

Drill Training a Powerful Weapon to Improve Forearm Passing in Volley Ball

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Abstract

This study aims to determine the effect of the drill method on forearm passing technique skills in volleyball among novice male athletes of the Nirwana Estate Volleyball Club, Bogor. The main issue faced by the club is the low level of forearm passing skills, which negatively impacts the team's performance during tournaments. This research employed a quantitative approach using a pre-experimental design (one-group pre-test and post-test design), involving 20 athletes as research subjects. The instrument used was a forearm passing skills test. The results showed an increase in the average test score from 28.15 (pre-test) to 38.05 (post-test), with a mean difference of 9.90 points. The t-test showed a t-value of 13.585, which is greater than the critical t-value of 1.729 at a significance level of 0.05, indicating a significant effect. The improvement in forearm passing skills reached 35.16%. Therefore, the drill method is proven to be effective in enhancing the forearm passing skills of novice athletes in volleyball.

Keywords: Drill method, Underhand Passing, volleyball

1 INTRODUCTION

Many types of sports can be performed by the general public to maintain physical health, such as running, jogging, aerobics, basketball, soccer, volleyball, and others. These sports can be done by all age groups, both male and female. Sports are known to serve as a medium to facilitate the body's need for physical exertion. According to the UUD Republik Indonesia Nomor 11 Tahun 2022 Tentang Keolahragaan.) sports are activities that involve the mind, body, and soul in an integrated and systematic manner to encourage, nurture, and develop physical, mental, social, and cultural potential. One such sport is volleyball. William G. Morgan is credited as the founder of the game of volleyball in 1895 in Holyoke, United States. Morgan was a physical education instructor at the Young Men's Christian Association (YMCA). Volleyball has become one of the most popular sports disciplines today. It has rapidly developed and is widely practiced across various settings, including schools, communities, and clubs.

This popularity can be attributed to the sport's simplicity, as it requires minimal equipment and does not need a large playing area. As a cooperative sport, volleyball requires structured and systematic efforts in its training and development. Its progress must be continuous, multi-phased, and supported by scientific knowledge and adequate sports facilities. According to (aroffiqi, I. (2022). according to (Suaib Nur, 2024) Volleyball is a unique and enjoyable sport that requires strong and consistent teamwork. It is governed internationally by the Fédération Internationale de Volleyball, commonly abbreviated as FIVB, which serves as the global governing body for the sport (Putro, 2017). Unlike many other team sports, volleyball requires players to rotate through various positions on the court, meaning that every athlete must be prepared to perform a wide range of roles within the team. While players at the elite level may specialize in specific positions, beginners and

recreational players are expected to develop a fundamental understanding of all roles. volleyball is a team sport involving two teams of six players each. The main objective is to pass the ball over the net into the opponent's court. Players can use any part of their body—from head to feet—to play the ball.

The game involves complex movements, combining running, walking, and jumping, and requires significant elements of strength, speed, skill, and flexibility. To master basic volleyball skills, continuous and repetitive training is essential. Some fundamental techniques in volleyball include serving, passing, and spiking. One of the essential techniques in volleyball is the forearm pass or underhand pass. This technique uses both hands to receive serves and attacks from opponents. The forearm pass plays a crucial role in determining the success or failure of a team's overall performance. prayoga, d., muchamad samsul huda, & hamdiana. (2022) the forearm pass is commonly used by beginner players due to its simplicity and ease of execution. It is primarily used to receive serves, powerful spikes (hand-driven balls), dropped balls, or balls directed toward the player.

