



Application of the Defensive Training Model in Volleyball Games at the Putra Jatitujuh Club

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ABSTRACT

The Jatitujuh Men's Team's defense against attacks from the opposition was extremely poor; in two sets of games, the Block on Target was only 25 times, while the Block Out Target was 30 times. Poor defense is caused by players not communicating with one another, defending in an unprepared manner when attacked, continuing to jump incorrectly, and having both hands wide. To get around this, a defensive training paradigm was selected. The purpose of this study is to ascertain whether defensive training models have an impact on a player's capacity to fend off attacks from opponents during a volleyball match. Quasi Experimental Design research, specifically One-Group Pretest-Posttest Design, is the methodology employed in this study. There were 14 members of the Putra Jatitujuh Club who made up the population of this study. A saturated sample was used, meaning that every member of the population was included in the sample. The study's findings indicate that defensive training models have an impact on players' capacity to fend off opponents' attacks during volleyball matches. The results of the t test show that, at the 5% significance level, with $df=n-1=14-1=13$, or 2.160, the tcount value of 3.576 is greater than the ttable value. As a result, H_0 is rejected and H_a is accepted, indicating a significant difference in the ability to withstand an opponent's attack before and after receiving treatment in the form of a defensive training model and the defensive training model has an influence of 51.6% in increasing the ability to withstand an opponent's attack in a volleyball game.

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INTRODUCTION

Volleyball is one of the sports games in the big ball category (Suhadi; Sujarwo, 2009). The basic idea of the volleyball game at the beginning was a game of bouncing the ball by the hands or arms of two teams playing on a field that has certain dimensions (Suhadi; Sujarwo, 2009). A net or rope that is stretched across the field at a specific height divides the field into two equal sections for each team. A team may play the ball on their own field for no



more than three touches, and no player may bounce the ball twice in a row. When playing volleyball, the basic rule is to prevent the ball from landing on your court and attempt to kill the ball on your opponent's side (Rukmana et al., 2021).

Basic Serving, Passing, Smashing, and Blocking Techniques are among the skills used in volleyball. The goal of blocking is to stop an opponent's ball from crossing the net (Supriatna et al., 2022). Blocking is a technique of blocking the ball when the ball is above the net, with the aim of returning the ball directly towards the opponent's play (Naome, 2017). Defense tactics are a defensive player's position in a passive state receiving attacks. Defensive tactics must have principles, so that they can attack the opposing team again (Triningsih, 2020). Defense techniques must be developed in harmony with technical exercises. One of the defense efforts in volleyball is blocking the ball. Blocking the ball is a system that must be carried out together, so that the attack can kill the opponent (Irfandi & Rahmat, 2022). Here are some tactics for blocking the ball in volleyball: One Player Dam, Two Player Dam, Three Player Dam (Suhadi; Sujarwo, 2009).

Block is the first defense against the opponent's spike (Reynaud & American Sport Education Program., 2011). A well-executed block can not only make it difficult for your opponent to play the ball, but it can also immediately kill your opponent's ball. The blocking technique is a technique that must be mastered by all volleyball players, because with this blocking technique the opponent's attack via smash can be blocked or thwarted (Suhadi; Sujarwo, 2009).

Based on direct observations made by researchers at the Jatitujuh Putra Team, it was very weak, in the first observation the Block On Target was only 20 times while the Block Out Target was 30 times in 2 sets of games or one match carried out by three observers, these three observers were tasked with observing in the match and in the second observation the Block On Target was 20 times and the Block Out Target was 28 times.

Table 1. Block Out Target and On Target Assessment Standards

Out Target	Interpterasi	On Target
0-10	Very Good	41-50
11-20	Good	31-40
21-30	Enough	21-30
31-40	Poor	11-20
41-50	Very Poor	0-10

Poor defense is caused by players not communicating with one another, defending in an unprepared manner when attacked, continuing to jump incorrectly, and having both hands wide. This is the reason behind the development of a defensive training model by researchers, which aims to teach people how to withstand attacks from opponents.

Researchers employed the One Player Block, Two Player Block, and Three Player Block defense exercises as a means of resolving this issue. The researcher plans to carry out a study titled The Effect of Implementing a Defensive Training Model on the Ability to Withstand Attacks in Volleyball Games at the Jatitujuh Putra Club based on the issues these athletes are facing.

