ORIGINAL RESEARCH PAPER

Volume-7 | Issue-1 | January-2018 | PRINT ISSN No 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

AN IMPACT OF DIFFERENT INTENSITY OF STRENGTH TRAINING PROGRAM ON SPEED PERFORMANCE AMONG COLLEGE MEN PLAYERS

Physical Education

Dr. V. A. Manickam Assistant Professor, Department of Physical Education and Health Sciences, Alagappa University, Karaikudi,-630 004, Tamilnadu, India.

Rajeesh T. Chacko Ph. D Research Scholar, Department of Physical Education and Health Sciences, Alagappa University, Karaikudi,- 630 004 Tamilnadu, India.

ABSTRACT

The purpose of the study was to analyze the effect of different intensity of strength training program on speed performance among college men players. To achieve the purpose of the study, sixty male students studying under graduate courses at Alagappa University, Karaikudi, Tamilnadu, India were selected as subjects. The age, height and weight of the subjects ranged from 18 to 21 years, 153 to 169 centimetres and 48 to 65 kilograms respectively. The selected subjects were randomly assigned into four equal groups of fifteen each (n=15) at random. Group-I underwent high intensity strength training, group-II underwent medium intensity straining training, group-III underwent low intensity strength training and group-IV acted as control. Speed was selected as a dependent variable and it was assessed through 50 meters run test. The data collected from the four groups prior to and post experimentation were statistically analyzed by analysis of covariance (ANCOVA). Since four groups were involved, whenever the obtained 'F' ratio for adjusted post test means was found to be significant, the Scheffe's test was applied as post hoc test to determine the paired mean differences. The experimental groups had significant decrease on speed when comparing to the control group.

KEYWORDS

High, Medium and Low Intensity weight training and Speed.

INTRODUCTION

Sport and games involve competition. Without competition, there is no game. Competition provides a forum within which people strive to become competent, to become excellent. The opportunities for rivalry within sport are many and varied: team against team, individual against individual, individual against a record, individual now against a previous best performance, individual against a physical barrier. Competition involves individuals and groups striving for excellence within the rules and traditions that make up a sport, including all the festival characteristics that give the sport additional flavor and meaning ***(Dary, 1998).***

The word training means different things in different fields. In sports the word training is generally understood to be synonym of doing exercise. In a narrow sense training is physical exercise for the improvement of performance. Training involves constructing an exercise programme to develop an athlete for a particular event. This increasing skill and energy capacities are equal consideration ***(Singh, 1991).***

Strength training helps to maintain good flexibility. The ability of the body to resist the stresses that can result from an injury can be increased by obtaining a greater amount of strength. That is true in the athletic world and it has its advantages in performing everyday activities, such as lifting or carrying objects. Strength contributes to the overall efficiency of the human body. Starting a strength training program means you have started a new lifestyle because strength is reversible. It will decline if person do not continue to obtain a strength stimulus throughout their entire life ***(Philip, 2009).***

High intensity training is a form of strength training popularized in the 1970s by Arthur Jones, the founder of Nautilus. The training focuses on performing quality weight training repetitions to the point of momentary muscular failure. The training takes into account the number of repetitions, the amount of weight, and the amount of time the muscle is exposed to tension in order to maximize the amount of muscle fibres recruitment ***(Philbin, 2004).***

METHODOLOGY

To achieve the purpose of the study, sixty male students studying under graduate courses at Alagappa University, Karaikudi, Tamilnadu, India were selected as subjects. The age, height and weight of the subjects ranged from 18 to 21 years, 153 to 169 centimetres and 48 to 65 kilograms respectively. The selected subjects were randomly assigned into four equal groups of fifteen each (n=15) at random. Group-I underwent high intensity strength training the intensity of the training increased progressively once in two weeks, from four set of 8repetitions @ 70% 1-RM in first week to two sets of 3 repetitions @ 95% 1-RM in 12 weeks with eight exercise. Group-II underwent medium intensity strength training. The intensity of the training increased progressively once in two weeks, from six set of 12 repetitions @ 45% 1-RM in first week to three sets of 6 repetitions @ 70% 1-RM in 12 weeks with eight exercises. Group-III underwent low intensity strength training. The intensity of the training increased progressively once in two weeks, from eight set of 18 repetitions @ 20% 1-RM in first week to four sets of 14 repetitions @ 45% 1-RM in 12 weeks with eight exercises. The Speed was measured through 50 meters run test. Group- IV acted as control.

