

**Impact
Factor
3.025**

ISSN 2349-638x

Refereed And Indexed Journal

**AAYUSHI
INTERNATIONAL
INTERDISCIPLINARY
RESEARCH JOURNAL
(AIIRJ)**

Monthly Publish Journal

VOL-IV

ISSUE-II

FEB.

2017

Address

• Vikram Nagar, Boudhi Chouk, Latur.
• Tq. Latur, Dis. Latur 413512 (MS.)
• (+91) 9922455749, (+91) 9158387437

Email

• aiirjpramod@gmail.com
• aayushijournal@gmail.com

Website

• www.aiirjournal.com

CHIEF EDITOR – PRAMOD PRAKASHRAO TANDALE

Effect Of Plyometrics On Physical Fitness & Skill Of Basketball Players**Balasaheb D.Paul**Research Scholar ,
RashtraSant Tukdoji Maharaj Nagpur University,
Nagpur**Dr.Hambirrao H.Mohite**Nashikrao Tirpude College of Education,
Nagpur**Abstract**

The data was collected through respondents in the form of different tests. Purposive sampling method was used, as the researcher selected Basketball Players with a specific purpose. 50 basketball players selected under plyometric exercise group Training was given to both groups separately. This study involves a cross sectional, comparative pre and post-test of experimental group. Since only experimental groups were taken by the investigator and there was no control group so this study was conducted in a quasi-square experimental design. The Plyometric exercise programme were planned for 4 days a week 30 minutes in a day for 12 weeks including 10 minutes warm up period and 05 minutes cool down. **Cardiovascular Endurance** was evaluated by using 12 minute Run & Walk Test. The 12 minute run test requires the person being tested to run or walk as far as possible in a 12 minute period. **Muscular Endurance** was evaluated by using 1 minute Bent Knee Sit Up test. **Muscular strength** was measured by using Kraus Weber Strength Test. **Body Composition was evaluated by using Body Mass Index (BMI)**. **Flexibility** was measured by using Bend & Reach Test. **Johnson Basketball Test was used to measure basketball skill test**. The result computed also crosschecked by using following statistical variables. Mean standard deviation, T-test. The result of the study shows that significant effects of **Plyometrics** exercise were found on Passing shooting and Dribbling abilities of basketball players. Plyometrics exercise enhanced passing, shooting and Dribbling abilities of basketball players, result of the study shows that significant of effects of **Plyometrics exercise** in Flexibility, Muscular endurance, Cardiovascular Fitness, Body composition and Muscular Strength. Plyometrics exercise enhance in Flexibility, Muscular endurance, Cardiovascular Fitness and Muscular Strength.

Introduction

Plyometrics exercises enable the athlete to overload and train his/her body in a specific position required for a specific competition situation. Today the high level of professional sport focuses on specific training and plyometrics training is a form of overload exercise. Plyometrics exercises, in conjunction with a weight-training programme, can lead to the execution of specific aspects of exercises (Siff&Verkhoshansky, 1993). Wilson, Murphy and Giorgi (1996) as well as Bosco (1985) state that plyometrics exercises can increase participants' ability to use elastic energy. Researchers state that plyometrics exercises can change the elasticity of muscles and tendons, to enable them to store bigger quantities of elastic energy during a given stretch-shortening movement. The faster the execution of the plyometrics activity, the more elastic energy gets stored when the muscles and tendons are stretched to produce more power. In this way the delay between the stretch-shortening cycle is minimal causing maximum energy storage. Another advantage of plyometrics exercises is that it includes movements, which cause elastic energy to maximize the stretch-shortening cycle (Blazevich, 2003).

Plyometrics, also known as "jump training" or "plyos", are exercises in which [muscles](#) exert maximum force in short intervals of time, with the goal of increasing power (speed-strength). This training focuses on learning to move from a muscle [extension](#) to a [contraction](#) in a rapid or

"explosive" manner, such as in specialized repeated jumping. Plyometrics are primarily used by [athletes](#), especially [martial artists](#), sprinters and [high jumpers](#), to improve performance, and are used in the fitness field to a much lesser degree.

Material and Methods

The data was collected through respondents in the form of different tests. Purposive sampling method was used, as the researcher selected Basketball Players with a specific purpose. 50 basketball players selected under plyometric exercise group Training was given to both groups separately. This study involves a cross sectional, comparative pre and post-test of experimental group. Since only experimental groups were taken by the investigator and there was no control group so this study was conducted in a quasi-square experimental design.

