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Effect of Rectangular and Triangle Passing Training on U-12 Football Passing Ability

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Keywords

Passing Square;
Passing triangle;
Passing Ability

Abstract

This research is motivated by the low passing ability of 12-year-old soccer players at the BINA LIGA Pemalang Football School, which can be seen from the lack of accuracy of passes and the frequent loss of the ball during the game. This study aims to determine the effect of rectangular passing and triangle passing exercises on players' passing abilities and compare the effectiveness of the two training methods. The research uses a quantitative approach with experimental methods and pretest-posttest design. The research sample amounted to 20 U-12 players who were divided into two groups using saturated sampling techniques. The research instrument used a short pass test to measure a player's passing ability. The treatment was given for 16 meetings with a frequency of exercise three times a week. Data analysis was carried out using normality, homogeneity, and t-test tests. The results showed that both training methods had a significant influence on improving passing ability with a significance value of 0.000 < 0.05. The average passing value of the quadrilateral group increased from 170.00 to 315.00, while the triangular group increased from 170.00 to 330.00. The conclusion of this study is that the practice of square passing and triangular passing is effective in improving passing ability, but the practice of passing triangle is more effective than the passing of the triangle.

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INTRODUCTION

Football is a popular sport and is very popular by all levels of Indonesian society, both young and old, men and women (Laode Irlan Rufi et al., 2023). Football is a A beautiful game because it is not just a competition to score goals, but also a game that is seen as interesting to watch in terms of technique, teamwork, and involves various strategies between players. Football is very interesting to do because this game is challenging because it demands more than just running, players must have a strong physique, good ball technique, as well as a mentality that is not easily faltered in order to play well (Oktavian & Gunadi, 2024). Mastery of basic football techniques can be defined as a person's main capital to carry out football game activities (Winarno, 2022). One of the basic techniques of football is passing. Kicking or passing the ball is one of the basic techniques of football that is most often done in football matches. Almost all football games are done with passing (Nugroho & Mahardika, 2025).

There are several factors that affect the accuracy of passing in the game of football, both internal factors such as physical conditions such as leg muscle strength, eye and foot coordination, body balance, and other physical conditions (Fitrah et al., 2024). *Fitting* or passing the ball is the art of passing the ball from one player to another, when *Passing* Done with excellent accuracy, the opportunity for the team in the process of attacking is very open, while accuracy or precision is a person's ability to pass the ball according to the target that will be aimed at the player (Alafgani & Rustiadi, 2021). To get good passing accuracy and correctly, players must practice continuously, training that is done continuously will cause an automatic movement, which occurs without having to be ordered first (Nugra et al., 2024).

The application of directed repetition exercises that are tailored to the characteristics of the players also helps to increase the effectiveness of the exercise, as players have the opportunity to repeat the passing technique in a more targeted manner and in accordance with the demands of the football game (Juliarta et al., 2025; Permono & Ramadhani, 2025). Previous research has shown that passing accuracy is a major factor in a team's success, as the right passes increase the chances of creating attacks and scoring goals (Piskin et al., 2024). In addition, other research has also shown that passing accuracy training is important because it can improve players' cognitive abilities and decision-making. Passing is not just a technical movement, but it is also a perception-motor skill that involves interaction between the player, the environment, and the demands of the game (Ehmann et al., 2022).

Various studies have addressed these efforts although the improvement of the passing skills of football players, especially young players, there are still research gaps that need to be further researched. Research in international journals shows that improving passing accuracy in football can be done through the drill method, which is technical training that is carried out in a repetitive and structured manner. This method allows players to develop consistency of movement, motor control, and accuracy in passing (Mohammadi et al., 2021). This study specifically compared square and triangle passing exercises to improve the accuracy of a player's passing. In addition, this exercise is one of the best to prepare players for the realities of the game on the field (Lobemato & Nugraheningsih, 2023). With more passing options and more complex movements, the square passing and triangle passing practice methods are designed to help improve the basic technique skills of passing players by moving from one position to another (Setya & Raharjo, 2024). These two forms of training are the most commonly used methods in basic training programs because they are easy to implement, do not require complicated equipment, focus on the modification of passing distance and the ability to change direction which is an essential component of passing.

In the practice of football passing training, there are various forms of training that can be used to improve passing accuracy, such as square and triangle passing exercises. Training model *Passing* A square is one of the *drill* or basic technique training *Passing* which is done by players with a diamond-shaped, four-sided or square formation pattern. This exercise typically involves four or more players standing at each square corner, then sequentially passing the ball toward their teammates while moving along the direction of the game at a certain distance. If the passing distance is too far, control of the ball becomes reduced so that it is easy to be caught by the opposing player during the match (Kurniawan et al., 2024). Meanwhile the exercise model *Passing* Triangle is a passing pattern exercise carried out by three players who form

a triangle angle when controlling the ball with a distance of between 10-15 meters. Purpose of taking techniques *Passing* The triangle is to train skills *Passing* dynamically while developing an understanding of game tactics. In addition, this exercise can also help improve your ability *ball feeling*, so that players are able to adjust their strengths *Passing* based on available distance (Udin et al., 2025). First, the diamond passing practice model is carried out to improve the accuracy of short passing as well as to improve the ball control ability of the player who does it (Oktavian & Gunadi, 2024). Second, the purpose of triangular passing is to improve precision and contribute to the framework of passing practice in the game of football (Predyawan et al., 2024). In theory, both forms of training have the potential to improve the accuracy of player passing (Lobemato & Nugraheningsih, 2023).

