



IMPACT OF PLYOMETRIC EXERCISE ON A FEW PHYSICAL FITNESS FACTORS IN BASKETBALL PLAYERS OF KAKATIYA UNIVERSITY WARANGAL.

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INTRODUCTION

Depending on the intended training objective, plyometric exercises, which involve loading and then rapidly contracting a muscle, leverage the strength, suppleness, and innervations of the muscle and surrounding tissues to help you leap higher, run faster, throw farther, or strike harder. Plyometric training increases the force or speed of muscle contractions, giving athletes the explosiveness they need for a range of sport-specific tasks. Numerous sportsmen have benefited from plyometric training, according to the literature. Among the advantages are improved sprint performance, power development, and injury prevention. Plyometric exercises are those that allow a muscle to produce its maximum force in the least amount of time. The Greek term "plyometric" directly translates to "to increase measurement." A plyometric workout uses a pre-stretch or countermovement that incorporates the stretch shortening cycle to produce a rapid, forceful movement. Plyometric training, sometimes referred to as "ploys," is a kind of exercise regimen intended to enhance nervous system function and generate quick, forceful motions, usually with the goal of enhancing athletic performance. Plyometric exercises are designed to use the stretch reflex as well as the natural elastic components of muscles and tendons to increase the force of subsequent movements. To incorporate plyometric training into a program in an efficient manner.

It is important to understand:

1. Plyometric exercise mechanics and physiology



2. Plyometric program design principles

3. Techniques for carrying out particular plyometric workouts in a safe and efficient manner.

Power jumping, repeated bounding, and rapid force production are all part of plyometric exercises. Your muscles generate the maximum force necessary for sports circumstances when they eccentrically contract, or shorten, and then instantly extend and lengthen. This movement occurs quickly over a brief period of time. For athletes or anyone wishing to increase muscle strength, power, and speed, plyometric training is perfect (Baechle, 2008). Being one of the fastest sports, basketball requires a high level of coordination, conditioning, and technical and tactical skills to execute each skill at the required or desired level. The same agility, leg explosive strength, and speed apply to basketball.

Objective of the Study

The study's goal is to ascertain how plyometric training affects particular aspects of basketball players' physical fitness.

Hypothesis

Basketball players' pre- and post-test scores on a few physical fitness metrics may not alter significantly in response to plyometric training.

2. METHODOLOGY

This study set out to investigate how plyometric training affected a few physical fitness metrics in basketball players. Thirty basketball players from Kakatiya University in Warangal were chosen at random to serve as study participants in order to accomplish this goal. They were between the ages of 18 and 22. The participants were split up into two groups: the control group and the plyometric group. Weekly three-day Monday plyometric exercise was administered to the plyometric group.

Table 1: Comparison of mean and “t”-values of physical fitness variables between pre- and post-test among plyometric and control group.

S.No	Physical Fitness Variables	Groups	Test	Mean	“T”-Values
1	Speed	Plyometric Group	Pre-Test	7.81	13.43
			Post-Test	7.77	
		Control Group	Pre-Test	7.81	0.48
			Post-Test	7.82	
2	Agility	Plyometric Group	Pre-Test	20.61	13.16
			Post-Test	20.58	
		Control Group	Pre-Test	20.77	1.75
			Post-Test	22.34	
3	Leg Explosive Power	Plyometric Group	Pre-Test	35.06	15.04
			Post-Test	37.8	
		Control Group	Pre-Test	34.26	0.52
			Post-Test	34.03	



Wednesday, and Friday) during the six-week evening session. Leg explosive power, speed, and agility were chosen as the dependent variables. The relevant data was gathered, and then statistical analysis was performed.

Instruments Employed • Agility JCR test (shuttle run) in seconds; Leg explosive power JCR test (VERTICAL JUMP) in centimeters; and Speed AAPHERD juvenile fitness test (50 m dash) in seconds.

Course of Instruction

Over the course of six weeks, the plyometric group trained three days a week. The instruction took place during the evening session. Warming up and cooling down are part of the training program. The training lasted roughly 45 to 60 minutes each day. Under the close supervision of the investigator, the participants performed their training regimens, which included single-leg bounding, split leaps, lateral cone hops, side-to-side ankle hops, and double-leg hops, according to the schedules. The control group did not take part in any of the special training throughout the study period.

RESULTS AND DISCUSSION

According to Table 1, the plyometric group's mean scores for speed, agility, and leg explosive power were 7.81 and 7.77, 20.61 and 20.58, and 35.06 and 37.80, respectively, during the test and post-test; the corresponding "t"-ratios were 13.43, 13.16, and 15.04, respectively. For the degree of freedom 14, the "t"-value is 2.14 at the 0.05 level of confidence. The "t"-ratio exceeded the value in the table. The basketball players' speed, agility, and leg explosive power have been discovered to have significantly changed. Before and after the test, the control group's mean scores were 7.81 and 7.82, 20.77 and 22.34, and 34.26 and 34.13, respectively. The corresponding "t"-ratios were 0.48, 1.75, and 0.52. For the degree of freedom 14, the necessary table value is 2.14 at the 0.05 level of confidence. The table value was more than the "t"-ratio. The basketball players' speed, agility, and leg explosive power are found to have barely



changed. The study's findings showed that plyometric training considerably increased the chosen physical fitness characteristics, including speed, agility, and leg explosive power. The players' training package was properly planned, prepared, and executed, which was responsible for the modifications in the chosen parameters. The current study's findings suggest that plyometric training techniques are a suitable protocol for enhancing school-level boys basketball players' speed, agility, and leg explosive power. The current study's findings make it abundantly evident that plyometric training greatly improves the chosen physical fitness characteristics, including speed, agility, and leg explosive power.

CONCLUSIONS

It was determined that the use of plyometric training contributed to increase selected physical fitness variables of school level boys' basketball players. After six weeks of plyometric training, it was also discovered that the chosen criterion variables of the Kakatiya University basketball players' plyometric group showed a gradual development. Additionally, it aids in the improvement of specific physical fitness metrics like leg explosive power, speed, and agility.

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