The Plyometric exercise programme were planned for 4 days a week 30 minutes in a day for 12 weeks including 10 minutes warm up period and 05 minutes cool down. **Cardiovascular Endurance** was evaluated by using 12 minute Run & Walk Test. The 12 minute run test requires the person being tested to run or walk as far as possible in a 12 minute period. The objective of the test is to measure the maximum distance covered by the individual during the 12 minute period and is usually carried out on a running track by placing cones at various distances to enable measuring of the distance. A stopwatch is required for ensuring that the individual runs for the correct amount of time. When time is over, at that time investigator gives signal to stop. Subject was stands right there where he stops. Then investigator measures the crossed distance by the subject. **Muscular Endurance** was evaluated by using 1 minute Bent Knee Sit Up test. Abdominal muscular endurance was measured by performing the 1-minute bent knee sit-up test. Subject Lied on his back with knees bent at a 90-degree angle. His feet were flat on the floor. Subject interlocked his fingers behind his head, and then slowly rises to sitting position and touched his elbows to knees. Now subject let down his body back to the starting position, and repeated the process as many times as possible for the subject within one minute. **Muscular strength** was measured by using Kraus Weber Strength Test. **Body Composition was evaluated by using Body Mass Index (BMI).** **Flexibility** was measured by using Bend & Reach Test. **Johnson Basketball Test was used to measure basketball skill test** .The result computed also crosschecked by using following statistical variables. Mean standard deviation, T-test.

Results of the study

TABLE-1
MEAN SCORES AND STANDARD DEVIATIONS OF PRE & POST-TEST SKILL ABILITY
AMONG PLYOMETRICS GROUP

Basketball skill test	Test	No	Mean Scores	Standard Deviations	T-test
Passing	Pre-test	50	18.94	3.20	3.03*
	Post-Test	50	20.80	3.31	
Shooting	Pre-test	50	20.77	3.15	3.67*
	Post-Test	50	26.78	3.76	
Dribbling	Pre-test	50	10.25	1.24	2.99*
	Post-Test	50	14.89	2.06	

Table-1, Shows that the mean scores and standard deviations of basketball playing ability among Plyometricsgroup .

TABLE-1
MEAN SCORES AND STANDARD DEVIATIONS OF PRE & POST-TEST SKILL ABILITY
AMONG PLYOMETRICS GROUP

Basketball skill test	Test	No	Mean Scores	Standard Deviations	T-test
Flexibility	pretest	50	10.44	2.60	3.49*
	Post-Test	50	13.88	3.13	
Muscular Endurance	Pre-test	50	21.96	2.78	3.14 *
	Post-Test	50	26.65	3.83	
Cardiovascular Fitness	Pre-test	50	1761.54	259.76	123.56 *
	Post-Test	50	1968.21	271.51	
Body Composition	Pre-test	50	19.21	2.41	3.11*
	Post-Test	50	20.87	2.87	
Muscular Strength	Pre-test	50	8.23	2.20	2.98*
	Post-Test	50	13.78	2.89	

Table-4, Shows that the plyometrics exercise on Physical fitness components of basketball players.

Discussion

The objective of the study was to determine of the effect of plyometrics on the physical fitness & the skill of basketball players. The result of the study shows that significant effects of **Plyometrics** exercise were found on Passing shooting and Dribbling abilities of basketball players. Plyometrics exercise enhanced passing, shooting and Dribbling abilities of basketball players. With regard to pretest of bend & reach Flexibility of Plyometric group, they have obtained mean values 10.44 and the standard deviation was 2.60 respectively. Furthermore, the Post-test of Flexibility of Plyometric group, they have obtain mean values 13.88 and the standard deviation was 3.32 respectively, the findings of the study revealed that there was significant difference of bend & reach flexibility was found between pre and post of Plyometric group. With regard to pretest of Bent Knee sit ups Muscular Endurance among Plyometric group, they have obtained mean values 21.96 and the standard deviation was 2.78 respectively. Furthermore, the Post-test of Bent Knee sit ups Muscular Endurance among Plyometric exercise group, they have obtain mean values 26.65 and the standard deviation was 3.83 respectively, the findings of the study revealed that there was significant difference of Bent Knee sit ups Muscular Endurance was found between pre and post of Plyometric exercise group. With regard to pretest of Cardio-Vascular Endurance among Plyometric group, they have obtained mean values 1761.54 and the standard deviation was 259.76 respectively. Furthermore, the Post-test of Cardio-Vascular Endurance among Plyometric exercise group, they have obtain mean values 1968.21 and the standard deviation was 271.51 respectively, the findings of the study revealed that there was insignificant difference of Cardio-Vascular Endurance was found between pre and post of Plyometric exercise group. With regard to pretest of Body Composition among Plyometric exercise group, they have obtained mean values 19.21 and the standard deviation was 2.41 respectively. Furthermore, the Post-test of Body Composition among Plyometric exercise group, they have obtain mean values 20.87 and the standard deviation was 2.87 respectively, the findings

