

# COMBINED IMPACTS OF KETTLEBELL AND PLYOMETRIC TRAINING ON STRENGTH VARIABLES AMONG BASKETBALL PLAYERS

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## ABSTRACT

The rationale of this study was to discover the Combined Impacts of Kettlebell and Plyometric Training on Strength Variables among Basketball Players. To achieve this purpose of the study thirty college level men basketball players from Anna University Regional Campus, Coimbatore, Tamilnadu, India were randomly selected as subjects. Their age ranged in between 21 and 23 years. The subjects were separated into two groups namely kettlebell with plyometric group and control group. The kettlebell with plyometric group was subjected to kettlebell with plyometric training (for weekly three days monday, wednesday, friday) at evening session for six weeks. Leg strength and muscular strength was selected as dependent variable. After the compilation of proper data, it was statistically analyzed by using paired 't' test. The level of significance was set at 0.05. The result of the present study showed that the kettlebell with plyometric training has significant enhancement on leg strength and muscular strength of basketball players.

**Keywords:** Kettlebell Training, Plyometric Training, Leg Strength, Muscular Strength, Basketball Players.

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## INTRODUCTION

Kettlebell and plyometric training have become increasingly popular among basketball players in recent years. Kettlebells provide a great way to develop strength and power, which are essential for basketball performance. Plyometrics can improve explosive power and help athletes to become more explosive on the court. Combining the two can be an effective way for basketball players to get stronger, faster, and more agile. Kettlebell exercises help develop strength and power by targeting specific muscles such as the glutes, quads, and hamstrings. This type of training also helps improve coordination and balance. Plyometric exercises are designed to improve the body's ability to generate force quickly and explosively. This type of training can help basketball players become more agile and explosive on the court.

When combining kettlebells and plyometrics, it is important to focus on exercises that target the same muscles as those used in basketball. For example, kettlebell swings and goblet squats can target the glutes, quads, and hamstrings. Plyometric exercises such as box jumps and lateral hops can help improve explosive power and agility. It is important to remember that both kettlebell and plyometric training should be done with proper form and technique. Additionally, the intensity of the workout should be adjusted according to the individual's fitness level. By incorporating kettlebell and plyometric training into a basketball player's training program, they can become stronger, faster, and more agile on the court. As basketball game involves more of muscular contraction. Which build the components for the game, as a researcher special planned kettlebell and plyometric training programme for the college level men basketball players.

## METHODOLOGY

The foundation of this study was to discover the Combined Impacts of Kettlebell and Plyometric Training on Strength Variables among Basketball Players. To achieve this purpose of the study thirty college level men basketball players from Anna University Regional Campus, Coimbatore, Tamilnadu, India were randomly selected as subjects. Their age ranged in between 21 and 23 years. The subjects were separated into two groups namely kettlebell with plyometric group and control group. The kettlebell with plyometric group was subjected to kettlebell with plyometric training (for weekly three days monday, wednesday, friday) at evening session for six weeks. Leg strength and muscular strength was selected as dependent variable. After the compilation of proper data, it was statistically analyzed by using paired 't' test. The level of significance was set at 0.05.

## TRAINING PROTOCOL

For kettlebell with plyometric group underwent their training programme as three days per week for six weeks. Training was given in the evening session. The training session includes warming up and cool down. All day the workout lasted for 50 to 60 minutes approximately. The subjects underwent their training programmes as per the schedules such as pistol squat, biceps curl, row and front raise under the strict regulation of the researcher. During experimental period control group did not contribute in any of the exceptional training.

