

# The Effect of Exercise Variations in Improving Students' Volleyball Forearm Pass Ability

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## ABSTRACT

This research was conducted due to the students low ability in volleyball forearm pass technique at the Physical Education and Recreation Study Program. Therefore, many students had to repeat the test in the midterm and final semester exams. The research aims to determine the effect of exercise variations in improving the volleyball forearm pass ability by the students at the Physical Education and Recreation Study Program. Furthermore, an experiment with a one group pretest-posttest design was used. The population consists of 150 students that participated in the volleyball courses in the semester from January - June 2020. The samples were taken using probability sampling techniques from 10% of the total population of 15 people. Data collection was carried a test of forearm pass skills, and the volleyball test from Brady. The data analysis technique was performed using the t-test over the assumed prerequisite test for data normality. The expected technological readiness in this study was TKT 3 using variation exercise methods to improve the students' skills in the forearm strike technique. The results showed that there was a significant influence between the exercise variations on the ability of the volleyball forearm pass technique with  $t_{\text{count}} = 8.52 = t_{\text{table}} = 2.14$ .

**Keywords:** Exercise Variation, Forearm Pass Technique

## 1. INTRODUCTION

Volleyball is one of the main activities for games and sports contained in the physical education curriculum that will be taught by graduates of the Physical Education study program Health and Recreation in schools (Hade C etc, 2011). Volleyball skills are related to the mastery of the techniques in the volleyball, namely: under-passing, over-passing, serving, smash and block techniques. (Irwanto, 2017) explains that basic volleyball technical skills are a very important factor because, those good and correct technique will have an impact on productivity and effectiveness in one's volleyball game. Volleyball is a sport that is carried out in a short period of time with high intensity, followed by long and low intensity rest periods (García-de-Alcaraz et al., 2020). On this occasion the author only examines the under-passing technique which is a very important basic technique in volleyball. In order for the under-passing to be better and perfect, the under-pass must be done in a well-structured and harmonious manner. According to (Erianti & Astuti, 2019) Lower pass in the volleyball is the main element to defend the team from opponent attacks (the ball that comes is too hard and difficult to

play from the upper pass, so it is taken with the under pass).

Meanwhile (Bachtiar, 1999) explains that under passing is not only to defense, but it is also very important to build attacks. Lower pass can be done with one or two hands and can be based on the situation and the goal to be achieved ". Furthermore (Syafuruddin, 2011) says that under-passing is a key element of defense. Under passing technique is a technique used to give the ball to a friend, either making a pass or receiving a service in a team, so that the ball can easily be accepted by a friend. (Erianti, Astuti, 2019) states that the lower pass is the main element to defend the team from opponent attacks (the ball that comes is too hard and difficult to play with the upper pass, then it is taken with the under pass). Thus, it is clear that under-passing is a very important technique that someone must master or possess in the volleyball game. From the data found in the field, there are still many students who make mistakes that often occur when passing under the volleyball, including: a) When the ball comes to the student, the arm is often too high and the continued movement of the arm is above the shoulder, so the ball cannot be directed to the target. Then, when they want to pass under the body, the body is too stiff because the

knees are not bent, so that when doing the under pass the student does not freely swing his arm to receive the ball to be passed to the specified target. b) When the arms are separated just before, during, or shortly after getting the ball, so that the ball lands on the arm at the elbow area or there is also a double reflection on both arms. c) When uncontrolled reception of the ball (the ball deviates) and the body are not behind the ball. (Mu'arifuddin, 2018) also reveals in his research that the cause of losing points in the game was not from a failed attack by team or a returned attack from opposing team, but more it was due to mistakes by the players themselves, many mistakes occurred in passing down the ball, both in a series of attacks and when receiving an opponent's attack.

The implementation of the lower passing technique can be done by the arm attitude which is properly straightened, close, and one hand clings to the other until both thumbs are aligned. Then, for the movement; the ball is passed by straightening the legs and swinging both arms. The weight point of the body is on the front leg where both arms are not very active. Furthermore, the shoulders are slightly raised, the arms are swinging flat, the body is under the ball, and the shoulder points to the desired direction. In doing passing under, things that should be noted as presented by (Margiyani, 2008) are observing the direction of the ball carefully, bending both knees, protruding both hands tightly with the lower posture of the body. When the ball hits the forearm, the hand remains low and the hips come forward, while the knees remain bent. When performing a low pass in a game, the distance of the ball with the arm is not always in the ideal position. Thus, in general, the passing variation consists of: a) Passing down forward on the low ball, b) Passing down diagonally 45 degrees forward, c) Passing down on the ball far next to the body, d) Passing down by moving backwards, e) Passing down by moving backwards diagonally 45 degrees, f) Passing down backwards.

