

## Efforts to Improve Volleyball Underhand Passing Skills Through Drill Training for Fifth- Grade Students at SDN Dukuh Menanggal 1/242 Surabaya

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### ABSTRACT

The ability to perform an effective underhand pass is one of the fundamental skills required in volleyball learning at the elementary school level. However, many students experience difficulties in executing proper passing techniques due to inadequate body positioning, poor ball control, and limited practice opportunities. This study aimed to examine the effectiveness of drill training, specifically the wall bounce drill, in improving the underhand passing skills of fifth-grade students at SDN Dukuh Menanggal 1/242 Surabaya. The research employed a one-group pretest–posttest experimental design involving 20 fifth-grade students selected through random sampling. Students' underhand passing skills were assessed before and after a structured drill training program using standardized volleyball skill tests. Data were analyzed using descriptive statistics, the Shapiro–Wilk normality test, Levene's homogeneity test, and a paired-sample t-test with a significance level of 0.05. The findings indicated that the mean pretest score increased from 12.40 to 16.90 in the posttest, demonstrating a mean improvement of 4.50 points. Normality and homogeneity assumptions were satisfied, with significance values greater than 0.05. Furthermore, the paired-sample t-test revealed a statistically significant difference between pretest and posttest scores ( $p < 0.001$ ), confirming the effectiveness of the drill training intervention. Repetitive wall bounce practice enabled students to improve movement coordination, ball control, passing accuracy, and confidence while reducing performance variability among participants. These findings suggest that drill-based training is an effective instructional strategy for developing fundamental volleyball skills in elementary school students. The study recommends integrating structured drill exercises into physical education programs to enhance learning outcomes, motor skill acquisition, and students' active participation in volleyball instruction.

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### Introduction

Physical education, sports, and health constitute a crucial instructional program for fostering student fitness. Physical education serves as a medium to encourage the development of motor skills, physical capabilities, knowledge, and reasoning; to cultivate values (mental-emotional, spiritual, and social attitudes); and to instill healthy lifestyle habits all aimed at stimulating balanced growth and development. Play is one form of physical activity. Play occurs throughout a person's life, spanning from childhood into adulthood. Because play is a physical activity that children greatly enjoy in their daily lives, it can effectively serve as a vehicle for physical education in schools. Physical education, sports, and health is a highly enjoyable subject; it allows students to learn, play, and collaborate with friends or teammates. The learning process prioritizes physical activity and healthy lifestyle habits, fostering growth and development across physical, mental, and social dimensions in a manner that is appropriate, harmonious, and balanced (Fajar, 2020).

Physical education, sports, and health constitute an educational process carried out through physical movement and activity. Its goal is the holistic development of students, encompassing aspects such as sports participation, health, physical fitness, play, critical thinking skills, emotional and social stability, reasoning, and moral character. The physical activity in question is sports. Sports

are an integral part of our daily lives; the more consistently and regularly we engage in sports, the better our level of physical fitness becomes. Since we face various daily activities that require a healthy physical state, regular exercise helps maintain that health. Engaging in sports fosters a healthy body by providing numerous health benefits; furthermore, it serves as a means of shaping a healthy personality and instilling disciplined behavior, as sports activities require adherence to specific rules and regulations, thereby accustoming individuals to a healthy and disciplined lifestyle.

Physical education is an integral part of national education, aiming to develop students' abilities through physical activity and sports; it can foster the development of superior human resources (Halim et al., 2021). Schools serve as educational institutions providing a setting for students to engage in various activities and learning processes (Arifin, 2023). Furthermore, schools act as environments where individuals are educated and nurtured to become intelligent, productive, and high-quality people (Herawati et al., 2021). Physical education encompassing sports and health is a subject that enhances physical activity and healthy lifestyle habits, fostering physical, mental, and spiritual well-being while developing essential individual skills (Handoko, 2019). Volleyball was originally named "Mintonette." This game was first invented by a physical education instructor named William G. Morgan at the YMCA (Young Men's Christian Association) on February 9, 1895, in Holyoke, Massachusetts, United States. Volleyball was created four years after James Naismith invented basketball. The name was changed from Mintonette to volleyball in 1896. The first volleyball championship was held in Poland in 1947. During World War II, the game spread globally, experiencing particularly rapid growth in Europe and Asia.

