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# Effect of Plyometric Training on Selected Motor Components among Football Players

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**Abstract**

*The purpose of the study was to find out the effect of plyometric training on selected motor components among footballers. It was hypothesized that there would be significant differences on selected motor components due to the effect of plyometric training among college football players. For the present study the 30 male footballers from SBM College of Engineering and Technology, Dindigul, Tamilnadu were selected at random and their age ranged from 18 to 25 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' has not undergone any training. The data was collected before and after six weeks of training. The data was analyzed by applying dependent 't test. The level of significance was set at 0.05. The plyometric training had positive impact on speed, muscular endurance, agility and explosive power among footballers.*

**Keywords:** Plyometric Training, Speed, Muscular Endurance, Agility, Explosive Power, Football.

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## Introduction

Football is played as well as enjoyed by multitude of people all over the globe. This is one of the most recognized sports football has acquired popularity among the Indian masses with in a sport period of time and is the popular as well as widely played Indian sport. Although the modern game of football had emerged in England in its primitive from, it had undoubtedly been played for centuries in other countries. Play also claim that the game had been played in their countries from very ancient time. Soccer, the game evokes an out pouring passion and emotion unparallel within the realm of sport. Soccer is a common language among people of diverse backgrounds and heritages, a bridge that spans economic political cultural and religious barriers. Foot ball is known throughout the world and in Indian sub continent. Soccer is the national sport of many countries in Asia, Africa Europe and South America. Soccer is a game which requires both aerobic and anaerobic fitness for parts of the game, one will work an aerobically. Most commonly, this will come in the form of short and sprints these periods are followed by longer spells of jogging and walking.

There are four physical abilities, which are relevant to be understanding of the nature of football skill. They are speed, strength, endurance and mobility. The greater or lesser degree of proficiency is possible within each one of them and there is a close relationship between each of them. The key for football skill is technique - without it a player's armory is incomplete. A player may be the fittest player in the world but, if he cannot control and govern the ball, his fitness is worthless. Basic technique hinges on the ability to master a pass quickly and clearly. 'Control and pass' is a phase one will hear time to time again on training fields and then only one can participate constructively in a game. With the modern game becoming more and more physical and fast, never has the need for a player to have good all-round ability and acceptable technique been greater. Forwards were assigned the sole task of scoring goals and defenders were expected to prevent the opposition from scoring. Positional responsibilities were narrowly defined and there was little overlap of roles. Soccer today requires much more from players. The modern game places a premium on the complete soccer player that is the individual, who can defend as well as attack (Beim, 1977).

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## Methodology

The purpose of the study was to find out the effect of plyometric training on selected motor components among college football players. It was hypothesized that there would be significant differences on selected motor components due to the effect of plyometric training among college football players. For the present study the 30 male footballers from SBM College of Engineering and Technology, Dindigul, Tamilnadu were selected at random and their age ranged from 18 to 25 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' has not undergone any training. The data was collected before and after six weeks of training. The data was analyzed by applying dependent 't test. The level of significance was set at 0.05.

**Table I.** Variables and Test

| S.No | Variables | Tests |
|---|---|---|
| **1** | Speed | 50 Metres Run |
| **2** | Muscular Endurance | Sit Ups |
| **3** | Agility | Shuttle Run |
| **4** | Explosive Power | Sargent Jump |

**Results**

The findings pertaining to analysis of dependent 't' test between experimental group and control group on selected motor components among footballers for pre-post test respectively have been presented in table II to III.

**Table II.** Significance of Mean Gains & Losses between Pre and Post Test Scores on Selected Variables of Plyometric Training Group (PTG)

| S.No | Variables | Pre-Test Mean | Post-Test Mean | Mean difference | Std. Dev (±) | σ DM | 't' Ratio |
|---|---|---|---|---|---|---|---|
| **1** | Speed | 7.79 | 7.18 | 0.61 | 0.14 | 0.03 | 15.88* |
| **2** | Muscular Endurance | 35.33 | 41.26 | 5.93 | 3.15 | 0.81 | 7.29* |
| **3** | Agility | 11.48 | 11.09 | 0.39 | 0.20 | 0.05 | 7.54* |
| **4** | Explosive Power | 27.73 | 40.40 | 12.66 | 3.08 | 0.79 | 15.89* |

* Significant at 0.05 level

Table I shows the obtained 't' ratios for pre and post test mean difference in the selected variable of speed (15.88), muscular endurance (7.29), agility (7.54) and explosive power (15.89). The obtained ratios when compared with the table value of 2.14 of the degrees of freedom (1, 14) it was found to be statistically significant at 0.05 level of confidence. It was observed that the mean gain and losses made from pre to post test were significantly improved in motor components namely speed (15.88 $p<0.05$), muscular endurance (7.29 $p<0.05$), agility (7.54 $p<0.05$) and explosive power (15.89 $p<0.05$) thus the formulated hypothesis was accepted.