In the practice of early childhood football coaching, especially in football schools, the implementation of training programs that specifically aim to improve passing accuracy is still not carried out optimally. Based on the results of initial observations made on U-12 players of the BINA LIGA Football School in Bojongbata village, an important problem was found that became a weak point in the performance of the SSB Bina Liga Pemalang team, namely the low quality *of passing*. The low calmness makes players often lose self-control and rush to flow the ball without having time to see the position of their teammates which is more advantageous. This condition shows that a proper and effective form of training is needed to improve the passing accuracy ability of BINA LIGA Football School players.

This study was conducted to analyze the effect of triangular passing exercises on the passing ability of 12-year-old football players at the BINA LIGA Pemalang football school in 2026. More specifically, this study aims to determine the effect of rectangular passing exercises on passing ability, determine the effect of triangular passing exercises on passing ability, and find out the difference in the influence between the two forms of training on players' passing ability. The novelty of this study lies in the use of two forms of passing training models, namely square passing exercises and triangular passing, which are directly related to passing skills in 12-year-old football players. Previous research generally only examined passing ability with the rectangular passing practice method with other methods, while this study examined more specific passing ability with the rectangular and triangular passing method.

METHODS

The method in this study is to use experimental research methods with the relationship of 2 causal elements that cause other factors. (Sugiyono, 2013) Explains that experimental research methods can be interpreted as research methods used to find the effects of certain treatments on other treatments under controlled conditions. In this study, the researcher used a pretest design with a sample of 20 students from Bojongbata Village. This research was carried out with an exercise program that had to be applied by the sample group. Each sample group was treated for 16 meetings. In one week, meetings are held 3 times.

In this study, a static pretest-posttest research design was used with a population of 20 students of the U-12 Liga BINA Football School. The sample used in this study was 20 students. The number of samples taken from this population uses a saturated sampling technique which is a non-probability sampling technique. As explained by (Sugiyono, 2013) that "Non-probability sampling is a sampling technique that does not provide an equal opportunity for every element or member of the population to be selected as a sample". One of these sampling techniques is saturated sampling. (Sugiyono, 2022) explains that "Saturated sampling is a sample determination technique when all members of the population are used as samples". This is often done when the population is relatively small, less than 30 people, or when the study wants to make generalizations with very small errors. In this study, primary data types were used. Primary data was obtained directly at the time of sampling in the field, and the results could not be generalized, so it could only describe the conditions at that time.

The instrument used in this study is the short pass test. This test is used to measure a player's accuracy ability. The equipment used in this test includes a soccer ball, cone, whistle, measuring device, and a soccer field. After the whistle sounds, participants run towards each ball in sequence and kick it to the target using their right foot until the fourth ball, then run to

the finish line. After the right leg test is completed, participants repeat the test using their left foot. Each participant gets 4 chances with the right foot and 4 chances with the left foot.

The data analysis used in this study is t-test analysis. To test the validity of the sample, it is necessary to carry out a normality test. The data analysis technique in this study uses a t-test to determine whether the data is abnormal, so a homogeneity test is needed to test whether the data is homogeneous or not.

RESULTS AND DISCUSSION

This study was conducted to determine the influence of square passing and triangular passing exercises on the ability to pass the ball and to find out which training motto has a significant influence on improving the passing ability of SSB BINA LIGA students. The data analysis carried out in this study was a non-parametric test analysis. To test the validity of the sample, it is necessary to carry out a normality test and a homogeneity test.

The researcher will explain the effect of square passing and triangular passing exercises on the passing ability of SSB BINA LIGA students. This research was conducted from April 5, 2026 to May 8, 2026, the subjects of this study were 20 active students of SSB BINA LIGA. The data obtained in this study is by

Use the pretest-posttest control group design experimental method.The following are the results of research data conducted at SSB BINA LIGA:

Table 1. The results of *the pre test* and *post test* of the practice of square passing and triangular passing exercises on passing ability

Name	Passing Squares		Name	Passing Triangles	
	Pre-Test	Post-Test		Pre-Test	Post-Test
X1	300	400	Y1	300	400
X2	250	400	Y2	250	400
X3	250	350	Y3	250	400
X4	200	350	Y4	200	350
X5	150	300	Y5	150	350
X6	150	300	Y6	150	300
X7	150	300	Y7	150	300
X8	100	250	Y8	100	300
X9	100	250	Y9	100	250
X10	50	250	Y10	50	250

