Original Research Paper

Volume - 7 | Issue - 8 | August - 2017 | ISSN - 2249-555X | IF : 4.894 | IC Value : 79.96

Physical Education

EFFECT OF PROGRESSIVE, FLUCTUATED AND REGRESSIVE RESISTANCE TRAINING ON AGILITY PERFORMANCE AMONG COLLEGE MEN SOCCER PLAYERS

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ABSTRACT The aim of the study was designed to determine the effect of progressive, fluctuated and regressive resistance training on Agility performance among College Men Soccer players. To attain the purpose, sixty (N=60) College men Soccer players from various affiliated colleges of Bharathidasan University, Tiruchirappalli, 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 Agility and it was assessed by Shuttle 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 Agility.

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

INTRODUCTION

Sports form an inspirable part of the system of physical education. The term motor ability is used synonymously with general athletic ability. There are many factors that contribute to successful performance in athletic skill. In most of the advanced and developed countries, the awareness for motor learning and skill development among children is very much scientific and prolonged which perhaps helped them to level of general fitness with motor abilities like power, speed, agility, balance, reaction time etc. are essential qualities required to be developed in the players**.**

Sports training are a basic preparation of sportsman for better performance through physical exercise. It is based on scientific principles of aiming at education and performance enhancement, the improvement of general health and organic functions as well as increasing the strength and stability of the musculo-skeletal system. Development of motor skill is also the objective of sports training. Sports activities consist of motor movement and action and their success depends largely on how correctly they are performed. Techniques of training and improvement of tactical efficiency play a vital role in training process ***(Singh, 1991).***

Sports training is a scientifically based and pedagogically organized process which through planned and systematic effect on performance ability and performance readiness aims at sports perfection and performance improvement as well as at the contest in sports competition.

Resistance training is an anaerobic form of exercise. This training programme can be used to enhance the ability of the body to perform at very high force and/or power outputs for a very short period of time to improve the ability of the body to perform repeated bouts of maximal activity ***(Thomas, 1994).***

Resistance training is a method of improving muscular strength by gradually increasing the ability to resist force through the use of free weights, machines, or by using the person's own body weight. Strength training sessions are designed to impose increasingly greater resistance, which in turn stimulates development of muscle strength to meet the added demand ***(Robert, 1985).***

The athlete expresses force through the body's lever system by converting chemical to kinetic energy and by neuromuscular coordination. In all physical activities, the athlete expresses this force against external force (resistance). Resistance may take the shape of weights, throwing implements, water, air, the athlete's own bodyweight, momentum, and so on ***(Dick, 1980).***

Dynamic resistance is nothing but, when the body or object provides resistance through a range of motion. In training, we can use manual resistance, free weight equipment or resistance machines to provide dynamic resistance ***(Thomas, 1994).***

METHODOLOGY

The study was conducted on sixty (N=60) College men Soccer players from various affiliated colleges of Bharathidasan University, Tiruchirappalli, Tamilnadu, India were randomly 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. Agility was selected as dependent variable and it was assessed by Shuttle Run test. All the four groups were tested on selected Agility 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 Agility 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 Agility

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					
Agility	9.35	9.46	10.07	10.53	Between	12.84	3	4.28	89.84*
					Within	2.62	55	0.05	

**** 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 Agility 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 Agility.

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 Agility

Certain Variables	Adjusted Post test Means				Mean Difference	Confidence Interval
	Progressive Resistance Training Group	Fluctuated Resistance Training Group	Regressive Resistance Training Group	Control Group		
Agility	9.35	9.46	--	--	0.11	0.23
	9.35	--	10.07	--	0.72*	0.23
	9.35	--	--	10.53	1.18*	0.23
	--	9.46	10.07	--	0.61*	0.23
	--	9.46	--	10.53	1.07*	0.23
	--	--	10.07	10.53	0.46*	0.23

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

Table-2 shows that the adjusted post test mean differences on Agility between progressive resistance training group and regressive resistance training group, progressive resistance training group and control group, fluctuated resistance training group and regressive resistance training group, fluctuated resistance training group and control group and regressive resistance training group and control group are 0.72, 1.18, 0.61, 1.07 and 0.46 respectively and they are greater than the confidence interval value 0.23, which shows significant differences at 0.05 level of confidence.

Further the table-2 showed the adjusted post test mean differences on Agility between progressive resistance training group and fluctuated resistance training group is 0.11., and this is lesser than the confidence interval value 0.23, which shows insignificant differences at 0.05 level of confidence.

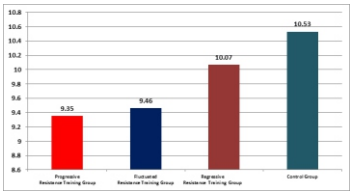
The results of the study further have revealed that there is a significant difference in Agility between the adjusted post test means of progressive resistance training group and regressive resistance training group, progressive resistance training group and control group, fluctuated resistance training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

However, the improvement in Agility 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 decreasing Agility.

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

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



CONCLUSION

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

1. 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 Agility.
2. The Experimental groups namely, Progressive Resistance Training group, Fluctuated Resistance Training group, Regressive Resistance Training group and Control group had significantly decreased in Agility.
3. The Progressive Resistance Training group was found to be better than the Fluctuated Resistance Training group, Regressive Resistance Training group and Control group in decreasing Agility performance.

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