

Comparative Effects of Decline Push-ups vs. Standard Push-ups on Arm Muscle Power and Overhead Volleyball Serve Ability in Male Athletes: A Study of Sembada Wijaya VC Club

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Abstract: Volleyball is a sport played by men or women played by 2 teams where on each court is separated by a net. The purpose of this game is to drop the ball through the net and enter the opponent's field of service starting from the back line of the field, and the ball falls through the net and enters the opponent's field. This research was carried out at the training location, namely the field of the Sembada Wijaya VC Club Medan. Jalan Bunga Wiwijaya Kesuma, Padang Bulan Pasar III Medan. The results of the study The Difference in the Effect of *Decline Push Up* and *Standard Push Up* Exercises on Arm Muscle Power and Volleyball Top Service Ability, There was a significant effect of *decline push up* exercises on the increase in arm muscle power, the statistical calculation value of 36.537 which can be expressed by ttable (n=5 df= n-k.5 -) compared with the value of 3,182 results, There is a significant effect of standard *push up* exercises on increasing arm muscle power, *decline push up* exercises are significantly better than standard *push up* exercises on increasing arm muscle power with the results of statistical calculations displaying a tcal value of 25.84 which can be expressed as a ttable value (n=5 df= n-k-5) compared to 3,182 Results of Volleyball Service Ability in Male Athletes Sembada Jaya VC Medan City.

Keywords : decline push up, push up , servis.



INTRODUCTION

Volleyball is a sport played by children and people of male and female age (Sasmita et al. 2023). Volleyball is a sport played by 2 teams on each court separated by a net (Umar et al. 2023). The goal of this game is to drop the ball over the net and enter the opponent's field, avoiding the opponent from carrying out the same effort. In order to be able to play volleyball optimally, players must master and practice volleyball game methods. The lower methods of the volleyball game include passing, hitting, blocking, and serving (Rifki and Ariston 2021).

Expertise in implementing the below method will also ensure success in the game of volleyball (Zonifa 2020). Volleyball has some methods that must be understood before playing volleyball. The service methods include basic serve and jump serve, hit method, blocking method, underpassing method, and overpassing method (Alnedral, Zonifa, and Yendrizal 2020). To start a volleyball match, the serve starts from the back line of the court, and the ball falls through the net and enters the opponent's court. The beginning of service means serving the initial ball to start the game. In the growth of modern

volleyball, a serve is a raid intended to score points. A hard, sturdy serve shares a unique level of distress for the receiver, allowing the squad to easily score bonus points. There are several types of serve in volleyball: the basic top serve, and the jump serve, commonly referred to as the jump serve. Serve is the initial stroke that starts the match. Along with the improvement of the quality of the service game, it became an invasion aimed at destroying the opponent's ball or avoiding the opponent from receiving the ball accurately (Moon and Park 2023).

There are 3 types of service in volleyball: basic serve, top serve, and jump serve. Overserve shared a unique challenge for its receivers because it requires energy to throw and very fast and sharp ball movement. The closer the ball is to the goal, the harder it is to get it back. In the service, we often encounter poor service because we want a solid and accurate service (Hidayatullah and Firdaus 2022).

The Sembada Wijaya VC Club is located in Pasar III Padang Bulan. The club has developed its athletes in a variety of methods, starting with technical and physical training. Based on this data, the researcher hypothesizes

that the players of the Sembada Wijaya VC Club have a lack of *arm muscle power* which results in weak punch power when serving up. To strengthen this suspicion, at the end of the training, researchers conducted an upper service ability test and a *medicine ball* test to determine the strength of the arm muscles of the athletes, especially at the age of 15-17 years, and the results when compared. With the norms determined by experts, it turns out that many athletes fall into the lack category. As a result, it is crucial to use the right exercise strategies to develop arm muscle strength.

The training of the Wijaya VC Sembada Club is mainly concentrated on games and technical training; exercises that lead to physical exercise, especially to develop arm muscle strength, are still underutilized. The initial sample size was 10 participants in this study. All samples were present at the time of the upper service test conducted on male athletes of the Sembada Wijaya VC Club aged 15-17 years, and the following findings were obtained: There were two individuals in the very poor category and eight individuals in the very poor category. When *the medicine ball test* was carried out, the results of *the*

medicine ball test showed that ten individuals were in the category of less. The researcher will provide training to improve *arm muscle power* and upper service ability based on the two initial tests described above.