Table 2. Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Pretest follow tie	10	50	300	170.00	78.881
Rectangular Postest	10	250	400	315.00	57.975
Pretest Mixed With Tiga	10	50	300	170.00	78.881
Postest triangle	10	250	400	330.00	58.689
Valid N (listwise)	10				

The table above shows that before getting treatment in the quadrilateral group, the passing ability test had an average score of 170.00 with a standard deviation of 78.881, with the highest score of 300 and the lowest score 50. After being given a quadrilateral passing practice, the maximum passing ability test score is 400 and the lowest score is 250. The standard deviation is 57.975 and the average is 315.00.

In the triangular group, before being given the treatment of passing ability exercises, the highest triangular test score was 300 and the lowest score was 50, while the average score was 170.00 with a standard deviation of 78.881. After being given triangular exercises, the highest passing ability test score is 400 and the lowest score is 250. The standard deviation is 58.689 and the average is 330.00.

Table 3. Normality Test

Sig. Name	Description
Pretest.SE.200	Significant
Postest.SE.200	Significant
Pretest.ST.200	Significant
Postest.ST.200	Significant

The normality test was carried out using the Kolmogorov–Smirnov test to find out whether the research data was normally distributed or not. The results of the normality test showed that the significance value for all variables was greater than 0.05. The significance value of the rectangular pretest was 0.200, the rectangular posttest was 0.200, the triangle pretest was 0.200, and the triangle posttest was 0.200.

The pretest and posttest on the quadrilateral exercise have normal values according to the Kolmogorov-Smirnov normality test. The pretest and posttest in triangular exercises are also categorized as normal. In this case, parametric tests can be performed because all data is normal. Unless there is abnormal data, nonparametric tests cannot be performed.

Table 4. Paired Sample Test

Variable signs (p)			Description
Group 1	Pretest SE Posttest SE	0,000	Significant
Group 2	Pretest ST Posttest ST	0,000	Significant

In the quadrilateral exercise group (SE), the average pretest score was 170.00 with a sample of 10 people. The standard deviation in the pretest was 78.881 and the mean was 24.944. After being given the rectangular exercise treatment, the average posttest score increased to 315.00 with a standard deviation of 57.975 and a mean of 18.333. An increase in the average score from 170.00 to 315.00 indicates that the quadrangular passing practice is able to improve the passing ability of the player.

In the triangle exercise group (ST), the average pretest score was also 170.00 with a sample of 10 people. The standard deviation of the pretest was 78.881 and the mean was 24.944. After being given a triangular passing exercise, the average posttest score increased to 330.00 with a standard deviation of 58.689 and a mean of 18.559. These results show an increase in passing ability after being given triangular exercises. The results of the significance test in the rectangular and triangular exercise groups showed a significance value (p) of 0.000. Since the p value is less than 0.05 (0.000 < 0.05), it can be concluded that there is a significant influence of square and triangular passing exercises on the passing ability of football players.

Rectangular passing and triangular passing, both are able to improve the passing ability of football players. The rectangular passing practice is a more regular pattern of player rotation helping players improve passing consistency and ball control. The rectangular pattern trains players to make passes repeatedly with a stable rhythm so that coordination between players becomes better. The advantage of this exercise is that it is very easy to do because it only does passing, control, and moving (Oktavian & Gunadi, 2024) Specific Exercise theory states that the skills practiced must be in accordance with the actual game situation to get optimal results. The triangle passing practice simulates the conditions of the game by involving player movements and short passes that often occur in the game, so that the player can apply the skills learned directly in the game (Predyawan et al., 2024). In a triangle pattern, players have more passing angles making it easier for players to find free friends.

Previous research shows that in triangular passing practice, players have to practice harder in controlling the passing weight, players will have difficulty directing the ball at various angles and distances which are then continued by actively moving to rotate. With the circumstances that make the player uncomfortable, players will reflexively train harder and increase the intensity of their training, If the players can control the ball and pass well and

accurately, then the accuracy obtained will be higher than the quadrilateral pattern training model (Setya & Raharjo, 2024). Thus, it can be concluded that the rectangular and triangle passing exercises both have a significant effect on the passing ability of football players, but the triangle passing practice shows more effective results because it provides a variety of passing angles, increasing the mobility of the player.

CONCLUSION

Based on the results of the research that has been carried out, it can be concluded that the square and triangle passing exercises have an influence in improving the passing ability of the players of the Bina Liga Football School. This shows that both training methods can be used to improve a player's passing ability. However, based on the results of the improvement calculations obtained from the two training methods, the triangle training method proved to be more effective in reviewing the passing ability of Football School players compared to the square passing practice method. Thus, triangle passing training is more recommended as a training method to improve passing ability in the game of football.

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