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THE EFFECT OF LEG MUSCLE STRENGTH TRAINING ON LONG JUMP ABILITY IN THE SQUAT STYLE STUDENTS OF STATE SENIOR HIGH SCHOOL 1 KETAMBE GRADE XI IN THE 2022/2023 ACADEMIC YEAR

Fakhrur Rizal [1 *] , Orbit Irwansyah [2] , Melfa Br Nababan
[3 1,2,3] Gunung Leuser University, Aceh

Corresponding email : fahrul.mpo11@gmail.com

Abstract

The study entitled "The Effect of Leg Muscle Strength Exercise on the Squat Style Long Jump Ability of Students of SMA Negeri 1 Ketambe Class XI in the 2022/2023 Academic Year". This study aims to reveal the effect of Leg Muscle Strength Exercise on the Squat Style Long Jump Ability of Students of SMA Negeri 1 Ketambe Class XI in the 2022/2023 Academic Year totaling 124 people. The research sample was 35% of the total population of 24 students. The sampling technique was determined by the Random Sampling technique. This research is included in Experimental research. The research design used is one group pretest-posttest. For data collection, long jump measurements were used. Based on the results of data calculations and hypothesis testing as well as discussion of research results, the average value of the calculation of long jump ability before training "Leg muscle strength in Class XI Students of SMA Negeri 1 Ketambe in the 2022/2023 Academic Year was 2.80 meters and after training 3.10 meters. Based on the analysis of the difference test, the average difference was obtained at 0.3 meters. While the calculated t was (1.76) and the t table was (1.71). This can be concluded that there is a significant influence between the long jump ability after and before training "Leg muscle strength in Class XI Students of SMA Negeri 1 Ketambe in the 2022/2023 Academic Year. This can be proven by the comparison of the calculated t value which is greater than the t table, (1.76>1.71).

Keywords : Leg Muscle Strength , **Squat** Style Long Jump

INTRODUCTION

Athletics is one of the oldest sports, having existed and been practiced by humans since ancient times. In fact, it could be said that athletics has existed and been practiced since the beginning of human existence . This is because every movement in athletics, such as walking, running, jumping, and throwing, embodies the fundamental movements of everyday life.

In ancient times, the movements performed by humans were very important because they were related to fulfilling their life needs, namely hunting and gathering food. For this reason, primitive humans were required to have strength, speed, endurance and dexterity, especially in using ancient tools such as javelins, arrows, boomerangs, stones and so on, which they could acquire from performing various athletic movements even though they were not aware of it (Depdikbud, 1992:1).

In ancient times, human movements were crucial because they were related to fulfilling their basic needs, such as hunting and gathering food. Therefore, primitive humans were required to possess strength, speed, endurance, and dexterity, especially when using ancient tools such as javelins, arrows, and boomerangs.

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stones and so on which can be obtained from doing various athletic movements even though he is not aware of it (Depdikbud, 1992:1).

The movements found in all sports are essentially basic movements derived from athletics. Therefore, it's no exaggeration to say that athletics is the mother of all sports (Syarifuddin, 199:1). Athletics is also a means of physical education for students to improve endurance, strength, speed, agility, and so on.

According to *Mellerowies* (1992:7) states: All movements in athletics require strength and speed, in other words, strength and speed are needed for sprinting, jumping, throwing or pushing as well as all running events in general.

Athletics, when viewed from the perspective of its movements, is a sport that has complex natural human basic movements, namely encompassing a comprehensive movement, in its implementation requiring strength, speed, endurance, flexibility, and good coordination in a single movement unit. This is in accordance with *Jonath's* opinion (1983:7) that:

> "Athletic training is an excellent way to improve general physical abilities because it improves blood circulation and the nervous system, as well as the development of meaningful basic physical abilities, including strength, speed, endurance, flexibility, and agility."

The long jump requires a run-up influenced by maximum speed and push-off (leg power) to achieve maximum jump distance. To ensure that development achieves its desired goals, it is important to understand several factors that influence and determine an athlete's success, particularly in athletics. According to Sajoto (1988:15), these factors include the following:

1) Physical development, 2) Technical development, 3) Mental development, 4) Champion maturity, one of the elements of physical condition is power training or explosive power (Sajoto, 1988:17). Meanwhile, exercises that can increase *explosive power* include: 1) Jumping far forward (*bounds*), 2) Vertical jumps (*hops*), 3) Jumping (*jump*), 4) Jumping on tiptoes (*leaps*), 5) Short steps (*skips*).

Based on this, the author suspects that these physical condition components certainly play different roles in supporting a person's abilities. Among the physical components examined in this study is leg muscle strength.

Students of SMA Negeri 1 Ketambe, consisting of various study programs, especially physical education, have various problems. Among these problems is the level of long jump ability in students does not show significant abilities. And the level of long jump ability is also very weak. This is seen from many athletic events that do not show encouraging achievements among fellow students, both events within the school and outside of school. Muscle strength is a very important component to improve overall physical condition. Therefore, absolute strength must be possessed by an athlete before he trains to develop other elements, strength is the basis of all components of physical condition.