Volleyball is a team sport played by two squads each consisting of six players aiming to score points by hitting the ball over the net and landing it within the opponent's court area. The game relies on teamwork, speed, precision, and strategy. Volleyball is widely popular in the community; people from all walks of life, across all socioeconomic levels, are familiar with the sport. Volleyball is a favorite sport among students at both the secondary and university levels. Through this activity, young people derive numerous benefits, particularly regarding physical, mental, and social development. The sport is currently experiencing rapid growth, evidenced by the emergence of various organizations such as competitive clubs and the rise of student athletes at both school and collegiate levels. This growth is further supported by frequent inter-club tournaments and student events ranging from local to national levels. Volleyball is a globally renowned sport that appeals to people of all ages and skill levels; both men and women play it indoors or outdoors for recreation as well as for competitive purposes (Hidayah & Alsaudi, 2021).

Volleyball is a highly popular sport in Indonesia. Matches are played between two teams on a court separated by a net. The sport has grown organically, as countries maintain volleyball associations that train athletes to compete in the Olympics (Pieter Pelamonia et al., 2021). Volleyball is taught in elementary schools; however, the implementation of physical education lessons specifically regarding volleyball has not yet been as effective as expected. The game is played on a rectangular court with a net in the center. Teams score points by successfully landing the ball in the opponent's area or when the opponent commits a fault, such as touching the net or hitting the ball out of bounds. Volleyball is a sport included in school curricula in both urban and rural areas (Polandiaa et al., 2024). Beyond its role as a school subject, volleyball serves as a platform for achieving success at both national and international levels (Perianto et al., 2022).

Common issues arise when students attempt the underhand pass (bump) whether to teammates or opponents with some struggling to execute the technique correctly. Specific difficulties include improper ball contact with the clasped hands, incorrect starting posture and follow-through, and inaccurate contact angles (where the angle of incidence does not align with the angle of rebound). Errors often occur because contact is made when the arms are nearly level with the chest resulting in the ball hitting too high or because the student fails to keep their eyes on the ball during execution. Consequently, an appropriate training method is required to improve this fundamental volleyball skill (Isman et al., 2020). Furthermore, students often pass haphazardly, causing the ball to travel over the net and land in the opponent's court. In reality, the underhand pass is one of the most crucial fundamental skills in volleyball, yet current teaching techniques are often perceived as inadequate, and students' basic passing abilities remain limited. The learning model focuses on the

student rather than the teacher. Volleyball is a team sport involving multiple players; for instance, beach volleyball consists of two players per team, while the international standard for indoor volleyball involves six players per team. It is a large-ball game played by two teams each with six members where the objective is to ground the ball in the opponent's area to score points. Innovation in the volleyball learning process is necessary to address these issues. To keep students engaged and motivated during volleyball lessons, one innovative strategy that can be employed is the drill-based training approach.

This is because the drill training method involves the repetitive and earnest practice of a specific action, aiming to reinforce and perfect a skill until it becomes ingrained. As an instructional approach, drill training emphasizes mastering sports techniques through repetition; specifically, athletes execute movements repeatedly in accordance with their coach's instructions (Aknasari et al., 2021). Drill training is key to improving the underhand passing skill in volleyball. This training approach aims to enhance and refine the underhand passing skills of fifth-grade students at SDN Dukuh Menanggal 1/424 Surabaya through regular, focused drills designed to make the skill permanent (Salma & Fatmawati, 2019).