The method employed in this study is the drill training method, a form of practice based on repetition and structured routines.(Sindu Wicaksana 2021) It serves as a primary tool in the daily training process to enhance the quality and function of the human body, as well as to assist athletes in improving their movements. The drill method, according to Sujarwo, plays a crucial role in developing physical capabilities through repetitive and structured practice.(Gozali 024) Training is defined as an effort to enhance athletic ability through the integration of theory and practice, methods, and implementation guidelines, all approached scientifically and grounded in educational principles that are planned and structured to achieve training objectives within a specified timeframe. Principles form the foundation of sports coaching and encompass several critical aspects that must be considered in any training program to attain specific goals. The following is a definition and explanation of these fundamental principles.(Wiarto, 2021). The principles of training, according to (Marpaung 2022) According to Sujarwo, these principles ensure that training is systematic, purposeful, and aligned with the athlete's developmental needs. In the book titled *Animal Intelligence*, drill training is described as an effort to provide repeated and emphasized movement patterns in order to achieve efficiency and effectiveness in technical execution, with the ultimate goal of producing movements that align with the desired performance.

Based on observations of novice male athletes at the Nirwana Volleyball Club, current training methods have not yielded optimal results. For example, during inter-club tournaments—particularly in the Greater Jakarta area (JABODETABEK)—players often fail to execute basic volleyball techniques effectively. One major issue is the inability to perform proper forearm passes when receiving serves. Many points are conceded due to inaccurate or failed passes, allowing the opposing team to score easily. As a result, the Nirwana Club's novice male team frequently experiences defeats. This issue centers around ineffective forearm passing. Whether passing to a teammate or over the net to the opponent, the ball often fails to reach its intended target. This makes it difficult for the setter to deliver an effective set for an attack. In response to this background, the researcher conducted a study to explore whether the drill training method could serve as an effective training strategy to improve forearm passing skills in volleyball. Based on observations at the Nirwana Volleyball Club, the researcher was motivated to conduct a study titled:"The Effect of Drill Training Method on Forearm Passing Skills at Nirwana Volleyball Club."

2 RESEARCH METHODS

According to Sujarweni, Wiratna. (2020). research design is a strategy for collecting and analyzing data to achieve the desired level of research. This study employed a pre-experimental design with a one-group pre-test and post-test approach, conducted on a single group without a control or comparison group Sunarya, D. (2021) Research method refers to the primary approach used by researchers to achieve objectives and determine answers to the posed problems (Prof. Dr. Sugiyono, 2019). In this study, the author applied a quantitative method, specifically an experimental design. Experimental research is considered the most appropriate method to test hypotheses concerning cause-and-effect relationships (Pratiwi 2024). Therefore, the researcher implemented the drill method treatment to examine the basic volleyball techniques in improving forearm passing skills at Nirwana Volleyball Club.

Research instruments are tools or facilities used by researchers to collect data to facilitate their work and improve accuracy, completeness, and systematic data processing (Setya Mustafa & Winarno, 2019). The instrument used in this study was a forearm passing skill test aimed at measuring the forearm passing ability of male athletes at Nirwana Volleyball Club, using volleyball equipment, the court, and colored tape. This research was conducted at Jl. Mendut, Puri Nirwana Complex, Cikaret, Cibinong, Bogor. More precisely, the complex is located in Pabuaran Village, Cibinong District, Bogor Regency. The duration of the research was two months, conducted from April to May 2025. The population consisted of 20 novice male athletes from Nirwana Volleyball Club. Due to the limited number of athletes in the club, all 20 athletes were included as samples for this study.

3 RESULT AND DISCUSSION

The data obtained in this study were collected by the researcher through the process of assessing forearm passing skills in male athletes of Nirwana Estate Volleyball Club, Bogor, after being given treatment using the Drill training method. The researcher conducted a final forearm passing test in volleyball to observe the differences in results between the initial test data (pre-treatment) and the final test data (post-treatment).

3.1 Sub Hasil

Design is a planning process that begins with an idea or problem and takes into account various aspects obtained from research and human reasoning. Research design is a strategy for collecting and analyzing data to achieve the desired level of investigation. According to Sugiyono, the design used in this study is represented as $O_1 \times O_2$, where O_1 is the pretest score (before treatment), X is the treatment given, and O_2 is the post-test score (after treatment). The training program consisted of 16 sessions, conducted from March 4th to April. From a population of 20 individuals, all were selected as samples, consisting of athletes from the Nirwana Volleyball Club. Data analysis was performed using SPSS software version 26, with steps including tests for normality, homogeneity, and hypothesis testing.

