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The Effect of Wall-Ball Rebound Drills on Overhead Passing Skills Among Extracurricular Volleyball Students at SMP Negeri 46 Palembang

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Abstract

Objectives. The objective of this study was to determine the improvement and effect of wall ball rebound training on the overhead passing skills of volleyball extracurricular students at SMP Negeri 46 OKU. The problem identified in the field is that many students lack understanding of how to perform proper and correct overhead passing techniques due to limited variations in training methods applied during extracurricular volleyball activities. This study aims to address that gap by evaluating the effectiveness of using a simple rebound method to improve basic volleyball skills.

Materials and Methods. This study used a quantitative descriptive method with an experimental design. The population consisted of 78 volleyball extracurricular students, from which 24 students were selected using purposive sampling based on inclusion criteria. The intervention involved wall ball rebound training. Data were collected through pre-test and post-test passing assessments. Statistical analysis was conducted using a paired sample t-test (significance test "t") to determine the effect of the training on overhead passing performance.

Results. The results showed a significant improvement in passing ability. The statistical test yielded the following values: Standard Deviation of Differences (SDD) = 23, Standard Error of the Mean Difference (SEMD) = 1, Mean Difference (MD) = 4.68, and a t-count (to) = 4.68, which exceeded the t-table value of 2.069. This indicates that the wall rebound training had a statistically significant impact. The training contributed to an improvement in overhead passing performance by 16.3%.

Conclusions. The study concludes that wall ball rebound training positively affects the overhead passing skills of volleyball extracurricular students at SMP Negeri 46 OKU. The method proved effective in enhancing technical ability, supporting the integration of such training as a regular component in volleyball practice to improve fundamental skills.

Keywords: Wall Rebound Training, Overhead Passing, Volleyball Skills, Extracurricular Students.

Introduction

Sport is a structured physical activity that contributes significantly to the enhancement of both physical and mental health (Kuswoyo & Betaubun, 2019). While many individuals engage in sports for recreational enjoyment, others pursue it to achieve specific performance-oriented goals (Adewale et al., 2024) . According to (Abduh et al., 2024), sport serves as a medium to build physical endurance and maintain overall fitness, often through games, competitions, or tournaments (Ah & S, 2020).(Ahmad et al., 2023) further describe sport as a systematic endeavor to cultivate physical, mental, and social potential, aiming to promote

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fitness, sportsmanship, moral values, and national unity.(Bean et al., 2022) One of the most effective sports for improving physical fitness is volleyball, a dynamic team sport that incorporates a range of fundamental skills, including serving, passing, spiking, and blocking. Among these, overhead passing is essential, as it forms the basis for constructing offensive strategies in gameplay.

Overhead passing, or the forearm pass using both hands raised slightly in front of the forehead, is a core technique in volleyball (Bean et al., 2022). According to (Brown, 2008) Irwanto (2021), (Nurfani et al., 2022) this technique involves open fingers and extended arms to facilitate better ball control. A well-executed overhead pass allows players to direct the ball accurately to teammates and build effective offensive plays. However, many students participating in volleyball extracurricular activities face challenges in performing accurate overhead passes. These difficulties often stem from limited training variety and insufficient technique mastery. Based on field observations at SMP Negeri 46 Palembang, it was found that students' overhead passing skills were suboptimal due to repetitive training routines, lack of attention during coaching sessions, and an overall lack of understanding of correct techniques. Students frequently displayed incorrect hand positioning, poor ball direction, and inadequate body coordination despite regular practice.

To address this issue, wall rebound training has been introduced as an alternative method to improve students' overhead passing skills. Wall rebound exercises, although rarely applied in routine volleyball training, show promising potential in developing hand-eye coordination, speed, and accuracy—all crucial components of effective overhead passing. According to (Danish & Nellen, 1997) training is a systematic process aimed at enhancing an individual's physical and mental capacity through structured, progressive, and repetitive activities. (Baechle, T. R., & Earle, R. W., 2008)supports this view by asserting that sports training must be goal-oriented and methodically designed to improve physical fitness.

