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## Impact of plyometric exercises for development of speed among basketball players of RTM Nagpur University

**Dr. Ashok Kumar****Abstract**

The sample for the present study consists of 20 Male Basketball players of RTM Nagpur University, Nagpur, Maharashtra, out of which 10 are experimental group and 10 are controlled group. Plyometric exercises such as hopping, bounding, depth jumps, tuck jumps, Push ups etc., were given to experimental group on alternate days *i.e.*, three sessions per week and controlled group were given the general training for six weeks. Pre-test and Post-test were conducted in 30 m Run to measure the speed among experimental group and controlled group. This study shows that due to the plyometric training there is a improvement of experimental group in Speed and controlled group is decreased in performance speed. Basketball players requires good speed to excel in the game of Basketball.

**Keywords:** Plyometric exercises, speed, basketball etc.

**Introduction**

Basketball, game played between two teams of five players each on a rectangular court, usually indoors. Each team tries to score by tossing the ball through the opponent's goal, an elevated horizontal hoop and net called a basket.

The only major sport strictly of U.S. origin, basketball was invented by James Naismith (1861-1939) on or about December 1, 1891, at the International Young Men's Christian Association (YMCA) Training School (now Springfield College), Springfield, Massachusetts, where Naismith was an instructor in physical education.

For that first game of basketball in 1891, Naismith used as goals two half-bushel peach baskets, which gave the sport its name. The students were enthusiastic. After much running and shooting, William R. Chase made a midcourt shot-the only score in that historic contest. Word spread about the newly invented game, and numerous associations wrote Naismith for a copy of the rules, which were published in the January 15, 1892, issue of the Triangle, the YMCA Training School's campus paper.

While basketball is competitively a winter sport, it is played on a 12-month basis-on summer playgrounds, in municipal, industrial, and church halls, in school yards and family driveways, and in summer camps-often on an informal basis between two or more contestants. Many grammar schools, youth groups, municipal recreation centres, churches, and other organizations conduct basketball programs for youngsters of less than high school age. Jay Archer, of Scranton, Pennsylvania, introduced "biddy" basketball in 1950 for boys and girls under 12 years of age, the court and equipment being adjusted for size.

**The early years**

In the early years the number of players on a team varied according to the number in the class and the size of the playing area. In 1894 teams began to play with five on a side when the playing area was less than 1,800 square feet (167.2 square metres); the number rose to seven when the gymnasium measured from 1,800 to 3,600 square feet (334.5 square metres) and up to nine when the playing area exceeded that. In 1895 the number was occasionally set at five by mutual consent; the rules stipulated five players two years later, and this number has remained ever since.

Since Naismith and five of his original players were Canadians, it is not surprising that Canada was the first country outside the United States to play the game.

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Basketball was introduced in France in 1893, in England in 1894, in Australia, China, and India soon thereafter, and in Japan in 1900.

While basketball helped swell the membership of YMCAs because of the availability of their gyms, within five years the game was outlawed by various associations because gyms that had been occupied by classes of 50 or 60 members were now monopolized by only 10 to 18 players. The banishment of the game induced many members to terminate their YMCA membership and to hire halls to play the game, thus paving the way to the professionalization of the sport.

Originally, players wore one of three styles of uniforms: knee-length football trousers; jersey tights, as commonly worn by wrestlers; or short padded pants, forerunners of today's uniforms, plus knee guards. The courts often were of irregular shape with occasional obstructions such as pillars, stairways, or offices that interfered with play. In 1903 it was ruled that all boundary lines must be straight. In 1893 the Narragansett Machinery Co. of Providence, Rhode Island, marketed a hoop of iron with a hammock style of basket. Originally a ladder, then a pole, and finally a chain fastened to the bottom of the net was used to retrieve a ball after a goal had been scored. Nets open at the bottom were adopted in 1912–13. In 1895–96 the points for making a basket (goal, or field goal) were reduced from three to two, and the points for making a free throw (shot uncontested from a line in front of the basket after a foul had been committed) were reduced from three to one.

Baskets were frequently attached to balconies, making it easy for spectators behind a basket to lean over the railings and deflect the ball to favour one side and hinder the other; in 1895 teams were urged to provide a 4-by-6-foot (1.2-by-1.8-metre) screen for the purpose of eliminating interference. Soon after, wooden backboards proved more suitable. Glass backboards were legalized by the professionals in 1908–09 and by colleges in 1909–10. In 1920–21 the backboards were moved 2 feet (0.6 metre), and in 1939–40 4 feet, in from the end lines to reduce frequent stepping out-of-bounds. Fan-shaped backboards were made legal in 1940–41.