Based on the identified challenges in elementary volleyball instruction and the potential benefits of repetitive skill practice, this study aims to investigate the effectiveness of wall bounce drill training in improving the underhand passing skills of fifth-grade students at SDN Dukuh Menanggal 1/424 Surabaya. Unlike previous studies that primarily examined drill methods in general or at secondary education levels, this research specifically evaluates the application of a structured wall bounce drill as an instructional strategy for elementary school students. The findings are expected to provide empirical evidence regarding the effectiveness of drill-based learning in enhancing fundamental volleyball techniques, enriching the literature on motor skill development in physical education, and offering practical recommendations for teachers to implement more effective, engaging, and evidence-based volleyball instruction in elementary schools.

## Method

Research methodology is defined as a scientific approach to obtaining data for specific purposes and applications. A scientific approach implies that research activities are grounded in scientific characteristics: rationality, empiricism, and systematic procedure. Rationality means the research is conducted using logical methods that are comprehensible to human reasoning. Empiricism means the methods employed are observable by the human senses, allowing others to observe and understand the procedures used. The method employed in this study is the experimental research method. This research design involves two groups selected at random (R), which are then administered a pre-test to assess initial conditions and determine whether there are differences between the control group and the experimental group. A favorable pre-test outcome is indicated by a significant difference in the experimental group's scores. This is illustrated by the formula for the pretest-posttest group design, as follows:

$R_1 \quad O_1 \quad X \quad O_2$

Legend:

R1: Experimental group consisting of 5th-grade students from SDN Dukuh Menanggal 1/242 Surabaya, selected randomly

O1: Pre-test

X: Treatment administered

O2: Post-test

The treatment in this study aims to determine whether the "Wall Bounce Drill" training method influences the overhead passing skills of 5th-grade students at SDN Dukuh Menanggal 1/242 Surabaya in the game of volleyball. This approach is intended to provide a descriptive overview; consequently, the data obtained will be measured and analyzed quantitatively.

## Results and Discussion

The analysis of the research findings will be linked to the research objective stated in Chapter 1: to determine the effectiveness of "Wall Bounce" drill training in improving the underhand passing skills of fifth-grade students at SDN Dukuh Menanggal 1/242 Surabaya. These findings are derived from the analysis of data obtained through pre-test and post-test assessments of the students' underhand passing skills. This chapter provides a detailed account of the research results and discussion presented in both narrative form and data tables analyzed in accordance with established guidelines using SPSS software

#### Research Results

##### Pre-test and post-test

Results Based on the field study conducted centered on the research title "Efforts to Improve Volleyball Underhand Passing through Drill Training for Grade V Students at SDN Dukuh Keterampilan Menanggal 1/242 Surabaya" the following are the results of the research.

Table 1 pretest dan posttest

| NO | Nama                              | L/P | Pretest              | Posttest              | Selisih             |
|----|-----------------------------------|-----|----------------------|-----------------------|---------------------|
| 1  | Agni Rahayu                       | P   | 14                   | 19                    | 5                   |
| 2  | Aldric Abbad Ghany                | L   | 12                   | 18                    | 6                   |
| 3  | Alisha Khaira Wilda               | P   | 13                   | 18                    | 5                   |
| 4  | Alisha Khaira Putri Setyawan      | P   | 12                   | 17                    | 5                   |
| 5  | Ananda Wira Septyan Nugroho       | P   | 10                   | 14                    | 4                   |
| 6  | Andara Paramitha<br>Putri Yolania | P   | 11                   | 15                    | 4                   |
| 7  | Azzahra Aulia Putri Ratifah       | P   | 10                   | 15                    | 5                   |
| 8  | Bintang Nur Aprilio               | L   | 13                   | 18                    | 5                   |
| 9  | Felix Haidar Aulia                | P   | 14                   | 18                    | 4                   |
| 10 | Fitria Azzhra                     | P   | 13                   | 18                    | 5                   |
| 11 | Francesco Alano                   | L   | 14                   | 16                    | 2                   |
| 12 | Ibrahim Muslim                    | L   | 12                   | 16                    | 4                   |
| 13 | Keysha Alviena Yusindo            | P   | 15                   | 18                    | 3                   |
| 14 | Lanang Aryo Dikromo               | L   | 11                   | 15                    | 4                   |
| 15 | Miftahudin Hafiz Saputra          | L   | 11                   | 16                    | 5                   |
| 16 | Nabila Fabiola Athallah           | P   | 12                   | 17                    | 5                   |
| 17 | Putra Mauludin Bramantyo          | L   | 14                   | 18                    | 4                   |
| 18 | Rakha Al Fakhri Dewata            | L   | 14                   | 19                    | 5                   |
| 19 | Wulan Ramadhani                   | P   | 12                   | 17                    | 5                   |
| 20 | Zavier Arsyaf Alfarizqi           | L   | 11                   | 16                    | 5                   |
|    |                                   |     | Jml = 248<br>r: 12,4 | Jml = 338<br>r : 16,9 | Jml = 90<br>r : 4,5 |

