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EFFECT OF PLYOMETRICS TRAINING ON THIGH MUSCLE CIRCUMFERENCE ON BASKETBALL PLAYERS

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Abstract: The purpose of this study was to determine the effects of plyometric exercise on Thigh Muscle Circumference of Collegiate Basketball players. The Basketball players of Nanded districts of Marathwada region of Maharashtra were selected the primary source of data for the present study. Total 60 Basketball considered as an experimental group and 60 Basketball considered control group for the present study. The experimental group was given the plyometric training and no training was given to the control group. The duration of training program was six weeks. The training was administrated on alternative days i.e. four days per week. The data was collected before and at the end of six weeks training program, with the help of steel tape. The criterion measures were recorded in centimeters. To find out the significant effect of plyometric training on the thigh muscle circumference t-test was employed and mean difference between pretest and posttest of experimental group and control group was determined. Results of this study showed significant effect of plyometric training on thigh muscle circumference was found.

Keywords: Plyometrics Training, Basketball Players, Thigh Muscle Circumference

I. INTRODUCTION

Measurement of thigh circumference is usually performed **15 cm proximal to the superior pole of the patella**. The thigh circumference is measured in cm with a measurement tape and compared to the normal contralateral knee to determine the amount of quadriceps atrophy present (https://drrobertlaprademd.com/thigh-circumference-measurement). Our bodies are uniquely made just for us, and we all come in different shapes and sizes. In particular, thigh size can vary greatly from person to person (https://www.healthline.com/health/fitness/how-to-get-thicker-thighs). Plyometric training is a very important aspect of Basketball to develop the muscles and tendons. Training effect describes the changes in Muscle that occur from regular participation in a fitness program. Plyometric training is an essential component of exercise programs for increasing muscular strength and size.

Plyometrics involve both muscles and tendons, incorporating quick ground contact, producing varying degrees of reactive power and explosive speed. These aspects are essential if you intend on keeping a competitive edge in basketball (https://www.breakthroughbasketball.com/fitness/plyo-exercises.html). Basketball players are constantly sprinting, jumping, and quickly changing direction. One of the best ways to improve in these essential areas is to incorporate plyometrics(https://training-conditioning.com/article/adding-in-plyometrics/).

II. METHODS

Target population:

Two groups were targeted as experimental and control group. The 60 collegiate students will be considered as experimental group and 60 physical education students will be considered as control group. The Training will be given to the experimental groups only.

Sampling method:

The method of sample was purposive –A non-random method of sampling design for students with a specific purpose. The study depends mainly on primary source of data.

Universe of the study:

The Universe of the study will be basketball players who have been studying in college in Nanded city (MS).

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Criterion Measures:

Thigh Muscle Circumference:

The subject were asked to stand at ease with equal weight on both the feet. The middle of the thigh was marked by a horizontal line dividing the distances between the trochantanterion and the lateral and the lower most point on the lateral condyle of femur in equal two parts. The steel tape was then wrapped around the thigh at the level of horizontal line and circumference was measured by keeping steel tape in a horizontal direction.

Experimental Procedure of Training Program :

The type of experimental training was given to the subject have been tabulated as under:

Sr. No.	Name of group	Type of group	Type of training
1	A	Experimental Basketball Players)	Plyometric training
2	B	Control	No training

Training guidelines:

All the participants was performed the training program at Nanded. After pretest, the subjects of experimental group participated in orientation about the training program during this orientation the subjects were given knowledge of each exercise by research scholar. The exercises was explained and demonstration to the participants and then participant will be required to perform each exercise to check the technique issues and address the questions. The exercise sessions were three days a week for six weeks.

Description of training program :

The goal of this training program was to build the muscle. This 4 day workout will be divided into three parts over 4 days a week. This training programme was performed by the subjects on Monday ,Wednesday and Friday and Saturday . Before starting the exercising the subjects performed warming up by doing 5-10 minutes cardio followed by stretching. The training equipment's will be free weights and machines. The number of sets per exercise was 3 and the numbers of repetitions for each exercise will be different in various exercises. The weight used for each set was 60% to 70% of 1-reptition maximum comfortably lifted by the subjects.

Level of Significance :

To the level of significance was setup at 0.05 level which was considered adequate and reliable for the purpose of this study.

Results and discussion: The collected data on 60 subjects before and after six weeks weight trainings programme on selected anthropometric measurements were analyzed by employing t test. The mean, standard deviation and t value analyzed each dependent variable separately. For the sake of convince and methodical presentation of results, following order has been adopted:

Table- I Mean Scores, Standard deviation and t-ratio of Thigh muscle circumference of control groups.

S.No.	Parameter	Test	No.	Mean scores	S.D.	t-ratio
1.	Thigh muscle circumference	Pre-test	60	49.78	4.76	1.46 NS
		Post-test	60	49.66	4.88	

Table-1 Shows the Mean Scores, Standard deviation and t-ratio of Thigh muscle circumference of control groups.