Harsono, as cited by Hendrawati (2017), outlines four critical dimensions in athlete training: physical, technical, tactical, and (Didymus et al., 2021) Physical training targets biomotor capabilities like endurance, strength, and agility. (Gandrapu & Rakesh, 2024)enhances the precision of specific movements, while tactical training focuses on game strategy and decision-making. Mental training develops emotional control, motivation, and resilience, which are vital under competitive pressure. Wall rebound training involves throwing a ball with both hands overhead against a wall and reacting to the rebounded ball in a controlled passing stance. (Düz & Aslan, 2020) describe the technique as beginning with a ready position facing the wall, feet shoulder-width apart, knees bent, and arms extended to

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receive the ball after it rebounds—mimicking the mechanics of a real overhead pass. The ability to control and respond to the ball's rebound provides a strong foundation for mastering the skill.

(Adewale et al., 2024) argue that integrating wall-target drills into volleyball practice sessions boosts student motivation, reduces monotony, and enhances adaptability. The wall acts as an effective feedback mechanism, reflecting the ball's speed and direction based on the force and accuracy of the pass. This realistic feedback helps students develop precision and situational awareness. (Allison et al., 2017) also emphasizes the popularity and pedagogical value of volleyball, which is played on a standardized court with two opposing teams attempting to ground the ball in the opponent's area. highlights the (Allison et al., 2017) demands of the game, which include speed, strength, and coordination.

(Afzal & Torralba, 2024) Effective skill development in volleyball requires both conceptual understanding and structured training (Kuswoyo et al., 2020). Overhead passing is essential for setters to support team attacks (Nurfani et al., 2022) As an extracurricular activity, volleyball fosters student talent and achievement through well-designed practice (Andika et al., 2024). Wall rebound drills offer a simple yet effective method to enhance students' technical abilities.

Materials and Methods

Study Participants.

This study involved students from SMP Negeri 46 Palembang who participated in the school's volleyball extracurricular program. The total population consisted of 78 students, distributed across grades VII, VIII, and IX as shown in Table 1.

Table 1. Distribution of Volleyball Extracurricular Participants

No	Grade	Number of Students
1	VII	28
2	VIII	24
3	IX	26
Total		**78**

The sampling technique employed was *purposive sampling*, wherein participants were selected based on specific inclusion criteria. According to (Sugiyono, 2017) purposive sampling is a non-random sampling technique where the researcher determines the sample based on particular considerations. In this study, the sample was limited to students in grade VIII who actively participated in volleyball extracurricular activities and met the physical and

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technical readiness for the intervention. A total of 24 students were selected as research participants.

Study organization.

Please provide information on the different techniques utilized and their specific objectives, along with a detailed guide on the research methodologies and step-by-step process for conducting a pedagogical experiment.

The study was conducted over a two-month period, from March to April 2025, at SMP Negeri 46 Palembang. The research utilized a **quantitative descriptive method with an experimental design**, focusing on the effect of a wall-rebound training variation on the students' overhead passing skills in volleyball.

Data were collected using a **pre-test and post-test** approach with observation sheets as instruments. The intervention included a structured exercise involving wall-rebound training. The procedure for the wall-rebound overhead passing drill was as follows:

A. **Preparation Stage:**

1. Ensure the wall is stable and safe.
2. Select an appropriate volleyball.
3. Wear comfortable sports attire.
4. Make sure the training area is spacious.

B. **Technique Execution:**

5. Stand 2–3 meters away from the wall with feet shoulder-width apart.
6. Face the wall directly.
7. Hold the ball using both hands.
8. Raise the ball above the head with elbows bent.
9. Extend the elbows and pass the ball upward against the wall.
10. Track the ball's trajectory with the eyes.
11. Repeat the movement continuously.

The data collection process consisted of preparation, direct observation, documentation (score recording and photographic evidence), and measurement of passing performance before and after the intervention.

Statistical analysis.

To assess the effectiveness of the training intervention, the data were analyzed using a **paired sample t-test** (*t-test for dependent samples*). This statistical method was chosen to determine whether there was a significant difference in the students' overhead passing performance between the pre-test and post-test scores.

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The formula used is as follows:

$$t = \frac{Md}{\sqrt{\frac{\Sigma d^2}{N(N-1)}}}$$

Where:

- **Md** = Mean of the differences between pre-test and post-test
- **∑d²** = Sum of squared deviations
- **N** = Number of participants

The significance of the results was evaluated at the 95% confidence level (α = 0.05). If the calculated *t* value exceeds the critical *t* value from the distribution table, it indicates a statistically significant effect of the wall-rebound training on students' overhead passing skills.

