



---

**EFFECT OF PLYOMETRIC EXERCISE ON SPEED, POWER AND BALL  
CONTROLLING ABILITY OF WOMEN BASKETBALL PLAYERS**

**Dr.Madhu Gaur**

Assistant Professor, Shri J.N.P.G College,Lucknow,India.

**Abstract**

The purpose of the study was to find out the effect of plyometric exercise are speed,power and ball controlling ability of women Basketball players. For this purpose, 12 girls studying at Lucknow University, Lucknow were selected as subjects for this study. The subjects were regular member of University Basketball team. The experimental group underwent plyometric exercise for duration of 12 weeks in addition to the regular practice. The most successful player should have superior ball controlling activity and dynamic bio motor fitness to integrate them for excellent performance. In this study speed, power and ball controlling ability was selected as dependent variables. Plyometric exercise is a relatively new concept of training and it implies the specificity principles regarding the pre-stretch condition of the muscles prior to explosive contraction. So, plyometric exercise was selected as independent variables (Training means) to test speed, power and ball controlling ability women basketball players. As per the available literature 50 meter run, vertical jump and Johnson basketball test were used to collect relevant data on speed power and ball controlling ability respectively. It is inferred that plyometric training had significantly influenced on selected criterion variables, such as speed, power and ball controlling ability which are the basis for women basketball players.

**Keywords:** Speed, Power,Ball Controlling Ability, Plyometric Exercise

## **Introduction**

Training is not a recent discovery. In ancient times people were trained for military and Olympic endeavours. Today athletes systematically prepare themselves for a goal through endeavour. Athletes are not developed overnight and a coach cannot create miracles by cutting corners through overlooking scientific and methodological theories (Bompa, 1999).

Sports Training are a basic preparation for better performance through physical exercise. It is based on scientific principle of aiming at education and performance enhancement. Sports activities consist of motor movement and action and their success depends to a great extent on how correctly they are performed. Techniques of training and improvement of tactical efficiency play a vital role in a training process. The main component, which influence the physical performance of an athlete are strength, speed, Agility, Endurance, Power and coordinative abilities. Action Potential depends on natural abilities and at the same time fundamentals act as the foundation for excellence (Singh, 1990).

## **Plyometric Training**

Plyometric also known as jump training in which muscles exert maximum force in short interval of time, within the goal of increasing power (Speed & Strength). The term Plyometric was coined by **Fred Wilt** after watching Soviet athlete prepare for their events in track and field he felt this was a key to their success. He began a collaboration with Soviet (Russian) trainer Michael Yessis to promote Plyometric. Since its introduction in the early 1980's two forms of plyometric have evolved. In the original version of plyometric, created by Russian scientist Yuri Verthoshansky it was defined as the shock method. Plyometric training improves the athlete's ability to apply more force, more rapidly. This ability to generate maximal force can be transformed into sport-specific power in sports like martial arts, soccer, tennis, basketball and athletics. This is achieved through plyometric exercises that repeatedly stimulate the elasticity of muscles with movements that mimic the chosen sport.

## **Statement of the Problem**

The study was intended to investigate the effect of plyometric exercise on speed, power and ball controlling ability among Women Basketball players.

## **Hypothesis**

There may be a significant improvement in speed, power and ball controlling ability due to plyometric training

## **Method**

The purpose of the study was to find out the effect of plyometric exercises on speed, power and ball controlling ability of women basketball players. For this purpose 12 girls studying at Lucknow University, Lucknow were selected as subjects for this study. The subjects were regular members of the University women basketball team. The experimental group underwent plyometric exercises for duration of 12 weeks in addition to the regular practice.

The most successful player should have superior ball controlling ability and dynamic bio motor fitness to integrate them for excellent performance. So, in this study speed, power and ball controlling ability was selected as dependent variables. Plyometric exercise is relatively new concept of training and its implies the specificity principles regarding the pre stretch condition of the muscles prior to explosive contraction. So, plyometric exercise was selected as independent variables (Training means) to test speed, power and ball controlling ability of women basketball players. As per the available literature, 50 meter run, vertical jump and Johnson basketball test were used to collect relevant data on speed power and ball controlling ability respectively.

## **Training Program and Collection of the Data**

During the training period, the experimental group underwent the plyometric exercise program, three days per week (alternate day) over 12 weeks in addition to the regular practice. Every training on lasted for 45 to 60 minutes approximately, including up and cool down. Pre-test data were collected two days before training program and post test data two days after the training program on speed, power, and ball controlling for the experimental group.

## **Experimental Design and Statistical Technique**

The experimental design used in this study was similar to single group design. The concept of dependent-test and magnitude of improvement were used to analysis the data for significant difference. The confidence interval was fixed at 0.05 level.

## Discussions of Findings

### Summary of Dependent t-ratio and Magnitude of Improvement of Pre&Post Test Data on Speed, Power& Ball Controlling Ability of Women Basketball Players

Variables	Pre-test	Post-Test	t-ratio	M.I.
Speed	6.6	6.3	5.39*	4.5%
Power	38.45	42.15	7.14*	10.2%
Ball Controlling Ability	55.26	58.74	6.88	5.9%

Significant at 0.05 level. Tabulated value required for significance with df 15 is 2.14

The obtained t-ratio values of speed power and ball controlling ability are 5.39, 7.14 and 6.88 respectively which are greater than the tabulated value of 2.14 at 0.05 level of confidence. The magnitude of improvement of speed, power and ball controlling ability are 4.5%, 10.2% and 5.9% respectively due to the influence of plyometric training over 12 weeks.

## Conclusion

It is inferred that plyometric training had significantly influenced on selected criterion variables, such as speed, power and ball controlling ability which are the basis for women Basketball player.

## Recommendation

It is recommended from the result of the study that plyometric training should be included in the preparation of basketball players for highest performance.

## References

1. Matveyev L., (1981), **Fundamental of Sports Training**, Progress Publishers, Moscow.
2. Singh Hardayal (1991), "Science of Sports Training," New Delhi, D.V.S.Publications.
3. Srinivasan.M and Ch.VST.Saikumar(2012),Influence of Conventional Training Programme Combined with Ladder Training on selected Physical Fitness and skill Performance variables of college level Badminton Players,**The Shield**,Vol.07.
4. Bloomfield.J, (1994), **Applied Anatomy and Biomechanicsin Sports**,Melbourne, Blackwell Scientific Publications.
5. BarlettRM (1997).Current issues in the mechanics of athletic activities: a position paper, *Journal of Biomechanics*,30,477-486
6. Bartlett RM (2000). Principles of throwing. In V.M.Zatsiorsky (Ed.),*IOC Encyclopaedia of Sports Medicine: Biomechanics in Sports* (Vol. 6, 365-380).
7. Bates BT (1996).Single-Subject methodology: An alternative approach. *Medicine and science in Sports and Exercise*,28,631-638