

The Effect of Target and Netting Games on Overhead Pass Volleyball Accuracy

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Abstract The purpose of this study was to determine the effect of target games and net games training on the accuracy of passing volleyball. The research method used is the experimental design method using pretest-posttest control group design. The research subjects used the experimental method. The research subjects were 120 participants of men's volleyball extracurricular activities at Makassar City Junior High School. Participants are divided into two groups using total sampling, namely 60 subjects in the experimental group (net games) and 60 control subjects (target games). The test instrument is passed over the head using the Russell-Lange test. The effectiveness test was delivered to see the difference between the control group and the experimental group using the t-test. Data analysis techniques used the help of SPSS 21 application. The results of the study with a value of $t = 10,971$, $df = 118$ and sig (2 tailed) or $p\text{-value} = 0.000 < 0.05$ or H_0 was rejected. As the result, the hypothesis proposed was tested with the data so that it could be concluded that the accuracy of overhead pass the experimental group using the netting games method was higher than the control group that used the target game. The netting games training method is suitable for increasing the accuracy of beginner age athletes in passing on volleyball. The novelty of this training method combines the netting games training model into volleyball games, especially over passing. The research contributes to the accuracy of passing skills for junior high school volleyball players.

Keywords Target Games, Netting Games, Accuracy, Passing, Volleyball

1. Introduction

Currently, in the world of education in Indonesia, there are still brawls that are carried out by junior high school and high school students. Youth activity requires positive activity direction. The development of positive activities for adolescents can be done by developing personality, growth, and skills to support future welfare, one of which is done by exercising [1]. Through exercise, children will reduce excessive energy in sports activities.

Volleyball is a sport that is popular in society as a means of education, recreation, and achievement. The International Volleyball Federation (FIVB) reports that there are more than 900 million volleyball players worldwide, volleyball is a team game that is supported by physical, technical, tactical, and mental elements which show in the form of an attack by dropping the ball into the opponent's territory [2]. The special task in volleyball is to make landings, jumps, ball blocking, the ball passing, and spiking with a combination of fast movement. Because of this, it requires maximum basic movement skills [3]. The game of volleyball has the basic techniques.

Apart from serving, smash, block, there are basic

passing techniques. The volleyball game is a game that is done by minimizing the ball falling to the floor. Hence, it is necessary to master all the basic techniques correctly to display a good game. Based on the results of observations made by researchers at 3 junior high schools in Makassar City, South Sulawesi during an inter-school competition on November 3, 2017, it is known that there is an average number of errors in some basic volleyball techniques among male students. As many as 56% of errors occurred on serves, 63% on the underpass, 70% on smashes, 79% on overhead passes, and 29% on blocks with an average number of errors of 57%. The results of these observations show the biggest errors in the volleyball passing technique, on field notes made by researchers, the over-passing error lies in the inaccuracy or the low level of ball accuracy possessed by the athlete, so the success of the final execution or smash is also low. Mastery of good passing movements will support the creation of winning points. Passing in volleyball is divided into two, namely overhead pass and underpass. The dominant overhead pass is used by setters to set attack patterns, but other players also need to master the overhead pass technique. The overhead pass uses a high accuracy of the height and direction of the ball. The attack pattern performed by the setter position player uses several types of overhead pass like semi, long, and quick bait types. These types of passes require a high level of accuracy for altitude and direction so that it can be accurately predicted by the hitter as a pattern of attack against the opponent.

Determining the accuracy of the volleyball game requires making the right decisions so that players can determine whether the ball is received by defense or attack and then where the ball will be directed. To conform the direction of the ball in volleyball is very important in determining the athlete's performance in victory [4]. In the overhead pass technique, the wrist is important to determine the direction of the ball by pushing the ball to bounce like an arc trajectory which requires high accuracy [5].

Mastery of skill at the professional and beginner levels is different. It is due to the ability to coordinate gross and fine motor skills and the ability to visually identify and interpret the area of attack. [6]. The observations also show that students have not been able to perform overhead passes correctly with the forms of passing errors that do not reach the partner, the passing isn't directed at the target object; the passing that is too fast is difficult for the partner to control; the passing is often wrongly targeted. This makes it difficult to be successful in the match. Besides of that the training methods used by the coach still use conventional training methods such as passing in pairs or passing independently.

