



Effect of plyometric training on selected physical fitness and skill variables of intercollegiate football players

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Abstract

Plyometric training is a very popular form of physical conditioning of healthy individuals that has been extensively studied over the last decades. In this article, we critically review the available literature related to Plyometric training and its effects on physical fitness in team sport athletes. The purpose of the study was to investigate the effect of plyometric training on selected physical fitness and skill variables of intercollegiate level male football players. Thirty out of players were randomly selected from Sri Ramakrishna Mission Vidyalaya College of Arts and Science, Coimbatore the selected players were divided into two groups consisting of 15 players. No attempt was made equate the groups. The age of the subjects ranged between 18 to 25 years. The influence of the plyometric exercise was assessed on physical variables. The training load was increased from the maximum working capacity of the subject doing pilot study. The duration of the training period was restricted to six weeks and the number of sessions per week was confined to three. The data obtained from all the groups before and after the experimental period were statistically analyzed by dependent 't' test to find out the significant improvement if any, 0.05 level of confidence was fixed to the level of significance between pre and post test means of all groups

Keywords: Plyometric, physical conditioning, extensively

Introduction

Plyometric training is a very popular form of physical conditioning of healthy individuals that has been extensively studied over the last decades. In this article, we critically review the available literature related to Plyometric training and its effects on physical fitness in team sport athletes. I have chosen this topic to elevate the physical exercise of the football players. Football players should have strength in their lower body because of most of the activity and skill execution in football player's game is emphasize lower body. Their lower body is strengthened through implementing plyometric exercise as a training program while playing football the skills like kicking, dribbling, dropping, and running are applied more frequently these moment on their lower body have to be strength only then they can play better with spirit for the entire game. We can develop or upgrade their lower body through plyometric exercise such as skipping, jumping, hopping, double leg jump and plyometric box jump. These kind of exercise will help them will play effectively. Plyometric jumping exercise can build power and speed if done properly. Many athletes and trainers use plyometric jumping exercises to build power and speed and above to improve coordination and agility in sports performance. It's also recognize that these are high risk exercise and if performed incorrectly or performed without a solid base of training can increase the risk of injuries. These kind of exercises not only felt. The athletes but also enhance the sports performance in the game football.

Methods and Procedures

The purpose of this study was to find out the effect of plyometric training on selected physical fitness and skill variables of intercollegiate level football players. To achieve the purpose of the study, thirty male football players were randomly selected from Sri Ramakrishna Mission Vidyalaya College of arts and science Coimbatore. Their age ranged from 18 to 25 years. They were divided into two equal groups. The group I was considered as experimental group and group II was considered as control group. The investigator did not make any attempt to equate the group. The control group was not given any treatment and the experimental group was given plyometric training for three days per week. The experimental group was given training for the period of six weeks of plyometric training.

Statistical techniques

The collected data on speed and kicking ability due to the effect of plyometric training was analyzed by computing mean and standard deviation. In order to find out the study to use 't' test was applied at 0.05 level of confidence was fixed to test the level of significance.

Results and Discussion

The t test was used to analyze the data collected on speed and kicking ability of inter-collegiate football players for applying 't'

test using computer software.

Table 1: Computation of 't'- test between pre and Posttest means of control group on speed

Group	Mean	Standard deviation	Mean difference	Standard error mean	t-test
Pretest	6.4153	.29993	.00467	.00133	2.032
Posttest	6.4200	.29842			

*Significant at 0.05 level of confidence (2.045)

Table I reveals the computation of t' ratio between mean of pre and posttest on speed of college football players. The mean values of pre and posttest of control group were 6.41 and 6.42 respectively. Since the obtained 't' test 2.032 was less than the

required table value 2.045, it was found to be statistically not significant for the degrees of freedom 1 and 14 at 0.05 level of confidence. The result clearly indicated the speed of control group had not been improved.

Table 2: Computation of 'T'-Test Between Pre and Post Test Means Of Experimental Group On Speed

Group	Mean	Standard deviation	Mean difference	Standard error mean	t-test
Pretest	6.2621	.40142	.04857	.00851	5.710*
Posttest	6.2136	.39978			

*Significant at 0.05 level of confidence (2.045)

Table II reveals the computation of t' ratio between pretest and posttest on speed of college football players. The mean values for pre and posttest of experimental group were 6.26 and 6.21 respectively. Since the obtained 't' test 5.710 was greater than the required table value 2.145, it was found to be significant for the degrees of freedom 1 and 14 at 0.05 level of confidence. The result clearly indicated the speed of experimental group had been improved by plyometric training. The following bar diagram shows the mean values of pretest and posttest on speed of experimental group and control group.

the required table value 2.145, it was found to be not significant for the degrees of freedom 1 and 14 at 0.05 level of confidence. The result clearly indicated the kicking ability of control group had not been improved

Table 4: Computation of t'-Test Between Pre and Post Test Means of Experimental Group on Kicking Ability

Group	Mean	Standard deviation	Mean difference	Standard error mean	t-test
Pretest	38.1967	1.77164	1.34867	.29534	4.567*
Posttest	39.5453	1.78322			

*Significant at 0.05 level of confidence (2.045)

Table IV reveals the computation of t' ratio between pretest and posttest on kicking ability of college football players. The mean values for pre and post test of experimental group were 38.19 and 39.54 respectively. Since the obtained 't' test 4.567 was greater than the required table value 2.145, it was found to be significant for the degrees of freedom 1 and 14 at 0.05 level of confidence. The result clearly indicated the kicking ability of experimental group had been improved by plyometric training. The following bar diagram shows the mean values of pre test and post test on kicking ability of experimental group and control group.