The data collected from the four groups prior to and post experimentation were statistically analyzed by analysis of covariance (ANCOVA). Since four groups were involved, whenever the obtained 'F' ratio for adjusted post test means was found to be significant, the Scheffe's test was applied as post hoc test to determine the paired mean differences the level of significant fixed at 0.05.

RESULTS

Table - 1 ANALYSIS OF COVARIANCE ON SPEED OF EXPERIMENTAL GROUP AND CONTROL GROUP

Test	High intensity Strength training	Medium intensity Strength training	Low intensity Strength training	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	F ratio
Pre Test Mean	7.72	7.71	7.73	7.68	Between	0.02	3	0.01	0.48
					Within	0.96	56	0.08	
Post Test Mean	7.18	7.05	6.81	7.67	Between	5.93	3	1.98	110.17*
					Within	1.00	56	0.02	
Adjusted Post Test Mean	7.17	7.05	6.79	7.70	Between	6.48	3	2.15	448.12*
					Within	0.26	55	0.005	

(The required table value for significance at 0.05 level of confidence with degrees of freedom 3 and 55 is 2.77 and degree of freedom 3 and 56 is 2.77)

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

The above table-1 shows that the pre-test mean values on Speed of high intensity strength training, medium intensity strength training, low intensity strength training and control group are 7.72, 7.71, 7.73 and 7.68 respectively. The obtained 'F' ratio of 0.48 for pre-test scores was lesser than the table value of 2.76 for degrees of freedom 3 and 56 required for significance at 0.05 level of confidence on Speed.

The post test mean values on Speed of high intensity strength training, medium intensity strength training, low intensity strength training and control group are 7.18, 7.05, 6.81 and 7.67 respectively. The obtained 'F' ratio of 110.17 for post-test scores was higher than the table value of 2.76 for degrees of freedom 3 and 56 required for significance at 0.05 level of confidence on Speed.

The adjusted post-test means on Speed of high intensity strength training, medium intensity strength training, low intensity strength training and control group are 7.17, 7.05, 6.79 and 7.70 respectively. The obtained 'F' ratio of 448.12 for adjusted post-test scores was higher than the table value of 2.78 for degrees of freedom 3 and 55 required for significance at 0.05 level of confidence on Speed.

The results of the study indicate that there are significant differences among the adjusted post test means of high intensity strength training, medium intensity strength training, low intensity strength training and control group in Speed performance.

To determine which of the paired means have a significant difference, the Scheffe's test is 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 TEST PAIRED MEANS ON SPEED

Adjusted Post-test Means				Mean Difference	Confidence Interval
High intensity Strength training	Medium intensity Strength training	Low intensity Strength training	Control Group		
7.17	7.05			0.12*	0.07
7.17		6.79		0.38*	0.07
7.17			7.70	0.53*	0.07
	7.05	6.79		0.26*	0.07
	7.05		7.70	0.65*	0.07
		6.79	7.70	0.91*	0.07

Significant at 0.05 level of confidence

Table-2 shows that the adjusted post test mean differences on Speed between high intensity strength training and medium intensity strength training groups; high intensity strength training and low intensity strength training groups; high intensity strength training and control groups; medium intensity strength training and low intensity strength training groups; medium intensity strength training and control groups; low intensity strength training and control groups on Speed are 0.12, 0.38, 0.53, 0.26, 0.65 and 0.91 respectively, which are greater than the confidence interval value of 0.07 on Speed at 0.05 level of confidence.