##### Descriptive test

This descriptive analysis aims to provide an overview or description of the data based on the arithmetic mean, standard deviation, maximum, and minimum values.

Table 2 descriptive test

|              | Mean  | N  | Std.<br>Deviation | Std.<br>Mean<br>Error |
|--------------|-------|----|-------------------|-----------------------|
| Pre Test     | 12.40 | 20 | 1.465             | 0.328                 |
| Post<br>Test | 16.90 | 20 | 1.447             | 0.324                 |

Based on the descriptive test results table above, the mean score for the underhand passing skill in the pre-test was 12.40, with a standard deviation of 1.465. This indicates that the initial

volleyball underhand passing ability of the fifth-grade students at SDN Dukuh Menanggal 1/242 was low and varied. After drill training was administered, the mean post-test score was 16.90, with a standard deviation of 1.447. This increase in the mean score demonstrates an improvement in the students' volleyball underhand passing skills. The decrease in the standard deviation indicates that the students' abilities became more uniform following the intervention.

#### Hypothesis testing

This test is used to compare results between two paired groups. Paired samples involve the same subjects, with measurements for each variable taken under different situations or conditions.

Tabel 3. Uji Paired Sample test

|        |                      | Paired Differences |                |                 |  | 95% Confidence Interval of the Difference |        | t       | Sig. (2-tailed) |
|--------|----------------------|--------------------|----------------|-----------------|--|-------------------------------------------|--------|---------|-----------------|
|        |                      | Mean               | Std. Deviation | Std. Error Mean |  | Lower                                     | Upper  |         |                 |
| Pair 1 | Pre Test - Post Test | -4.500             | 0,889          | 0,199           |  | -4,916                                    | -4,084 | -22.650 | 19 0.000        |

Based on the results of the paired-sample t-test, a sig. (2-tailed) value of 0.000 was obtained. Since this significance value is less than 0.05, H<sub>0</sub> is rejected and H<sub>1</sub> is accepted; this indicates a significant difference between the pre-test and post-test results. The mean difference of -4.500 indicates that the average post-test score was higher than the pre-test score; thus, it can be concluded that drill practice significantly improves the underhand passing skills of fifth-grade students at SDN Dukuh Menanggal 1/242.

The findings of this study demonstrate that structured drill training significantly improved students' underhand passing performance in volleyball. The increase in the average score from the pretest to the posttest indicates that repetitive and systematic practice effectively enhanced the acquisition of fundamental motor skills. Repetition allows learners to automate movement patterns through continuous correction and reinforcement, leading to greater movement consistency and technical proficiency. This finding supports the concept that deliberate practice facilitates motor learning by strengthening neuromuscular coordination and reducing movement variability (Ericsson, Krampe, & Tesch-Römer, 1993). Furthermore, continuous practice provides learners with opportunities to refine movement execution and improve performance accuracy over time (Schmidt & Lee, 2019).