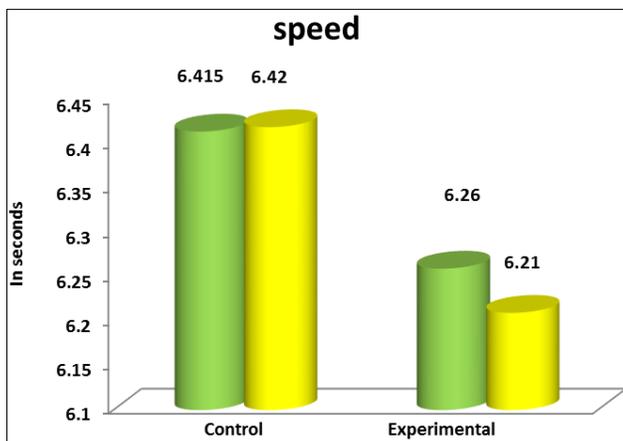


Fig 1: Bar Diagram Shows The Mean Values of Pre Test And Post Test on Speed Of Experimental Group and Control Group

Table 3: Computation of 'T'-Test Between Pre and Post Test Means of Control Group on Kicking Ability

Group	Mean	Standard deviation	Mean difference	Standard error mean	t-test
Pretest	36.2013	2.37339	.00467	.00804	.580
Posttest	36.1967	2.37714			

Insignificant at 0.05 level of confidence (2.045)

Table III reveals the computation of 't' ratio between mean of pre and post test on kicking ability of college football players. The mean values for pre and post test of control group were 36.20 and 36.19 respectively. Since the obtained 't' test 0.580 was less than

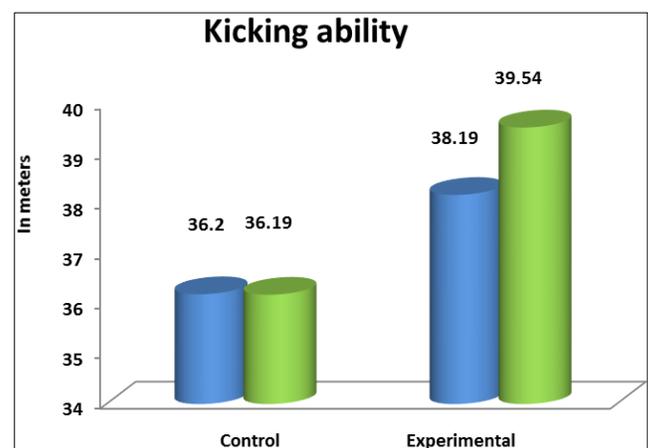


Fig 2: Bar Diagram Shows The Mean Values of Pre Test and Post Test on Kicking Ability of Experimental Group and Control Group

Conclusion

Based on the results, the following conclusions have been arrived.

1. There was significant improvement in speed due to the effect of plyometric training of intercollegiate football players.
2. Kicking ability was significantly improved due to the influence of plyometric training of intercollegiate football players.
3. Six weeks of plyometric training significantly improved the college level football players.

Recommendations

1. From the present study, it may be concluded that the improvement on selected fitness and skill variables (speed and kicking ability). Hence, Trainers and Physical Educators could adopt such training to improve plyometric training group among their athletes.
2. A similar study may be conducted by selecting on physiological and other performance factors as criterion variables.
3. A similar study may be attempted by selecting the school level football players as subjects.
4. A similar study may be conducted on female as subject.
5. A similar study may be undertaken to analyze the hematological factors.

References

1. Thomas K. The effect of two plyometric training techniques on muscular Power and agility in youth soccer players. Division of Sport Sciences, Northumbria University, Thomas, 2009.
2. Perez-Gomez J. Effects of weight lifting training combined with plyometric Exercises on physical fitness, body composition, and knee extension velocity during kicking in football Department of Physical Education, University of Las Palmas de Gran Canaria, Spain, 2008.
3. Ronstadt BR. Short-term effects of strength and plyometric training on sprint and jump performance in professional soccer players. Faculty of Social Science, illehammer University College, 2008.
4. Impellizzeri FM. Effect of plyometric training on sand versus grass on Muscle soreness and jumping and sprinting ability in soccer players. Franco M Impellizzeri, Neuromuscular Research Laboratory, Switzerland, 2008.
5. Moore EW. Comparison of two twelve week off-season combined training Programs on entry level collegiate soccer players' performance. Moore Training, L.L.C., Tucson, Arizona 85750, USA, 2005.