RESEARCH METHODS

This research is an experiment, meaning it aims to determine the effect of a treatment or training on a specific variable. Experimental research involves the author deliberately attempting to induce variables and then controlling them to determine their effect on other variables.

To obtain data that is in accordance with the objectives of this research, an experiment was used, namely by providing treatment to students in the form of initial test activities, *treatment* or exercises and final tests.

To obtain data in this study , the steps that must be taken are:

is :

1. A pre -test was conducted to obtain data describing the sample's initial abilities before receiving the "Leg Squat" training treatment. The pre-test was conducted on the entire sample, assessing their squat long jump ability and measuring the time taken to reach the finish line. These results will serve as data for this study.
2. The training program provided is a form of Leg Squat training. The training system used is a set system, in the first week of training is given 5 sets, and the training is done for three days on Monday, Wednesday, Friday, Saturday. Additional sets are done per week.
3. The Post-Test *was* conducted after four weeks of training. The goal was to determine the extent

to which the athlete's ability/speed in the squat long jump had improved after the Leg Squat training program. These results were then tested using a statistical formula to determine the extent to which the Leg Squat training affected the squat long jump ability.

The population is the entirety of the research objects to be studied. In this study, the population was 124 11th-grade students of SMA Negeri 1 Ketambe in the 2022/2023 academic year .

A sample is a homogeneous group of subjects used in a study. In this study, the sampling technique used is as stated by Arikonto *(1991:94)* , if the subjects are more than one hundred, then the sample can be taken as much as 10% to 15% or 20% to 25% or more. The number of samples taken is 24 people from the population, this is taken 19% of 124 students. The sampling technique used *purposive sampling* or purposeful samples taken with certain considerations from the researcher.

RESULTS AND DISCUSSION

Based on the research results obtained, a discussion supported by theory is necessary to ensure the validity of the research findings. The discussion of research results aims to present the findings by comparing them with scientific concepts from experts related to the research problem. This allows researchers to understand and draw conclusions from the research findings.

The long jump is a jumping event in athletics, and its technical and execution differs from other jumping events such as the high jump and the triple jump. According to Syarufuddin (1992:90), the long jump is a form of jumping movement that involves lifting the leg upwards in an attempt to carry the body's center of gravity as long as possible in the air or floating in the air, which is done quickly and by pushing off with one leg to achieve the greatest possible distance . Sudarminto (1993:349) states that the main elements of the long jump with a run-up are the run-up, take-off, floating in the air, and landing. Each part has its own movement style that contributes to the achievement of the jump distance. However, the main requirement is the development of power distance. This power is developed from fast running and a strong upward jump from the push-off. So, in essence, the long jump is a single-leg pushing movement that is influenced by horizontal and vertical speeds and the force of gravity to produce the longest possible jump.

This exercise uses the legs as a means of supporting body weight or external loads , so that its implementation will directly impact the capacity of the muscle structure or tissues of the leg muscles. The above opinion provides a good reason to conclude that leg muscle strength training can be chosen as a model for improving leg muscle capacity, especially explosive power, which will affect the jump of long jump athletes.

After the research , data was obtained on the average long jump ability before being given leg muscle strength training of 2.80 meters, while the average long jump ability after being given leg muscle strength training was 3.10 meters. While the t-table (tit) was 1.71. Thus, the t-count (tit) of 1.76 was greater than the t-table (ttable).

Based on the research results, it is clear that leg muscle strength training has an impact on long jump ability. This demonstrates that the training has a positive effect on developing leg muscle strength in general and the long jump in particular.

CONCLUSION AND RECOMMENDATIONS

Based on the results of data calculations and hypothesis testing as well as discussion of research results, a conclusion can be established regarding leg muscle strength training in relation to the long jump ability of Class XI students of SMA Negeri 1 Ketambe in the 2022/2023 Academic Year as follows:

1. The average value of the long jump ability calculation before leg muscle strength training for Grade XI students of SMA Negeri 1 Ketambe in the 2022/2023 academic year was 2.80 meters and after leg muscle strength training was 3.10 meters, and the average difference before and after leg muscle strength training was 0.3 meters.
2. There is a significant influence between the long jump ability after and before leg muscle strength training of Class XI students of SMA Negeri 1 Ketambe in the 2022/2023 academic year. This can be proven by comparing the t-count value > t-table, (1.76>1.71).

In relation to the conclusion of the research, several suggestions can be made that is :

1. For students to continue to develop themselves in various sports and do leg muscle strength training to improve leg muscle ability.
2. For coaches and athletes, especially in the long jump category, so that they can use the results of this study as a guideline, namely the leg muscle strength training method as a form of training to increase leg muscle capacity.
3. For researchers, there is further research with a broader scope in terms of research methods, subject variables, and so on, so that the results of research related to leg muscle strength training and long jump will be more verifiable.

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