In order for students to perform their under-passing skills well, up to three sessions per week are required depending on the category and their previous experience in sports (Peres et al., 2020). According to (Syafuruddin, 2011) what is meant by technique is one of the methods used or developed by a person in order to be able to complete or solve a task of movement in sports effectively and efficiently. In order for someone to have good, structured and continuous techniques, exercises is needed to correct weaknesses or mistakes that often occur when performing under-passing techniques. Nowadays, teaching students who are born in the millennial era with advanced technology is a bit complicated because mostly this generation tends to be critical sometimes, and cannot stand longer for

monotonous forms of exercises. Thus, specific strategy and a different approach in teaching students are needed, so that students can understand and do what is instructed by the lecturers. Similarly, in overcoming problems that occur in volleyball lectures, especially under passing techniques, requires a variety of exercises, so that the objectives of volleyball learning can be achieved properly. Based on the background of the problems that have been previously stated, the problem formulation in this study is whether the variation of under-passing exercises can improve the skills of the volleyball under-passing technique of students of the Health and Recreation Physical Education Study Program, Faculty of Sport Sciences, Padang State University.

Exercise is a form of activity that is carried out repeatedly in order to automate the movement, included in doing exercises for under-passing technique skills. (Sukadiyanto, 2005) states that exercises is a process of improving sports abilities which contains theoretical and practical materials, the use of methods, and rules, so that goals can be achieved on time. Furthermore (Suharno, 1981) says that exercises is a process of systematically preparing one's organism to range maximum quality of achievement by giving regular, directed, increased, and repetitive physical and mental burdens. According to (Bompa, 1994), exercise is a sports development program for special events, through increasing skills and energy capacity. Types of exercise that aim to improve performance in sports use an approach that prepares to increase physical strength, endurance, speed, flexibility, coordination and fitness, (Zhou et al., 2020). Based on the description of the opinion above, it can be concluded that exercises is a process of improving the abilities of a person in a certain sport systematically and repeatedly by always providing exercises load in order to achieve the stated goals. The exercise was carried out for 8 consecutive times consisting of a 10-minute warm-up session and 45 minutes of technical exercises (Peres et al., 2019). The drill method is a way of teaching where students carry out exercises activities, so that students have dexterity or skills that are higher than what has been learned (Astuti, 2018). In general, the target of exercises is to increase the ability and readiness of athletes to achieve achievements. However, in more detail (Sukadiyanto, 2005) explains that the exercises objectives and exercises objectives include: 1) Developing specific physical potential, 2) Adding and perfecting strategies, tactics, and play patterns, 3) Improving the quality and psychological abilities of sportsmen in competing.

Furthermore, for the purpose of the exercises itself, namely to improve the achievement of the skilled level and the performance of the athletes, the exercises

will be directed to achieve the general objectives of the exercises. (Astuti, 2017) reveals that one of the most important factors in coaching process is to achieve quality of accomplishments in a sport, namely by exercises or drill. The variety of exercises that can be given to students can be individual practice using the ball by placing the ball into the air, self-passing exercises using wall aids, doing under-passing using box targets, passing practice using obstacles such as ropes or the net as a barrier. Also, variations in exercises under passing can be done in pairs with friends or groups, so that interactions can occur to create cooperation with friends which increase their enthusiasm to practice the technique properly. (Bisagno & Morra, 2018) explains that basically the given exercises must have up and down graphic with different targets from each of these exercises to see the growth in the quality of the exercises carried out.

## 2. METHOD

The used research design was a more specific *quasi-experimental*, namely the *one-group pretest-posttest design* which is applied in a group before being subjected to certain treatment (X), given a pretest, then, taken measurement to determine the impact of the treatment (Sugiyono, 2016). The population in this

study were students of the Penjaskesresk Study Program who took the Volleyball course, amounting to 150 people. While, the sample was taken using probability sampling technique, namely 10% of the total population which was 15 students. Retrieval of data using a test of underhand passing skills from Brady in the book of (Winarno, 2006) using a target wall. The data analysis technique used the t-test, through the prerequisite test for data normality.

