



## EFFECT OF PLYOMETRIC TRAINING ON SELECTED MOTOR COMPONENTS AMONG SCHOOL BOYS

Dr.T.THANGAMANI

*Physical Director, C.D. Nayagam T.Nagar Hr.Sec. School, T. Nagar, Chennai, Tamilnadu, India.*

### Abstract

*The purpose of the study was to investigate the effect of plyometric training on selected motor components among school boys. It was hypothesized that there would be significant differences on selected motor components due to the effect of plyometric among school boys. For the present study the 30 male School Boys from C.D. Nayagam, T.Nagar Hr.Sec. School, Chennai district, Tamilnadu were selected at random and their age ranged from 14 to 16 years. For the present study pre test – post test random group design which consists of control group and experimental group was used. The subjects were randomly assigned to two equal groups of fifteen each and named as Group 'A' and Group 'B'. Group 'A' underwent plyometric training and Group 'B' have not underwent any training. Speed was assessed by 50 metre dash and agility was assessed by shuttle run. The data was collected before and after twelve weeks of training. The data was analyzed by applying Analysis of Co-Variance (ANCOVA). The level of significance was set at 0.05. The plyometric training had positive impact on speed and agility among school boys.*

**Keywords:** Plyometric Training, Motor, Speed, Agility.

### INTRODUCTION

Plyometric training became essential to athletes who jumped, lifted, or threw. The necessity for power development in sports needs no debate. Strength and conditioning specialists dedicate a great deal of time researching muscular power development techniques and implementing only those that produce significant results on athletes. Recent studies suggest that plyometric and/or resistance training exercises can increase vertical jump height, explosive power, and sprint speed by improving the production of peak muscle force and power. Plyometrics is defined as exercises that enable a muscle to reach maximum strength in as short as possible. The speed-strength ability is known as power. For an exercise to be truly plyometric, it must be a movement proceeded by an eccentric contraction. These results not only stimulating the proprioceptors sensitive to rapid stretch, but also in loading the serial elastic components (the tendons and cross-bridges between fibers) with a tension force form which they can rebound. A reasonable amount of flexibility is important when beginning the plyometric training program (Yessis & Fred, 1986).

### METHODOLOGY

The purpose of the study was to investigate the effect of plyometric training on selected motor

components among school boys. It was hypothesized that there would be significant differences on selected motor components due to the effect of plyometric among school boys. For the present study the 30 male School Boys from C.D. Nayagam, T.Nagar Hr.Sec. School, Chennai district, Tamilnadu were selected at random and their age ranged from 14 to 16 years. For the present study pre test – post test random group design which consists of control group and experimental group was used. The subjects were randomly assigned to two equal groups of fifteen each and named as Group 'A' and Group 'B'. Group 'A' underwent plyometric training and Group 'B' have not underwent any training. Speed was assessed by 50 metre dash and agility was assessed by shuttle run. The data was collected before and after twelve weeks of training. The data was analyzed by applying Analysis of Co-Variance (ANCOVA). The level of significance was set at 0.05.

### RESULTS

The findings pertaining to analysis of co-variance between experimental group and control group on selected motor components among school boys for pre-post test respectively have been presented in table I to II.

**TABLE I**  
**ANCOVA BETWEEN EXPERIMENTAL GROUP AND CONTROL GROUP ON SPEED OF SCHOOL BOYS FOR PRE, POST AND ADJUSTED TEST**

	Experimental Group	Control Group	Source of Variance	Sum of Squares	df	Mean Square	F
Pre Test Mean	8.03	8.08	BG	0.08	1	0.08	0.04
			WG	52.76	28	1.88	
Post Test Mean	7.55	8.01	BG	165.23	1	165.23	65.60*
			WG	70.52	28	2.51	
Adjusted Post Mean	7.51	8.02	BG	135.56	1	135.56	71.79*
			WG	50.98	27	1.88	

