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The Difference in the Effect of Passing Practice on Flat and Non-Flat Surface Walls on the Endurance of Male Sepak Takraw Athletes Fostered by Psti Serdang Bedagai in 2025

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ABSTRACT

Sepak takraw is a team sport played using the feet, body, and head, except the hands, with a maximum of three touches. Therefore, this sport requires fundamental technical skills in controlling and managing the ball to score points in each game. In sepak takraw, each team consists of three players: the left apit, right apit, and tekong. This study was motivated by the low defensive ability of male sepak takraw athletes under the guidance of PSTI Serdang Bedagai. This is evident from the frequent failures in juggling the ball, receiving serves, controlling the ball, passing, and defending against opponents' attacks during matches. In fact, defensive ability plays a crucial role in maintaining the playing area and serving as a foundation for building counterattacks.This study aims to determine: (1) the effect of passing exercises using a flat wall surface, (2) the effect of passing exercises using an uneven wall surface, and (3) the difference in the effects between these two training methods on the defensive ability of male sepak takraw athletes under PSTI Serdang Bedagai in 2025.The research method used was an experimental method with a pretest–posttest design. The population consisted of 16 athletes, with a sample of 8 athletes selected based on specific criteria. The study was conducted over 18 sessions within 4 weeks. The research instrument was a defensive ability test, and data were analyzed using a t-test at a 5% significance level after fulfilling the normality and homogeneity requirements. The results showed that passing exercises using a flat wall surface had a significant effect on athletes' defensive ability, with a t-value of 2.795 > t-table of 2.353. Passing exercises using an uneven wall surface also had a significant effect, with a t-value of 18.800 > t-table of 2.353. However, the third hypothesis test indicated that there was no significant difference between the two training methods, as the t-value of 0.454 < t-table of 2.446. In conclusion, both types of training, passing using a flat wall surface and an uneven wall surface, are equally effective in improving the defensive ability of male sepak takraw athletes under PSTI Serdang Bedagai in 2025.

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INTRODUCTION

Sport has an important role in improving physical and mental health and forming disciplined and quality individual character. One of the sports that is growing in Indonesia is sepak takraw, although its popularity is still below football and volleyball (Ramadhan & Bulqini, 2018). In the game of sepak takraw, mastery of basic techniques is very important, especially defensive techniques such as martial arts and receiving, because they are the basis for building counterattacks.

Defensive ability is greatly influenced by passing skills and ball control. One of the training methods used is passing to the wall, which has been proven to improve ball possession and defensive quality (Hanafi, 2020). In addition, the variety of exercises using unflat walls provides an additional challenge in the form of unexpected ball bounces, so that it can train the player's reflexes, focus, and adaptability.

However, it is not known exactly which training method is more effective between passing with flat and non-flat walls in improving athletes' defensive ability. The lack of research comparing the two methods is an obstacle in determining the optimal exercise strategy.

Based on preliminary data on endurance tests (20 repetitions) on 8 athletes, a total of varying points were obtained, ranging from 20 to 35 points. The lowest score was obtained at 20 points and the highest was 35 points, which shows that athletes' survival skills are still uneven and tend to be low.

The results of observations on February 15, 2025 in the PSTI team assisted by Serdang Bedagai athletes showed that athletes often experienced mistakes in defending, such as failing to receive serves, being unable to control the ball, and not being optimal in passing and saving the ball. This caused the team to have difficulty counterattacking and often suffered defeats, even though they had achievements such as 2nd place at the North Sumatra and inter-district levels.

Thus, the main problem in this study is the low endurance ability of athletes which is suspected to be influenced by the passing training method used. Therefore, this study aims to determine the effect of passing exercises using flat and non-flat walls on improving the endurance ability of Serdang Bedagai-assisted sepak takraw athletes. This research is expected to make a positive contribution to the fostering of Serdang Bedagai male athletes, especially in the defense aspect.

IMPLEMENTATION METHOD

This research was carried out in the takraw field of Tualang Village, Perbaungan District, Serdang Bedagai Regency for 4 weeks with a total of 18 meetings (5 times a week). The method used was an experiment with a pre-test design and a post-test two group design. The study population was all Serdang Bedagai-assisted male sepak takraw athletes as many as 16 people, with a sample of 8 athletes selected based on certain criteria. The sample was divided into two groups using the matching pairing technique to balance the initial ability.