A soccer ball (football) was used for the first two years. In 1894 the first basketball was marketed. It was laced, measured close to 32 inches (81 cm), or about 4 inches (10 cm) larger than the soccer ball, in circumference, and weighed less than 20 ounces (567 grams). By 1948–49, when the laceless molded ball was made official, the size had been set at 30 inches (76 cm).

The first college to play the game was either Geneva College (Beaver Falls, Pennsylvania) or the University of Iowa. C.O. Bemis heard about the new sport at Springfield and tried it out with his students at Geneva in 1892. At Iowa, H.F. Kallenberg, who had attended Springfield in 1890, wrote Naismith for a copy of the rules and also presented the game to his students. At Springfield, Kallenberg met Amos Alonzo Stagg, who became athletic director at the new University of Chicago in 1892. The first college basketball game with five on a side was played between the University of Chicago and the University of Iowa in Iowa City on January 18, 1896. The University of Chicago won, 15–12, with neither team using a substitute. Kallenberg refereed that game a common practice in that era and some of the spectators took exception to some of his decisions.

The colleges formed their own rules committee in 1905, and by 1913 there were at least five sets of rules: collegiate, YMCA–Amateur Athletic Union, those used by state militia groups, and two varieties of professional rules. Teams often agreed to play under a different set for each half of a game.

To establish some measure of uniformity, the colleges, Amateur Athletic Union, and YMCA formed the Joint Rules Committee in 1915. This group was renamed the National Basketball Committee (NBC) of the United States and Canada in 1936 and until 1979 served as the game's sole amateur rule-making body. In that year, however, the colleges broke away to form their own rules committee, and during the same year the National Federation of State High School Associations likewise assumed the task of establishing separate playing rules for the high schools. The National Collegiate Athletic Association (NCAA) Rules Committee for men is a 12-member board representing all three NCAA divisions. It has six members from Division I schools and three each from Divisions II and III. It has jurisdiction over colleges, junior colleges, the National Association of Intercollegiate Athletics (NAIA), and Armed Forces basketball. There is a similar body for women's play.

### Growth of the game

Basketball grew steadily but slowly in popularity and importance in the United States and internationally in the first three decades after World War II. Interest in the game deepened as a result of television exposure, but with the advent of cable television, especially during the 1980s, the game's popularity exploded at all levels. Given a timely mix of spectacular players—such as Earvin (“Magic”) Johnson, Julius Erving (“Dr. J”), Larry Bird, and Michael Jordan—and the greatly increased exposure, basketball moved quickly to the forefront of the American sporting scene, alongside such traditional leaders as baseball and football. Four areas of the game developed during this period: U.S. high school and college basketball, professional basketball, women's basketball, and international basketball.

### Methodology

The purpose of the present study to find out the effect of plyometric exercises for the development of speed among Basketball players. The sample for the present study consists of 20 Male Basketball players of RTM Nagpur University, Nagpur, Maharashtra, out of which 10 are experimental group and 10 are controlled group. Plyometric exercises such as Push ups, Medicine Ball Throws, Hopping, Bounding, Tuck Jumps, Box Jumps, Dumbbell throws etc., were given to experimental group on alternate days i.e., three sessions per week and controlled group were given the general training for six weeks. Pre Test and Post Test in 30 m Run to measure the speed among experimental Group and Controlled Group.

### Result

This results of the study shows that due to the plyometric training there is a improvement of experimental group in and Speed and controlled group is decreased in performance of speed due to the general training.

**Table 1:** Mean Values of 30 m Run Test Between Experimental and Control Groups of Basketball Players

Variables	Group	Pre Test	Post Test	t	P - Value
		Mean	Mean		
30 M Run Test	Experimental	4.53	4.13	2.58	0.000
	Control	4.66	4.68		

The Experimental Group of 30 M Run Men is 4.53 in Pre Test and Controlled Group mean is 4.66 in Pre Test there is a difference of 0.13 in Pre Test. The Experimental Group Mean

is 4.13 in Post Test and Controlled Group mean is 4.68, the Experimental Group mean in Post Test in 30 m Run is decreased from 4.53 to 4.13 there is a improvement of 0.40 from Pre Test to Post and Control Group Mean is post test is 4.68 there is a increase of 4.66 to 4.68 from Pre Test to Post, the performance is come down to 0.02 in the controlled group. Due to the Plyometric Training the Experimental group has improved a lot.

### Conclusion

It is concluded that due to plyometric exercises there will be improvement in speed among Basketball players. Plyometrics training Basketball exercises should be done quickly with the purpose of training muscles to be more powerful and to get the explosive strength. The purpose of jump training is to train the muscles to pre-stretch before jumping. During this pre-stretch, energy is stored in the muscle which can be used to jump higher and also to attained the good speed for getting excel in Basketball skills to perform the better.

### Recommendations

Similar Studies can be conducted on Women Basketball players and other sports and games.

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