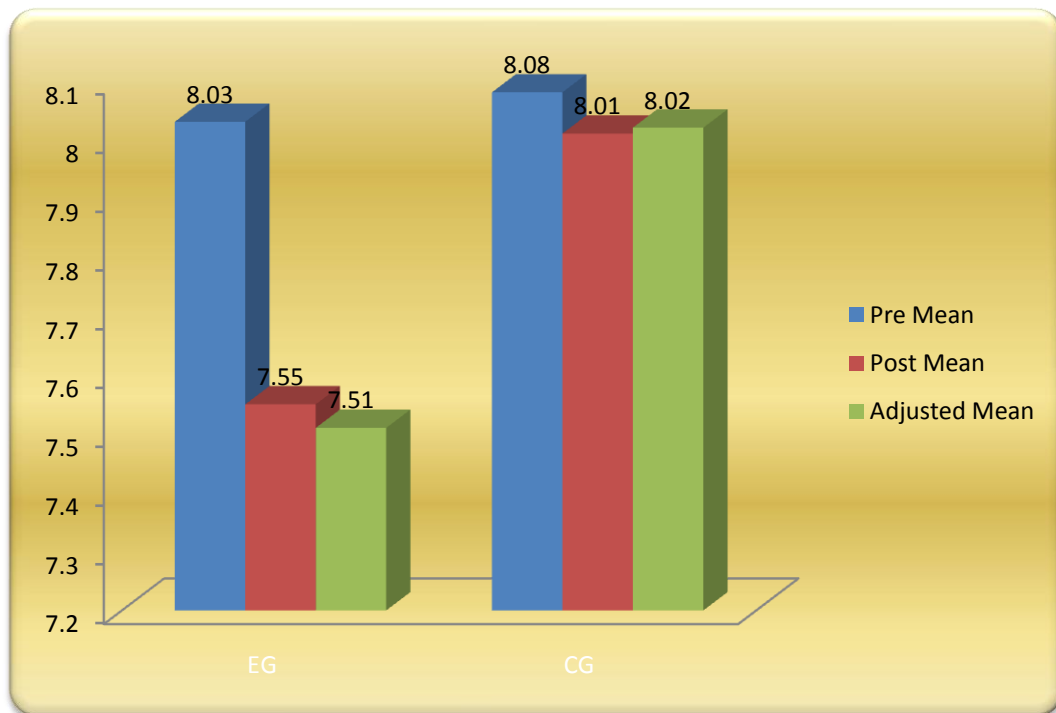
\* Significant at 0.05 level.

df: 1/27= 4.21

Table I revealed that the obtained 'F' value of 71.79 was found to be significant at 0.05 level with df 1, 27 as the tabulated value of 4.21 required to be significant at 0.05 level. The same table indicated that

there was a significant difference in adjusted means of speed of school boys between experimental group and control group. The graphical representation of data has been presented in figure I.

**FIGURE I**  
**COMPARISONS OF PRE – TEST MEANS POST – TEST MEANS AND ADJUSTED POST – TEST MEANS FOR CONTROL GROUP AND EXPERIMENTAL GROUP IN RELATION TO SPEED**



**TABLE II**  
**ANCOVA BETWEEN EXPERIMENTAL GROUP AND CONTROL GROUP ON AGILITY OF SCHOOL BOYS FOR PRE, POST AND ADJUSTED TEST**

	Experimental Group	Control Group	Source of Variance	Sum of Squares	df	Mean Square	F
Pre Test Mean	11.12	11.01	BG	13.10	1	13.10	2.51
			WG	145.71	28	5.20	
Post Test Mean	10.39	11.05	BG	270.83	1	270.83	33.76*
			WG	224.56	28	8.02	
Adjusted Post Mean	10.36	11.04	BG	164.48	1	164.48	19.29*
			WG	230.11	27	8.52	