The results of the study showed that there was a significant difference between high intensity strength training and medium intensity strength training groups; high intensity strength training and low intensity strength training groups; high intensity strength training and control groups; medium intensity strength training and low intensity strength training groups; medium intensity strength training and control groups; low intensity strength training and control groups on Speed.

The above data also reveal that Combined Yogic Practice and Plyometric Training group had shown better performance than Yogic Practices group, Plyometric Training group and Control group in Speed.

The pre and post mean values of high intensity strength training, medium intensity strength training, low intensity strength training and Control group on Speed are graphically represented in the Figure -1.

The adjusted post mean values of high intensity strength training, medium intensity strength training, low intensity strength training and Control group on Speed are graphically represented in the Figure –2.

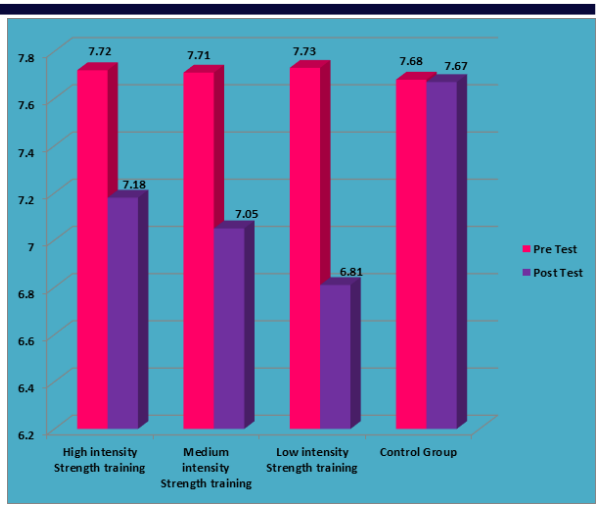

Figure: 1 The Pre and Post test Mean values of high intensity strength training, medium intensity strength training, low intensity strength training and Control group on Speed (In Seconds)

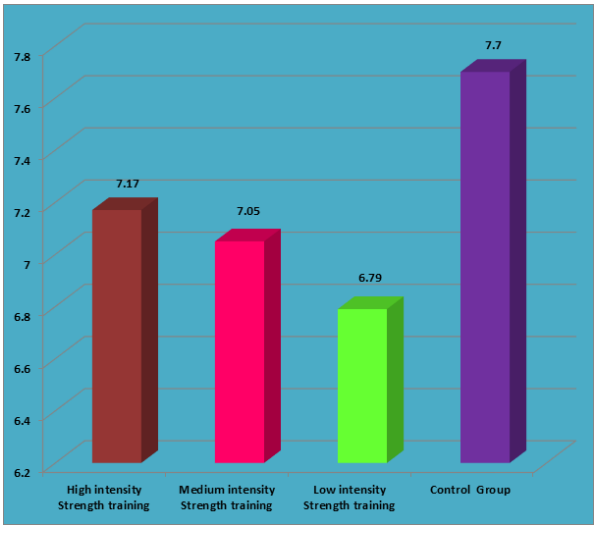

Figure: 2 The Pre and Post test Mean values of high intensity strength training, medium intensity strength training, low intensity strength training and Control group on Speed (In Seconds)

Conclusion

The present result of the study confirmed that all the three experimental groups had significant decrease on Speed when comparing to the control group, due to twelve weeks of different intensity resistance strength training. And also there are significant differences among high, medium and low intensity strength training groups. However the high intensity strength training was better than the other two experimental groups to decrease the Speed.

References

1. Dary Siedentop, (1998), Introduction to Physical Education, Fitness, and Sport, (3 Ed), Mayfield Publishing Company, Mountain View, California.
2. Philbin, John (2004), High-Intensity Training: more strength and power in less time, Human Kinetics.
3. Philip E. Allsen., (2009), Strength Training Beginners, Bodybuilders, and Athletes, Kendall Hunt Publishing Company. 5. Pages 227.
4. Singh Hardayal (1991), "Science of Sports Training", New Delhi, D.V.S. Publications.