



The Effect of Push-Up Training on Service Ability on Volyball

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Abstract

Service in volleyball is one of the early markers of the game. Aside from being a service marker, it is also one of the initial capital that can be done to get a point advantage in the volleyball game. The top serve is one of the most frequently used services by volleyball players. The purpose of the study was to find out how the effect of the push-up exercise on the success of the top serve in volleyball. The data analysis technique used in this study was the paired sample t-test. The results obtained to determine the effect of push-up exercises on service ability. Up to this study, there were 14 athletes from Sentajo Raya District. This study was a population study because all samples were the total population. The instrument used was to measure the ability to direct the service ball correctly and directionally which was carried out after the athletes were given the treatment given to the research subjects, which showed a value of $t = -4329$ with a significance value of $0.001 < 0.05$. The results of the study revealed that if the conclusion obtained is that there is a significant effect of the results of the push-up exercise on the ability to serve up in volleyball, do a push-up exercise model first.

How to Cite

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INTRODUCTION

Indonesia, volleyball is one of the most popular sports among the people. In line with this opinion. Rifki (2020) revealed that volleyball is a sport that is loved by all levels of society in Indonesia. This sport can be played from the level of children to adults, both men and women. Volleyball is one of the big ball sports, the way the game is played is using hands. Volleyball is a game played by 2 teams, each consisting of 6 people. This game can be played outdoors or indoors or sports halls. This game is played by bouncing the ball with a maximum of 3 touches of body parts in a group and crossing it through a net that is placed across the middle of the field. (Tapo, 2019) reveals that volleyball is a two-team sport played on a split court or limited play with a network.

The object of the game is to pass the ball over the net put it on the court against and prevent company from being equal to the opponent Volleyball is a relatively repetitive sport with maximum jumps and overhead swings performed many times each game. (Biese et al., 2020). (Arif, Boleng, & Babang, 2021) defines if volleyball is a game that uses the ball to bounce (in-volley) in the air back and forth on the net (net), with the intention of being able to drop the ball into the opponent's field in search of victory. To start the game of volleyball, a serve is made. This serve shot serves not only as a way to start the game but also as an early strike.

Volleyball game service is one of the basic techniques that plays a very important role in the game through the top serve will be able to weaken the opponent's defense so that the opponent cannot counterattack well in volleyball is a way to start the game but is also one of the initial attacks in ball games. volleyball (Kaunang, Sondakh, & Lomboan, 2021). (Saputro & Falahudin., 2021) defines if the serve is the initial attack in volleyball. think if Yassin et all (2021) explain if not just as a start in playing service volleyball because that is the beginning of every attack and its success sometimes reaches points without the other player's effort.

Talking about service is the prefix of the game and the prefix of attack in volleyball, one of the service techniques that is often used is the top serve. (Aris & Saputro, 2021) explains if the over serve has an excess of strokes resulting in a deeper dive into the opponent's area because the position of the ball at the beginning is in front of the head, this service is often used during mat-

ches. The use of the top serve in the start of the volleyball game, the athlete is able to predict the direction of the ball falling with great force (Sotiropoulos, Drikos, Papadopoulou, & Barzouka, 2021) top serve in volleyball is very effective to do in order to get points as the first attack in volleyball games (Rahasia, Lengkong, & Sengkey, 2021).

In the application of the top service in volleyball, the ability of the hand muscles and wrist flexibility is very necessary to get maximum results. (Saptiani, Sugiyanto, & Syafrial, 2019) if the upper serve ability is supported by coordination of whole body motion which ends in the form of a swing motion supported by arm muscle strength so as to produce good accuracy. (Terol-Sanchis, Elvira-Aranda, Gomis-Gomis, & Pérez-Turpin, 2021) revealed that accuracy, eye accuracy and arm muscle strength are important components determining the success of serving over in volleyball. The arm muscles and the length of the arm are the limbs that are involved when doing the upper serve (Kuncoro, 2021) (Setiyawan, Kristiyanto, & Purnama, 2021) said that anthropometry, speed, coordination and arm muscles are important components that athletes must pay attention to to maximize upper serve ability.

Based on the explanation above regarding the game of volleyball, the top serve and the strength of the arm muscles that affect it. Researchers will conduct research on push-up exercises to maximize the ability of the arm muscles to produce a good upper serve in the game. This research is very important to do using service, which is one of the keys to the success of playing volleyball. Push-up exercise is considered to be one of the arm muscle exercises that can be done anywhere without any assistance device so that it is considered the best exercise to be applied in this study. the results of the research by the district office are able to make a reference regarding push-up exercises to maximize the ability of the arm muscles in volleyball athletes.

METHODS

This research is an experimental study, namely to determine the effect of push-up exercises through a pretest and posttest conducted by researchers. Based on the research population, the sample in this study was all of the existing population, namely volleyball players in Marsawa Village, Sentajo Raya District, totaling 14 people. The research instrument used was the test used, namely the service test for the volleyball

game. The method of measurement is to measure the ability to direct the service ball correctly and directionally and the tools used include a volleyball court, 6 volleyballs, nets and poles, 2 bamboo sticks, 30 meters plastic mine. The analysis was carried out using the t test, namely the paired sample t-test assisted using SPSS 21 software.