MATERIALS AND METHODS

The method used by the author is an experimental design. This research is a Quasi Experimental Design research, namely using One-Group Pretest-Posttest Design (Surahman; Rachmat M; Supari, 2016). The population in this study were all 14 Putra

Jatitujuh athletes. The sample used was 14 Jatitujuh male athletes. In this study the author used a research instrument with a Volleyball Game Statistics observation sheet (Wibowo, 2018). The steps are as follows.

Table 2. Volleyball Observation Sheet

VOLLEYBALL MATCH STATISTICAL FORMAT				
TEAM	SCORE	INDICATORS TO BE ASSESSED	SCORE	TEAM
		Set		
		Skor		
		Point		
		Under Servis In		
		Under Servis out		
		Up Servis in		
		Up Servis out		
		Under Passing On Target		
		Under Passing Out Target		
		Passing Up OnTarget		
		Passing Up Out Target		
		Smash On		
		Smash Out		
		Block One Man On Target		
		Block One Man Out Target		
		Block Two Man On Target		
		Block Two Man Out Target		
		Block Three Man On Target		
		Block Three Man Out Target		

Observation Procedure: Observations were carried out by 4 observers. Observations were made in 2 x matches (1 x match, 2 sets). The blocks observed are Block 1 player, block 2 players, and block 3 players. Players who have blocked and are in the back position are replaced with reserve players so that all players get the same opportunity.

Assessment: Block on target is written as a result of research. The block on target and out target results from 3 observers in sets 1 and 2 were added up. The results of observations from 3 observers were used as research data which will be processed further.

Research Instrument Testing: Validity Test and Reliability Test. The steps for finding reliability values using the alpha method are using the alpha method formula.

The test method used in this research was used to measure the results of defending against an opponent's attack before training (pre test) and after being given training actions (post test). To obtain the necessary data, a tool is needed that can truly measure what is to be measured, by using research instruments you will obtain data which is the result of the measurement. Analysis of this research data was carried out using the SPSS Version 24 program.

RESULTS AND DISCUSSION

Results

Description of research data

Data collection was carried out on the sample group twice by carrying out a pre-test and a post-test. The initial test data was taken before the research samples were given treatment in the form of a block training model, while the final test after the athletes were given treatment in the form of a defensive training model. Data collection was intended to

determine whether there was a difference in the ability to withstand attacks between before and after being given treatment in the form of a defensive training model.

The ability to withstand attacks is tested by playing two sets of volleyball matches and calculating how many blocks each player can block on target during those two sets. To facilitate assessment, researchers are assisted by three observers where one observer will assess 4 to 5 players who are competing. The score obtained is the number of blocks on the player's target in set 1 added to the number of blocks on target in set 2.

The initial and final tests were carried out on the Putra Jatitujuh club volleyball court. The following are the results of a test on the ability to withstand attacks from opponents in a volleyball game at the Putra Jatitujuh club.

Table 3. First Assessment of Resistance to Attacks

No	Name	1st Match		2nd match		Score
		Set 1	Set 2	Set 1	Set 2	
1	S1	12	11	12	11	46
2	S2	12	13	12	12	49
3	S3	14	15	13	12	54
4	S4	12	16	12	11	51
5	S5	13	12	14	14	53
6	S6	12	13	10	12	47
7	S7	15	15	12	11	53
8	S8	12	12	12	11	47
9	S9	10	13	9	9	41
10	S10	12	14	12	8	46
11	S11	13	15	14	12	54
12	S12	12	12	12	13	49
13	S13	14	12	11	11	48
14	S14	12	11	11	11	45

Table 4. Final Test of Ability to Withstand Attacks

No	Name	1st Match		2nd match		Score
		Set 1	Set 2	Set 1	Set 2	
1	S1	15	16	14	15	60
2	S2	16	17	14	14	61
3	S3	18	16	18	18	70
4	S4	16	18	15	14	63
5	S5	16	18	17	15	66
6	S6	16	17	14	19	66
7	S7	19	18	16	16	69
8	S8	17	16	15	17	65
9	S9	14	16	15	15	60
10	S10	15	17	14	14	60
11	S11	15	17	16	16	64
12	S12	16	16	16	14	62
13	S13	17	16	14	15	62
14	S14	14	17	16	14	61

Based on the initial test data for the final test above, a description of the data will then be calculated to describe the results of the data. The following is a description of the initial test and final test.

