

The Effect of Calf Raise to Leg Muscle Power for Beginner of Athletic Athlete in Pekanbaru

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ABSTRACT

This research was aimed to find out whether there is the effect of calf raise to the power of leg muscle for beginner athletes in athletic Pekanbaru. Type of this research is experimental, the population of this research was the athletic club Pekanbaru, and the sample was the total of population, which was 6 athlete. The instrument used to determine the strength of the result of this research are leg dynamometer. The data were analyzed by statistic to test normality by Liliefors test in $\alpha 0.05$ significant level. According to the analysis of t test, the result is Ttest is 6,16 and Ttabel 2,015, so Ttest > Ttabel. According to statistic of analysis data, the average of pre-test is 33,67 and average of post-test is 39,33, so the data was normal. In conclusion, there was an effect of calf raise to the power of leg muscle for beginner athletes athletic Pekanbaru.

Keywords: *Calf raise, leg muscle power, athletic athlete*

1. INTRODUCTION

In this era of globalization, the need for healthy living has become a basic need that is no longer negotiable. A bad lifestyle causes a variety of negative types such as those who live in chaos, a bad environment, even very susceptible to various diseases. To overcome the ugliness of the bad environment pattern, it must be immediately overcome by changing the direction, a more positive environment, an environment that creates a healthy lifestyle.

Today's healthy lifestyle has become a separate lifestyle. This is evidenced by the increasingly high-selling health products sold in the market, increasingly mushrooming fitness centers, and so on. By carrying out a healthy lifestyle will produce positive suggestions so that stimulation will arise which makes us easier and more passionate in living life. There are many ways to do this healthy lifestyle, one of which is by doing sports.

Sport has become a social phenomenon that has spread throughout the world. Sport has become a spectacle, education, livelihood, health, culture and is an object that is never boring for society. Spirit is finally manifested in Law No. 3 of 2005 concerning the National Sports System, specifically Article 6 which states, among other things, "every citizen has the same right to carry out sports activities, obtain services in sports, choose and follow the type or branch of sport. in accordance with their rights and interests, and obtain direction, guidance and development in the sport.

The more advanced times that developed into modern times, humans are required to create positives with various thoughts and activities that can be

beneficial, in order to achieve quality human resources (HR). One way to improve the quality of human resources is to follow and plunge into the world of sports. With sports not only do we get health and fitness, but with sports we can also get achievements that can bring the name of the region to life and the nation. One sport that can make the nation proud is Athletics.

Athletics is the mother of all sports, because it was she who first laid the foundation for sharpening muscle, breathing and flexibility. Athletics grows and develops along with natural human activities. This athletic branch includes running, jumping and throwing. These three numbers are inseparable parts throughout human activities.

In Indonesia, the national level body that handles athletic sports is PASI (Indonesian Athletics Association). This body handles and is responsible for the continuity of athletic achievements in Indonesia. The work program that is carried out is conducting search and fostering talent and organizing athletic championships at the national level. PASI also has a professional agenda, such as Jakarta 10 K, Mandiri Jakarta Marathon, etc. followed by professional runners in Indonesia as well as professional runners from other countries.

Every sporting activity has a specific purpose, goals and benefits such as: freshness, fitness, recreation, pleasure and achievement. But at this time the goal of sports is more focused on achievement. To achieve a glorious achievement is not as easy as turning the palm of the hand, meaning that to achieve an achievement must be accompanied by vigorous effort and practice,

because to achieve brilliant achievements requires a prime physical condition so that it can produce good skills (excellent).

Physical condition is one whole unit of components that can not be separated, both increase and maintenance. This means that in an effort to improve physical conditions, all these components must be developed. The components include: 1. Strength; 2. Endurance; 3. Muscular explosive power; 4. Speed; 5. Flexibility; 6. Balance; 7. Coordination; 8. Agility; 9. Accuracy; 10. Reaction. M. sajoto, (1995).

In athletics there are several numbers that are contested, one of which is a running number or non-technical number, because running is a relatively simple natural activity. However, it is not as simple as running. Emphasis on speed and endurance is determined by the distance of the sprint race, relay baton change, and the presence of obstacles on the hurdle number, and obstacles that all make technical guidance for the athletes that must be prepared.