METHOD

This research was carried out at the training location, namely the field of the Sembada Wijaya VC Club Medan. Jalan Bunga Wiwijaya Kesuma, Padang Bulan Pasar III Medan. This research was conducted in a span of time from December 1, 2023 to January 18, 2024, with a total duration of 6 weeks with a frequency of 3 times a week, namely Monday, Wednesday, and Friday at 16.00 WIB

Population is the sum of all conceivable values, the results of quantitatively specific calculations or measurements of specific attributes of all members of the entire group (Haris et al., 2016). Based on the opinions of the experts above, it can be said that the population is the total number of members in a club. In this study, 18 players of the Sembada Wijaya VC Club who are between the ages of 15 and 17 years old became the population.

Sampling is part of the size of the population and its characteristics (Sugiyono 2018). The sampling procedure used is a purposive sampling procedure. Purposive sampling is a procedure for selecting samples, so that the sample used in this research is 10 people from the total population. The following is sample data for male athletes of the Sembada Wijaya VC Medan City club. The information obtained from the pre-test and post-test was processed using statistical procedures to convince whether the hypothesis used in the research was accepted or rejected. The information obtained is the score of the volleyball performance test person.

After that, it was processed using statistical procedures to convince whether the hypothesis proposed in this research was accepted or rejected. The information collected during the pretest and posttest was analyzed using the statistical software feature of SPSS Ver. 22. For the testing of classical assumptions, including normality and homogeneity, then for hypothesis testing using paired t-test and unpaired t-test. In this study, the normality test method applied is the Shapiro-Wilk test. Shapiro-Wilk test is a method or

calculation formula to evaluate the distribution of data, developed by Shapiro and Wilk. The Shapiro-Wilk method is considered an effective and valid normality test tool, especially when the sample used is small (Kadir 2015).

RESULT AND DISCUSSION

The results of statistical calculations using the paired sample test obtained descriptive statistical results that the average in the pre-test was 435 and 536 in the post-test. There is a comparison in the explanation. Increase the average of 2 points of information Next, to convince whether the comparison is correct and significant, the results of the statistical calculation show a t-calculated value of 36.537 which can be expressed by ttable ($n=5$ $df= n-k.5$ -) compared to the value of 3,182 results. Therefore, it can be concluded that if the $>t_{table}$ count means that H_0 is rejected and H_a is accepted.

Therefore, from the table above, it can be concluded that there is a comparison of the average results of pre-test and post-test information on the increase in arm strength in the decline push up exercise group to the increase in arm muscle power The results of statistical calculations using the paired t

difference test show the average learning outcomes of male athletes at Sembada Wijaya VC Club Medan City in 2023. Pre-test information is 475 and 528.6 post-test, based on descriptive statistical results, so it can be concluded that H_0 was rejected and H_a was accepted. In other words, the hypothesis put forward is accepted. Which means that decline push up exercises are significantly better than standard push up exercises on the ability to serve volleyball in male athletes of the Sembada Jaya VC Club of Medan City in 2023.

CONCLUSIONS

Based on data analysis and discussion of research results on "Differences in the Effect of Decline Push Up and Standard Push Up Exercises on Arm Muscle Power and Volleyball Service Ability in Male Athletes of Sembada Jaya VC Medan City Club in 2023", the conclusions that can be drawn are as follows. First, both decline push up and standard push up exercises significantly increase arm muscle power in male athletes of the Sembada Jaya VC Medan City Club in 2023. Second, both types of exercises also have a significant influence on the ability to serve volleyball in the same athlete. Third, of the two exercises, the

decline push up exercise showed better results in increasing arm muscle power and service ability over volleyball.

As a suggestion, it is recommended to coaches to consider using these two types of exercises in athlete training programs, considering that both have proven to be effective in improving performance. For future researchers who will conduct similar studies, it is recommended to add other relevant factors that may affect the results of the exercise to gain a more comprehensive understanding of the effect of exercise on athlete performance.

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