3.1.1 Sub dari Sub Hasil 1

The researcher collected data by conducting a pretest before administering the treatment. Subsequently, a forearm passing test in volleyball was performed to assess the athletes' skills prior to the treatment. This process involved not only data collection but also systematic analysis and presentation to ensure clarity and ease of understanding. The data processing technique employed by the researcher was statistical analysis using SPSS software version 26, following the statistical methods described by Yuyu Nurhayati Rahayu. The analytical procedures included conducting the Liliefors normality test.

3.1.2 Sub dari Sub Hasil 2

The researcher administered the treatment to the athletes. After the athletes underwent 16 training sessions, the researcher conducted a final forearm passing test in volleyball to examine the differences in results between the initial test data (pre-treatment) and the final test data (post-treatment).

3.2 Sub Pembahasan

To provide a general overview of the data distribution obtained from the drill method training, the data were processed and analyzed statistically. The results of the data analysis are presented as follows.

3.3 Tabel

The following table shows the results of the Normality Test for the Distribution of Variable Y data. Normality test results

Table 1. Write a brief caption above the table.**Tests of Normality**

Kolmogorov-Smirnov ^a			
	Statistic	df	Sig.
sebelum	.157	20	.200*
sesudah	.183	20	.076

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Based on the results of the normality test conducted using SPSS software with the Kolmogorov-Smirnov method, the decision was made by comparing the p-value (Asymp. Sig. (2-tailed)) with the significance level (α) of 0.05. The obtained significance value was 0.076. Since the significance value of 0.076 is greater than 0.05 ($0.076 > 0.05$), it can be concluded that the residuals are normally distributed.

Tabel 2. Uji Normalitas Distribusi data Y

Type of test	Mean	Deviation standart
Pre test	28,15	8,17
Post test	38,05	8,65
Influence	9,90	3,25

The data above describe the level of physical fitness in the pretest, with a mean score of 28.15 and a standard deviation of 8.17. Based on the data obtained, a homogeneity test was conducted using Levene's test in SPSS. The results showed the pretest and posttest scores for forearm passing Variable Y (Dependent variable) among male athletes of Nirwana Estate Volleyball Club, Bogor. Based on the table above, the decision-making at a significance level of $\alpha = 0.05$ refers to the Levene's Test for Equality of Variances, which yielded a Levene Statistic value of 2.535, with degrees of freedom $df1 = 1$ and $df2 = 38$. The corresponding p-value reported in the "Significance" column is 0.120. Since $0.120 \geq 0.05$, the null hypothesis (H_0) is accepted at the 5% significance level. This indicates that there is no significant difference in the variances between the pretest and posttest scores of the lower-passing group. In other words, the variances of the pretest and posttest scores are considered homogeneous.

Table 3. Hypothesis Testing

Levene Statistic	df1	df2	Sig. (p-value)
2,535	1	18	0,120

The *Paired Samples Test* table provides information to determine whether the null hypothesis (H_0) is accepted or rejected. The mean column indicates the coefficient of the average difference in athletes' skills before and after the intervention, which is 9.90. This value represents the difference between the mean score of the athletes' skills before treatment and after treatment (pre-test mean subtracted from post-test mean).

To determine whether this average difference is statistically significant, the T column shows the calculated *t-value* of 13.58, with a corresponding p-value of 0.00. The significance of the result is assessed by comparing the p-value to the predetermined significance level (α). If the p-value is less than 0.05 ($p < 0.05$), the difference is considered statistically significant. Conversely, if the p-value is greater than 0.05 ($p > 0.05$), the difference is not considered significant. Based on these results, the obtained p-value of 0.00 is less than 0.05, indicating that the difference in average scores is statistically significant. Therefore, it can be concluded that there is a significant improvement in the volleyball skills of Nirwana Estate Club athletes in Bogor after receiving the treatment or intervention.