Hence it is important to find a way out of the difficulties faced by volleyball extracurricular participants at the junior high school level. Researchers provide an alternative training method that can be used to train the accuracy of volleyball overhead pass using the target

games and netting games methods. Both of these training methods the researchers took based on the characteristics of the volleyball game. The first reason is the game of volleyball is a sport that is contested on a point rally. The point rally is the value obtained based on the success and failure of receiving the ball that occurs continuously between players and a game area that is limited by a net or boundary mark as an area of ball reflection (Pill et al.). Next is the use of games in training and training activities will allow the simulation of the sports movement pattern (Tomislav. Krističević) [7].

The target games method is a training method that functions to train accuracy against predetermined targets. Target games are developed by (1) separating the zone for each team, (2) determining the parts that are allowed to be a target, (3) implementing areas that are not possible as targets, (4) limiting individual player movements with the ball, (5) assigning motion assignments which are different when receiving the ball for each individual, (6) intensively changing the limb receiving the ball (feet, hands, head and or body) as a form of maintaining the ball, (7) introducing forms of keeping the ball from falling into the ball by catching, stopping or clearing the ball, (8) determining the target boundaries (far-near, big-small, right-left, etc.) and (9) determining whether an obstacle exists or not. Target games are designed to improve hand-eye coordination, agility, balance, concentration, and listening skills to instructions to achieve predetermined targets [8]. Game target variations can be varied in terms of target size, distance, and type of movement to reach the target [9].

Both of these methods use training methods with games equipped with variations of obstacles and movements so that it is expected to be able to develop the athlete's skill experience by delivering varied and fun training methods. The experience will flow to the individual if he fully enjoys and participates in the given movement tasks [13]. The training method using games is one of the training methods to improve movement because it has the same actual movement and the athlete is responsible for maintaining it during training until the end of the competition [14]. Based on the background described, the coach must determine the appropriate methods to improve the technique of passing over. Because of that the researchers conducted research to determine the effect of target games and netting games training on the accuracy of volleyball overhead pass.

2. Research Methods

This study uses an experimental research method that aims to determine the description of the results of the pre-test and posttest tests in the control group and the experimental group. This study used two groups where the first group was treated with A (netting games) and the second group was treated with B (target games). Both groups did a pretest before the treatment was given.

In this study, researchers used subjects from male

extracurricular athletes in volleyball in junior high schools 3,13 and 33 Makassar City for 16 meetings. The total subjects were 120 people from both groups. The sampling technique used total sampling. In Figures 1 and 2, the following are examples of target games and netting games conducted by researchers to research subjects:

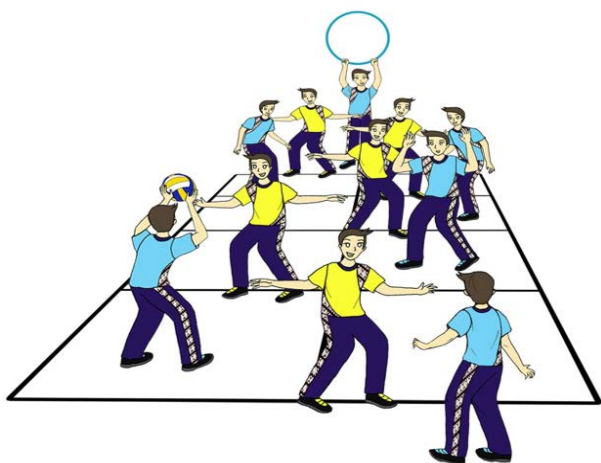


Figure 1. Display One Example of Target Games Implemented by Researchers on Research Subjects

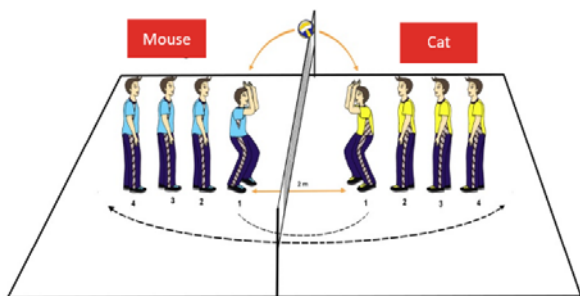


Figure 2. The Display of One Example of Netting Games Implemented by Researchers on Research Subjects.