Running numbers in athletics compete with various distances, one of which is a short distance, or often known as a sprint, which consists of a distance of 60 meters to 400 meters plus a goal run. Sprint requires fast reactions, good acceleration, and efficient running types.

In athletics, the biomotor component of strength is needed for the purpose of training to improve the runner's physical quality which includes increased muscle strength, endurance and flexibility. Runners who have excellent physical quality, including the biomotor component of strength, will produce speed.

One very important physical element is strength. Strength is the ability to pull loads or obstacles, both burdens in the body's own meanings such as jumping, swinging, lifting weights, or external loads, such as lifting dumbbell barbells, rejecting bullets, and others.

From the results of observations in the field through practice and competition, leg muscle strength in Pekanbaru Athletics beginner athletes is still weak. To increase leg muscle strength can do knee curl exercises, body weight calf raises, seated calf raises, body weight squats, leg prees, barbell lunge, dumbbell lunge, knee extension

Therefore researchers want to increase leg muscle strength by taking one of the exercises, namely "The effect of CALF RAISE exercises on leg muscle strength in Pekanbaru Athletics beginner athletes"

Calf raise is an exercise that increases the lower limb muscles, namely the gastrocnemius muscle and the soleus muscle according to William J. Kremer, PhD and Steven J. P.HD (1953). The implementation of the calf raise exercise is as follows: a. The initial position of the body stands upright and holds the dumbbell. b. If you use a barbell, the barbell is on the shoulder of the athlete's back, and holds the barbell. c. Open your feet shoulder width apart or rather wide from your

shoulders. d. Both feet began to tiptoe. e. The tipping leg fell back to its original position. f. Repeat the movement with the same movement. Calf Raise Exercise which is represented by X as an independent variable.

The strength of the leg muscles is basically the ability of the muscles when doing contractions, and the most important thing is in each exercise must be done in such a way that the athlete must use maximum energy as stated by M. Sajoto (1995) strength is a component of one's physical condition about his ability to use muscles to accept the burden while working. So leg muscle strength is the ability of the leg muscles to hold the load while carrying out activities. Whereas according to Ateng (1992) leg muscle strength is an important component of physical fitness, because the level of ability adjustment occurs in proportion to the quality of muscle fibers. Muscle strength of the limbs is represented by Y as the dependent variable.

2. METHOD

In this study, the researcher used the One-Group Pretest-Posttest Design research design. In this design there was a pretest before being treated. Thus the results of treatment can be known more accurately, because it can compare with the situation before being treated. Sugiyono (2012).

The population in this study was 6 newcomers at Pekanbaru athletic athletes. Because the number of samples is only 6 people, the authors took everything to be sampled in this study. Determination of the sample using the total sampling technique (saturated sample) in which the entire population is sampled, Sugiyono (2012) based on the determination of the sample above, the sample obtained as many as 6 female athletes.

The desired data in this study were carried out two tests namely the initial test (pre-test) Leg dynamometer test before conducting the Calf Raise exercise and the final test (post-test) Leg dynamometer test after doing Calf Raise exercises for 16 meetings, from April 14, 2015 until the 19th of May 2015. Samples totaling 6 Pekanbaru athletic beginners.

3. RESULTS AND DISCUSSION

The data obtained as a result of the study were quality data through tests before and after giving Calf Raise's treatment. Data taken through tests and measurements of 6 Pekanbaru athletic beginner athletes. The variables in this study are Calf Raise training which is represented by X as the independent variable, while the leg muscle strength is denoted by Y as the dependent variable.

Description of Research Data

The data obtained as a result of the study were quality data through tests before and after giving treatment to Calf Raise's Training. Data taken through

tests and measurements of 6 Pekanbaru athletic beginner athletes. The variables in this study are Calf Raise Exercise which is represented by X as the independent variable, while the Muscle Strength of the limbs is represented by Y as the dependent variable.