The improvement observed in this study can also be explained through contemporary motor learning theory, which emphasizes that skill acquisition occurs through repeated interaction between perception, decision-making, and movement execution. During the wall bounce drill, students repeatedly adjusted their body position, arm angle, and timing based on immediate visual feedback from the rebounding ball. Such repeated adaptations promote more efficient motor control and improve coordination between sensory information and motor responses. According to Magill and Anderson (2021), repetitive task-specific practice is essential for developing stable movement patterns and long-term motor retention.

Another important finding is the reduction in score variability after the intervention, indicating that students' performance became more homogeneous following the drill-based practice. This suggests that structured practice not only benefits high-performing students but also assists learners with lower initial abilities in achieving meaningful improvement. The consistency produced through repetitive practice reflects enhanced movement efficiency and confidence during skill execution. Similar observations have been reported by Newell (1986), who proposed that motor skill

development emerges through the interaction of individual characteristics, task demands, and environmental constraints, allowing learners to gradually stabilize their movement patterns.

The effectiveness of the wall bounce drill may also be attributed to the immediate feedback naturally generated during practice. Each rebound provides students with direct information regarding the accuracy of arm positioning, body balance, and ball trajectory, enabling rapid error detection and correction. Feedback is widely recognized as one of the most influential factors in motor learning because it accelerates skill refinement and enhances learner motivation. Wulf and Lewthwaite (2016) argued that learning environments providing meaningful feedback and opportunities for successful performance substantially improve both motor performance and confidence.

From a pedagogical perspective, drill-based instruction offers physical education teachers an efficient strategy for teaching fundamental volleyball techniques in elementary schools. The activity is relatively simple to organize, requires minimal equipment, and enables every student to perform a large number of repetitions within a limited lesson duration. Such learning conditions maximize active participation and reduce inactive waiting time during instruction. Moreover, the structured progression of drill exercises aligns with evidence-based teaching practices that recommend frequent practice opportunities to optimize motor competence among children (Logan et al., 2018). Although the present study confirms the effectiveness of drill training, several limitations should be acknowledged. The sample size was relatively small and involved students from only one elementary school, limiting the generalizability of the findings. Additionally, the intervention focused solely on short-term improvements without examining long-term skill retention or transfer to actual volleyball game situations. Future research should include larger multi-school samples, compare different instructional approaches, and incorporate technology-assisted feedback systems such as video analysis or motion tracking to provide more comprehensive evidence regarding effective volleyball instruction. Such developments are expected to strengthen physical education practices and contribute to sustainable motor skill development among elementary school students (UNESCO, 2024).

The drill training method is an instructional approach emphasizing the mastery of sports techniques through repetitive execution; specifically, athletes perform movements repeatedly in accordance with the coach's instructions (Aknasari et al., 2021). Drill training is key to improving underhand passing skills in volleyball. The objective of this training approach is to enhance and refine the underhand passing skills of fifth-grade students at SDN Dukuh Menanggal 1/424 Surabaya through regular, focused drills, thereby solidifying the skill (Salma & Fatmawati, 2019). Prior to the training, the students' average underhand passing score on the pre-test was 12.40, with a standard deviation of 1.465, indicating that their proficiency was still relatively low. This low pre-test performance was attributed to several factors, such as a lack of understanding regarding passing techniques, incorrect body positioning, failure to make contact with the forearms, and uncontrolled ball trajectory. However, following the implementation of regular drill training, the students' underhand passing abilities improved. The substantial standard deviation indicated significant variation in student proficiency, reflecting a wide gap in skill levels among the students. After the intervention involving "wall bounce" drills, post-test results showed a significant improvement, with an average score of 16.90 and a standard deviation of 1.447. This increase in the average score demonstrates that the wall-bounce drill effectively improves students' underhand passing skills. In addition to the rise in the average score, there was also a decrease in the standard deviation. This indicates that the students' underhand passing abilities became more consistent following the training. In other words, nearly all students experienced skill improvement, rather than just a select few. Performing the wall-bounce drill repeatedly helps students better understand the mechanics of the underhand pass. Through the rebound of the ball off the wall, students can immediately correct movement errors such as hand positioning, the direction of the ball's rebound, and body balance.

