The Effect of One-Hand Shooting And Wall Shooting Training On The Results of Shooting Free Throw At Maybe Basketball Club

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ABSTRACT

This study aims to compare the effectiveness of two shooting technique training methods, One Hand Shooting and Wall Shooting, improving the accuracy of free throw shots in female basketball athletes. This study used a pseudo-experimental design with a two-group pretest-posttest approach. The sample consisted of 20 female athletes aged 14-18 years from Maybe Basketball Club, who were selected through a purposive sampling technique and divided equally into two groups based on ordinal pairing of pretest scores. Each group underwent a four-week training program with a frequency of four times per week. Data collection was done through free-throw shooting tests (10 attempts per athlete) before and after treatment. Statistical analysis used the Shapiro-Wilk normality test, Levene's homogeneity test, and the independent sample t-test. The results showed significant improvement in both groups: One Hand Shooting (mean improvement = 3.80) and Wall Shooting (mean improvement = 4.00). However, there was no statistically significant difference between the two (p > 0.05), meaning both methods were equally effective in improving free-throw shooting accuracy. The implications of these results suggest that coaches can apply one of the methods according to the needs and availability of facilities.

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AUTHORS' CONTRIBUTION

- A. Conception and design of the study;
- B. Acquisition of data;
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- D. Manuscript preparation;
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INTRODUCTION

Basketball is an attractive team sport and in demand by various groups, involving two teams, each consisting of five players on the field, while as many as 7 substitutes, so that each team consists of a maximum of 12 players (Fitriasmara, 2015; Kurniawan & Sudarso, 2014). Basketball is a sport that has quite a lot of movement elements, namely a combination of running, walking, jumping, and elements of physical conditioning in the implementation of the game (Sodikun, 1992: 35). In basketball games, there are several basic techniques that must be mastered by each player. The basic techniques in basketball games include the following: 1) Dribble technique (dribbling); 2) Passing techniques (throwing and catching the ball); 3) Shooting techniques (shooting); 4) Pivot technique; 5) Lay up shoot technique; 6) Rebound technique (Sodikun, 1992: 48). Basic basketball techniques are needed because teams whose games lack mastery of basic basketball techniques more often lose the ball (Rubiana, 2017).



Among all these basic techniques, shooting or shooting the ball towards the opponent's ring is a technique that must be mastered, because it is the most effective technique for scoring points (Wismanadi, 2019). Shooting is the final movement to score a number or point. This technique is a very important technique in basketball games, because the victory in a basketball match is determined by the number of balls that enter the basketball ring. Shooting is divided into 2 types, namely field shooting and punishment (Sodikun, 1992). Field shots are shots taken by a team in a game to attack, while punishment shots are shots given to players because the opposing player makes a mistake or interferes with a player who is not his team who wants to shoot which has been decided by the referee to be given a free shot or free throw (Nugroho, 2023). According to Arkos Abidin (1999: 59), there are several shot techniques used in basketball games, namely: 1) Free throw (free shot); 2) Jump Shoot (shot while jumping); 3) Three Point Shoot (three-point shot); 4) Hook Shoot (hook shot); 5) Lay-Up Shoot.

Free throws a shots given to players due to rough interference when shooting or technical violations by opponents, reserve players, or coaches, and are taken from behind the free shot line without obstacles (Vidiaflorenza, 2024). Mastery of the correct free throw technique is one of the things that can determine victory, because in mastering a good and correct free throw technique the possibility of putting the ball into the basket will be greater (Aryan, Rival M., 2019), so free throws need to be trained regularly to increase the accuracy of success (Wilama & Utomo, 2018). However, free-throw training is often considered trivial by coaches, when in fact free-throw training is very necessary because it greatly affects the team's victory in a match with a balanced opponent (Gooding & Gardner, 2009). Free-throw training is often ignored by coaches and tends to be monotonous, without providing a deep understanding of each stage of the movement (Hambali et al., 2022; Mukherjee et al., 2017). This exercise should be done regularly, even if only for a few minutes, to improve shooting accuracy.