Table 5. Average Test Results and Standard Deviation of Preliminary and Final Tests

No	Results	(N)	Average (x)	Standart Deviation
1	Pretest	683	48,79	3,847
2	Posttest	889	63,50	3,299

Based on the table above, the ability to withstand the above attacks in the initial test, the average player was able to block on target 48.79 times with a total of 683 times and with a standard deviation of 3.847. Furthermore, in the final test, the average player was able to block on target 48.79 times with a total of 889 times and with a standard deviation of 3.299.

Processing and analysis of data

Data analysis was carried out to determine the formula used to test the hypothesis (Pasaribu, 2020). In this research, the data analysis carried out was a normality test and a homogeneity test, which is an absolute requirement for the use of parametric statistics. If the data is not normal (normality test) or not in the same version (homogeneity test) then an alternative route is taken to test the hypothesis, namely with non-parametric statistics which does not require the data to be normal (Sugiyono, 2018).

Data Normality Test

Normality testing is used to determine whether the data is normally distributed or not (Sugiyono, 2018). The author's data normality test uses the Kolmogorov-Smirnov method. In the calculations the author will use the SPSS version 24.0 program by reading the asymp.sig value, (2-tailed). The decision to make a decision on whether it is normal or not is by comparing the asymp.sig value, (2-tailed) with a significance level at the 5% or 0.05 level. If the asymp.sig, (2-tailed) value is greater than 0.05 then the data is declared to be normally distributed, whereas if the asymp.sig, (2-tailed) value is smaller than 0.05 then the data is declared not to be normally distributed. The data tested for normality is the data from the initial test and final test of the ability to withstand the opponent's attacks. Following are the results of the data normality test.

Table 6. Data Normality Test Results

No	Results	Normality Tes (Sig)	5%	Information
1	Pretest	0,915	0,05	Normal
2	Posttest	0,783	0,05	Normal

Based on the table above, you can see the Asymp.Sig value. (2-tailed) initial test is 0.915, Asymp value. Sig. (2-tailed) final test is 0.822, both numbers are greater than 0.05, so all data is declared normally distributed and analysis can continue.

Homogeneity Test

The homogeneity test is used to determine whether the variants of several populations are the same or not. The basis for decision making is based on the following statement.

- Sig value. or the probability is smaller than 0.05 (Sig. < 0.05), then it is said that the variance of two or more population data groups is not the same.
- Sig value. or the probability is greater than 0.05 (Sig.> 0.05), then it is said that the variance of two or more population data groups is the same.

Following are the data homogeneity test results for the initial test and final test for the ability to withstand attacks.

Table 7. Homogeneity Test

No	Results	Homogeneity Test (<i>Sig</i>)	5%	Information
1	Pretest -Posttest	0,171	0,05	Homogen

Based on the table above, you can see the Sig value. is 0.171, the Sig value. or the probability is greater than 0.05 (Sig.> 0.05), then it is said that the variance of the Posttest data for groups A and B is the same.

Research Hypothesis Testing

In the previous analysis, data normality and homogeneity tests were carried out, based on the results which stated that the research data was normally distributed and the data were in the same variance, then hypothesis testing was carried out using parametric statistics, namely using the t test (Sugiyono, 2018). In the hypothesis test, a t test will be carried out to find out whether there is a difference in the ability to withstand an opponent's attack between before and after being given treatment in the form of a defensive training model, then a coefficient of determination analysis will be calculated to calculate how much influence the defensive training model has on the ability to withstand attacks on the opponent. volleyball game. The following are the results of hypothesis testing, namely as follows.

T-test

To find out whether there is an influence of the defensive training model on the ability to withstand an opponent's attack in a volleyball game, a regression analysis test (t test) was carried out. Decision Making Test The t test is carried out by comparing tcount with ttable at an error level of 5%. The test criteria are as follows:

1. If $t \text{ count} > t \text{ table}$, then H_0 is rejected and H_a is accepted. This means that there is an influence of the defensive training model on the ability to withstand opponents' attacks in volleyball games.
2. If $t \text{ count} \leq t \text{ table}$, then H_0 is accepted and H_a is rejected. This means that there is no influence of the defensive training model on the ability to withstand an opponent's attack in a volleyball game.

Following are the results of hypothesis testing in the form of a t test.

