



The Effect of Power Training Variations on Increasing Leg Muscle Power and Smash Results in Volleyball PBV.UMA

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Abstract

This study aims to determine the effect of variations in power training on increasing leg muscle power of PBV.UMA volleyball athletes in 2020. To determine the effect of variations in power training on increasing smash results of PBV.UMA volleyball athletes in 2020. This study was carried out at the training location, namely the PBV field. .UMA Medan Area. This research was conducted from 04 February 2020 to 15 March 2020 starting at 16.00 WIB. The research method used is the experimental method. Sampling is done by means of purposive sampling (sample considerations) as many as 12 people. The results of the first study obtained T-Calculation of 17.36 and the t-distribution list using probability $1 - 1/2\alpha = 0.975$ with $dk\ n - 1 = 11$ obtained the value of $t_{((0.975))} = 2.2$. In the hypothesis testing criteria it is stated that at $t_{count} > t_{table}$ with $= 0.05$, then H_0 is rejected, H_a is accepted where $17.36 > 2.2$. The results of the second study obtained a T-Calculation of 7.83 and a t-distribution list using probability $1 - 1/2\alpha = 0.975$ with $dk\ n - 1 = 11$, the value of $t_{((0.975))} = 2.2$. In the hypothesis testing criteria it is stated that at $t_{count} > t_{table}$ with $= 0.05$, then H_0 is rejected, H_a is accepted, where $7.83 > 2.2$. Conclusion of research results There is a significant effect of variations in power training on increasing leg muscle power of PBV.UMA athletes in 2020. There is a significant effect of variations in power training on smash results of PBV.UMA athletes in 2020.

Keywords: *Workout, Power, Smash Results*

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INTRODUCTION

Volleyball is one of the most popular sports in the community. Volleyball games are favored by people of all ages, children, youth and adults, both men and women (Suriadi & Dewi, 2020). It is evident that volleyball is widely played in schools, in offices and in villages. Volleyball games can be used as a means to educate, because volleyball can form a person who is sporty, honest, cooperative, and responsible. All of these are educational values that can be instilled. Therefore the sport of volleyball games is given in the environment or as a school sport (Dede Sumarna & Muhamad Al Imron, 2020).

Volleyball game aims to gain achievement, so playing must be done seriously and requires good movement coordination from each player. To create a good coordination and cooperation through a combination of techniques, every volleyball team needs team organization exercises that are in accordance with the tactics and strategies applied. Furthermore, to obtain satisfactory results in volleyball games, mastery of basic techniques is required. Basic volleyball techniques is an element that determines the team's winning and losing in a match (Suwarno & Insanisty, 2021). Therefore, the basic techniques of the game must be mastered first in order to develop for smooth and orderly matches. Mastery of good basic techniques is the beginning of good game tactics as well. The basic volleyball techniques that must be mastered by every player are basic service techniques, basic passing techniques, basic smash techniques, and basic blocking techniques.

These four basic techniques are the basic capital that must be learned and trained for novice players if they want to excel. One of the basic volleyball techniques that has a major contribution to generating points is the smash technique. Because the smash is one of the important techniques to be mastered by a volleyball player. In this case, the smash is an act of hitting the ball straight down, will move quickly and dive over the net towards the opponent's field.

Researchers made observations on September 5, 2020 in the PBV field. UMA. From the observation data, namely the vertical jump test on athletes at PBV.UMA Medan, 3 athletes with a percentage of 25% obtained good power criteria, 7 athletes with a percentage of 58% obtained sufficient power criteria, and 2 athletes with a percentage of 16% obtained criteria results in less leg muscle power. From the results of observations during the PBV volleyball athlete playing session. UMA tends to fail in launching a smash to the opponent. Smashes by athletes can be easily blocked by opposing players and also out of line. This results in losing points from the team and also results in defeat for the team if this is not quickly noticed and given treatment to athletes. Furthermore, the researchers conducted interviews with PBV.UMA coaches and the results of statements from the coaches that PBV athletes. UMA is still not optimal for achieving smash results. The coach has paid attention from the beginning to the problems that occur in athletes and the coach is currently making a power training plan that is applied to athletes. However, at this time the trainers still lack reference sources about power training that are appropriate and quickly improve smash results and increase athlete's leg muscle power. From the data above, it can be concluded that PBV athletes. UMA Medan still has many criteria below the good criteria. There

needs to be treatment efforts from the coach to create a program to increase the leg muscle power of PBV athletes. UMA Medan in 2020.

Based on the data above, the researcher is interested and wants to contribute to the PBV.UMA coach to improve smash results and increase volleyball athlete power. For this reason, it can be concluded that power training is very important to be applied to support the smash ability of volleyball athletes. Power training is certainly not just one but must be varied which is useful to provide an interesting training atmosphere that can motivate athletes to be more optimal in doing exercises. For this reason, the researchers set the title of this study, namely "The Effect of Power Exercise Variations on Increasing Leg Muscle Power and PBV Volleyball Smash Results. UMA 2020.

METHOD

The research was carried out in the PBV.UMA Medan Area field, the population of this research was PBV.UMA athletes, totaling 20 people. The sample of this study used a purposive sampling technique, namely the technique of determining sampling with certain considerations. The sample of this study were 12 athletes from PBV.UMA. This research method is an experimental method (Susila, 2021); (Oktariana & Hardiyono, 2020), namely the independent variable in this study is the variation of power training and the dependent variable in this study is leg muscle power and the results of the volleyball athlete smash. Before doing the treatment, a pre-test was carried out on the athlete, namely the leg muscle power test and the Smash test to see the condition before doing the treatment. Next, do the treatment, namely applying the form of power training variations for 16 meetings with a frequency of exercise 3 times a week. Next, do a post-test by doing a leg muscle power test and a Smash test to see an increase in the form of power training variations that are applied. The leg muscle power test uses a vertical jump test, the smash test uses a smash test instrument to measure the accuracy of the smash. Data collection techniques based on test results and using a t-dependent test (Brown et al., 2018).