Group A was given the treatment of passing exercises using flat surface walls, while group B used non-flat walls. Before treatment, a pre-test is carried out to measure endurance, then after 18 exercises a post-test is carried out with the same procedure.

The free variable in this study was passing exercises with flat walls and not flat, while the bound variable was the ability to survive. The instrument used was a survival test of 20 repetitions with a certain score assessment system. Data collection is carried out through pre-test and post-test tests, with balls given through tekong servicing or assistive devices. The data obtained were then analyzed using normality and homogeneity tests as a condition for analysis, as well as a t-test at a significance level of 5% to test the hypothesis and determine the effect of treatment on the improvement of survivability.

RESULTS

Description of Research Data

The findings of this study are based on the results of measuring athletes' endurance ability obtained through the initial test (pre-test) and final test (post-test) which are then processed statistically.

Table 1. Pre-test and post-test results of the group of passing exercises on flat surface walls on survivability

Data Description	Survival Test	
	Pre-test	*Post-test*
Number of samples (n)	4	
Average	28,5	39,75
Default deviation	6,24	3,40

Source : Data Processed by Researchers, 2025

From the results of the Pre-Test survival of 4 athletes studied, they got an average score of 28.5 and a standard deviation of 6.24. Average Post-Test score of 39.75 and standard deviation 3,40.

Table 2. Pre-test and post-test results of the group of passing practice on the surface wall are not flat to the ability to survive

Data Description	Survival Test	
	Pre-test	*Post-test*
Number of samples (n)	4	
Average	28,5	40,25
Default deviation	2,37	1,5

Source : Data Processed by Researchers, 2025

From the results of the Pre-Test survival of 4 athletes studied, they got an average score of 28.5 and a standard deviation of 2.37. The average Post-Test score is 40.25 and the standard deviation.1,5

Testing Requirements Analysis

Normality Testing

Liliefors test, which is one of the statistical methods to test whether the distribution of data follows a normal distribution pattern. The data is said to have a normal distribution if it meets the requirements based on the significance level< 0.05, which is when the Lcal value is smaller than Ltable (Lcal < Ltable).

Table 3. Normality Test Results of Research Data

Data	L_{hitung}	L_{tabel}	Remarks
Pre-test group practice passing on flat surface walls	0,163	0,381	Normal
Post-test group practice passing on flat surface walls	0,151	0,381	Normal
Pre-test group practice passing on the wall of the non-flat surface	0,236	0,381	Normal
Post-test group of passing exercises on a non-flat surface wall	0,298	0,381	Normal

Source : Data Processed by Researchers, 2025

Homogeneity Testing

The homogeneity test of this study aims to find out whether the research data is homogeneous or not. The research data is considered homogeneous if it meets the following criteria: The homogeneity test formula used in this study is the F test.F_hitung<F_tabel.

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Table 4. Homogeneity Test Results

Data	Varians	F_{hitung}	F_{tabel}	a	Conclusion
Pre-test group practice passing on flat surface walls	39	3,36	9,28	0,05	Homogeneous
Post-test group practice passing on flat surface walls	19,6				
Pre-test group practice passing on the wall of the non-flat surface	5,66	2,51	9,28	0,05	Homogeneous
Post-test group of passing exercises on a non-flat surface wall	2,25				

Source : Data Processed by Researchers, 2025

Based on the results of the analysis on the first hypothesis, a Thcal value of 2.795 was obtained. This value is then compared with the Ttable at the significance level α = 0.05 with dk = n - 1 (4 - 1 = 3), which is 2.353. Thus, in accordance with the hypothesis testing criteria, it can be concluded that there is an effect of passing practice on flat surface walls on the ability to survive in male sepak takraw athletes of PSTI Serdang Bedagai in 2025.

Based on the results of the analysis on the second hypothesis, the Thcal value of 18,800 was obtained. This value is then compared with the Ttable at the significance level α = 0.05 with dk = n - 1 (4 - 1 = 3), which is 2.353. Thus, in accordance with the hypothesis testing criteria, it can be concluded that there is an effect of passing practice on a flat surface on the ability to survive in male sepak takraw athletes of PSTI Serdang Bedagai in 2025.