To overcome the problem of the lack of effectiveness of free-throw training, various shooting technique training methods can be applied, such as one-handed shooting and wall shooting. One-hand shooting is one of the basic techniques in basketball shooting training that emphasizes mastery of ball control using one dominant hand, helping players focus on strengthening the dominant hand, improving ball control, and consistency of movement, which is the basis for good shooting techniques (Mukti, 2023). In this technique, players are required to place the index finger right in the centre of the ball as the main control point, while the elbow position forms a 90-degree angle (forming the letter "L") to ensure correct shooting mechanics and produce a stable shot direction Wissel (2000). Meanwhile, wall shooting helps players improve technical details such as follow-through, elbow position, and concentration without the need for a basketball hoop, so it can be done anywhere (Bayu, 2019; Liana, 2019). The shooting training method using wall shooting can improve shooting so that the released ball can form a parabolic angle of 30 degrees from the vertical line and 60 degrees to the horizontal line, with the angle of the shot will produce a parabolic ball trajectory (Priyanto, 2012). Based on the different characteristics of each method, it is important to conduct a comparison between one-hand shooting and wall shooting exercises in order to obtain empirical evidence regarding a more effective approach in improving the accuracy of free throw shots, especially in novice athletes.

Based on observations and interviews with coaches, it is known that the free-throw ability of players, especially the women's team, is still low. This is due to the weak mastery of basic techniques and the lack of variety in training methods, where free throw training has been carried out simply without a directed technical approach, so that many players shoot only to enter the ball without paying attention to the principles of correct motion mechanics. This study aims to examine and compare the effect of two shooting training models, namely one-hand shooting and wall shooting, on improving the accuracy of free throw shots on female basketball athletes at Maybe Basketball club. The results of this study are expected to contribute in the form of a deeper understanding of the effectiveness of each method, as well as a reference in the preparation of a more targeted training program for novice players.

METHODS

Study Design

This study used a quantitative approach with a quasi-experimental design in the form of a two-group pretest-posttest design, which aims to compare the effect of two training methods, namely one-hand shooting and wall shooting, on the results of shooting free throws of the Maybe Basketball Club Rembang female players. The research was conducted for four weeks with a training frequency of four times per week.

One-Handed Shooting

Training is done 4 times a week with a total of 16 meetings. The exercises focus on one-handed shooting techniques (dominant hand). With the stance position of the feet parallel to shoulder width, the elbow forms an angle of 90 $^{\circ}$ (letter L), the ball is shot with the control of the index finger as the axis of rotation, and the non-dominant hand is placed behind the back.

The exercises were carried out progressively in terms of both volume and variety of techniques, using repetitions and training sets as indicators of load, which were increased in each training session. In the first and second training sessions, the exercises focused on the formation of basic shooting technique form, starting from setting foot position, body balance, elbow position, and finger control when releasing the ball. The exercises were conducted at short distances to strengthen the mechanical stability of the movements.

Entering the third and fourth meetings, the training focus shifted to improving concentration and shooting accuracy. Athletes are trained to do one-handed shooting from a distance of 3 to 4 meters, with an emphasis on the follow-through aspect, which is maintaining the final position of the hand so that the direction of the shot remains precise.

The fifth and sixth meetings continued to apply the same techniques, but with a higher training volume, to strengthen the durability of the technique. The seventh and eighth meetings focused on intensive shooting practice with a variety of distances, aiming to train adaptation to distance and shot power.

The ninth through sixteenth meetings focused on full training simulations. Athletes shoot from the free throw line as far as 4.225 meters, with a consistent one-handed shooting technique. This exercise simulates actual match conditions. This stage aims to strengthen the athlete's technical endurance and readiness in shooting free throws repeatedly under match pressure conditions.

Wall Shooting

The Wall Shooting training program is carried out at the same time and frequency as the One Hand Shooting group, which is 4 times a week, with a total of 16 meetings. The exercise is done by shooting the ball into the wall (wall) \pm 2 meters away. The training focused on the accuracy of the shot direction, repetition of shooting mechanics without opponent pressure and finger control and shooting rhythm. The goal of this program is to develop shooting accuracy through repetition of wall shooting movements by utilizing instant visual feedback from the ball's reflection.

In the first and second training sessions, the exercises focused on the basic shooting form by utilizing the wall as a training medium. Athletes shoot against the wall in a stationary position at a distance of about two meters. This was aimed at instilling consistent movement patterns and introducing visual stimulus that aided self-correction of movement.