of the study revealed that there was insignificant difference of Body Composition was found between pre and post of among Plyometric exercise group. With regard to pretest of Kraus Weber Muscular Strength among Plyometric exercise group, they have obtained mean values 8.23 and the standard deviation was 2.20 respectively. Furthermore, the Post-test of Kraus Weber Muscular Strength among Plyometric exercise group, they have obtained mean values 13.78 and the standard deviation was 2.89 respectively, the findings of the study revealed that there was significant difference of Kraus Weber Muscular Strength was found between pre and post of among Plyometric exercise group.

Finally, result of the study shows that significant effects of **Plyometrics exercise** in Flexibility, Muscular endurance, Cardiovascular Fitness, Body composition and Muscular Strength. Plyometrics exercise enhance in Flexibility, Muscular endurance, Cardiovascular Fitness and Muscular Strength.

Conclusions

1. significant effects of **Plyometric** exercise were found on Passing shooting and Dribbling abilities of basketball players
2. Plyometrics training was more beneficial to improve basketball playing abilities
3. Plyometrics exercise enhanced in Flexibility, Muscular endurance, Cardiovascular Fitness and Muscular Strength.

References

- i. Abhijeet.S (2013). Effects of selected exercises to achieve health related physical fitness components among sedentary students. *Ph.D thesis*. SRTM Univarcity, Nanded.
- ii. Singh S K Chavan, P.B. (2011). Comparison of Physical Fitness Components of Rural and Urban Collegiate Students of Swami Ramanand Teerth Marathwada University; *Variorum, Multi- Disciplinary e-Research Journal* 01(4), 1-5.
- iii. Singh S.K. Mental health of medical students: a comparative study between Thai and Indian students. *International journal of physical education health and sports science* October 2015 vol.4(2).
- iv. Singh S.K. & Tuteja Effects of isotonic exercise on swimming performance. *International journal of Physical Education Health and Sports science* Vol 3.(1) 68-73 Sep.2013
- v. Singh S.K, Comparison of Nature of injuries among aged group football players. *International journal of Physical Education Health and Sports science* Vol 2.(2) 68-73 Sep.2013.
- vi. Singh S.K, A study of injuries sustained during match and training period *International journal of Physical Education Health and Sports science* Vol 2.(2) 148-151 sep.2013
- vii. Singh S.K, Effects of Resistance Training to improve speed ability among physical education students. *International journal of Physical Education Health and Sports Sciences* 2013
- viii. Singh, S.K. (2012). Effect of Health-Related Physical Fitness Programmes on the Cardio-Respiratory Function of Sedentary Students. *Journal of Exercise Science and Physiotherapy, Vol. 8, No. 2: 1-7.*
- ix. Steven S. J. (June, 1897). "A Study of the Effect of Participation in Selected Physical Education Activities upon Component of HPF", *Dissertation Abstract International*, 48(3) , 596.
- x. Thierry A. R. (2000). "The Effect of Training in the Maximum Oxygen Consumption (VO₂ Max) and The Physical Conditions of College Female Soccer Player", *Ph.D. Dissertation, TEXAS Amravati University*, p. 89.
- xi. Tinna Ritvanenet. (2007). Effect of aerobic fitness on the physiological stress responses at work, *international journal of occupational medicine and environmental health* 2007; 20(1):1.
- xii. Tuomainen P. (2005). Regular physical exercise, heart rate variability and turbulence in a 6-year randomized controlled trial in middle-aged men: the DNASCO study. *Life Sci.* 23-34.