In the control group, the researcher gave treatment using the target games training method which was carried out independently and paired passing that had been programmed beforehand. The researchers' next step was to see the difference in the post-test results of the two groups. The volleyball overhead pass test instrument uses the Russell-Lange test (Winarno) the validity coefficient is 0.67 and the reliability is 0.915. The following is a field image of the Russell-Lange overhead pass test instrument:

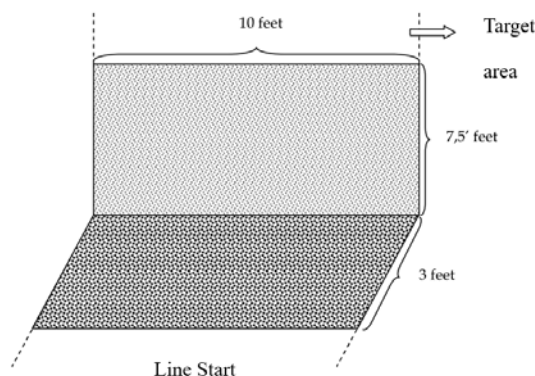


Figure 3. Shape and Size of the Russell-Lange Repeated Volleyball Test Instrument

This test is carried out on a firm, upright wall that is used as an overhead pass target with a horizontal net line of 10 feet (3.04m) long. The line is installed 7.5 feet (2.28m) high from the floor with a distance between the walls and the front dividing line is 3 feet (0.912 m). The test was carried out by repeatedly passing the target to the target 3 times 30 seconds. The data obtained were used to determine the pretest and posttest results of the control group and the experimental group.

3. Result

The research used the experimental method Pre-test-post-test control group design was used to determine the initial ability value of the experimental group with netting games treatment and the control group using target games. Significance and efficiency of the model was used in both groups using the t-test procedure and the SPSS 21 application. In table 1, the following is a descriptive statistical pretest-posttest result of the experimental group:

Table 1. Test Results Paired Sample Test Experiment Group

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Experiment	Pre-Test	34.9667	60	1.57272	.20304
	Post-Test	46.4000	60	2.59857	.33547

In table 1, it can be seen that the results of the passing over volleyball test with as many as 60 subjects with a mean of 34, 96, after being given treatment the post-test results have a mean of 46.4. It shows that descriptively the differences are obtained before and after treatment. We can see, in second table, the following are the results of the pre-test-post-test test in the control group:

Table 2. Uji Paired Samples Statistics Pretest & Posttest Control Group

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-Test	34.5333	60	1.29493	.16717
	Post-Test	41.8833	60	2.00078	.25830

Based on table 2 with a sample size of 60 people, it is known that the pre-test results have a mean of 34.5333 and a standard deviation of 1.29493. After being given a

conventional training model, the post-test results have a mean of 41.8833 and a standard deviation of 2,00078. This means that descriptively in table 2, it can be seen that the average results of the overhead pass accuracy test for volleyball with the average difference in the results of the volleyball overhead pass accuracy test before and after treatment given. Overall, the researchers conveyed a summary of the results of the normality test calculations in table 3. Based on table three, the test results can be seen in the Kolmogorov-Smirnov column. It is known that the significance value for the experimental group data is 0.090 and the control group data is 0.065.

Table 3. Summary of the Calculation Results of the Data Normality Test for the Experimental Group and the Control Group on the Accuracy of Overhead Pass for Volleyball

Tests of Normality								
Overhead pass accuracy		Kelompok	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
			Statistic	df	Sig.	Statistic	df	Sig.
		Experiment	.106	60	.090	.971	60	.159
		Control	.111	60	.065	.954	60	.023

a. Lilliefors Significance Correction

Table 4. Levene Test

Independent Samples Test										
Overhead pass accuracy		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper	
Overhead pass accuracy	Equal variances assumed	3.333	.070	10.971	118	.000	4.083	.372	3.346	4.820
	Equal variances not assumed			10.971	112.241	.000	4.083	.372	3.346	4.821

Table 5. ANCOVA Test

Tests of Between-Subjects Effects						
Dependent Variable: Posttest point						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	612.008 ^a	1	612.008	113.802	.000	.491
Intercept	233818.408	1	233818.408	4.348E4	.000	.997
Treatment	612.008	1	612.008	113.802	.000	.491
Error	634.583	118	5.378			
Total	235065.000	120				
Corrected Total	1246.592	119				

a. R Squared = .491 (Adjusted R Squared = .487)

Because the significance value of the two groups is greater than α (0.05), it can be concluded that the overall data of the study group is normally distributed. After the data is known to be normally distributed, the effectiveness of the next treatment method uses the "t-test" which is summarized in table 4.