Data Results Pree-test Test leg dynamometer

Before the Calf Raise exercise, the Leg Dynamometer Pree-Test is performed, and the initial data (pree-test) is obtained as follows: The Leg Dynamometer test is as follows: Highest score 36, lowest score 30 with an average of 33.67, standard deviation 2.25 , and variance 5.07, Data Analysis of Pree-Test Leg Dynamometer can be seen in Table 1 below.

Table 1. Data Analysis of Pree-Test Leg Dynamometer.

Statistik	Pree-test
Sample	6
Mean	33,67
Standard Deviation	2,25
Variance	5,07
Minimum	30
Maximum	36
Sum	202

Table 2. Frequency Distribution of Pree-test Expanding Dynamometer.

Class Interval	Frequency	
	absolute	Relative
30-32	2	33.33%
33-35	3	50.00%
36-38	1	16.67%
39-41	0	0%
total	6	100.00%

Based on the frequency distribution table above, from 6 samples, there were 2 people (33.33%) with a range of 30-32 intervals, 3 people (50%) with a range of intervals of 33-35, 1 person (16.67%) with a range interval 36-38, and 0 people (0%) with a range of intervals of 39-41. For more details, see the histogram below:

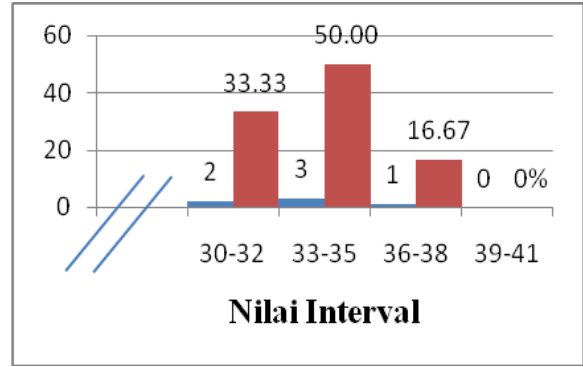


Figure 1. Leg Dynamometer Pre-test Result.

Results of Leg Dynamometer Post-test

After doing the Leg Dynamometer test, and after applying the Calf Raise exercise treatment, it was obtained the final data (post-test) of the Leg Dynamometer test as follows: highest value 40, lowest value 38, with an average of 39.33, variant 0.66, standard deviation of 0.82, Analysis of the results of the post-test Leg Dynamometer Test can be seen in table 3 as follows:

Table 3. Analysis of Leg Dynamometer Post-Test.

Statistic	Pre-test
Sample	6
Mean	39,33
Standard Deviation	0,82
Variance	0,66
Minimum	38
Maximum	40
Sum	236

Based on the frequency distribution table above, from 6 samples, 3 people (50%) with a range of intervals of 38-39, 3 people (50%) with a range of intervals of 40-41, 0 people (0%) with a range of intervals of 42-43 , and 0 people (0%) with a range of intervals of 44-45. For more details, see the histogram below:

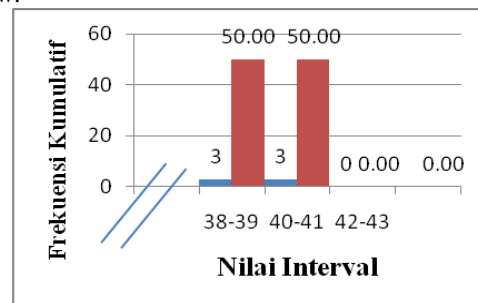


Figure 2. Histogram of Post Test Results of the Leg Dynamometer Test.

Testing Requirements Analysis

Testing requirements analysis is intended to test the initial assumptions that are used as the basis for using variance analysis techniques. Assumption is the data analyzed is obtained from samples that represent populations that are normally distributed, and groups that are compared come from a homogeneous population. normality test.

