

## THE EFFECT OF SQUAT THRUST EXERCISE ON SMASH OUTCOMES IN VOLLEYBALL ATHLETES

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### Abstract

*This study aims to determine whether there is an influence between the squat thrust exercise on the smash results of volleyball beginner athletes at ISPRI Palembang CLUB. In this study the method used was an experiment with the One Group Pre test Post test design, namely statistics to determine the effect between two symptoms, the data collection technique used was the test. Smash test to measure volleyball smash results. The population in this study were volleyball beginner athletes at ISPRI Palembang club, totaling 20 athletes and the sample in this study were 20 volleyball athletes at club ISPRI Palembang. The data obtained were analyzed using the experimental formula. The results of the experimental analysis obtained for the initial test (pre-test) average value is 102 with a standard deviation of 12 while for the final test (post-test) average value is 106 with a standard deviation of 9. So it can be stated that there is an effect of squat thrust training on the results of the athlete's smash hit, a significant test was carried out and the tcount value was 5.425 and the ttable price was 1.725. So tcount > ttable, thus Ha is accepted and Ho is rejected, which means that there is a significant effect of squat thrust training on the athlete's smash results at ISPRI club Palembang.*

**Keywords:** Frog Jump; Volleyball Smash

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## INTRODUCTION

Sport is an educational process that uses physical activity to create physical, mental and emotional changes in the individual as a whole (Sotos-Martínez dkk., 2022). According to Witono Shodiq & Sugihartono (2019) sport is an aspect of human development and is as important as other achievements and development, which is Indonesia's development. Sport has become a social phenomenon that has spread throughout the world. Achieving athlete goals requires aspects that support these activities with advances in science and

technology, countries in the world (Sadiq dkk., 2023), including Indonesia, are facing challenges to improve and maintain the physical strength of their people (Atmaja dkk., 2023). Sports are also divided into several sections, including training sports whose activities cover several sports, one of which is volleyball (Lalwani dkk., 2022).

Volleyball is a large ball game played by two teams where one team consists of 6 people, the opponents are on the court and are separated by a net between the teams. This game is played by everyone, including children, adults, men and women. At the beginning of the game, the ball is directed to the opponent's field by crossing the net then the opponent counterattacks by means of the first ball being fed to a teammate then the next teammate tosses the ball up to carry out an attack which is called a smash to produce points. Volleyball can also be a lifestyle, volleyball is a sports achievement (Prasetyo dkk., 2022). According Sukirno (2012) volleyball is a team sport game that is included in the big ball game. Volleyball games use a big ball which is played by two teams facing each other.

Volleyball game has several kinds of basic movements including serving, passing, spike or smash, and blocking. According to Ahmadi (2007) the basic technique of playing volleyball at first was very simple, namely aiming to move the ball so that it passed through the net to the opponent's field. , the basic techniques in volleyball games are: Passing, serving, smashing, and damming. According to some of these techniques, the smash plays an important role in volleyball games. Smash is also an act of attack that can beat your opponent. According to Syafriandi (2020) a smash is a hard ball hitting the net (net) that swoops down.

The accuracy of the smash in volleyball is the main capital which is very important for earning points (Malla & Singh, 2022). The smash is a hard blow directed at the opponent's field. The ball bounces over the net so the ball can be hit sharply downwards. The smash is a very difficult blow to receive because of the speed and the direction is very difficult to predict (Kobayashi dkk., 2023).

Smash mastery is very influential for the success of a team in forming a good attack.

To produce a volleyball smash for novice athletes is not easy, because it takes time and a long process so that the movement in doing a volleyball smash can be mastered properly (Wicaksono, 2017). Therefore the game of volleyball is a game that demands speed, flexibility, and agility for the players themselves. Therefore, it is necessary to have special additional hours in order to improve movement skills in novice athletes. The squat thrust exercise is one of the physical exercises that can help increase strength, muscle endurance and train the muscles to be strong (Yuniana dkk., 2023). According to Boyce & Schoenfeld (2022) squat thrust consists of several forms of movement consisting of movements with the hands above the head, then squatting the hands on the floor holding the body weight, and throwing the legs back, and squatting again.

