



## Physical Education

## ENHANCEMENT OF ISOLATED, CONCURRENT, RESISTANCE AND PLYOMETRIC TRAINING ON SELECTED PHYSICAL FITNESS COMPONENTS AMONG COLLEGE MEN FOOTBALL PLAYERS

**Dr. I. John Parthiban**

Director of Physical Education, H.H. The Rajah's College(Auto), Pudukkottai, Tamilnadu

**ABSTRACT** The Purpose of the study was to find out the effect of Isolated, Concurrent, Resistance and Plyometric Training on Selected Physical Fitness Components among College Men Football players. To attain the purpose forty five (N=40) men Football players studying various arts and Science Colleges in Pudukkottai District, Tamilnadu were selected as subjects during the academic year 2017-2018. They were randomly divided into four groups of 10 each, Group-I underwent Concurrent Training, Group-II underwent Resistance Training, Group-III underwent Plyometric Training and Group-IV acted as Control. The Experimental groups underwent the respective training for eight weeks duration. Among various physical fitness components Speed Endurance only selected as a dependent variable, and it was assessed by 150 meters run test. The data obtained from the experimental groups and control groups before and after the experimental period were statistically analyzed with Analysis of covariance (ANCOVA). Whenever the '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 confidence was fixed at 0.05 level for all the cases. Speed Endurance showed significant difference among the groups, further the results suggested that Concurrent training was showed better performance when compare to other experimental and control group.

**KEYWORDS :** Concurrent Training, Resistance Training, Plyometric Training Speed Endurance

### INTRODUCTION

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 need equal consideration (Singh, 1991).

Success in competitive sports and games can be attributed to many factors; training being one of the most important factors. Different training methods have been commonly used to improve physical fitness and its related standard of performance of athletes. The training methods which have been used by the athletes for higher performance are interval training, fartlek training, circuit training, weight training, plyometrics training, continuous method, variable pace method, technique training, speed training, Resistance training etcetera.

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 (Mosby, 2009).

Concurrent training is types of training (for example, aerobic training and strength training) carried out during the same training session or within a few hours of one another. Concurrent training sessions need to be well designed to maximize the beneficial effects of each type of training and to minimize interference.

Circuit weight training is one of the effective means to improve all round physical and cardiovascular fitness, whereas, plyometric training is one of the most effective methods for improving explosive power as stated by Fleck and Kraemer (2004).

**Table – 1 Values of Analysis of Covariance for Experimental Groups on Speed Endurance**

Dependent Variable	Adjusted Post test Means				Source of Variance	Sum of Squares	df	Mean Squares	'F' Ratio
	Concurrent Training Group (I)	Resistance Training Group (II)	Plyometric Training Group (III)	Control Group (IV)					
Speed Endurance	7.44	6.88	7.11	6.55	Between	0.99	3	0.33	33.00*
					With in	0.17	35	0.01	

\* Significant at .05 level of confidence

(The table value required for Significance at 0.05 level with df 3 and 35 is 2.87)

Although, plyometric training has received much attention recently, it had been a part of the training of athletes in a variety of sports for years. It is used in conjunction with other power development methods in a complete training programme to bridge the gap between maximum strength and explosive power. Scientific research has given us a fundamental understanding of the elastic properties of muscle and its training ability (Jothi, 2010).

The actual term 'plyometrics' was first coined in 1975 by Fred Wilt, the American Track and Field coach. The elements ply and metric come from Latin roots for "increase" and "measure" respectively, the combination thus means 'measurable increase' (Baechle, 1994).

Plyometrics is the term now applied to exercises that have their roots in Europe, where they were first known simply as jump training. Interest in this jump training increased during the early 1970s as East European athletes emerged as powers on the world sport scene. As the Eastern bloc countries began to produce superior athletes in such sports as track and field, gymnastics and weight lifting the mystique of their success began to center on their training methods.