The normality test is carried out by the liliefors test with a significant level of 0.05 with the results of the testing requirements as follows:

Normality test

The normality test is carried out by the liliefors test, the results of the normality test on the research variables namely Exercise Cord Seated Row Rubber (X) Results of Arm and Shoulder Muscle Strength (Y) can be seen in table 6 as follows:

Table 4. Normality

Testing.			
Variable	L _{counted}	L _{table}	Information
<i>Pre-test results Leg Dynamometer</i>	0,1515	0,319	Normal distribution
<i>Post-test results Leg Dynamometer</i>	0,2061	0,319	Normal distribution

From table 5 above, it can be seen that the data obtained from the Leg Dynamometer pree-test after calculation was Lcounted of 0.1515 and Ltable of 0.319. This means Lcounted <Ltable. It can be concluded that the distribution of data from the Leg Dynamometer pree-test result is normally distributed. To test the data the results of the Leg Dynamometer post-test produce Lhitung 0.2061 and Ltable of 0.319. It can be concluded that the distribution of the results of the Leg Dynamometer post-test is normally distributed.

Hypothesis testing

The data obtained were analyzed descriptively, then further testing of the research hypotheses that had been proposed was in accordance with the problem, namely: "there is a significant effect of Calf Raise (X) training with strength (Y). Based on the analysis of the t test it produces tcounts of 6.16 and ttable 2.015 Means t count> t table. It can be concluded that H0 is rejected H1 is accepted. The hypothesis tested in this study is:

H1: There is a significant effect between Calf Raise Exercise (X) on leg muscle strength (Y) in Pekanbaru athletic beginner athletes.

It can be concluded that there is a significant effect between Calf Raise Exercise (X) on limb muscle strength (Y) Pekanbaru athletic beginner athletes. at the level of α (alpha) 0.05 with a confidence level of 95%.

Discussion

After 16 research meetings, which began with data retrieval until data processing was finally used as a benchmark as a discussion of the results of the study as follows: Effect of Calf Raise Exercise (X) on leg muscle strength (Y) in Pekanbaru athletic beginner athletes. This shows that there is a significant influence between the two variables.

Hypothesis testing results show that there is an effect of Calf Raise Exercise on leg muscle strength in Pekanbaru athletic beginner athletes. To get speed, a training method that leads to Strength training is needed. One form of training is Calf Raise training. from a coach. Thus, the success of the objectives to be achieved will be influenced by the application of the principles of training needed in making the training program.

Based on the results of the discussion above, it can be concluded that there is an effect of Calf Raise Exercise on leg muscle strength in Pekanbaru athletic beginner athletes.

4. CONCLUSION AND RECOMMENDATIONS

4.1 Conclusion

Based on the t-test analysis produces tcount of 6.16 and ttable 2.015 Means tcount> ttable, and based on statistical data analysis there is an average pree-test of 33.67 and the post-test average is 39.33.

Based on the t test after calculating the data through the pree-test and post-test there are differences in numbers that increase or increase with an average of 5.67, it can be concluded that the Athlete's Muscle Strength influences the Calf Raise exercise needed to support the frequency while doing the exercises in increasing athlete's muscle strength.

Based on the findings and data processing above, it can be concluded as follows: There is a significant effect between Calf Raise (X) Training and Strength (Y) in Pekanbaru athletic beginner athletes.

4.2 Recommendation

Based on the findings obtained in this study, suggestions that might be useful in an effort to increase leg muscle strength when running a sprint are as follows:

- It is hoped that this research will be useful as an input in developing training programs in sports, especially athletics that can increase leg muscle strength.
- It is hoped that it will be an encouragement in mastering better techniques, so that the quality of athletes will also be better.
- It is expected that Pekanbaru athletic beginner athletes will be more creative in exploring and developing their talents and trying better, more effective and efficient training methods.

- For researchers, as Advanced research in the framework of developing knowledge in the field of Physical Education.
- As a critical reference if there are other researchers doing the same test or research.

Then another suggestion for improving the quality of athletic athletes:

- It should be noted that the development of psychological aspects and attitudes and ethics such as: mentality, discipline, honesty, mutual support among friends, and respect for older people.
- In the midst of a busy education schedule and not being balanced with an adequate training schedule, time management needs to be improved so that with limited time it can be utilized with quality, effective and efficient training.
- For future researchers, besides the strength of the legs there are still many physical conditions that need to be improved.

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