RESULTS AND DISCUSSION

Results

The results of tests and measurements carried out in the field are the findings of research conducted for 6 weeks. Done to reveal the truth of the hypothesis that has been proposed. The results of tests and measurements that have been processed through statistical formulas show a description of the data as follows:

Table 1. Calculation of Leg Muscle Power data and Volleyball Smash Results at PBV.UMA in 2020.

Data Description	Power Training Variations			
	<i>Limb Muscle Power</i>		<i>Smash Results</i>	
	<i>Pre-test</i>	<i>Post- test</i>	<i>Pre-test</i>	<i>Post- test</i>
Range	45-61	53-68	12-20	15-28
Average	50,91	58,91	15,66	21,16
S. Baku	5,59	5,23	2,42	4,1
Average Difference	8		5,5	
S. Baku Beda	1,59		2,43	
t- count	17,36		7,83	
t-table	2,2		2,2	

Based on the table above, the results of this study can be described, namely looking at the effect of variations in power training on increasing leg muscle power and the results of the PBV.Uma tahin volleyball smash 2020. The results of the leg muscle power test obtained pre-test data with a data range of 45-61, average The average is 50.91 and the standard deviation is 5.59. The post-test data obtained ranged from 53 to 68, the average was 58.91 and the standard deviation was 5.23. Then the t-test was carried out and the average difference between the pre-test and post-test of leg muscle power was 8, the standard deviation of the difference between the pre-test and post-test data was 1.59, t-count was 17, 36 and t-table 2.2.

The results of the volleyball smash test obtained pre-test data with a data range of 12-20, an average of 15.66 and a standard deviation of 2.42. The post-test data obtained ranged from 15

to 28, with an average of 21.16 and a standard deviation of 4.1. Then, the t-test was carried out and the average difference between the pre-test and post-test of leg muscle power was 5.5, the standard deviation of the difference between the pre-test and post-test data for smash results was 2.43, t-count was 7,83 and t-table 2.2.

The first hypothesis is obtained by T-Calculate of 17.36 and the t-distribution list using probability $1 - 1/2\alpha = 0.975$ with dk $n - 1 = 11$, the value of $t(0.975) = 2.2$. In the hypothesis testing criteria it is stated that at $t_count > t_table$ with $= 0.05$, then $H(0)$ is rejected, H_a is accepted where $17.36 > 2.2$. So it can be concluded that there is a significant effect of variations in power training on increasing leg muscle power of PBV.UMA athletes in 2020.

Second hypothesis. Based on the table above, it is obtained that T-Calculate is 7.83 and the t-distribution list using probability $1 - 1/2\alpha = 0.975$ with dk $n - 1 = 11$ obtained the price $t(0.975) = 2.2$. In the hypothesis testing criteria it is stated that at $t_count > t_table$ with $= 0.05$, then $H(0)$ is rejected, H_a is accepted, where $7.83 > 2.2$. So it can be concluded that there is a significant effect of variations in power training on the smash results of PBV.UMA athletes in 2020.

Discussion

Volleyball is a sport that has quite a lot of fans and from year to year has experienced rapid development. Volleyball is played by two teams facing each other and each team consists of six players. Yunus M. (1992: 68) states that the basic techniques of volleyball games include: (a) serve, (b) passing, (c) bait (set-up), (d) smash (Spike), (e) dam (blocks) (Andi Nur Abady, 2021). The basic volleyball technique above is an important aspect to be skilled in volleyball. To be able to generate points, players are usually effective in performing smash techniques. To be skilled in performing the basic techniques of volleyball smash, of course, you have to go through systematic and continuous training stages.

The volleyball smash technique requires physical components that affect the effectiveness of the resulting smash, one of which is the biomotor power component in athletes. Power is the ability of the muscles to exert maximum strength in a short time (Susila, 2021). The smash technique will be effective because of the power that is released in the athlete so that it can affect the smash result by the athlete. For this reason, variations in power training are very good for

improving athletes' biomotor abilities and smash results in athletes. The biomotor component of the smash technique is limited to the athlete's leg muscle power because the leg muscle power is very important to reach the ball so that it is easy to hit a smash and direct it at the desired angle (Abrian & Nasuka, 2021).

Varied exercises are an effort made by the coach to anticipate the level of saturation when doing exercises. Varied exercises can increase the motivation and curiosity of athletes in doing exercises to the maximum. Variations in leg muscle power training in this study made a form of smash training combined with plyometrics training. Plyometric movements use more eccentric and concentric contractions than isometrics (Isabella & Bakti, 2021). An eccentric contraction is a releasing action in which the muscle expands and is characterized by a negative type. Concentric contractions are alternating actions in which the muscles shorten in a positive way. Isometric concentric is a stretching movement by negating the length of the muscle. In this study, the form of plyometric exercise adopted as a variation of smash training for volleyball athletes is a form that focuses on its implementation for the athlete's legs.

CONCLUSION

Based on the results of the research and discussion of research, in this study it can be concluded that: There is a significant effect of variations in power training on increasing leg muscle power of PBV.UMA athletes in 2020. There is a significant effect of variations in power training on the smash results of PBV athletes. UMA 2020.

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