For the third hypothesis, the calculation results show that the Thcal value is , while 0,454Ttable (df = n1 + n2 – K) at the significance level of α = 0.05 is . Based on these results, it can be concluded that there is no difference in the effect between passing exercises 2,446 on flat and non-flat surface walls on the endurance ability of male sepak takraw athletes fostered by PSTI Serdang Bedagai in 2025.

DISCUSSION

The Effect of Passing Practice on Flat Surface Walls on the Endurance of Sepak Takraw Athletes

Passing exercises on flat surface walls help athletes develop ball control skills, bounce accuracy, and body position stability in receiving bouncing balls. Flat surfaces provide a more consistent and predictable direction of ball bounce, allowing athletes to focus on improving technique, reaction speed, and body position. This is in line with the opinion of Bompa & Haff (2009:52) who explained that repetitive exercises under stable conditions can strengthen motor nerve pathways and form efficient automatic movement habits.

These findings are also supported by research by Hanafi (2020:50) in the journal Journal of Recreational Health Education, which found that wall passing practice significantly improves the ability to receive in the game of sepak takraw. The wall serves as a training medium that provides immediate and quick feedback, thus accelerating the learning process of passing and ball control techniques. With stable and repetitive feedback, the athlete's motor nervous system is easier to correct motion errors and adjust the force of the kick to the bounce of the ball (Hanafi, 2020:52).

In addition, Julriansyah, Syamsuramel, & Bayu (2024:4) in the journal Altius: Journal of Sports and Health Sciences explained that wall pass training carried out systematically can improve passing accuracy and decision-making speed of early age football players. Although different sports, the basic principles of training that use reflection from a flat surface remain the same, namely training reaction speed, coordination, and precision of the ball. Thus, the results of this study show that the practice of passing on a flat wall is very effective in improving the endurance ability of sepak takraw athletes through strengthening basic motor skills and improving good eye-foot coordination.

The Effect of Passing Practice on Unflat Surface Walls on the Endurance Ability of Sepak Takraw Athletes

Exercises on non-flat walls provide a greater challenge due to the direction of the ball's unstable and unpredictable bounce. This forces athletes to adapt to rapid changes in the direction of the ball, improving the body's visual perception, anticipation, and balance abilities. According to the theory of motor learning by Magill & Anderson (2017:20), training with a variety of situations will enrich the motor experience and improve adaptive ability in making quick decisions during matches.

Nurdin's research (2025:10-50') in the Journal Management of Sport also confirms that body balance and eye-foot coordination have a great contribution to the basic technical skills of sepak takraw, especially the precepts and passing. Exercises with variations in bounce from non-flat surfaces strengthen neuromotor adaptation, allowing athletes to control the ball in more dynamic conditions. This supports the results of this study that passing practice on uneven walls is also effective in honing defensive skills, especially in dealing with the changing direction of the ball during the match.

Nevertheless, the increase in results in this group was not as large as the exercise on a flat surface. The difficulty of controlling the direction of the ball bounce on a non-flat surface causes some athletes to need longer adaptation time to stabilize the passing technique. Nonetheless, this exercise remains important because it increases flexibility of movement and readiness to face unexpected situations on the field.

Comparison of the Effect of Passing Exercises on Flat and Unflat Surface Walls on the Endurance Ability of Sepak Takraw Athletes

The results showed that passing exercises on flat surface walls and passing exercises on non-flat surface walls did not show a significant difference in the influence on the endurance ability of sepak takraw athletes. This means that both types of exercise give almost the same results in improving the endurance of athletes.

The absence of this difference in influence is due to the similarity of movements in the two exercises. In passing exercises on flat or non-flat surface walls, athletes are required to control the ball, adjust the direction of the bounce, and adjust the body position quickly. Thus, it can be concluded that passing practice on flat and non-flat surface walls can both be used to train the endurance skills of sepak takraw athletes.

CONCLUSION

Based on the results of data analysis, hypothesis testing, and research discussions on the effect of passing exercises on flat and non-flat surface walls on the endurance ability of male sepak takraw athletes fostered by PSTI Serdang Bedagai in 2025, it can be concluded that both training methods have a significant influence on improving athletes' endurance ability. However, passing exercises using non-flat surface walls have been proven to have a greater influence compared to exercises using flat surface walls, so this method is considered more effective in improving the endurance ability of sepak takraw athletes.

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