**METHOD**

The research method is a method that explains what methods are used in this research. The method used is quasi-experimental. With the One Group Pretest-Posttest design (Romano dkk., 2022). In this design used one group of subjects. First of all measurements are taken, then subjected to treatment for a certain period of time, then measurements are taken for the second time.

**Table 1.** One group pre test-post test research design

<i>Pretest</i>	<i>treatment</i>	<i>Posttest</i>
O1	X	O2

Source: Romano dkk. (2022)

Remarks:

O1 : initial test (pretest) before the treatment is given

O2 : the final test (postes) after the treatment is given

X : the treatment of the experimental group is by applying the squat thrust exercise.

The population is a generalization area consisting of: objects/subjects that have certain qualities and characteristics determined by researchers to be studied

and then drawn conclusions (Pandiangan dkk., 2021). Based on this opinion, the population of this study were all male athletes of the ISPRI Palembang club, totaling 20 people.

The sample is part of the population that has certain characteristics or conditions that will be studied (Jia dkk., 2022). If there are less than 100 subjects, it is better to take all of them so that the research is a population study. with total sampling technique. Total sampling is a sampling technique where the number of samples is equal to the population. The reason for taking total sampling was because the total population was less than 100. Because the population in this study was small, the sample was taken the same as the total population, namely 20 male athletes from the ISPRI Palembang club.

## RESULT AND DISCUSSION

Based on the results of the research conducted, the authors can conclude that there is a significant influence between the squat thrust exercise on the results of the smash hit on novice athletes at the ISPRI Palembang club. This research has been carried out as much as possible, but it cannot be separated from the limitations of the researchers which have caused obstacles such as limited costs, manpower, and available time. However, there are not only obstacles on the field during practice, there are also advantages of the training method used such as the squat thrust which makes the samples look quite amused from one athlete to another.

Based on the results at the time of the research that was done, it can be seen that the results of the smash hit obtained from the final test (post-test) were greater than the results of the initial hit during the initial test (pre-test). This fact can be seen from each of the average test scores. The average value of the pre-test (pre-test) is 102 with a standard deviation of 12 while the average value of the final test (post-test) is 106 with a standard deviation of 9.

Furthermore, to see or find out how much influence the frog jumping exercise had on the results of the athlete's smash hit, a significant test was carried

out and the tcount value was 5.425 and the ttable price was 1.725. So tcount > ttable, thus  $H_a$  is accepted and  $H_o$  is rejected, which means that there is a significant effect of squat thrust training on the smash results of novice athletes at the ISPRI Palembang club.

In the study of exercise physiology, it is explained that exercise will cause anatomical, chemical, and physiological changes. Exercise which comes from the word training is a process of improving the ability to exercise which contains theoretical and practical material, using methods and rules of implementation with a scientific approach, using the principles of planned and regular training, so that training goals can be achieved on time. Such strength is the power of muscle contraction which is achieved in one maximum effort Sukirno (2016: 38). The findings in this study explain that athletes who are given training will be able to do smash properly and optimally. Thus it can be said that the frog jump exercise is related to the smash training program carried out by athletes who take part in volleyball training activities at the ISPRI Palembang club. According to Maulana and Wahyudi (2020: 2) frog jumping is a plyometric exercise that can increase the explosive power of the leg muscles.

Thus it can be explained the importance of a good squat thrust exercise so as to improve the ability to smash volleyball, then the squat thrust exercise also has a role in the results of the smash, meaning that the more jumping ability increases, the better the smash accuracy. This was also explained in the results of the treatment given where the squat thrust training method could improve the results of the volleyball smash ability for beginner athletes at the ISPRI Palembang club.

## CONCLUSION

Based on the results of research that has been done, the authors provide the following conclusions:

- 1) The average of the initial test (pre-test) obtained from the athlete's smash results in volleyball game is 102 with a standard deviation of 12. While the

average post-test obtained from the athlete's smash result in volleyball game is 106 with a standard deviation of 9.

- 2) To find out the effect of strength training on smash results, a significant test was then carried out and the value of  $t_{count} = 5.425$  while  $t_{table} = 1.725$ . This shows that there is a significant effect of squat thrust training on the results of the upper smash at the ISPRI Palembang club.

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