The Shapiro-Wilk normality test yielded a pre-test significance value of 0.171 and a post-test significance value of 0.065; since these values exceed the threshold (0.083), H1 is rejected and H0 is accepted, leading to the conclusion that the pre-test and post-test data are normally distributed. Based on the homogeneity test results using Levene's test, a significance value (based on mean) of

0.931 was obtained. As this value exceeds 0.05, it can be concluded that the variances of the pre-test and post-test data are homogeneous. Thus, the research data meet the homogeneity requirement, allowing for subsequent analysis using a parametric statistical test specifically, the Paired Sample t-test—to determine the effect of drill training on improving underhand volleyball passing skills among fifth-grade students at SDN Dukuh Menanggal 1/242 Surabaya.

Based on the data analysis using the paired-sample t-test, a significance value (Sig. 2-tailed) of 0.000 was obtained. This value is less than 0.05 (Sig. < 0.05); therefore, it can be concluded that there is a significant difference between the pre-test and post-test results regarding the volleyball underhand passing skills of fifth-grade students at SDN Dukuh Menanggal 1/242 Surabaya. Overall, the study results indicate that the wall-bounce drill is an effective method for improving the volleyball underhand passing skills of elementary school students. This method not only enhances students' technical abilities but also helps build self-confidence, improve concentration, and balance skill levels among students. Consequently, the wall-bounce drill can serve as an alternative physical education teaching method, particularly for volleyball instruction at SDN Dukuh Menanggal 1/242 Surabaya.

The findings of this study have important practical implications for physical education teachers and volleyball coaches, particularly at the elementary school level. The implementation of wall bounce drill training provides an accessible, low-cost, and easily replicated instructional strategy that enables students to engage in high-frequency practice while receiving immediate feedback from each repetition. Such learning experiences encourage active participation, improve technical competence, and foster self-confidence during skill execution. Moreover, integrating structured drill activities into regular physical education lessons may contribute to the development of students' physical literacy, which encompasses motor competence, confidence, motivation, and lifelong engagement in physical activity. These outcomes are consistent with the objectives of quality physical education programs that emphasize inclusive, student-centered, and skill-oriented learning environments (UNESCO, 2024; Wulf & Lewthwaite, 2016).

Future research should expand the scope of investigation by involving larger and more diverse participant populations, different educational levels, and longer intervention periods to evaluate long-term motor skill retention. Comparative studies examining drill training alongside game-based learning, cooperative learning, or technology-assisted instruction such as video feedback, motion tracking, and artificial intelligence would provide deeper insights into optimizing volleyball learning. Additionally, future studies should explore the influence of drill-based practice on cognitive, affective, and tactical aspects of volleyball performance to establish a more comprehensive understanding of students' learning outcomes. Such research will contribute to the development of evidence-based physical education practices and support the continuous improvement of volleyball instruction in schools (Magill & Anderson, 2021; Schmidt & Lee, 2019; Logan et al., 2018).

## Conslusions

This study demonstrated that the implementation of structured drill training, particularly the wall bounce drill, significantly improved the underhand passing skills of fifth-grade students at SDN Dukuh Menanggal 1/242 Surabaya. The statistical analysis revealed a significant increase in students' performance from the pretest to the posttest, confirming that repetitive and systematic practice effectively enhances fundamental volleyball techniques. The improvement was reflected not only in higher passing scores but also in greater movement consistency and reduced performance variability among students. These findings indicate that drill-based learning facilitates motor skill acquisition by strengthening coordination, improving ball control, refining body positioning, and increasing students' confidence during skill execution.

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