**Figure I.** Comparisons of Pre – Test Means and Post – Test Means for Experimental Group in Relation to Motor Components

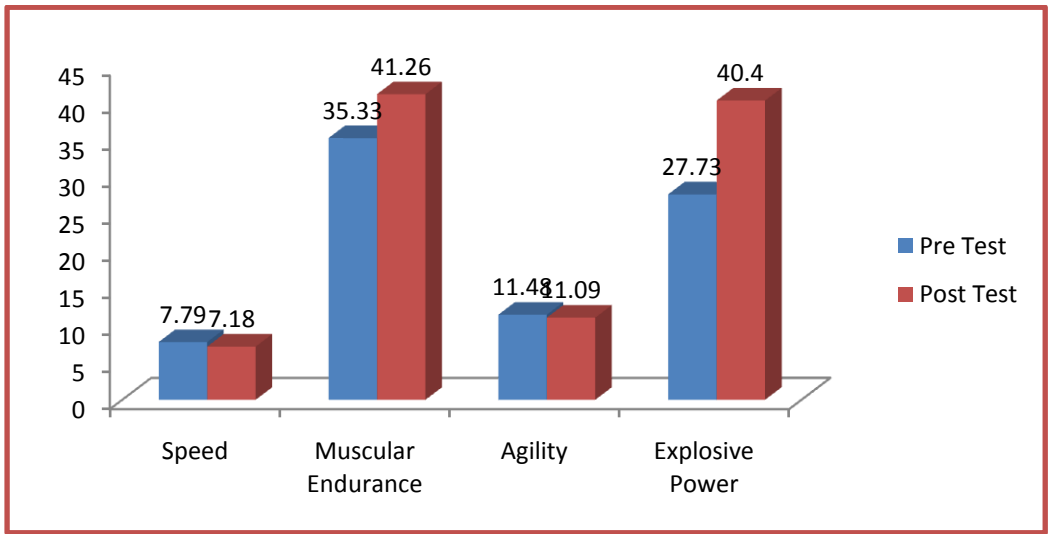


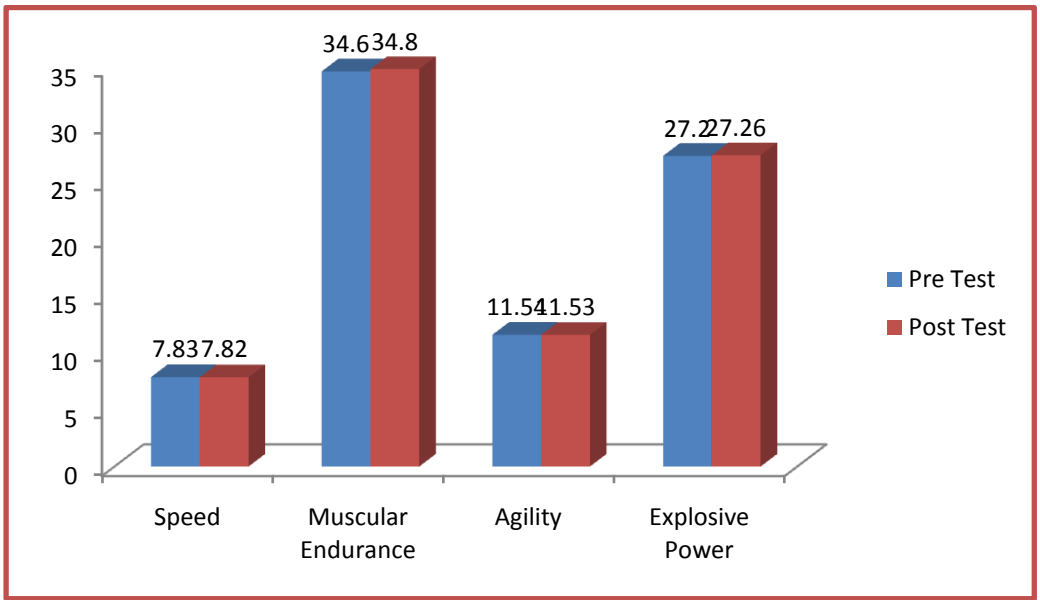
**Table II.** Significance of Mean Gains & Losses between Pre and Post Test Scores on Selected Variables of Control Group (CG)

| S.No | Variables | Pre-Test Mean | Post-Test Mean | Mean difference | Std. Dev (±) | σ DM | 't' Ratio |
|---|---|---|---|---|---|---|---|
| **1** | Speed | 7.83 | 7.82 | 0.01 | 0.05 | 0.01 | 1.09 |
| **2** | Muscular Endurance | 34.60 | 34.80 | 0.20 | 1.14 | 0.29 | 0.67 |
| **3** | Agility | 11.54 | 11.53 | 0.01 | 0.15 | 0.04 | 0.44 |
| **4** | Explosive Power | 27.20 | 27.26 | 0.06 | 2.57 | 0.66 | 0.10 |

* Significant at 0.05 level

Table II shows the obtained 't' ratios for pre and post test mean difference in the selected variable of speed (1.09), muscular endurance (0.67), agility (0.44) and explosive power (0.10). The obtained ratios when compared with the table value of 2.14 of the degrees of freedom (1, 14) it was found to be statistically significant at 0.05 level of confidence. It was observed that the mean gain and losses made from pre to post test were not significantly improved in motor components namely speed (1.09 p>0.05), muscular endurance (0.67 p>0.05), agility (0.44 p>0.05) and explosive power (0.10 p>0.05).

**Figure II.** Comparisons of Pre – Test Means and Post – Test Means for Control Group in Relation to Motor Components




In case of motor components i.e. speed, muscular endurance, agility and explosive power the results between pre and post test has been found significantly higher in experimental group in comparison to control group. This is possible because due to regular plyometric training which may also bring sudden spurt in motor components in footballers. The findings of the present study have strongly indicates that plyometric training of six weeks have significant effect on selected motor components i.e., speed, muscular endurance, agility and explosive power of footballers. Hence the hypothesis earlier set that plyometric training programme would have been significant effect on selected motor components in light of the same the hypothesis was accepted.

**Conclusions**

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, muscular endurance, agility and explosive power among college football players.
2. The experimental group showed better improvement on speed, muscular endurance, agility

and explosive power among footballers than the control group.

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