

**THE EFFECT OF *SINGLE LEG DEPTH JUMP* AND *QUICK LEAP EXERCISE* ON THE RESULTS OF INCREASING LEAD MUSCLE POWER AND LONG JUMP RESULTS IN WOMEN ATHLETES *CLUB ATHLETIC NORTH FIELD* IN 2022**

\*Mahmuddin, Nabilah Nakita

Email: [mahmuddin@unimed.ac.id](mailto:mahmuddin@unimed.ac.id), [nabilahnakita25@gmail.com](mailto:nabilahnakita25@gmail.com),

Coaching Education Sports, Faculty Knowledge Sports, Medan State University, North Sumatra, Indonesia

**ABSTRACT**

*The purpose of this study was to determine the effect of single leg depth jump and quick leap exercises on the results of increasing leg muscle power and long jump results in female athletes at the North Medan Athletic Club in 2022. This study was an experimental study. The data collection technique in this study used a standing broad jump test and a long jump test using the prefix . The subjects of this study were 6 female long jump athletes. Selected by using total sampling technique . This research was conducted in the field of the North Medan Athletic Club. The data analysis technique used inferential statistics with a t-test at a significant level of 0.05. The results of the research on the single leg depth jump and quick jump exercise hypotheses obtained t-count standing broad jump ( 3.62 ) > t table (2.57) and t-count long jump (5.55) > t-table (2, 57). These results can be concluded that the single leg depth jump and quick jump exercises have a significant effect on the results of increasing leg muscle power and long jump ability in female athletes at the North Medan Athletic Club in 2022 .*

**Keywords :** Influence Practice , Exercise *Single Leg Depth Jump* And *Quick Leap* , Power Muscle Limbs And Jump Far

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**INTRODUCTION**

Sport has become a necessity in today's society and is one form of efforts to improve the quality of Indonesian people, which is directed at the formation of character and personality, discipline and high sportsmanship, healthy, physical and spiritual as well as increasing achievements that can generate a sense of national pride. Sports are all systematic activities to encourage, foster, and develop physical, spiritual and social potential (UU RI No. 3 article 1 paragraph 4 of 2005).

According to Santoso Griwijoyo and Dikdik Jafar Siddik (2013:37) argue that "sport is a human culture, meaning that it cannot be called a sport activity if there are no 9 human factors that

play a physical/personal role in carrying out the sport activity. Therefore, sport demands requirements that must be met by humans, both physically, spiritually, and socially.

In sport factor support for sports the reach performance is with pushed existence maximum exercise. According to Imran Akhmad (2013: 2), that practice is a process that is carried out by systematic and sustainable with add amount burden for increase performance sportsman in reach the target has determined. Exercise is also a effort for increase quality functional organs of the body as well as psychic the culprit. Destination main in practice is digging, compiling, and developing draft train with blend Among experience practical and approach science so the training process could in progress precise, fast, effective, and efficient. Where as according to Harsono (2015:39) states that destination as well as target main from practice or training is for help athlete for increase skills and achievements as much as possible maybe. For reach thing that, there are 4 aspects necessary exercise watched and trained by carefully by athletes that is practice physical, exercise technique, practice tactics, and mental training.

And one of the sports that is currently developing is athletics . **Athletics** is a combination of several types of sports which can be broadly grouped into running , throwing , jump, and walk. This word comes from the Greek "*athlon*" which means "contest". Athletics is a sport that is competed in the Olympics first in 776 BC. The parent organization for athletic sports in Indonesia is PASI ( All Indonesian Athletic Association). One of the numbers in athletics is the long jump. The long jump was first competed at the 1896 Olympics and the long jump sport has existed since Ancient Greece and was originally intended as a form of military training to train and test the agility of soldiers when crossing obstacles such as trenches, ravines, etc.

According to Djumidar (2004:65) jumping is a movement to lift the body from one point to another that is farther or higher with a ready run fast or slow by supporting with one foot and landing on the feet/legs other bodies in good balance. Meanwhile, according to Aip Syarifudin (1992:90) jumping is a form of jumping movement to lift the legs up forward in an effort to carry the point of weight as long as possible in the air (floating in the air) which is done quickly by repelling one leg to reach a distance. that far away.

In supporting the success of a sport towards achievement, of course, maximum training is needed and the exercise must be appropriate or required in that branch. For example, many forms of exercise are carried out to support an achievement in sports. Like a single leg depth jump exercise. Single leg depth jump is an effective plyometric exercise to train a variety of muscles. Anatomically the single leg depth jump movement involves the upper leg muscles and lower leg muscles so that all the muscles in that section work to receive the training load. Single leg depth jump exercises increase the strength of muscle groups in the hip joint, knee joint, and ankle joint (Hsieh, et.al, 2008:211). This exercise trains the strength and speed of the leg muscles or often called leg muscle power to achieve maximum vertical jump

motion . Kinematically, the single leg depth jump exercise includes components of movement of the upper and lower limbs.

