The Effect of Variation of Push-Up Training on Extracurricular Volleyball Servis Skills

Dhimas Achmad Maldini*, Khoirul Anwar 2, Heni Yuli Handayani3

1,2,3 Sports Education Study Program / STKIP PGRI Bangkalan / East Java / Indonesia

Jl. Soekarno Hatta No.52, Wr 07, Mlajah, Kec. Bangkalan, Bangkalan Regency, East Java 69116

1maldinimasrp11@gmail.com, 2khoirul@stkippgri-bkl.ac.id, 3heni@stkippgri-bkl.ac.id

Received: June 25, 2023; Reviewed: June 27, 2023; Accepted: June 28, 2023; Published: June 30, 2023

ABSTRACT
Extracurricular participants at SMPN 1 Tanah Merah basically haven’t really mastered the basic technique of overhand service correctly and well, when they first saw playing they still didn’t have good arm strength, so they had difficulty doing the overhand serve, so to improve their skills top service then requires an effective and efficient training method. This study aims to determine the effect of variations of push-up exercises on upper service skills in volleyball extracurricular activities at SMPN 1 Tanah Merah. This research is a quasi-experimental study using the one-group pretest-posttest design method with the top service test instrument. The data analysis technique used was the paired sample t-test, with the results of the t-test and t-table with a significant value of 0.00, t-count 24.80 > t-table 8.93 with a value of 0.00 <0.05. Thus the hypothesis states "There is an effect of variations in push-up exercises on upper service skills in the extracurricular activities of SMPN 1 Tanah Merah".

Keywords: Exercise; Variation; Push Up Training; Service; Volleyball.

INTRODUCTION
A volleyball game is a game played by two teams, each team consisting of 6 people. Each player has special skills, namely as a beater, feeder, and libero (Ponidin et al., 2017). The main goal in this game is to hit the ball towards the opponent's field so that the opponent cannot return the ball (Prabawa et al., 2019), in volleyball game service is the basic capital to start a game and can also be an initial attack (Saptiani et al., 2019). Service that is often used in a match is top service (Widyanto & Djawa, 2019), good and accurate top service can make it difficult for opponents to ricochet or receive incoming balls (Pranopik, 2017; Sahabuddin et al., 2022).

The procedure for the game is as follows: one team tries to serve from behind the boundary line until it passes over the net and enters the opponent's field (Ponidin et al., 2017). The opposing
team may not let the ball touch the field, the opposing team is allowed to touch the ball 3 times (Subakti, 2017), usually, the reception of the first and second balls is arranged so that it becomes an attack to produce points (Marsiym et al., 2018), the team that wins the rally gets points and the team that gets points gets a turn to serve (A. Hidayat & Iskandar, 2019).

To be able to play volleyball, it is necessary to master the basic techniques of playing volleyball such as service, passing, smash and block (Hambali & Rohedi, 2019). Service is the most important basic technique in volleyball because with service a game can begin (Anggraini & Afrizal, 2019). One of the service techniques that is often used in games is the overhand service (Masrun, 2020). To support good overhand service skills, proper and well-programmed training is needed (Putra, 2018). Where one form of exercise is variation training (Sudibyo et al., 2020).

Service over is one type of service used in volleyball games to start a game in volleyball (Widhiasto et al., 2020). Top service is service by first throwing the ball up and then hitting it hard towards the opponent's area (Evionora et al., 2020), top service is very influential in volleyball games by using top service in volleyball games will make it difficult for the opposing team (Sahabuddin, 2018) if the received from the opposing team is not good then the ball will go out or the ball that is fed to the setter is not perfect and there will be no attack and it will be an advantage to attack back (A. Sl. N. Hidayat & Wardaya, 2015). In doing the service, you must have strong arm muscles so that when you serve the ball hard and straight at the target point (Mustaqim, 2016). Therefore, top service must be mastered by every volleyball player so that it can make it difficult for the opposing team to receive and receive incoming balls (Arianto, 2016). By using variation exercises students can strengthen the arm muscles and strengthen the upper serve, push up exercises are very influential to increase the strength of the arm muscles, if students practice push-ups every day or at least 1 week 3 times, students can strengthen and strengthen the upper serve, to support the ability to serve above requires an appropriate and well-programmed training program, where the form of the exercise is variation training (Mustafa, Winaro, & Asim, 2016).

