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# INFLUENCE OF PLYOMETRIC TRAINING ON SELECTED PHYSICAL FITNESS VARIABLES AMONG ENGINEERING COLLEGE KABADDI PLAYERS

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**ABSTRACT :**

*The purpose of the current study was to investigate the influence of plyometric training on selected physical fitness variables among engineering college kabaddi players.For the purpose of the study, thirty men kabaddi players studying bachelor's degree in the different engineering colleges, affiliated to Anna University, Chennai were selected as subject and they were divided into two equal groups of fifteen subjects each at random namely plyometric training group and control group. The stage of the nominated subjects was stretched from 18 to 22 years. Group I enduredplyometric training for three days per week for twelve weeks and Group II acted as control they did not endure any distinct preparation programme separately from their consistent bustle. The following dependent variables were selected for this study namely Speed and Explosive power. The data were collected on selected dependent variables at prior and immediately after the experimental period as pretest and posttest respectively. The records were scrutinized by smearing dependent 't' test and analysis of covariance (ANCOVA) was charity to find out the significant difference among the groups, if any discretely for each dependent variable. Since, two groups were compared, whenever the obtained 'F' ratio for adjusted posttest was found to be significant. The 0.05 level of confidence was fixed to test the level of significance which was painstaking as an apt. The result of the study showed that plyometric training group has significantly differed on selected dependent variables namely speed and explosive power when compared to control group.*

**KEYWORDS :** *Plyometric Training, Speed, Explosive Power.*

## INTRODUCTION

Plyometric exercises promote high movement speed, lots of muscle fiber recruitment in a short period of time, and trained release of the powerful elastic energy stored in our tendons. This means that when our foot strikes the ground, it spends less time in contact with the ground, leaves the ground more quickly, and moves us along at a faster speed.

Plyometric drill is anexplicit type of drillrelatingworkouts in which the vigorousforces are fraughtprevious to margarine and habituallyentails explosive-strength exercise. This type of training has been reported to invoke specific neural adaptations such as increased activation of the motor units, with less muscle hypertrophy than typically observed after heavy static resistance strength training (Saunders, P.U.; Telford, R.D.; Pyne, D.B. et al., 2006).

Plyometric trainings frequently comprise ending, initial, and varying guidelines in a volatile method. These schedules are apparatuses that can support in emergent quickness (Yap and Brown, 2000; Young et al., 2001). Quickness drill is assumed to be a re-enforcement of motorized encoding concluded neuromuscular acclimatizing and neural variation of muscle spindles, Golgi-tendon organs, and joint proprioceptors. While plyometric drill has been shown to raiserecital variables, little systematicevidence is offered to regulate if plyometric drill truly boosts quickness.

## METHODOLOGY

30 men kabaddi players studying bachelors degree in the different engineering colleges affiliated to Anna University, Chennai were selected as subjects (18-22 years) and they were divided into two equal groups of fifteen subjects each at random namely plyometric training group and control group. Group-I underwent plyometric training for three days per week for twelve weeks and Group-II acted as control they did not undergo any special training programme apart from their regular activity. The following dependent variables were selected for this study namely speed and explosive power. The experimental design selected for this study was pre and posttest randomized design. The collected data from each subject before and after the training period was analyzed by using t-test and ANCOVA.

**Table 1: Description of Training Schedule for Plyometric Group**

| Week | 1-2 Week | | | 3-4 Week | | | 5-6 Week | | |
|---|---|---|---|---|---|---|---|---|---|
| Load | Set | Reps | Volume | Set | Reps | Volume | Set | Reps | Volume |
| Squat Jump | 2 | 10 | 20 | 2 | 12 | 24 | 3 | 12 | 36 |
| Split Squat Jump | 2 | 10 | 20 | 2 | 12 | 24 | 3 | 12 | 36 |
| 2 Foot Ankle Hop | 2 | 10 | 20 | 2 | 12 | 24 | 3 | 12 | 36 |
| Box Jump (5) | 2 | 2 | 20 | 2 | 3 | 30 | 3 | 3 | 45 |
| **Week** | **7-8 Week** | | | **9-10 Week** | | | **11-12 Week** | | |
| **Load** | **Set** | **Reps** | **Volume** | **Set** | **Reps** | **Volume** | **Set** | **Reps** | **Volume** |
| Squat Jump | 3 | 15 | 45 | 4 | 15 | 60 | 2 | 15 | 30 |
| Split Squat Jump | 3 | 15 | 45 | 4 | 15 | 60 | 2 | 15 | 30 |
| 2 Foot Ankle Hop | 3 | 15 | 45 | 4 | 15 | 60 | 2 | 15 | 30 |
| Box Jump (5) | 3 | 4 | 60 | 4 | 4 | 80 | 2 | 4 | 40 |

**Table 2: Tests Selection**

| Variable | Tests/Equipment | Unit of Measurement |
|---|---|---|
| Speed | 50 yards run | Seconds |
| Explosive Power | Standing Broad Jump | Meters |

## RESULTS AND DISCUSSIONS

The data pertaining to the variables in this study were examined by using dependent 't' test to find out the significant improvement and analysis of covariance (ANCOVA) for each variables separately in order to determine the difference and tested at 0.05 level of significance. The analysis of dependent 't' test on data obtained for Speed and Explosive power of the pretest and posttest means of experimental and control group have been analyzed and presented in Table-3.

