

# Effect of resistance training on passing ability of basketball players

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## ■ ABSTRACT

The purpose of the study was to find out the effect of resistance training on passing ability among college basketball players. To achieve this purpose of the study, thirty college students were selected as subjects who were from Trivandrum. The selected subjects were aged between 18 to 22 years. They were divided into two equal groups of fifteen each, Group I underwent resistance training and Group II acted as control that did not participate in any special training apart from their regular curricular activities. The subjects were tested on selected criterion variable such as shooting performance prior to and immediately after the training period. The selected criterion variable such as passing ability was determined through wall passing test. The analysis of covariance (ANCOVA) was used to find out the significant differences if any, between the experimental group and control group on selected criterion variable. In all the cases, 0.05 level of confidence was fixed to test the significance, which was considered as an appropriate. The result of the present study has revealed that there was a significant difference among the experimental and control group on passing ability.

■ **KEY WORDS :** Resistance training, Basketball, Passing ability

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**B**asketball is a fast moving game and most popular sports in the world and one of the most widely viewed (Scott, 2013). Basketball is played by both men and women of all ages and fitness level. Successful game of basketball needs ability of the players to generate good footwork, agility and tremendous power during the play of game. Skills like dribbling, shooting and passing are of utmost importance for a player at any level of play (Thani, 1997).

Training and conditioning are the best known ways, to prepare the players for efficient performance and healthful living. Efficient performance is possible only

through a carefully planned programme of progressive practice which will perfect the co-ordination, eliminate unnecessary movements and accomplish result at the expense of minimum energy as well as conditioning the muscle structure and the circulation to withstand without harming the intensive demands made upon them. Fitness is the ability to meet the demands of a physical task. Basic fitness can be classified in four main components: Strength, Speed, Stamina and Flexibility. However, exercise scientists have identified nine components that comprise the definition of fitness: Strength, Power, Agility, Balance, Flexibility, Local Muscle Endurance, Strength

Endurance and Co-ordination. All the nine elements of fitness Cardiac Respiratory qualities are the most important to develop as they enhance all the other components of the conditioning equation. Resistance training should be an integral part of an adult fitness program and of a sufficient intensity to enhance strength, muscular endurance and maintain fat-free mass (FFM). Resistance training should be progressive in nature, individualized and provide a stimulus to all the major muscle groups, adding strength training to a program of regular physical activity will help to decrease the risk of 'chronic diseases' while improving quality of life and functionality, allowing people of all ages to improve and maintain their health and independent life style.

Resistance training involves exercise in which the muscles exert a force against an external load. It is most commonly referred to as weight training. It is perhaps the most common method of training programme should be individualized, progressive and specific in terms of the way the muscles are likely to be used in the chosen sport. The primary goals of resistance training as improving muscular strength and endurance. The development of an athletic profile requires a detailed battery of testing to thoroughly analyze all the components of athletic performance. (e.g., strength, anaerobic power, speed, agility, maximal aerobic capacity and endurance, and body composition). Resistance-training program has different goals, exercises, and variables. The first step for training is to determine personal needs. The second step is to find a training program to meet those needs. This requires a "needs analysis" and the development of training goals. Participation on a systematic and well-designed basketball training programme to improve muscle strength levels (Trimaras *et al.*, 2009). In order to improve the basic physical components, specific training procedures should be incorporated during the basketball training sessions (Vamvakoudis *et al.*, 2007). Skill-based conditioning games offer a specific training stimulus to stimulate the physiological demands of competition and combination training and skill-based conditioning games is likely to confer the greatest improvements in fitness and skill in junior elite players (Santos and Janeira, 2012).

The game of basketball is very complicated in terms of skills and team work. Basketball is an aerobic-based anaerobic sport (Delextrat and Cohen, 2009 and Meckell *et al.*, 2009) which requires high intensity activities such

as jumping turns, dribbles, sprints, screens and low intensity activities such as walking, stopping and jogging. Frequent stoppages in games allow players to recover between bouts of activity, thus, allowing repeated high-intensity spells of play (Drinkwater *et al.*, 2008). In this game, everyone should mastery over fundamental skills like Dribbling, passing, shooting, rebounding, defense etc. When one has mastered the fundamental skills of the games, he gets a feeling of well being. High level of performance otherwise known as playing ability in basketball depends upon proficiency over the fundamental skills. High level of performance of a basketball player depends upon fundamental skills. It is recognized that among the fundamentals, ability to dribble the ball, ability to shoot, ability to passing, ability to rebounding, ability to shoot are of primary importance for high level of performance. Passing is a common technique in sports that use balls and pucks. A pass consists of an intentional transfer of the ball from one player to another of the same team. Examples of sports that involve passing are association football, basketball, ice hockey, and American football. Certain games only allow backward passing (for example, rugby football), while others allow both. Of those that allow forward passing, some prohibit the receiver from being ahead of the pass at a certain point on the field (e.g., the offside rule in ice hockey), while other do not (e.g., American football). Passing in basketball has been defined as "The deliberate attempt to move a live ball between two teammates", a definition which might equally apply across other sports equally well, albeit with a change to the item being passed where appropriate.