Based on table 4, the Equal variances assumed and Levene's Test for Equality of Variances column obtained a value of $F = 3.333$ with a sig or p-value = $0.070 > 0.05$, which means that the population variances of the two groups are the same or homogeneous. Because the data variance is homogeneous, the results of the hypothesis test can be seen in the Equal variances assumed and t-test for the Equality of Means column. From this column, the value of $t = 10.971$, $df = 118$ and sig (2 tailed) or p-value = $0.000 < 0.05$ or H_0 is rejected. The proposed hypothesis is tested by the data so that it can be concluded that the overhead pass accuracy of the experimental group using the netting games method is higher or more effective than the control group using target games. To find out how much influence these netting games have on the accuracy of volleyball overhead pass, the researchers used data analysis with ANOVA with the help of the SPSS 21 application in table 5 below:

In this test, it is only done to determine the difference in the effect of treatment with the level of accuracy of passing athletes' volleyball. From the results of data processing, it can be seen that the significance level for the treatment variable is 0.000 because the value is far or smaller than 0.05, H_0 is rejected. Hence, it can be concluded that there is an effect of the training method on the results of the accuracy of the volleyball overhead pass, which is 49.1%.

4. Discussion

Volleyball is a competitive sport consisting of six players who make three contacts with the ball before the ball crosses the net onto the opposing field. The first contact is called "passing", the second contact is called a "set" which is generally done with the ball above the head using two hands or overhead, and the third contact is called a "spike/attack" [15]. Athletes need to master the overall contact by improving skills through programmed training activities. The research subjects were volleyball extracurricular students in junior high school. Extracurricular activities are important because extracurricular activities support the process of life skills through the transfer of skills and applications outside the place of learning [16]. Extracurricular activities that are likely to promote positive adolescent development provide competent, supportive adult mentors, opportunities for increasing school connectedness, challenging and meaningful activities, and opportunities for improving skills [17]. Junior-high school age is a period of transition

from children to adolescents. That need physical activity to build strength, coordination, and confidence which will consequently lead them to lay the groundwork for a healthy lifestyle through gaining more control over how active they are [18]. The study reveal that there is a significant association between goal orientation and performance of the players while a significant relationship exists between task orientation and performance. A moderate level of association was derived from ego orientation which in turn leads to performance [19].

Training activities are carried out with interesting variations for athletes. Variation or development of motion tasks in each training method must be adjusted to age development, skills, and movement experience to support achievement at an optimal level [20]. Volleyball is a game that requires a high level of tactical and technical skills, but studies on technical skills and accuracy of volleyball are still limited. Contribution of player skills is needed to gain points in a match such as jumping serve and also passing [21].

Games-based training has the same effect as instructional training in increasing the accuracy of volleyball skills in junior athletes [22]. Some opinions regarding the relationship between the type of game and the point rally system are closely related to accuracy due to reasons such as: (1) consistently playing players by passing on target (high accuracy), (2) volleyball game being hit with floating movements in the air and field the opponent is targeted (accuracy) and (3) a bouncing ball requires a high level of control [23]. The result of the soaring ball movement in the volleyball game, of course, it requires the ability to change projections or targets as quickly and accurately as possible to attack the opponent. When playing volleyball, receiving the ball using the under-passing technique is more often used because it is assumed that it is more difficult to use accuracy when done with an overhead pass [24]. Training to improve accuracy is necessary because there are times when athletes are not only focused on the ball but at the same time, the athlete monitors the activities and positions of players, both colleagues, and opponents, to plan and attack [25]. For example, when performing an overhead pass, a feeder needs to predict and process information precisely on the position of the speaker so that it can adjust the running speed, take an overhead pass and determine the direction of the bait to the speaker to be hit into the opponent's area [26], if is associated with the results. Current research and theories have been previously disclosed relationship between training methods using netting games helps athletes improve their accuracy skills in volleyball overhead pass.

5. Conclusions

Based on the results of research on the effect of netting

games training methods and target games on the accuracy of passing volleyball that can be concluded that using the netting games method can improve the accuracy of overhead pass on volleyball for extracurricular participants of junior high school age in Makassar City. It can be seen from the results of the pre-test test amounted to 34, 96, and after being given treatment the post-test results had a mean of 46.4, while in the group that used the target games method or the control group was known that the pretest results were 34.5 and the posttest results were 41.8. Because of this, it can be concluded that there is a significant connection between training using netting games and the accuracy of passing on volleyball.

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