**Table 3: Mean and Dependent 't' test of Experimental and Control Groups on Selected Physical Fitness Variables**

| Variables | Mean | Plyometric | Control Group |
|---|---|---|---|
| Speed | Pre Test | 6.23 | 6.24 |
| | Post Test | 6.09 | 6.24 |
| | 't' test | 5.41* | 0.90 |
| Explosive Power | Pre Test | 1.45 | 1.43 |
| | Post Test | 1.51 | 1.43 |
| | 't' test | 16.84* | 0.00 |

**significant at 0.05 level.*

The obtained 't' value on speed and explosive power of experimental group was higher than the table value, it is understood that the plyometric training had made significant improvement on speed and explosive power. However, the control group has not made significant changes as the obtained 't' value is less than the table value, because it is not subjected to any specific training. The analysis of covariance on the data obtained on speed and explosive power due to the influence of plyometric training and control groups have been analyzed and presented in Table IV.

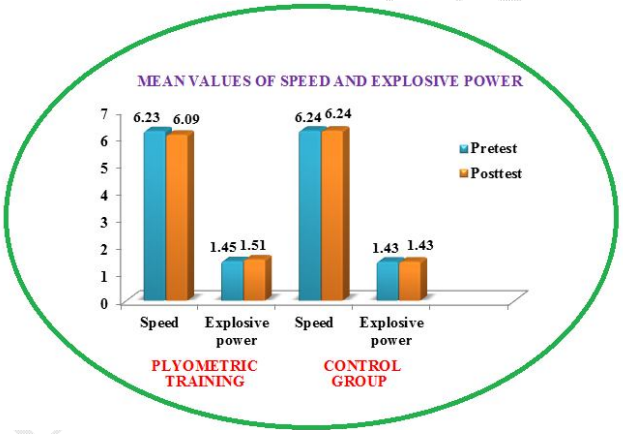


***Figure 1: Mean Values of Speed and Explosive Power for Plyometric and Control Groups among Engineering College Kabaddi Players***

**Table 4: Analysis of Covariance of Experimental and Control Groups on Physical Fitness Variables**

| Variables | Adjusted Post Test Means | | Source of Variance | SS | df | Mean squares | F |
|---|---|---|---|---|---|---|---|
| | Plyometric Training | Control Group | | | | | |
| Speed | 6.09 | 6.24 | Between Groups | 0.181 | 1 | 0.181 | 4.16* |
| | | | Within Groups | 1.220 | 28 | 0.044 | |
| Explosive Power | 1.49 | 1.44 | Between Groups | 0.048 | 1 | 0.048 | 22.15* |
| | | | Within Groups | 0.061 | 28 | 0.002 | |

**significant at 0.05 level for 1 and 28 (df) =4.196.*

Table-4 shows that the obtained 'F' value of 4.16and 22.15 which are higher than the table value of 4.196 with df 1 and 28 required to be significant at 0.05 level. Since the obtained value of 'F' is higher than

the table value, it indicated that there is significant difference among the adjusted post-test means of plyometric training and control group on speed and explosive power. The plyometric training showed the significant difference than control group on speed and explosive power. The result of the present study is in accordance with the study conducted by Balasubrananian, K. et al. (2014) the purpose of the study was to final out the effects of SAQ training and plyometric training on selected physical fitness components of men Kabaddi players. The training schedule was four days per week for six weeks, this was achieved by the application no ANACOVA, where in the final means were adjusted, difference in the means was tested for significance. This significance of the paired adjusted final means was tested by Scheffes post hoc method. Physical fitness components significantly improved due to SAQ training and plyometric training for men Kabaddi players.

## CONCLUSIONS

- The plyometric training group has significantly differed on selected dependent variables namely speed and explosive power when compared to control group.
- There is no significant difference between the speed and explosive power on control group.

## REFERENCES

1. Balasubrananian, K., Senthil Kumar, P. K. & Amul Doss, A. (2014). Effects of speed agility quickness training and plyometric training on selected physical fitness variable among college men Kabaddi players. International Journal of Physical Education, 7(1), 27.
2. Dick Frank, W. (1992). Sports Training Principles. Great Britain: University Press Cambridge.
3. Devaraju, K. (2014). Impact of Plyometric Training on Selected Physical Fitness Variables among Ball Badminton Players. International Journal of Advanced Research in Engineering and Technology, 5(1), 173-176.