## 3. RESULTS AND DISCUSSION

The results achieved in the research will be described in detail about the initial and final data on the variation of exercises as the effort to improve the ability of the volleyball under-passing technique by students of the Physical Education and Recreation Study Program, Faculty of Sport Sciences, Padang State University. Based on the results, the initial test of the ability of the under-passing technique before being given treatment with a variety of exercises by 15 students, the mean value was on 27.27, the standard deviation was on 5.71, the highest score was on 36 and the lowest score was on 18, while the measurement distance (range) was on 18. Furthermore, the distribution of the categories of the ability for the volleyball underpass technique can be seen in table 1.

**Table 1. Frequency Distribution of Initial Ability Test Categories The Volleyball Under-Passing Technique**

Scor	Category	Absolute Frequency	Relative Frequency
$\geq 36$	Excellent	1	6,67
30 – 35	Good	4	26,67
24 – 29	Moderate	6	40
19 – 23	Bad	3	20
$\leq 18$	Poor	1	6,67
	Amount	15	100

Based on Table 1, a conclusion can be drawn that from the 15 students; a) who have excellent volleyball under-passing technique skills, namely only one student (6.67%), b) four students with good categories (26.67%), c) six students with moderate category (40%), d) three students with low category (20%), and the last d) one student with poor category (6.67%).

Based on the results of the final test of the ability of the under-passing technique after being given

treatment with variety of exercises, which were carried out on 15 students, it was obtained the mean on 36.40, the standard deviation was on 5.48, the highest score was on 48 and the lowest score was on 27, while the measuring distance (range) was on 21. Furthermore, the distribution of the category of the ability of the volleyball underpass passing technique can be seen in table 2 below:

**Table 2. Frequency Distribution of Final Ability Test Categories The Volleyball Under-Passing Technique**

Scor	Category	Absolute Frequency	Relative Frequency
$\geq 45$	Excellent	2	13,33
39 – 44	Good	3	20
34 – 38	Moderate	5	33,33
29 – 33	Bad	4	26,67
$\leq 28$	Poor	1	6,67
	Amount	15	100

Based on Table 2, it can be concluded that of the 15 students; a) who have excellent volleyball under-passing technique skills, namely two students (13,33 %), b) three students with good categories (20 %), c) five students with moderate category (33,33 %), d) four students with bad category (26,67 %), and the last d) one student with poor category (6.67%).

Test Requirements Analysis in this study was doing by the analysis requirements test with the data normality test to determine whether the data from the studied variables were normally distributed or could not be used the Lilliefors test. Lilliefors test hypothesis:

$H_0 : L_{\text{observasi}} < L_{\text{tabel}}$  data normally distributed

$H_a : L_{\text{observasi}} > L_{\text{tabel}}$  data not normally distributed

**Table 3. Summary of Data Normality Test**

Variable	$L_{\text{observasi}}$	$L_{\text{tabel}}$	Summary
Initial Ability Test of the Volleyball Under-Passing Technique	0,154	0,220	Normal
Final Ability Test of the Volleyball Under-Passing Technique	0,068	0,220	Normal

Based on the results of the data hypothesis testing analysis, it was found that the mean value of the initial test count was on 27.27 and the average value of the final test was on 36.40. This means that there is an increase in the average value of 9.13. While, the t-count value was found to be 10.34 greater than t-table 2.15. Therefore, it can be interpreted that providing variety exercises can improve the ability of the under-passing technique. Doing the under-passing movement is a movement that requires a variety of exercises, so students will no longer feel bored and tired in doing the under-passing movement repeatedly. Under passing is a technique that purposes to defend in volleyball because if the ball comes hard it must be taken or received by an under pass. Therefore, the importance of quality under-passing techniques must be possessed by someone, including students in volleyball lectures. The exercises pattern given in the treatment uses a variety of under-passing exercises, namely by under-passing alone, under-passing in pairs with close or wider distances, under-passing with a straight forward movement or under-passing movements that are carried out by shifting left or right, forward and backward movement. Furthermore, the variation of the exercise used is under passing using obstacles in the form of a net, so that when doing underpasses the player must focus on receiving the ball, thus, it can be passed to the target, namely a friend who is behind the net. By the results of

the research, there is effect on under-passing technique skills by giving variety of exercises patterns.

## 4. CONCLUSIONS

Based on the findings that have been described in the results of the study, it can be concluded that there is effect of exercises variation on the ability of the volleyball in under-passing technique by students of the Health and Recreation Physical Education Study Program, Faculty of Sport Sciences, Padang State University.

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