Based on the results of initial observations of the implementation of the upper service, found several problems in the mastery of techniques in performing the upper service at SMPN 1 Tanah Merah which were not perfect. From the results of the top service technique, there are still many overhand services that do not cross the net, still often get stuck in the net and some still come out of the field line. This was proven when doing training and when carrying out volleyball matches between junior high schools, the factor that affected the service results was the lack of arm muscle strength.
It is known that there are several variations of push-up exercises, including standard push-ups and clapping push-ups. It is known that the two push-ups have the same goal of strengthening the arm muscles which are influential in improving the ability to serve up. Standard push-ups are a sport that relies heavily on strength, strength that serves to strengthen the biceps and triceps. Standard push-ups are simple exercises that are very draining and very helpful for increasing arm muscles, standard push-up exercises can be done in a simple way and without tools (Payoga, Nurina, & Septiadi, 2018). Clapping push-ups is a form of weight training that is done using weights or using body weights with weights which are carried out using weights with the addition of clapping motions. The clapping push-up exercise is very helpful for increasing the explosive power of the arm muscles (Hamdan, 2017).

It is hoped that these two exercises will reduce the boredom of the volleyball extracurricular participants at SMPN 1 Tanah Merah. Of course, arm muscle strength also has an effect, because if a player has strong arm muscles, then when he is about to serve, he will provide strong arm muscle explosive power. Of course, players who have stronger muscle strength will produce farther serves than players who have weak muscle strength (Jati, 2015).

Based on the opinion that has been explained, several factors affect basic volleyball technical skills correctly, namely arm muscle strength and upper service accuracy, to be able to prove that these factors affect technical ability, so research will research "The effect of variations of push-up exercises on upper service skills in volleyball extracurricular SMPN 1 Tanah Merah".

**METHOD**

The type of research used is experimental and uses a quantitative approach. Strict experimental research is to determine the causal relationship between variables (Maksum, Research methodology in sports, 2012). The research design used was a one-group pretest-posttest design. Each person (sample) underwent a pretest, then treatment (treatment) with 3 regular strength training sessions three times in 1 week, after that the final test (post-test) to check the effect of the exercise being trained (Sugiyono, 2017). Data analysis used the T-test which previously carried out the prerequisite test, namely:

The normality test is intended to ensure that the data obtained is symmetrical or normally distributed, which resembles a bell or curve because the distribution of numbers
is mostly in the middle, and the distribution of numbers decreases to the right or left. In addition, the homogeneity test is to ensure that the variance of each group is the same or similar to allow a fair comparison. The t-test is a procedure in which the distribution of the data being compared comes from the same group of subjects. For example, to analyze the difference between the pre-test and post-test results for a particular group, you can use a similar t-test (Maksum, 2012).

**RESULTS AND DISCUSSION**

**Results**

The following describes the results of the data analysis and discussion. The following are the results of the top service research on volleyball game practice for students who take part in extracurricular activities at SMPN 1 Tanah Merah.

<table>
<thead>
<tr>
<th>Name</th>
<th>Pretest</th>
<th>Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>RIO</td>
<td>8</td>
<td>17</td>
</tr>
<tr>
<td>FAIZAL</td>
<td>10</td>
<td>20</td>
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<tr>
<td>BENI</td>
<td>9</td>
<td>19</td>
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<tr>
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<td>9</td>
<td>20</td>
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<tr>
<td>RISKI</td>
<td>9</td>
<td>17</td>
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<tr>
<td>NOVAL</td>
<td>8</td>
<td>19</td>
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<td>HALIM</td>
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<td>19</td>
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<tr>
<td>FAHRI</td>
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</tbody>
</table>

The normality test is carried out to find out whether or not a distribution is normal, if t-count < t-table the distribution is declared normal, and if t-count > t-table the distribution is declared abnormal. The results of the normality test of this study can be seen in the following table:

<table>
<thead>
<tr>
<th>Group</th>
<th>P</th>
<th>Sig</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Push up</td>
<td>pretest</td>
<td>8</td>
<td>0,109</td>
</tr>
<tr>
<td></td>
<td>posttest</td>
<td>8</td>
<td>0,115</td>
</tr>
</tbody>
</table>

From the results of Table 2 above, it can be seen that all data have a value of P (Sig) > 0.109. So the variables are normally distributed.
This test was held to test the similarity of the samples, namely whether or not the sample variants taken from the population were uniform. The rule of homogeneity is if $p > 0.05$ then the test is declared homogeneous or appropriate, if $p < 0.05$ then the test is declared inhomogeneous or inappropriate. The homogeneity test results can be seen in the following table:

**Table 3.**
**Homogeneity Test**

<table>
<thead>
<tr>
<th>Group</th>
<th>Sig</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>1.18</td>
<td>Homogeneity</td>
</tr>
<tr>
<td>Posttest</td>
<td>1.18</td>
<td>Homogeneity</td>
</tr>
</tbody>
</table>

From Table 3, it can be seen that the pretest and posttest values of Sig $p > 0.05$ so that the data is homogeneous.