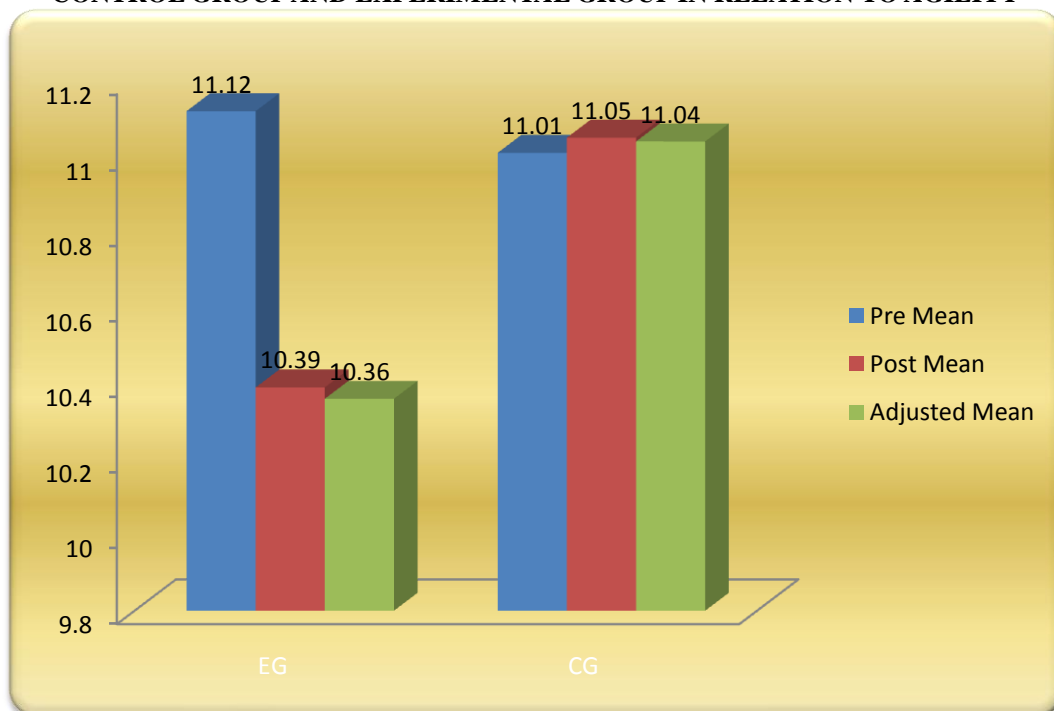
\* Significant at 0.05 level.

df: 1/27= 4.21

Table II revealed that the obtained 'F' value of 19.29 was found to be significant at 0.05 level with df 1, 27 as the tabulated value of 4.21 required to be significant at 0.05 level. The same table indicated that

there was a significant difference in adjusted means of agility of school boys between experimental group and control group. The graphical representation of data has been presented in figure II.

**FIGURE II**  
**COMPARISONS OF PRE – TEST MEANS POST – TEST MEANS AND ADJUSTED POST – TEST MEANS FOR CONTROL GROUP AND EXPERIMENTAL GROUP IN RELATION TO AGILITY**



## CONCLUSION

On the basis of findings and within the limitations of the study the following conclusions were drawn:

1. The plyometric training had positive impact on speed and agility among school boys.
2. The experimental group showed better improvement on speed and agility among school boys than the control group.

## REFERENCES

1. Ashok, K. R., Balamurugan, B. & Karthik, R. V. (2012). Combined Effect of Plyometric Training and Skill Training on the Development of Fitness Related Parameters and Skill Performance variables among Male Volleyball Players. *International Journal of Health*,

- Physical Education and Computer Science in Sports*. Volume No.8, No.1.pp15-17.
2. Chelly, M.S., Ghenem, M.A., Abid, K., Hermassi, S., Tabka, Z., Shephard, R.J. (2010). Effects of in-season short-term plyometric training program on leg power, jump- and sprint performance of soccer players. *J Strength Cond Res*. 24(10):2670-6.
  3. Chu, D. (1992). *Jumping into Plyometrics*. Champaign, IL: Human Kinetics.
  4. Clarke, H. H & David, H. C. (1986). *Application of Measurement to Physical Education*. (6<sup>th</sup> ed) Englewood Cliffs, New Jersey: Prentice Hall:P.52-103.
  5. Diallo, O., Dore, E., Duche, P. & Van, P. E. (2001). Effects of plyometric training followed by a reduced training programme on physical performance in prepubescent soccer players. *J Sports Med Phys Fitness*. 41(3):342-8.
  6. Donald, A. C. (1998). *Jumping Into Plyometrics*. California: Human Kinetic.
  7. Grieco, C.R., Cortes, N., Greska, E.K., Lucci, S. & Onate, J.A. (2012). Effects of a combined resistance-plyometric training program on muscular strength, running economy, and Vo<sub>2</sub>peak in division I female soccer players. *J Strength Cond Res*. 26(9):2570-6.
  8. Yessis, M. & Fred, H. (1986). *Plyometric Training*. Escondido: Fitness System, Inc.