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Figure-1 illustrates the Mean Scores and Standard deviation of Thigh muscle circumference of control groups

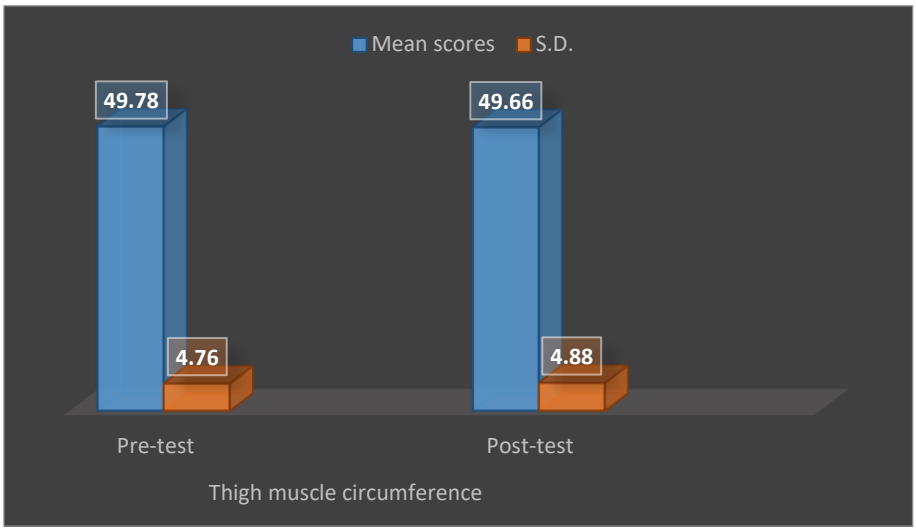


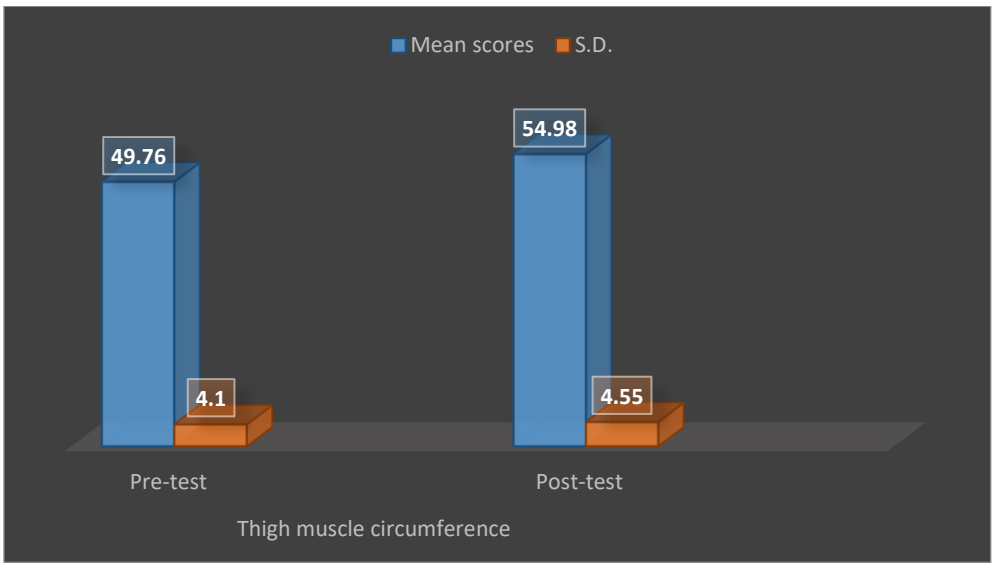
Table -2 Mean Scores, Standard deviation, and t-ratio of Thigh muscle circumference of experimental group.

S.No.	Parameter	Test	No.	Mean scores	S.D.	t-ratio
1.	Thigh muscle circumference	Pre-test	60	49.76	4.10	3.27*
		Post-test	60	54.98	4.55	

*= Significant.

Table-2 Shows the Mean Scores, Standard deviation and t-ratio of Thigh muscle circumference of Experimental group.

Figure-2 Illustrates the Mean Scores and Standard deviation of Thigh muscle circumference of Experimental group



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III. DISCUSSION

Basketball which originated from America and has been must popular in that country has now become a game of international repute. It is played nearly everywhere in the world. Plyometrics includes explosive powerful training exercises that are trained to activate the quick response and elastic properties of the major muscles in the body. It was initially made famous by Soviet Olympians in the 1970s, providing the core element in the strength programs of elite sporting athletes worldwide. Sports using plyometrics include basketball, tennis and volleyball as well as the various codes of football. With regards to thigh muscle circumference of pre and post-test of control group they have obtained the mean value of 49.78 and 49.66 respectively.

Whereas, control group obtained the **Standard deviation** for thigh muscle circumference were 4.76 (Pre-test) and 4.88 (Post-test) respectively. The findings of the study shows no significant difference of pre and post were found in thigh muscle circumference of control group. With regards to thigh muscle circumference of pre and post test of experimental group they have obtained the mean value of 49.76 and 54.98 respectively. Whereas, control group obtained the **Standard deviation** for thigh muscle circumference were 4.10 (Pre-test) and 4.55 (Post-test) respectively. The results of the study show significant difference of pre and post were found in thigh muscle circumference of experimental group. The study found that, there were significant effects found of plyometric exercise on thigh muscle circumference among Basketball Players.

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