post hoc test and the results are presented in Table-2.

Table - 2
The Scheffe's test for the differences between the adjusted post tests paired means on Speed

Certain Variables	Adjusted Post test Means				Mean Difference	Confidence Interval
	Progressive Resistance Training Group	Fluctuated Resistance Training Group	Regressive Resistance Training Group	Control Group		
Speed	8.31	8.37	--	--	0.06	0.14
	8.31	--	8.36	--	0.05	0.14
	8.31	--	--	8.91	0.60*	0.14
	--	8.37	8.36	--	0.01	0.14
	--	8.37	--	8.91	0.54*	0.14
	--	--	8.36	8.91	0.55*	0.14

**** Significant at.05 level of confidence***

Table-2 shows that the adjusted post test mean differences on Speed between progressive resistance training group and control group, fluctuated resistance training and control group, and regressive resistance training group and control group are 0.60, 0.54 and 0.55 respectively and they are greater than the confidence interval value 0.14, which shows significant differences at 0.05 level of confidence.

Further the table-2 showed the adjusted post test mean differences on Speed between progressive resistance training group and fluctuated resistance training group, progressive resistance training group and regressive resistance training group and fluctuated resistance training group and regressive resistance training group, are 0.06, 0.05 and 0.01 respectively and they are lesser than the confidence interval value 0.14, which shows insignificant differences at 0.05 level of confidence.

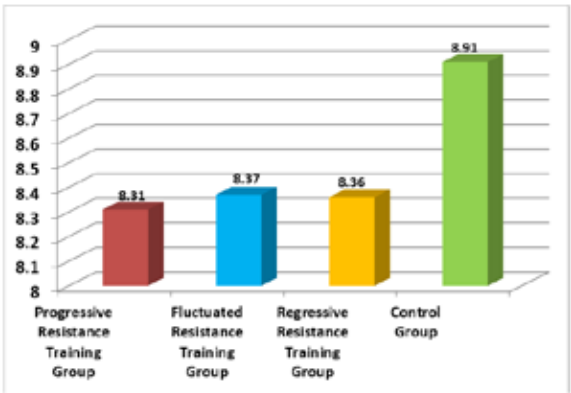
The results of the study further have revealed that there is a significant difference in Speed between the adjusted post test means of progressive resistance training group and control group, fluctuated resistance training and control group, and regressive resistance training group and control group. The values between progressive resistance training group and fluctuated resistance training group, progressive resistance training group and regressive resistance training group and fluctuated resistance training group and regressive resistance training group, showed there was no significant differences.

However, the improvement in Speed was significantly higher for progressive resistance training group than other experimental groups.

It may be concluded that the progressive resistance training group has exhibited better than the other experimental groups in improving Speed.

The adjusted post test mean value of experimental groups on Speed was graphically represented in the Figure -1.

Figure-1
Bar Diagram on Ordered Adjusted Means of Speed (In Seconds)



CONCLUSION

From the analysis of the data, the following conclusions were drawn.

Significant differences in achievement were found between Progressive Resistance Training group, Fluctuated Resistance Training group, Regressive Resistance Training group and Control group in the selected criterion variable on Speed.

The Experimental groups namely, Progressive Resistance Training group, Fluctuated Resistance Training group, Regressive Resistance Training group and Control group had significantly improved in Speed.

The Progressive Resistance Training group was found to be better than the Fluctuated Resistance Training group, Regressive Resistance Training group and Control group in increasing Speed performance.

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