Table 8. Results T-test

No	Results	N	tcount	ttable	Information
1	Pretest -Posttest	14	3,576	2,160	There is Influence

Based on the results of the t test above, it is known that t t is 3.576, when compared with t table at the 5% significance level with $df=n-1=14- 1=13$ which is 2.160, then t count > t table, so H_0 is rejected and H_a is accepted, meaning that there is an influence of defensive training models on the ability to withstand opponents' attacks in volleyball games.

(Paired sampel t-test)

Paired-sample t-test is a procedure used to compare the averages of two variables in one group. This means that this analysis is useful for testing one sample that has received a treatment and then comparing the average of the sample between before and after treatment. In this research, the average of the results of the initial and final tests of the samples given the training model lasted. Paired sample t-Test was also carried out with the

aim of finding out the average increase from the initial test score to the final test score. Following are the results of the Paired sample t-Test.

Table 9. Test of Equality of Two Means

No	Results	N	Sig	5%	Information
1	Pretest -Posttest	14	0,004	0,05	There are Differences

Based on the table above, it is known that the Sig. (2-tailed) is 0.004, this number is <0.05 , so H_a is accepted and H_o is rejected, so there is a significant difference in the average results of the initial test and the final test of the ability to withstand an opponent's attack.

Analysis of the Coefficient of Determination

Analysis of the coefficient of determination was carried out to measure how much contribution the defensive training model makes to the ability to withstand attacks in a volleyball game expressed as a percentage. The following are the results of the analysis of the coefficient of determination.

Table 10. Analysis of the Coefficient of Determination

No	Results	N	Score r	Score r^2	KD
1	Pretest -Posttest	14	0,718	0,516	51,6%

Based on the calculation above, the coefficient of determination value is 51.6%, so the defensive training model has an influence of 51.6% in increasing the ability to withstand opponents' attacks in volleyball games.

Discussion

Based on the research results above, it is known that in the initial test data on the ability to withstand attacks, the average player was able to block on target 48.79 times with a total of 683 times and with a standard deviation of 3.847. Furthermore, in the final test the average player was able to block on target 48.79 times with a total of 889 times and with a standard deviation of 3.299.

In hypothesis testing, it is known that the t value of t is 3.576, when compared with t table at the 5% significance level with $df=n-1=14-1=13$ which is 2.160, then $t \text{ count} > t \text{ table}$, so H_o is rejected and H_a is accepted, meaning There is an influence of defensive training models on the ability to withstand opponents' attacks in volleyball games. In the paired sample t-test, the Sig value. (2-tailed) is 0.004, this number is <0.05 , so H_a is accepted and H_o is rejected, so there is a significant difference in the average results of the initial test and the final test of the ability to withstand the opponent's attack. Furthermore, the defensive training model had an influence of 51.6% in increasing the ability to withstand opponents' attacks in volleyball games.

The results of the research above are in line with the theory that by doing defensive training, players will get several benefits, including: Players can apply basic techniques in volleyball games, Players can find team positions according to their skills, Players can use defensive tactics and strategies, Players can identify their abilities in mastering defensive techniques in volleyball (Long, 2003).

Blocking training is the starting position of players in pairs facing each other in front of the net, holding the ball with both hands facing the net, the ball is passed over the net when jumping and the player in front of them takes the ball over the net by jumping, do this alternately and the ball continues to move from side to side (Karthikeyan et al., 2022).

The block is successful if you are able to take the ball over the net from the practice partner's passes repeatedly (Yusril khirom et al., 2022). The advantage of this exercise is that the player opens his eyes when receiving the ball and it is easy for the player to anticipate the direction of the ball because the mistake in blocking the ball is closing his eyes (Bompa, 2009). Meanwhile, the weakness is that the ball is not fast but can only be passed by a friend over the net, so block training can improve the ability to withstand opponents' attacks in volleyball games (ZETOU, 2002)

CONCLUSION

The conclusion of the research findings indicates that the defensive training model has an impact on the capacity to withstand an opponent's attack in volleyball after research on the subject was conducted. As can be seen from the t test, where the calculated value of t is 3.576, when compared to the t table at the 5% significance level with $df=n-1=14-1=13$, which is 2.160, then $t_{\text{calculated}} > t_{\text{table}}$, leading to the rejection of H_0 and the acceptance of H_a . This indicates that the defensive training model has an influence of 51.6% on the ability to withstand an opponent's attack in a volleyball match.

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CONFLICT OF INTEREST

The authors whose names are listed immediately below certify that they have NO affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript.

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