## ■ METHODOLOGY

The purpose of the study was to find out the effect of resistance training on passing ability among college basketball players. To achieve the purpose of the study, thirty basketball players were selected as subjects who were from the various department in Mar Baselios College of Engineering and Technology, Trivandrum. The selected students in the age of 18-22 years were chosen as sample for the study. The selected participants were divided into two groups. Group I underwent resistance training and group II act as control group. The experimental group underwent eight weeks of training in their particular workout. For this study dependent variable is passing ability. The data were collected at prior and immediately after the training period. Analysis



of covariance (ANCOVA) was applied for analyze the data. In all cases, 0.05 level was used to test this significance.

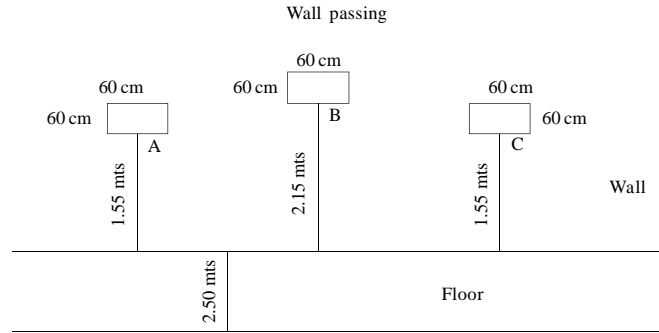
### Pilot study :

A week before the commencement of the current study, a pilot study was carried out to assess the initial capacity of the subjects. In order to fix the training load. For the purpose fifteen subjects were selected at random and resistance training were given to them. The method consisted of calculating the working heart rate and target heart rate. The working heart rate is the difference between the maximal heart rate and resting heart rate. The target heart rate was determined as the percentage of working heart rate plus resting heart rate. The intensity of the resistance training was decided by 1 RM method. Based on the response of the subjects in the pilot study, the training schedule for the experimental group was constructed; however the individual difference were not considered, while constructing the training programme the basic principles of training (progression, over load and specificity) were followed. After completion of the pilot study, the present study was carried out with 30 subjects four days/week for eight weeks.

### Test administration :

There will be 3square of 60cm each marked on the wall so that the base of the square is either 1.55 mts and 2.15mts in the middle from the floor. All adjacent squares will be marked on the floor as a distance of 2.50 mts from the wall

There will be a total of 3 trials of 30 sec. each the first is a practice trial and the last two trials are record. The performers (with a ball) stand behind the restarting line and face the target from the left (A) on the signal 'ready go' the performer chest pass to the first target recover the rebound while moving to a location behind the second target and slightly behind the restarting line and overhead passing at target (B) recovers the rebound whiling moving to location behind the 3<sup>rd</sup> target and behind the restating line and chest pass at target (C) repetition the



squares by moving to the left.

### Violation :

- Passing from a point in front of the restraining the line (foot fault). no point awarded for the pass.
- Passing at a targets B twice in succession no point awarded for second pass.
- Failing to use chest pass and over hade pass at target– no point awarded for the pass.

### ■ OBSERVATIONS AND DISCUSSION

The statistical analysis comparing the initial and final means of passing ability due to resistance have been presented in Table 1.

Table 1 shows the analyzed data of passing ability. The passing ability pre means were 40.62 for the resistance training group and 41.34 for the control group. The resultant 'F' ratio of 1.14 was not significant at .05 levels indicating that the two groups were no significant variation. The post-test means were 62.58 for the resistance training group and 41.88 for the control group. The resultant 'F' ratio of 19.27 at .05 level indicating that was a significant difference. The difference between the adjusted post-test means of 61.86 for the resistance training group and 41.68 for the control group yield on 'F' ratio 46.48 which was significant at .05 level. The results of the study indicate that there is a significant difference among resistance training and control groups on the passing ability. Similar work related to the present investigation was also conducted by Clarke *et al.* (1972);

**Table 1 : Computation of analysis of covariance on passing ability**

Test	Resistance training	Control group	F
Pre test	40.62	41.34	1.14
Post test	62.58	41.88	19.27*
Adjusted	61.86	41.68	46.48*

\* indicates significance of value at P=0.05

Pollock and Vincent (1996) and Kirtani (2003).

The results of the study proved that there were significant differences between control group and resistance training group. The eight weeks of experimental treatment significantly influence on shooting performance in college students. The above results are supported by Haehn (1980) and Hopkins (1977).

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