Likewise with the form of quick leap exercise, quick leap is a form of plyometric exercise as well. Quick leap is a form of treatment from plyometric training that can develop and increase leg muscle power. Power muscle limbs determine results jump on athlete jump far Thing the because practice this aim for increase power muscle limbs where power muscle limbs influence to results the jump made at jump. Form practice quick leap has connection to results jump, because seen from implementation practice quick leap predictably could increase power muscle leg meaning determine results the jump that will achieved .

In practice plyometrics is also the most important factor is power muscle limbs produced by the athlete muscle power limbs very take effect to results leap someone and how much far resulting jump. According to Bafirman, (2008:82) in sports activities power is a very important biomotor component because power will determine how hard people can hit, how hard people can kick, how fast people can run, and how far people can do repulsion and repulsion. so on. According to Irawadi (2011:96) power is a combination of several physical elements, namely the element of strength and the element of speed, meaning that the ability of muscle power can be seen from the results of work done using strength and speed.

## **METHOD**

The methods used in this study are quantitative / experimental methods and data collection techniques and use tests and measurements. This research was conducted in February-March 2022. This study was conducted at the North Medan Athletic Club with the research sample being all female athletes in the club with a total sample of 6 people.

### **Procedure Taking Sample**

Procedure taking sample is total sampling or census. Use method this apply if member population relatively small (easy reachable). In study this, because amount population relatively small and relative easy reachable, then writer use method total sampling. With pick-up method It is hoped that this sample results will tend to be closer to this value In fact, it is hoped that it will also minimize the occurrence of errors or deviations in the population values of Usman & Akbar, ( 2009:45).

### **Materials and Equipment**

Data collection techniques in research this conducted as much twice, namely on the test start and test end. With gift test and measurement through survey method or observation ,

researcher observe and do by direct implementation test and measurement in the field .  
Observation used as a Technique for collect data about activity athletes and training During  
ongoing activity exercise .

## **Procedure**

Procedure in study this is use method total sampling then conducted test and observation  
for collect data with use test and measurement . For data collection is done twice that is test start  
and test end then analyzed and conclude results research.

## **Design or Data Analysis**

The research design used in this study is one group pre-test post-test design, which is a  
research design that has a pre-test (initial test) before being given treatment and a post-test (final  
test) after being given treatment. Thus it can be known more accurately, because it can compare  
with being held before being given treatment (Sugiyono, 2001: 64).

This design is used in accordance with the goal to be achieved, namely wanting to know  
the results of increasing the power of the leg muscles and the women's long jump of the North  
Medan Athletics club in 2022. Meanwhile, data analysis uses statistical analysis to test hypotheses  
with data that have been obtained from the results of the pre-test and post-test analyzed using the  
calculation of the t-test Sudjana (2005: 242). To analyze the researcher's data using the normality  
test formula with the Lilliefors statistical test, if the calculation result of the sig value is greater  
than 0.05, the distribution of the data is normally distributed. However, if the calculation result is  
smaller than 0.05, the distribution of the data is abnormally distributed. And test the hypothesis  
using the t-test by comparing the mean between the pre-test and the post-test. If the value of  $t_{\text{count}}$   
is smaller than the  $t_{\text{table}}$ , then  $H_a$  is rejected, if the  $t_{\text{count}}$  is greater than the  $t_{\text{table}}$ , then  $H_a$  is accepted.

## **RESULTS**

Pre-test and post-test results the Effect of Single Leg Depth Jump and Quick Leap Training  
on the Results of Increasing Limb Muscle Power and Long Jump Results in Women's Athletes of  
the North Medan Athletic Club in 2022.

From the pre-test results of standing broad jump results obtained an average value of 172.83  
and a standard deviation of 7.85. From the post-test results obtained an average of 192.33 and a  
standard deviation of 33.89. From the average pre-test and post-test, the average difference was  
19.5 with a standard deviation of 13.14 so that a  $t_{\text{count}}$  of 3.62 and a  $t_{\text{table}}$  of 2.57 were obtained.  
From the pre-test results of the long jump results obtained an average value of 283 and a standard  
deviation of 26.30. From the post-test results obtained an average of 320.16 and a standard deviation

of 26.99. From the average pre-test and post-test, the average value of the difference was 37.1 with a standard ratio of 16.30 differences so that a  $t_{\text{count}}$  of 5.55 and a  $t_{\text{table}}$  of 2.57 were obtained.

### **Analysis Requirements Testing**

Testing analysis requirements are requirements that must be met before a t-test analysis is carried out. There are two conditions that must be met before conducting a t-test analysis, namely (1) normality test and (2) populality variance homogeneity test. For the normality test of the data in this study using the Lilliefors test and for the homogeneity test of population variance using the Variance Test both at a significance level of 0.05.

#### **1. Normality Test**

Testing the normality of the data resulting from the influence of single leg depth jump exercises and quick leap on the results of increasing limb muscle power and long jump results in the 2022 North Medan Athletic Club women's athletes was carried out on overall data of athletes given the stages of training (pre-test and post-test).

