Volume : 3 | Issue : 9 | September 2014 • ISSN No 2277 - 8179

Research Paper

Effect of Plyometric Exercises on Speed Among Volleyball Players

Physical Education

KEYWORDS : Plyometrics, Volleyball, Speed, 50 Mts Run

S.Maheshkumar — Volleyball Coach, SDAT, Dr MGR Stadium, Race Course, Madurai / Tamilnadu

Dr.S.Gladykirubakar — Assistant Professor, YMCA College of Physical Education, Chennai / Tamilnadu

ABSTRACT

The purpose of the study was to determine the effect of plyometric exercise on speed among men volleyball players. The subjects of the study were 24 men Volleyball players from Madurai district. The subjects were randomly assigned into two groups that is an experimental group and a control group with 12 students in each group. The experimental group underwent plyometric training program in a schedule of 60 minutes daily evening, weekly six days for a period of 12 weeks. The control group did not involve in any fitness program. 50 yards run was administrated to find out the effect of training before and after the training period and the difference was recorded to arrive the training significance.

Introduction

Plyometrics refers to human movement that involves an eccentric (lengthening) muscle contraction immediately and rapidly followed by a concentric (shortening) contraction. This is often referred to as the stretch-shortening cycle. The phase between these two contractions is referred to as the amortization phase. Energy stored during the eccentric phase is partially recovered during the concentric phase. In order to best use this stored energy the eccentric phase must be rapidly followed by the concentric.

Plyometrics (also known as "plyos") is a type of exercise training designed to produce fast, powerful movements, and improve the functions of the nervous system, generally for the purpose of improving performance in sports. Plyometric movements, in which a muscle is loaded and then contracted in rapid sequence, use the strength, elasticity and innervation of muscle and surrounding tissues to jump higher, run faster, throw farther, or hit harder, depending on the desired training goal. Plyometrics is used to increase the speed or force of muscular contractions, providing explosiveness for a variety of sport-specific activities. Plyometrics has been shown across the literature to be beneficial to a variety of athletes. Benefits range from injury prevention, power development and sprint performance amongst others.

Plyometric training involves and uses practicing plyometric movements to toughen tissues and train nerve cells to stimulate a specific pattern of muscle contraction so the muscle generates as strong a contraction as possible in the shortest amount of time. A plyometric contraction involves first a rapid muscle lengthening movement (eccentric phase), followed by a short resting phase (amortization phase), then an explosive muscle shortening movement (concentric phase), which enables muscles to work together in doing the particular motion. Plyometric training engages the myotatic reflex, which is the automatic contraction of muscles when their stretch sensory receptors are stimulated.

Volleyball is an excellent all round team sport and has been widely accepted as a highly competitive as well as a recreational game. The Volleyball players used to involve different type of physical training and this study is also under taken to find out the effect of plyometric exercises on speed among men Volleyball players.

Methodology

The purpose of the study was to determine the effect of plyometric exercise on speed among men volleyball players. The subjects of the study were 24 men Volleyball players from Madurai district. The subjects were randomly assigned into two groups that is an experimental group and a control group with 12 students in each group. The experimental group underwent plyometric training program in a schedule of 60 minutes daily evening, weekly six days for a period of 12 weeks. Plyometric exercise work out includes Lateral High Hopes , Hurdle jumps, Lateral Barrier jumps, Split Squat jumps, Bounding, Bounding with Rings, ZigZag Hops, Depth jumps. 50 yards run was administrated to find out the effect of training before and after the training period and the difference was recorded to arrive the training significance.

Result of Speed

The mean, standard deviation and t-test were employed to analyze the significant difference in the mean value of pre and post-test of experimental and control groups and are presented in Table-1 and Table-2

Table-1

Significant Difference of pre and post-test values of experimental group

Variables	Test	Mean	SD	't' Value
Speed	Pre-Test	7.07	0.209523	5.23795*
	Post-Test	6.517	0.072	

***significant at 0.05 level of confidence t0.05 (22) = 2.074**

The experimental group pre and post-test mean, standard deviation and t-values are presented in Table-2 and it reveals the significant level in the effect of plyometric exercise on experimental group. The t-value of the selected variable is above the table value of 2.074. Hence the study indicates that the plyometric exercise is useful for the significant improvement of physical fitness variable speed.

Table-2

Significant Difference of pre and post-test values of experimental group

Variables	Test	Mean	SD	't' Value
Speed	Pre-Test	7.03	1.000738	0.06523*
	Post-Test	7.05	0.18028	

***significant at 0.05 level of confidence t0.05 (22) = 2.074**

The control group pre and post-test mean, standard deviation and t-values are present in Table-2. The result indicates that there is no significant difference in speed.

Discussion

All the subjects of the experimental group were undergone regular plyometric training which were assigned to them. From the analysis it is evident that in the case, of 50 yards run significant changes were noticed after twelve weeks of different plyometric

Volume : 3 | Issue : 9 | September 2014 • ISSN No 2277 - 8179

training programme. But the control group did not show any changes in the 50 yards run timing. The timing significantly reduced due to the plyometric training. The study reveals that the experimental group are significant than the control group. Therefore the hypothesis has been accepted.

Conclusion

From the above results and discussions the following conclusions were drawn:

1. The plyometric exercises have the impact on the improvement in speed.
2. In control group there is no significant improvement found.
3. The result of the study indicates that plyometric exercise is useful to the development of various physical fitness variables.

The result of the study is in consonance with the finding of the following studies such as RahmanRahimi. et.al, (2006), Miller, et.al. (2006)

REFERENCE

K. Adams, J.P. O'shea, K.I. O'shea, M. Climstein, The effect of six weeks of squat, | Plyometrices and squat-plyometric training on power production, J. Appl. Sport Sci.Res., 6(1992), 36-41. | D.A. Chu, Jumping into plyometrices, Champaign, IL (1996) Human Kinetics. | V. Gambetta, Principles of plyometric training Track Technique, (1986) Fall: 30993104. | Miller M.G, Heriman, J.J, Ricard M.D, Cheatham C.C, and Michael T.J.(2006).The effect of | a 6-week plyometric Training program on agility, Journal of sports science and medicine.5,459-465. |