The hypothesis in the study was carried out using the paired t-test and independent t-test using the SPSS 23 application, the results of the hypothesis test are as follows:

Comparison of pretest and posttest variations of push-up exercises on service skills.

From the hypothesis test, there is an effect of variations in push-up exercises on upper service skills in the volleyball extracurricular at SMPN 1 Tanah Merah. In conclusion, the research can be declared significant if the $t$-count > $t$-table and the Sig value is less than 0.05 ($Sig < 0.05$). Based on the results of the analysis, the following data are obtained:

**Table 4.**
**T-Test**

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>$t$-test for equality of mean</th>
<th>$%$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>8,75</td>
<td>24.80</td>
<td>112,8</td>
</tr>
<tr>
<td>Posttest</td>
<td>18,62</td>
<td>8,93</td>
<td>7,00</td>
</tr>
</tbody>
</table>

From the results of the t-test, it can be seen that $t$-count and $t$-table with a significant value of 0.00, $t$-count 24.80 > $t$-table 8.93 with a value of 0.00 <0.05. So the results show that there is a significant difference. Thus the alternative hypothesis (Ha) reads "there is a significant effect of the variation of push-up exercises on upper service skills in volleyball extracurricular SMPN 1 Tanah Merah".

**Discussion**

Based on the results of the analysis of the t-test, it can be seen the results to conclude that, is there an effect of variations in push-up exercises on upper service skills in extracurricular volleyball at SMPN 1 Tanah Merah. After participating in push-up variations for 12 meetings or exercises. The research results are described as follows:
Service over is a form of service that is done by hitting the ball when the ball is above to toss the ball towards the opponent's field. To obtain good top serve skills, an athlete or volleyball player must be supported by training so that the service produced is good and arrives at the opponent's field area and can produce points from the service performed, the weakness of ordinary overhand service is that a player lacks strength good arm muscles, to improve good arm muscles can be done with effective training methods, one of which is the push-up variation training method. The push-up variation training method is one of the exercises to strengthen and strengthen arm strength, which is carried out repeatedly according to the planned repetitions in the exercise program (Hamdan, 2017).

Muscle strength is an important element of physical condition (Anwar, 2019). Arm muscle strength plays an important role in increasing the strength in hitting the ball, the greater the muscle strength, the harder the service will be and the farther the ball will fall. Apart from that, to improve the ability of the upper serve, it must be supported by the frequency of exercises that are carried out regularly, and continue to learn the upper serve in volleyball games. Exercises that are carried out continuously make players able to know mistakes made when serving, so that inaccurate serving can be corrected by doing regular practice so that serving skills can improve even better.

CONCLUSIONS AND SUGGESTIONS

Conclusions

Based on the results of the analysis of the data obtained, the examiners of the results of the research and the discussion, it can be concluded that there is a significant influence from the results of the variation of push-up exercises on upper service skills in the volleyball extracurricular at SMPN 1 Tanah Merah, with t-count 24.80 and t-table 8.93 and a significant value of 0.00 <0.05 and a percentage increase of 112.8. Based on the conclusions above, the research results imply that the research results can be used as material for consideration for volleyball coaches in making appropriate training programs to increase the arm power of volleyball athletes. Thus the training will be effective and will get results following what the trainer applies to the athletes.

Suggestions

Based on the results of the research, the trainers and other researchers are given the following suggestions:

1. For trainers for further research to carry out a canteen so that they can fully
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maldinimasl1@gmail.com

control the activities that will be carried out by the sample outside of training in full.

2. Researchers who are willing to continue or replicate this research are advised to carry out tighter supervision to avoid anything unwanted during the experiment.

3. Researchers who want to carry out deeper or more advanced research to be able to make this research as information material and to be able to carry out research with a larger and different number of populations and samples.

REFERENCES


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Dhimas Achmad Maldini 1*, Khoirul Anwar 2, Heni Yuli Handayani 3
maldinimaspl1@gmail.com