RESULTS AND DISCUSSION

Based on the results of the analysis obtained before we present the results of the t-test regarding the effect of push-up exercises on the ability to serve up in volleyball games below in table 1 will present descriptive data from the results of the analysis that have been carried out. The data can be seen in **Table 1** below:

Table 1. Descriptives Results Data

	N	Mini- mum	Maxi- mum	Sum	Mean	Std. Devia- tion
Pre- test	14	36.00	46.00	567.00	40.5000	2.79422
Post- test	14	38.00	54.00	645.00	46.0714	4.79526
Valid N (listwise) 14						

Based on **Table 1** above, it can be seen that the descriptive results of the data are presented in the form of a simple table from the results of the pretest and posttest. The pretest results show a minimum score of 36, a maximum of 46, a sum of 567, a mean of 40.5, and a standard deviation of 2.79. Then descriptive posttest results with a minimum value of 38, a maximum of 46, a sum of 645, a mean of 46, and a standard deviation of 4.79. Furthermore, after obtaining descriptive data, data regarding the results of the normality of the data tested before entering into the hypothesis testing will be presented regarding the effect of push-up exercises. The normality of the data can be seen in **Table 2** below :

Table 2. Uji Normalitas

	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statis- tic	Df	Sig.	Statis- tic	df	Sig.
Pre- test	0.133	14	0.200*	0.963	14	0.768
Post- test	0.134	14	0.200*	0.971	14	0.888

Based on **Table 2** above, it can be seen that the results of the normality prerequisite test were analyzed using Shapiro-Wilk with a pretest

significance value of $0.768 > 0.0$, and a posttest value of $0.888 > 0.05$. So it can be concluded that the data is normally distributed. The results of a normal distribution can be said if the data goes through a prerequisite analysis test before the t test is carried out. After presenting the data for normality results, the next step is the presentation of data regarding the t-test to determine the effect of push-up exercises in serving on volleyball.

Hypothesis testing in this study used a paired sample t-test, this hypothesis test was conducted to determine the effect of the treatment given to the research subjects. The test results show the value of $t = -4,329$ with a significance value of $0.001 < 0.05$, so it can be concluded that there is a significant effect of push-up training on increasing service ability in volleyball.

Based on the results of the research analysis, it was found that the push-up exercise that was carried out had an influence on the top serve in volleyball games. The push-up exercise performed is one of the training models used to improve the ability of the arm muscles in volleyball players. The results obtained in this study have similarities with existing literature studies regarding the ability of push-ups or arm muscle strength to have an influence on the success of top serve in volleyball games

(Irmansyah & Suriatno, 2016) revealed that the Decline Push-up and Standing Fore Arm Flexion Exercises in increasing Upper Service Accuracy because Decline Push-ups and Standing Fore Arm Flexion exercises are one form of exercise that can be used to obtain maximum and better Upper Service Accuracy. push-up exercises can improve smash and top serve skills in Club Permata volleyball players. The contribution of this research is a new push-up training model that is suitable for increasing the accuracy of volleyball players (Fikri, Dlis, Tangkudung, & Hidayat, 2021) Push-up exercise is one form of exercise to train the body around the arms and shoulders. Push-up exercises are a form of exercise to train and increase arm muscle strength. Thus it can be stated that the push-up exercise for the success of the upper serve (Triyogo, 2021)

6 weeks of strength training had a significant effect on volleyball player performance such as push-ups, curl ups, and planks. On the other hand, 6 weeks of strength training had no significant effect on long jump, spike, serve and forearm pass performance of volleyball players. (Bavli & Topçu, 2021). (Weldon et al., 2021) said if push-ups are one of the exercises for arm muscle strength that can be done anywhere. he continued,

it was revealed that push-ups have a positive value in increasing service ability in volleyball because it increases arm muscle strength in volleyball. (Oktaviani, Janiarli, & Manurizal, 2021) if the Top Service really needs a good hitting technique, so that later when playing or competing it can be an attack to kill the ball on the opponent's side. In performing the above service, good ability is needed.

(Saleh et al., 2020) found that about 50% of volleyball players applied the 18 recommended OSTRC volleyball injury prevention exercises in GCC countries. Awareness campaigns and increased training need to be introduced to increase the implementation rate of wrist flexibility exercises and arm muscle strength. There is a significant contribution between arm muscle strength and wrist flexibility to the passing ability of volleyball by 79.21%. So from all the existing problem formulations it can be concluded that all variables have a contribution (Miftahudin, Sutisyana, & Prabowo, 2021). (Jariono et al., 2021) explained that the push-up is one of the exercises that can be used to improve the ability of the arm muscles in volleyball related to the upper serve. He continued, it was revealed that in order to support the success of the top serve, it is necessary to determine an exercise program, physical conditions need to be considered and other variables need to be considered.

(Enlinopita & Setiana, 2021) explained that there was an increasing change in the skill of the bottom pass in playing volleyball through resistance band exercises and doing push-up exercises for VII students of Aletheia Christian Junior High School Malang. there is a significant relationship between arm muscle strength and hand-eye coordination together with volleyball bottom serve ability. The strength of the arm muscles is carried out by push-up training (Riko, Muhammad, & Wawan, 2021). (Li et al., 2021) said that eye coordination, accuracy, wrist flexibility and arm muscle strength are components that must be possessed for a successful serve in volleyball.

CONCLUSION

Based on the results of the analysis obtained, it can be concluded that the push-up exercise performed has an influence on the ability to serve up in volleyball. Push-up exercise is one of the training models to improve the arm muscles of volleyball athletes. The results of the study are expected to be able to make a reference regarding the push-up exercise model that can be applied to increase the arm muscles that are related to the

success of volleyball athletes in doing the top serve. This study has a weakness that only focuses on one model of exercise in increasing arm muscles, namely push-ups. The research sample also only focuses on athletes from the Sentajo Raya District who have often participated in competitions and represent the sub-district for regional and national events. Further research is expected to be able to cover more samples and add other variables.

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