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The Effect of Training Muscle Strength Model Towards Athlete Jumping Ability at Solok City

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ABSTRACT
Leg muscle strength is a component of physical condition needed in long jump numbers. Based on preliminary observations, Solok City Athletic Athletes' long jump achievement is still low. One of the alleged low ability of long jump is from the given training model. The aim of the study was to determine the effect of leg muscle strength training model on long jump ability. The study design uses The One Group Pretest-Postest Design. The results showed that there was an effect of leg muscle strength training model on long jump ability, which was indicated by an initial average of 2.92 meters and a final average of 3.08 meters with a t count of 7.71> t table 2.09 at a significance level of α = 0.05. This means that the leg muscle strength training model designed can improve the ability of the long jump. Therefore, the training model that will be given is adjusted to one's physical growth and development.

Keywords: *Training muscle strength, jumping*

1. INTRODUCTION

Sports is an effort to raise the dignity of the nation in the eyes of the world, as stated in Law Number 3 of 2005 concerning Article 4 of the National Sports System, namely:

National sports aim to maintain and improve health, fitness, achievement, human quality, instill noble moral and moral values, sportsmanship, discipline, strengthen and foster national unity and integrity, strengthen national resilience, and uplift, honor the nation.

From the above statement, many things must be done to raise the dignity of the nation, one of which is the achievement in the long jump number athletics branch.

One club that participates in raising the dignity of the nation is the Solok Club Grouse Athletic Club. But from the results of preliminary observations obtained from the trainers about the achievements obtained by the Grouse Athletics Athletes Club, with one conclusion, the ability of the long jump is still relatively low.

The low ability of long jump athletes at the Solok Athletic Club in the City of Solok is thought to be caused by the ability of a low physical condition, in addition to techniques, trainers, facilities, motivation and the community environment, as well as supporting elements in sports coaching. This is similar to what was stated by Syafruddin (2012: 57) that:

> "The best performance (top / peak performance) of athletes is the result of training and training given to athletes through exercises and competitions that are well-programmed and directed. "Achievement of the best achievements of athletes is influenced by: 1. Internal factors, namely factors that originate from the potential that exists in the athlete or from the person himself concerning his physical abilities, techniques, tactics, mental abilities. 2. External factors, namely factors that come from outside the athlete's self such as facilities and infrastructure, coaches, coaches, teachers of sports, family, organization, climate, weather, nutritious food and so forth ". The point is the factor that comes from outside the athlete.

Based on the above statement, it can be interpreted that in order to achieve sports achievements, it requires a directed collaboration and attention to all aspects that contribute to the achievement of achievement, both internal and external factors, one of them is the coach.

To achieve long jump achievements, guidance should be directed at fostering physical conditions in a regular, directed, continuous manner and in accordance with the principles of practice in achieving peak performance. If the burden of coaching is not in accordance with the burden it should cause fatigue, so that maximum achievement is difficult to achieve.

The components of the physical condition are leg muscle strength, in addition to the components of speed, explosive power, flexibility, balance, coordination, accuracy and reaction. Each of these components must be at the top level in accordance with the demands of each sport (Ihsan. 2014).

The long jump is one of the athletic numbers that has been competed both nationally and internationally. The long jump is contested in an open field or in a jumping basin containing sand. According to Syarifuddin (1992: 104) "the size of the long jump tub is, at least 7-9 meters long, 2.75 meters wide to 3.00 meters and pedestal beam 1.21 meters long, 1.98-2.02 meters wide and 1.00 cm thick". Long jump according to Syarifuddin (1992: 90) is

defined as "a form of jumping motion, lifting the foot upwards in an effort to carry a point of weight as long as it is possible to fly (floating in the air) and by repelling one leg to reach a distance as far as possible ". Furthermore, Muhajir (2007: 40) suggests that the long jump is one of the jumping numbers in athletics whose purpose is to jump as far as possible by moving the whole body from certain points to other points, by running as fast as possible then refusing, floating in the air and land. Likewise, Nurmai (2010) suggests the long jump is one of the numbers in an athletic branch, where a jumper will try to lean forward on one foot on the strongest beam to make a landing in a jumping tub by reaching the far distance.

From some of the opinions above it can be stated that the long jump is a movement of jumping using a one-foot support to reach the distance as far as possible. The aim and purpose of the long jump is to reach the jumping distance as far as possible to a landing location or jumping platform. The jumping distance is measured from the repulsion board to the closest extent to the location of the landing produced by the body part.

Strength is a very important component of the overall physical condition, because it is the driving force for every physical activity (Nurul Ihsan. 2018). Tangkudung and Puspitorini (2012) suggest that: Strength can be broken down into three forms, namely maximum strength, elastic strength, and strength endurance. Maximum strength is the greatest power / muscle produced by contracting by not determining how fast a movement is carried out or how long the movement can be carried out.