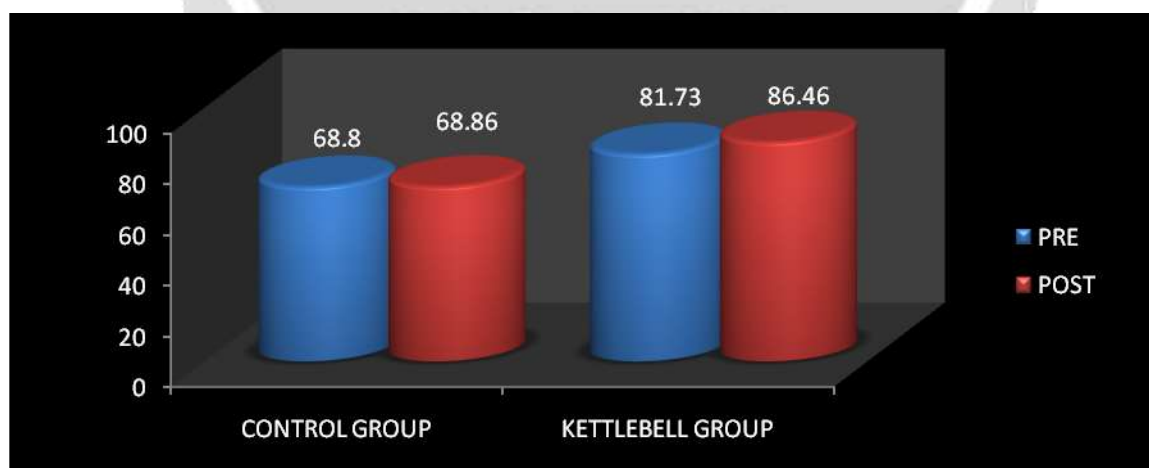
Physical Fitness Variable	Groups	Test	Mean	S.D	't' Values
Leg Strength	Control Group	Pre Test	68.80	17.12	0.26
		Post Test	68.86	17.27	
	Kettlebell Group	Pre Test	81.73	11.84	12.33*
		Post Test	86.46	12.18	

**TABLE-I**

**RELATIONSHIP OF MEAN, SD AND 't'-VALUES OF THE LEG STRENGTH BETWEEN PRE & POST TEST OF THE KETTLEBELL WITH PLYOMETRIC AND CONTROL GROUPS OF BASKETBALL PLAYERS**

\*Significant at 0.05 level of confidence

Table-I reveals that the mean values of pre test and post test of control group for leg strength were 68.80 and 68.86 respectively; the obtained t ratio was 0.26 respectively. The tabulated t value is 2.14 at 0.05 level of confidence for the degree of freedom 14. The calculated t ratio was lesser than the table value. It is found to be insignificant change in leg strength of the basketball players. The obtained mean and standard deviation values of pre test and post test scores of kettlebell with plyometric group were 81.73 and 86.46 respectively; the obtained t ratio was 12.33. The required table value is 2.14 at 0.05 level of confidence for the degree of freedom 14. The obtained t ratio was greater than the table value. It is found to be significant changes in leg strength of the basketball players. The mean values on kettlebell with plyometric group and control group are graphically represented in figure-1



**FIGURE-1: BAR DIAGRAM SHOWING THE PRE TEST & POST TEST ON LEG STRENGTH OF CONTROL AND KETTLEBELL WITH PLYOMETRIC GROUPS**

**TABLE-II**

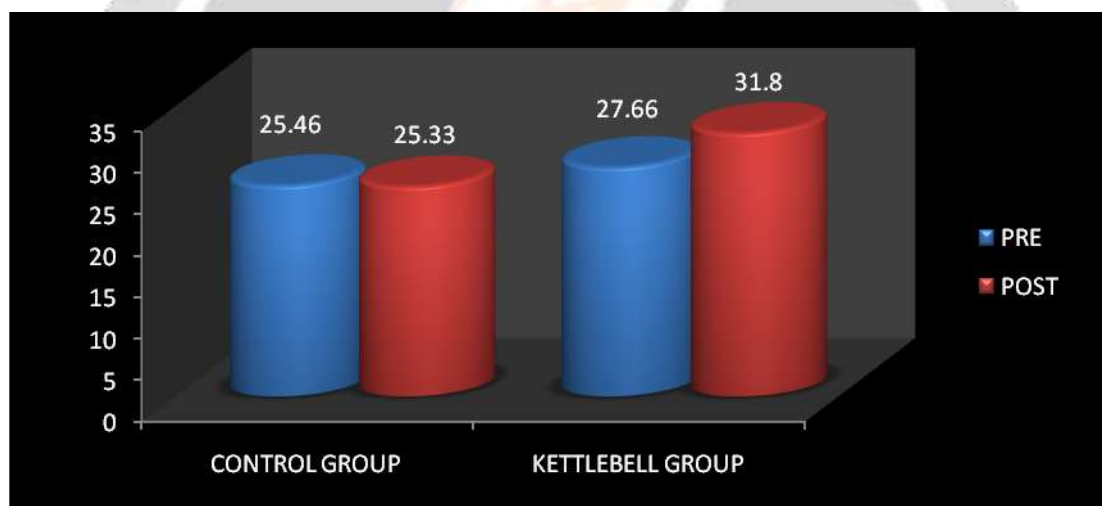
**RELATIONSHIP OF MEAN, SD AND ‘t’-VALUES OF THE MUSCULAR STRENGTH BETWEEN PRE & POST TEST OF THE KETTLEBELL WITH PLYOMETRIC AND CONTROL GROUPS OF BASKETBALL PLAYERS**