The third and fourth meetings were oriented towards improving the focus and precision of the shot direction. Athletes performed wall shooting towards a small target that had been marked on the wall. This exercise stimulates visual-motor skills and strengthens accuracy.

The fifth and sixth meetings maintained the same training pattern but with an increase in training volume. The seventh and eighth meetings applied a variety of shooting distances to the wall, with distances adjusted from short to medium, to improve adaptation to changes in position and shot power.

The ninth to sixteenth meetings are the full training simulation stage. At the ninth and tenth meetings, athletes perform fast wall shooting rhythmically and purposefully, in order to train execution speed and consistency of movement. Training is directed at consolidating techniques and progressively increasing the volume of training. This exercise aims to improve technical endurance and ensure consistency of free-throw shooting performance through wall shooting.

Free Throw

The main instrument used to measure the effectiveness of the exercise is the free-throw shooting test. Each player took 10 shots in the pre-test and post-test. The score is calculated based on the number of shots that successfully enter from 10 attempts (Mukti, 2023).

Ethics

This study was conducted with the consent of the Maybe Basketball club and the athletes' guardians. All participants were given full information about the purpose and procedures of the study. Aspects of data confidentiality and participant safety were maintained throughout the research process. This study has obtained ethical approval from the Health Research Ethics Commission, Faculty of Medicine, Semarang State University, Indonesia, with approval number No. 27/KEPK/FK/KLE/2025.

Participants

The population in this study were all the Maybe Basketball Club female players. Sampling was conducted using a purposive sampling technique based on the criteria: (1) active members of the club, (2) aged 14-18 years, (3) physically healthy, and (4) willing to follow the series of exercises. The total sample was 20 people who were divided into two groups, 10 people each, using the ordinal pairing technique based on pretest scores.

RESULTS AND DISCUSSION

Result

This study aims to compare the effectiveness of two shooting technique training methods, One Hand Shooting and Wall Shooting, improving the accuracy of free throw shots in female basketball athletes. The initial analysis in this study begins by presenting descriptive data that describes the basic characteristics of research participants. This data includes the mean, standard deviation, and minimum and maximum values of variables such as age, height (TB), weight (BW), and body mass index (BMI). The presentation of this characteristic data aims to provide an overview of the physical condition of the sample before treatment, as well as to ensure that all participants were within the relevant age range and physical condition to participate in the intervention in this study.

Table 1.Characteristics of the Research Sample

n = 20	Mean ± SD	Min	Max
Usia (Tahun)	14,80 ± 1,67	13,00	17,00
TB(m)	1,57 ± 0,05	1,49	1,68
BB (kg)	46,45 ± 5,55	39,00	57,00
BMI (kg/m²)	18,81 ± 1,87	16,23	22,19

Table 1 shows that the 20 study participants had a mean age of 14.80 years (SD = 1.67), with an age range of 13–17 years, reflecting early to middle adolescence important phase in motor development. The mean height of the participants was 1.57 meters (1.49–1.68 m), weight was 46.45 kg (39–57 kg), and the mean BMI was 18.81 kg/m 2 (normal category). This data reflects a healthy and balanced physical condition, which supports the validity of the study and helps minimize confounding variables during the implementation of the pretest and posttest on the one hand, shooting and wall shooting exercises.

The initial results of this study were obtained from the normality test of the pretest and posttest results of the One Hand Shooting and Wall Shooting groups. The normality test is used to determine whether the data in this study is normally distributed. Testing is done using the Shapiro-Wilk test because the number of samples in each group is less than 50 respondents. The results of the normality test are presented in the following table:

Table 2.Normality Test

	Group	Sig.
Pretest	One Hand Shooting	.380
	Wall Shooting	.843
Posttest	One-Handed Shooting	.136
	Wall Shooting	.330

Based on the results of the Shapiro-Wilk normality test on the Pretest data of the Hand Shooting group, the significance value is 0.380, and in the Wall Shooting group, it is 0.843. The significance value is greater than 0.05, so it can be concluded that the Pretest data in both groups is normally distributed. In the posttest data, the One Hand Shooting group shows a significance value of 0.136, while the Wall Shooting group is 0.330. Both also have a significance value greater than 0.05, which means that the Posttest data in both groups is also normally distributed.