Furthermore, Syafrudin (2012) argues that strength is the ability of muscles or pulling muscles to overcome the load or resistance (resistance) both the burden in the body's own meaning such as jumping, depending on lifting the body or external loads such as lifting barbells, dumbbells, rejecting bullets and others. Furthermore, Indrarti, et al (2010: 27) stated that strength is the ability to expend energy to withstand a burden or detainee. Likewise, Syahara (2011: 86) suggests that strength is defined as an ability to use force or strength.

Based on some opinions above it can be concluded that muscle strength is the ability of a muscle or a group of muscles to hold or strength can be demonstrated by the individual's ability to kick, pull, push, lift or press an object or hold the body in a hanging position.

Legs according to Poerwadarminto (1976) are "legs (all from the bottom of the groin)". The leg muscle strength that the author refers to is the ability of the leg muscles to use the muscles to receive a load in a certain working time. Leg muscle strength here is the ability of a person to use a group of muscles to move and resist in the long jump.

A long jumper who has good limb muscle strength is very supportive of achievements in long jump sports. As has been explained that strength is the basic ability of physical conditions, especially the strength of leg muscles. In the long jump exercise when taking off, the strength of the leg muscles determines the outcome of the jump.

According to Agus (2012) "Exercise is a systematic exercise activity for a long time, progressively improved and individuals aiming to achieve previously set goals". On the other hand Irawadi (2014) training is an activity of physical activity carried out repeatedly with the aim of increasing certain physical abilities or movement skills.

From the statement above, it can be stated that the process of achieving the highest achievement requires a long time and a hard struggle in accordance with the demands of the sport being pursued. Training is carried out regularly and continuously starting from the easy to the difficult and from the simple to the more complex. Irregular or disjointed exercises over a long period of time will certainly not improve one's performance.

The above is as stated by Syafruddin (2012) that exercise is done repeatedly with guidance that is increasingly complicated to improve physical and mental abilities. Then Arsil (1999) reveals that "exercise is a systematic activity for a long time, progressively and individually improved, which leads to the characteristics of human physiology and psychology to achieve predetermined goals".

According to Syafruddin (2012), he explains the difference between training and training, where training is the entire process of preparing athletes starting from arranging an exercise plan, realizing, controlling, and evaluating all activities carried out, or in other words is a series of processes starting from preparation of training programs to the process of evaluating athlete's progress. While the exercise is the realization or implementation / application of the training materials that have been planned in advance, or in other words is part of the training

Based on the opinions stated above, it is clear that training is an activity planning process that consists of various forms of attitudes and movements that are directed, repetitive and systematic with increasing burdens to improve abilities. The success of the exercise is also determined by the ability of the trainer to regulate the characteristics of loading and the development of forms of training in accordance with the training objectives to be achieved. Therefore, knowledge of the characteristics of loading and the development of this form of training needs to be understood by both coaches and athletes.

Some forms of leg muscle strength training are jumping with two or one leg in various directions, or various obstacles. As stated by Syahara (2011) that the form of leg muscle strength training can be done by jumping two legs, either forward, backward or sideways. Likewise, Nurmai (2010) suggests that this form of training in long jump can be done in various forms of jumping situations including jumping over boxes arranged with various levels of obstacles such as one cardboard box, two boxes and three boxes in parallel. Furthermore, Lubis (2016) exercises leg muscle strength in the forms of plyometric exercises including using one leg or two legs as a support. From some of the opinions above, there is also an opinion from Ballesteros (1979), namely training up and down the bench and Krempel, et al. (1988) that the practice in the long jump by squatting jumps up, jumps from one mat to the other, jumps two legs, jims right and left, jumps up through the stairs of several chests or goes over low crates.

From some of the opinions above, it can be summarized that the leg muscle strength training can be done by jumping in various directions, both to the side, forward, backward with one leg or two legs. and can be done with obstacles such as jumping over boxes, crates or mats.

2. METHOD

The design of this study used The One Group Pretest-Postest Design which was carried out at Solok Club Athletic Athletics Club in Solok. The population in this study were 29 athletes from the city of Solok consisting of 18 male athletes and 11 female athletes. Sampling with "purposive sampling, namely male athletes as many as 18 people. The instrument used was a test of the long jump ability. The description of the data and the requirements test for the analysis of hypothesis testing in this study can be processed using descriptive and inferential statistics with the bound sample t test formula (the same number of samples). Before the t-test analysis is used, the data normalization test is used first, because the t test can only be used to test the mean difference of two samples taken from the normal population.