Table 4. Significance Test of Variance in Y Data

No	Kegiatan	T hitung	T tabel =0,05 dk= n-1	Keterangan
1	Tes awal dan Tes akhir	13,58	1,729	Signifikan

The hypothesis testing conducted using the *t-test formula* and SPSS software through *Paired Samples Analysis* of the pre-test and post-test scores showed that the calculated t-value (t-count) was greater than the critical t-value (t-table). This indicates that the null hypothesis (H_0) is rejected, while the alternative hypothesis (H_1) is accepted. These findings suggest that there is a statistically significant difference between the pre-test and post-test results. In other words, the drill method training program has had a significant positive impact on the underhand passing skills of the beginner male volleyball athletes of Nirwana Club.

3.4 Picture

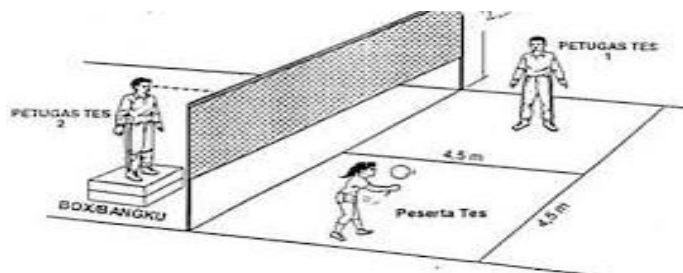


Figure 1. Caption about the figure

The test procedure involved two test administrators, each assigned specific roles. Test Administrator 1 was positioned freely near the testing area and was responsible for timing the test for 60 seconds, giving the starting cue, and observing whether the participant's feet remained within the designated area. If a participant stepped outside the boundary, the administrator would take note. Test Administrator 2 stood on a bench or box to obtain a clearer view and was responsible for counting the number of valid underhand passes. The test was conducted with participants standing at the center of a 4.5 × 4.5-meter square area.

To begin the test, the participant self-tossed the ball upon hearing the cue "Start" ("Ya"), and then performed consecutive underhand passes, each of which was required to reach a minimum height of 2.3 meters. If the participant failed to perform a valid underhand pass and the ball exited the testing area, the participant was instructed to retrieve the ball immediately and continue the test. Should both feet step outside the designated area, Test Administrator 1 instructed the participant to return promptly. Any passes made while both feet were outside the area were not counted. Performance was recorded by counting the number of valid underhand passes completed within 60 seconds. A pass was considered valid if the ball reached a minimum height of 2.3 meters and was performed within the designated area. The number of valid passes within the 60-second duration constituted the test score.

3.5 Peningkatan

Based on the data, it is evident that the t-test calculation yielded a t-value of 13.585, while the critical t-value (t-table) at a significance level of 0.05 with a sample size of 20 is 1.729. Comparing these results, where $t\text{-calculated} > t\text{-table}$ ($13.585 > 1.729$), and considering the significance probability value of $0.000 < 0.05$, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_a) is accepted. This indicates a statistically significant effect. The magnitude of the improvement can be determined by the following method:

Improvement

$$= \frac{MD}{M_{pre}} \times 100\%$$

$$= \frac{9,90}{28,15} \times 100$$

$$= 35,16\%$$

4 CONCLUSION

Based on the results of the study conducted on male athletes of the Nirwana Estate Bogor Volleyball Club, it was found that the drill training method had a significant effect on the underhand passing skills in volleyball. There was a meaningful (significant) difference, with an improvement of 35.16% observed in the underhand passing skills of beginner male athletes at the Nirwana Estate Bogor Volleyball Club. Therefore, the null hypothesis (H_0) was rejected and the alternative hypothesis (H_a) accepted, indicating that the drill training method has a significant impact on underhand passing skills in volleyball.

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