Results

Based on the research findings, this study aims to determine the effect of passing drills using the wall rebound model on the overhead passing ability of volleyball extracurricular students at SMP Negeri 46 Palembang. To analyze the data, a normality test and hypothesis testing were conducted using the *t*-test at a significance level of 0.05.

Pre-test Data (Overhead Passing)

The pre-test was administered before the implementation of the treatment, where students performed an overhead passing test for one minute, repeated three times. The highest score among the three trials was recorded as the final pre-test score. The lowest score was 23, while the highest score was 43. These data were grouped into a frequency distribution table as follows:

Table 1. Pre-Test Scores of Overhead Passing (N = 24)

Interval Score	Frequency	Percentage
23 – 25	4	16.5%
26 – 28	6	25.0%
29 – 31	3	12.5%
32 – 34	6	25.0%
35 – 37	2	8.5%
38 – 40	1	4.0%
41 – 43	2	8.5%
Total	**24**	**100%**

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Post-test Data (Overhead Passing)

After completing 12 training sessions using the wall rebound technique, a post-test was conducted using the same procedures as the pre-test. Students again performed overhead passing for one minute in three trials, with the best score taken as the post-test result. The lowest post-test score was 27, while the highest was 50. The results are summarized in the following frequency table:

Table 2. Post-Test Scores of Overhead Passing (N = 24)

Interval Score	Frequency	Percentage
27 – 29	6	25.0%
30 – 32	2	8.5%
33 – 35	6	25.0%
36 – 38	2	8.5%
39 – 41	4	16.5%
42 – 44	1	4.0%
45 – 47	2	8.5%
48 – 50	1	4.0%
Total	**24**	**100%**

The frequency distribution shows an upward shift in passing ability from the pre-test to the post-test, indicating an improvement in students' overhead passing performance. This improvement was further analyzed using the *t*-test to determine statistical significance, which is presented in the following section.

Discussion

Based on the results of the data analysis presented earlier, the following values were obtained: standard deviation of differences (SDD) = 23, standard error of the mean difference (SEMD) = 1, mean difference (MD) = 4.68, and the calculated *t*-value (t_{count}) = 4.68. This value exceeds the critical *t*-value (t_{table}) of 2.069 at a significance level of 0.05, indicating a statistically significant result. The effect size of the wall rebound drill on overhead passing performance was calculated to be 16.3%. This finding confirms that the wall rebound drill had a positive and measurable impact on the volleyball passing skills of extracurricular students at SMP Negeri 46 Palembang.

The implementation of passing exercises using a wall as a target proved effective for the students. This finding is in line with the theory proposed by Aslamiya et al. (2024), which emphasizes that practicing overhead passing using wall-based variations is an effective strategy in sports development. The purpose of such training variations is to increase

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motivation, prevent monotony, and enhance athletes' ability to adapt to various situations. The core objective of this method is to improve technical skills and increase training efficiency.

Based on the overall findings of this study, it can be concluded that providing a structured and programmed treatment using wall rebound passing drills can significantly improve the overhead passing abilities of volleyball extracurricular students at SMP Negeri 46 Palembang. This suggests that incorporating targeted and engaging training methods in school sports programs can yield substantial improvements in technical performance.

Conclusions

Based on the research findings, the wall rebound drill has a significant effect on improving volleyball skills. This training method has proven effective in developing:

1. **Ball control** – repeated practice of rebounding the ball off the wall consistently trains students to control both the direction and the force of the ball;
2. **Hitting accuracy** – improvement in accuracy is evident through the students' ability to direct the ball toward a designated target on the wall; and
3. **Reaction speed** – the fast and repetitive nature of the wall rebound drill forces students to respond and adjust their body positioning quickly, thereby enhancing their reaction speed to the ball's movement.

The overhead passing skills of volleyball extracurricular students at SMP Negeri 46 Palembang improved as a result of the wall rebound variation drills. It can be concluded that there is a significant influence on the enhancement of overhead passing ability, with the *t*-table value of 2.069 and the effect size of the training variation reaching 16.3%.

For future researchers interested in the field of volleyball, this study can serve as a reference for further research with similar volleyball topics. It is also recommended that future studies explore different types of training variations using alternative methods in volleyball to complement and deepen the current findings.

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Conflict of interest

The author declares that there is no conflict of interest regarding the publication of this article.

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