3. RESULTS AND DISCUSSION

Before testing the hypotheses was put forward in this study, the analysis requirements test is carried out first, namely: data normality test through Lilliefors test. The results of the normality test using liliefors test on the long jump ability data of Solok City Athletics Athletes can be seen in the table 1 summary of the results of the following normality tests:

Table 1. Summary of Data Normality Test.

Long Jump Ability	L_o	L_t	Conclusion
Pre Test	0,147	0,200	Normal
Post Test	0,159	0,200	Normal

Based on table 1 above, it turns out that the results of the normality test data through the Liliefors test obtained an observation score of each variable (Lo <Lt with n 18 and α level of 0.05%. If Lo is smaller than Lt this means all data respectively each variable studied is normally distributed.

Hypothesis testing

The hypothesis proposed in this study is that there is an influence on the leg muscle strength training model to increase the ability of the Long Jump Athletes of the Solok Athletic Club in the City of Solok. To test the magnitude of the hypothesis correlation coefficient t-test analysis was carried out with the following results:

Table 2: Summary of Hypothesis Testing Results of Solok Athletes' Long Jump Ability.

Long Jump Ability	**Mean**	t_h	t_t	Significant level	Test results
				(α)	
Pre-Test	2.92	7.71	2.10	0,05	Significant
Post-Test	3,08				

Based on table 2 above, it can be seen that there was an average increase of 2.92 during the pre-test to 3.08 at the post-test while thitung = 7.71 with the significance level of α = 0.05 and ttable = 2.10. Thus, t count (7.71)> t table (2.10) with the Ho test rejected and Ha accepted. It can be interpreted that the final data (post test) is better than the initial data (pre test). Thus there is the influence of leg muscle strength training model on the long jump ability of Solok Club Athletic Athletics Solok.

The hypothesis proposed in this study is that there is an influence on the leg muscle strength training model to increase the ability of the Long Jump Athletes of the Solok Athletic Club in the City of Solok. Based on the findings of the research, it turns out that the leg muscle strength training model has a significant influence on the results achieved.

Based on the test results, it turned out that the average ability at the pre-test was 2.92 increased after being given an exercise model of leg muscle strength to be 3.08. With the results of this study it can be stated that the leg muscle strength training model influences the ability of Solok Athletes' Long Jump Athletes, this is strengthened after the t test, where the results of tcount are 7.71, are greater than ttable at the level α = 0.05 of 2.10.

As explained in the previous section, the strength of the leg muscles which are part of the muscle to carry out a refusing and resisting motion in the long jump is very necessary. Without strength people cannot jump. This is also made clear by Syafruddin (2012) that strength is the ability of muscles or pulling muscles to overcome the load or resistance (resistance) both burden in the body's own meaning such as jumping, depending on lifting the body or external loads such as lifting barbells, dumbbells, refusing bullets and others.

Exercise is one of the most important strategic factors in the training process to achieve maximum quality achievement in a sport. In a training plan must be clearly illustrated the objectives of the exercise to be achieved, the methods and materials used to achieve these objectives and the facilities and infrastructure needed. Therefore, one of the keys to improving one's sports performance according to Syafruddin (2012) is an exercise that is done repeatedly with guidance that is increasingly complicated to improve physical and mental abilities. More details Syafruddin (2012) describes training in the narrowest sense of the athlete's preparation physically, technically, tactically, and mentally with the help of physical training (physical loading) ". Whereas in the broadest sense, training is the entire process of preparing athletes who are planned regularly to achieve their best sports performance.

Furthermore, the leg muscle strength training model is defined as a series of movements arranged in such a way as to increase the ability of the long jump. This is because sports achievements cannot be achieved without training. With the training in accordance with the

development of the athlete, the athlete can repeat directly the material provided without experiencing boredom. Thus the leg muscle strength training model given gave a significant influence on the long jump ability of Solok Club Athletic Athletes in Solok.

4. CONCLUSIONS

Based on the data analysis and discussion described earlier, it can be concluded that there is a significant effect of the leg muscle strength training model on the ability of the Long Jump Athletes of the Solok Club Athletic Athletes. where the average pre-test 2.92 increased to 3.08 in the post-test. The results of the t-test analysis also show that tcount 7.71> t table 2.10.

Based on the conclusions above, the authors can provide suggestions that can help overcome the problems encountered in improving the ability of the Long Jump Athletes at Solok Club Athletic Club Solok, namely: 1) For trainers it is recommended to provide a model of leg muscle strength training to increase the ability of the long jump according to physical growth and development; 2) For athletes it is recommended to implement a leg muscle strength training model; 3) The club parties should pay more attention to the program provided; 4) To the next researcher to be able to continue my research by looking at other variables so that more complete information is obtained on the ability of the long jump; 5) Because the research sample is still limited, it is suggested to other researchers, who want to examine the same thing, to multiply the sample and conduct research elsewhere.

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