\*Significant at 0.05 level of confidence

Table-II reveals that the mean values of pre test and post test of control group for muscular strength

Physical Fitness Variable	Groups	Test	Mean	S.D	‘t’ Values
Muscular Strength	Control Group	Pre Test	25.46	6.42	0.48
		Post Test	25.33	6.52	
	Kettlebell Group	Pre Test	27.66	5.16	3.19*
		Post Test	31.80	5.73	

were 25.46 and 25.33 respectively; the obtained t ratio was 0.48 respectively. The tabulated t value is 2.14 at 0.05 level of confidence for the degree of freedom 14. The calculated t ratio was lesser than the table value. It is found to be insignificant change in muscular strength of the basketball players. The obtained mean and standard deviation values of pre test and post test scores of kettlebell with plyometric group were 27.66 and 31.80 respectively; the obtained t ratio was 3.19. The required table value is 2.14 at 0.05 level of confidence for the degree of freedom 14. The obtained t ratio was greater than the table value. It is found to be significant changes in muscular strength of the basketball players. The mean values on kettlebell with plyometric group and control group are graphically represented in figure-2



**FIGURE-2: BAR DIAGRAM SHOWING THE PRE TEST & POST TEST ON MUSCULAR STRENGTH OF CONTROL AND KETTLEBELL WITH PLYOMETRIC GROUPS**

**DISCUSSION ON FINDING**

The kettlebell with plyometric training is a incredible training which has been found to be beneficial of the basketball players. To study the kettlebell with plyometric training on leg strength and muscular strength of college level men basketball players, it was tested under to difference between kettlebell with plyometric group and control group. The kettlebell with plyometric training includes on selected leg strength and muscular strength. The kettlebell with plyometric exercises are namely pistol squat, biceps curl, row and front raise. It also improves the leg strength, muscular strength, muscle size and other than some physical fitness components are namely speed, agility, and power. The obtained result proved positively the kettlebell with plyometric group significantly improved. The result of the present study showed that the kettlebell with plyometric training has significant improvement on leg strength and muscular strength of basketball players. The results of the study are in line with the studies of **Ooraniyan and Senthil Kumaran (2018), Manocchia, P et al., (2015) & Joe girard et al., (2014)** The result of the study showed that the control group was not significantly improved kettlebell with plyometric training on leg strength and muscular strength of college level men basketball players.

**CONCLUSION**

Based on the findings and within the limitation of the study it is noticed that practice of kettlebell with plyometric training helped to improve leg strength and muscular strength of basketball players at college level. It was also seen that there is progressive improvement in the selected criterion variables of kettlebell with plyometric group of basketball players after six weeks of kettlebell with plyometric training programme. Further, it also helps to improve leg strength and muscular strength.

1. It was concluded that individualized impacts of kettlebell with plyometric group showed a statistically significant positive sign over the course of the treatment period on leg strength and muscular strength of college level men basketball players.
2. It was concluded that individualized impacts of control group showed a statistically insignificant positive sign over the course of the period on leg strength and muscular strength of college level men basketball players.
3. The results of comparative effects lead to conclude that kettlebell with plyometric group had better significant improvement on leg strength and muscular strength of college level men basketball players as compared to their performance with control group.

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