Table 3. Homogeneity Test

Variabel	Mean Difference	Sig.
Pretest	100	.923
Posttest	300	.699

Based on the results of the Independent Samples t-Test, it is known that the significance value (Sig.) on Levene's Test for Equality of Variances for pretest data is 0.279 and for posttest data is 1.863. Both values are greater than 0.05, so it can be concluded that the data has a homogeneous variance. Therefore, the difference analysis can be continued with the assumption that the variances between groups are equal (equal variances assumed).

Table 4. Independent Samples t-Test

Variabel	Sig.
Pretest	.604
Posttest	.676

Based on the test results, it is known that in the pretest data, the Sig. (2-tailed) is 0.923, and in the posttest data, the Sig. (2-tailed) is 0.699. Because both significance values are greater than 0.05, it can be concluded that there is no significant difference in both the initial ability and after the treatment is given. In other words, One Hand Shooting and Wall Shooting exercises have relatively the same impact on the student's free Throw shot.

From the overall results, the final results were obtained by presenting descriptive data in the form of mean, standard deviation, and minimum and maximum values from the pretest and posttest results in each treatment group, namely the One Hand Shooting and Wall Shooting groups.

Discussion

This study aims to determine the effect of one-hand shooting and wall shooting training on free throw shooting results in basketball games among female athletes at the Maybe Basketball Club in Rembang. Based on the results of descriptive statistical tests, an increase in the average free throw shooting score was found in both groups after the training was administered. The one-hand shooting group saw an increase from an average of 3.00 to 6.80, while the wall shooting group improved from 3.10 to 7.10.

The improvement in free throw shooting ability in both groups indicates that both one-hand shooting and wall shooting are equally effective in enhancing free throw accuracy. This is supported by the results of the paired sample t-test, which showed a significant difference between pretest and posttest scores within each group. However, the results of the independent sample t-test indicated that there was no significant difference between the two training methods (Sig. value > 0.05). Thus, both methods have equivalent effectiveness in improving free throw shooting performance.

Theoretically, these results support Wissel's (2000) statement that structured and repetitive training can strengthen the consistency of shooting movements. One-hand shooting training helps players strengthen ball control and shooting mechanics through the use of the dominant hand, while wall shooting training emphasizes movement repetition, focus on follow-

through, and strengthening motor memory without distraction from the presence of the ring. These findings also align with the theory of closed motor learning, as proposed by Schmidt & Wrisberg (2000), that skills performed in a stable environment, such as free throw shooting, are more optimally developed when trained under consistent conditions and procedures. Both training methods used in this study meet these criteria. These results also support Magill RA's (2016) view that motor skill learning is greatly influenced by the quality and quantity of movement repetition, not solely by the variety of training methods. This explains why both methods can produce comparable improvements.

From a practical perspective, these results have direct implications for coaches and physical education teachers. Coaches can choose one of the training methods based on facility conditions and athlete needs, as both have proven to improve free throw performance. One Hand Shooting may be more suitable for individuals needing to strengthen dominant hand technique, while Wall Shooting can be used in conditions without a basketball hoop but still aim to train shooting precision.

Both One Hand Shooting and Wall Shooting training are equally effective in improving free throw shooting performance. There are no significant differences between the two methods, either statistically or practically. Both methods can serve as efficient training alternatives in the development of young basketball athletes. These findings contribute to the development of basketball training methods, particularly in the context of basic free throw shooting techniques, and open up opportunities for further research to explore more varied and contextual training approaches. Additionally, the use of varied training methods can help prevent boredom in training and enrich athletes' shooting skills from an early age. However, it should be noted that although there was an increase in scores in both groups, the relatively short training duration and limited sample size are limiting factors in generalizing the results. Further research is recommended involving a larger population and a longer training period, as well as considering psychological factors such as focus and self-confidence that may influence shooting results.

CONCLUSION

This study shows that both one-hand shooting and wall shooting are equally effective in improving free-throw accuracy in female athletes. Both groups experienced a significant increase in scores from the pretest to the posttest, although there was no significant difference between the two. These findings confirm that consistency and repetition of training are more influential than the type of method used. Therefore, both methods can be considered appropriate training alternatives for developing basic shooting techniques in novice athletes.

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