### METHODOLOGY

To attain the purpose forty five (N=40) men Football players studying various arts and Science Colleges in Pudukkottai District, Tamilnadu were selected as subjects during the academic year 2017-2018. They were randomly divided into four groups of 10 each, Group-I underwent Concurrent Training, Group-II underwent Resistance Training, Group-III underwent Plyometric Training and Group-IV acted as Control. The Experimental groups underwent the respective training for eight weeks duration. Among various physical fitness components Speed Endurance only selected as a dependent variable, and it was assessed by 150 meters run test (Seagrave, 1996).

### RESULTS AND DISCUSSION

The data collected from the Experimental groups and Control group 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. Scheffe's test was applied as post-hoc test to determine the paired mean differences. The level of confidence was fixed at 0.05 level for all the cases.

Table-1 shows that the adjusted post test mean value of Speed Endurance for Concurrent training, Resistance training, Plyometric training and control group are 7.44, 6.88, 7.11 and 6.55 respectively. The obtained F-ratio 33.00 for the adjusted post test mean is more than the table value 2.87 for df 3 and 35 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 Endurance.

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 Endurance**

Dependent Variables	Adjusted Post test Means				Mean Difference	Confidence Interval
	Concurrent Training Group (I)	Resistance Training Group (II)	Plyometric Training Group (III)	Control Group (IV)		
Speed Endurance	7.44	6.88	--	--	0.56*	0.31
	7.44	--	7.11	--	0.33*	0.31
	7.44	--	--	6.55	0.89*	0.31
	--	6.88	7.11	--	0.23*	0.31
	--	6.88	--	6.55	0.33*	0.31
	--	--	7.11	6.55	0.56*	0.31

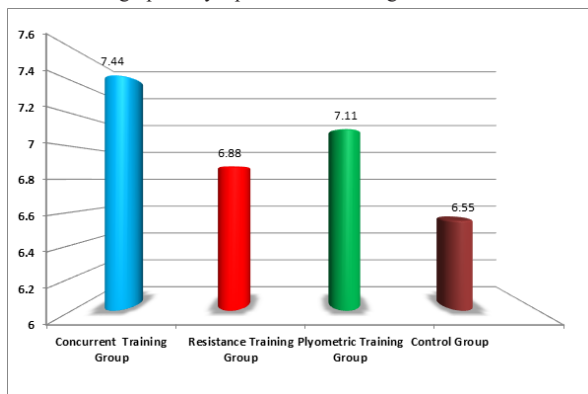
\* Significant at 0.05 level of confidence

Table-2 shows that the adjusted post test mean difference of Speed Endurance between Concurrent Training group and Resistance training group, Concurrent training group and Plyometric training group, Concurrent training group and Control group, Resistance training group and Plyometric training group, Resistance training group and Control group, and Plyometric training group and Control groups are 0.56, 0.33, 0.89, 0.23, 0.33 and 0.56 respectively, these values are greater than the confidence interval value 0.31, which shows significant differences at 0.05 level of confidence.

It may be concluded from the results of the study that there is a significant difference in Speed Endurance between the adjusted post test means of Concurrent Training group and Resistance training group, Concurrent training group and Plyometric training group, Concurrent training group and Control group, Resistance training group and Plyometric training group, Resistance training group and Control group, and Plyometric training group and Control group.

It may be concluded that the Concurrent training group is better than the other Experimental groups in increasing Speed Endurance.

The adjusted post test mean value of Experimental groups on Speed Endurance is graphically represented in the Figure -1.



**Figure-1: The Adjusted Post Tests Mean values of Experimental Groups on Speed Endurance**

**CONCLUSION**

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

1. The experimental groups namely, Concurrent training, Resistance training and Polymeric training had significantly improved in Speed Endurance.
2. The Concurrent training was found to be better than the Concurrent training, Resistance training in increase Speed Endurance.

**REFERENCES**

1. Fleck S.J. and Kraemer W.J. (2004), Designing Resistance Training Programs, 3rd Edition. Champaign, IL: Human Kinetics.
2. Jothi.K(2010). Effect of concurrent strength and Plyometric training on selected biomotor abilities, Recent Research in Science and Technology, 22(5): 124-126.
3. Seagrave Loern(1996), "Introduction to Sprinting", New Studies in Athletics, 2:3, September.