Testing the normality of the data using the Lilliefors test, from the column of the pre-test standing broad jump group Single leg depth jump and quick leap exercises on the results of increasing limb muscle power and long jump results in the women's athletes of the North Medan Athletic Club in 2022 obtained = 0.3074 and = 0.319 with  $n = 6$  and the level of  $\alpha = 0.05$ , because  $L_{\text{count}} < L_{\text{table}}$  it can be concluded that the sample came from a Normal population. And from the post-test list column the standing broad jump is obtained = 0.1811 and = 0.319 with  $n = 6$  and the level of  $\alpha = 0.05$ , since  $L_{\text{count}} < L_{\text{table}}$  it can be concluded that the sample is from a Normal population. As well as from the column of the long jump pre-test list of the single leg depth jump and quick leap training groups on the results of increasing limb muscle power and long jump results in the 2021 North Medan Athletic Club women's athletes obtained = 0.2284 and = 0.319 with  $n = 6$  and the level of  $\alpha = 0.05$ , because  $L_{\text{count}} < L_{\text{table}}$  it can be concluded that the sample came from Normal populaltion. And from the column of the long jump post-test list obtained = 0.2837 and = 0.319 with  $n = 6$  and the level of  $\alpha = 0.05$ , since  $L_{\text{count}} < L_{\text{table}}$  it can be concluded that the sample comes from a Normal population.

## Hypothesis Testing

Hypothesis testing is carried out with a paired t-test to determine the effect of single leg depth jump exercises and quick leap to the results of increasing limb muscle power and long jump results at the 2022 North Medan Athletic Club women's athletes.

Based on the results of the calculations carried out, a standing broad jump of 3.62 was obtained. Furthermore, the value is compared with the value with  $dk = n - 1$  ( $6 - 1 = 5$ ) at a significant level  $\alpha = 0.05$  is 2.57 thus  $t_{hitung} > t_{tabel}$  ( $3.62 > 2.57$ ). This means that  $H_0$  is denied  $H_a$  is accepted. And based on the calculation results, a long jump calculation of 5.55 was obtained. Furthermore, the value is compared with the  $t_{table}$  value with  $dk = n - 1$  ( $6 - 1 = 5$ ) at a significant level  $\alpha = 0.05$  is 2.57 thus  $t_{hitung} > t_{tabel}$  ( $5.55 > 2.57$ ). This means that  $H_0$  is denied  $H_a$  is accepted. Thus, it can be concluded that there is an influence of single leg depth jump and quick leap training on the results of increasing limb muscle power and long jump results in the 2022 North Medan Athletics Club women's athletes.

## DISCUSSION

The purpose of this study was to determine the effect of single leg depth jump dan quick leap training on the results of increasing limb muscle power and long jump results in female athletes of the North Medan

Athletic Club in 2022. This study was conducted for 5 weeks, starting from February 20 – March 29, 2022, while the results of the study on the hypothesis of single leg depth jump and quick leap exercises obtained  $t_{count}$  standing broad jump ( $3.62$ )  $>$   $t_{table}$  ( $2.57$ ) and  $t_{count}$  long jump ( $5.55$ )  $>$   $t_{table}$  ( $2.57$ ).

From the results of the data analysis that has been carried out, it can be concluded that through the application of single leg depth jump and quick leap exercises to the results of increasing limb muscle power and long jump results in female athletes of the North Medan Athletic Club in 2022, it can be seen that the pre-test results are still low, so the application of single leg depth jump and quick leap training is carried out in the training process of the athletes. The single leg depth jump and quick leap exercises used by researchers are quoted from the Journal of Athletics Guidelines that suit the needs of these exercises to increase limb muscle power and long jump results in athletes.

There are 2 types of exercises that researchers use to be able to improve limb muscle power results and long jump results in the north Medan Athletics Club in 2022 women's athletes, namely single leg depth jump and quick leap exercises. Among the 2 exercises, there are exercises that have a significant influence, namely quick leap exercises because quick leap exercises can have a significant influence compared to single leg depth jump exercises on women's long jump results

because quick leap exercises can develop limb and hip power and train the distance of jump results besides that it can train step coordination so that it can do running speed well, because if a long jump athlete has a good move, it will be able to affect the results of the long jump to be maximized. According to researchers, training activities in the field / face-to-face carried out for 5 weeks are quite influential on the results of increasing limb muscle power and results long jump at the 2022 North Medan Athletics Club women's athletes.

By doing these 2 forms of exercise repeatedly, the results of leg muscle power and long jump will experience a significant increase. In this study, the form of single leg depth jump and quick leap training has the intention to see the influence of single leg depth jump and quick leap training on the results of increasing limb muscle power and long jump results in female athletes of the North Medan Athletic Club in 2022. By providing training for 5 weeks, the treatment clearly provides new knowledge in terms of training limb muscle power and long jump results and provides its own experience for researchers and athletes and also has a good / significant impact, especially limb muscle power and long jump ability.

## CONCLUSION

Based on the results of discussions and studies in the field, it was concluded that there was a significant influence by providing single leg depth jump and quick leap exercises on the results of increasing limb muscle power and long jump results in the women's athletes of the North Medan Athletic Club in 2022.

## CONFESSION

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