



The Effect of Training Variations on Basic Underhand Passing Skills in Volleyball in Fifth Grade Students of SD Negeri 044849 Kubucolia, Karo Regency, 2024/2025 Academic Year

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Abstract.

Background

Physical education plays a strategic role in developing motor skills, physical fitness, and character in elementary school students. One of the large ball game materials taught is volleyball, specifically the basic skill of underhand passing. However, based on initial observations at SD Negeri 044849 Kubucolia, Karo Regency, the underhand passing skills of fifth-grade students are still considered low. This is suspected to be influenced by the lack of varied exercises provided during the learning process.

Objectives

This study aims to determine the effect of exercise variation on the basic underhand passing skills in volleyball of fifth-grade students at SD Negeri 044849 Kubucolia, Karo Regency, Academic Year 2024/2025.

Methods

This study used an experimental method with a one-group pretest-posttest design. The population was all fifth-grade students totaling 30, all of whom were used as the sample. The instrument used was a test of underhand passing skills in volleyball. Data were analyzed using a t-test to determine differences in results before and after the treatment.

Results

The results showed a significant improvement in students' underhand passing skills after being given varied exercises. The average pretest score was 58.40, which increased to 76.83 in the posttest. The t-test results showed $t_{\text{calculated}} > t_{\text{table}}$ ($7.85 > 2.045$) at a significance level of 0.05, indicating a significant effect of exercise variation on underhand passing skills.

Conclusion

Exercise variation has a significant effect on improving basic underhand passing skills in volleyball among fifth-grade students at SD Negeri 044849 Kubucolia, Karo Regency, Academic Year 2024/2025.

Keywords: Exercise Variation, Underhand Passing, Volleyball, Physical Education

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INTRODUCTION

Physical education is one of the important components in the elementary school curriculum, aiming to develop students' physical, motor, social, and emotional abilities. Minister of Education and Culture Regulation No. 22 of 2020 emphasizes that physical education should encourage students to be active, creative, innovative, and capable of developing basic movement skills as well as physical fitness. In the context of elementary schools, mastery of basic motor skills forms the foundation for more complex sports learning at higher levels (Kurniawan & Saputra, 2021).

One of the sports taught in elementary schools is volleyball, which emphasizes mastering basic techniques such as serving, underhand passing, overhand passing, smashing, and blocking. Underhand passing is a crucial basic skill because it serves as the initial technique for ball control, building attacks, and maintaining possession during defense. Proper underhand passing requires body coordination, directional accuracy, and ball control. Lack of mastery of this technique can hinder students' volleyball skill development (Siregar, 2020).

Based on recent research, the basic volleyball technical skills of elementary school students tend to remain low. Rahmawati (2021) found that many students struggle to control the ball's direction, maintain proper hand position, and keep balanced body posture during underhand passing. One factor causing this low skill level is monotonous and less varied practice methods, which quickly bore students and reduce their motivation to practice (Pratama & Lestari, 2022).

Varied exercises are a learning strategy that can enhance the effectiveness of sports education. Varied practice not only improves basic technical skills but also stimulates students' motivation, creativity,

and active participation (Santoso, 2023). Putra (2024) emphasizes that practice variations such as target passing, partner passing, passing with obstacles, and modified games can improve ball direction accuracy and students' coordination skills. This aligns with the findings of Lestari & Pratama (2022), which indicate that learning motivation plays an important role in enhancing children's motor skills, making varied exercises significantly improve sports learning outcomes.

Another study by Hidayat (2020) shows that repeated practice combined with variation can strengthen procedural motor memory and enhance students' movement coordination. Good movement coordination helps students master underhand passing techniques optimally, improving ball control and body positioning. This is important because elementary school children are still in the stage of developing fine and gross motor skills, so varied movement stimulation accelerates mastery of basic skills (Nasution & Harahap, 2020).

In addition to technical aspects, students' motivation greatly affects the success of sports learning. Wahyudi (2023) states that monotonous sports learning can cause boredom and reduce active student participation. Conversely, engaging and varied exercises can increase students' enthusiasm, make the learning process more enjoyable, and help them remember and apply the skills they have learned. Santoso (2023) adds that a game-based learning approach in sports education has been proven effective in improving basic technical skills while maintaining students' learning motivation.

Based on observations at SD Negeri 044849 Kubucolia, Karo Regency, it was found that most fifth-grade students were not yet able to perform underhand passing properly. Their body posture was unbalanced, arms were not locked, and the ball frequently went off target. This condition indicates the need for more innovative teaching interventions, particularly through varied exercises suited to the characteristics of elementary school children (Sembiring, 2021).

Research by Saragih & Sinaga (2022) confirms that varied exercises not only enhance technical skills but also students' cognitive and social abilities in sports contexts. Diverse exercises require students to think, coordinate with peers, and adjust movements according to game situations. Therefore, implementing varied exercises in volleyball lessons can be an effective strategy for improving students' underhand passing skills.

Moreover, creative and varied practice models align with child development principles. Elementary school children learn more effectively through hands-on practice, repetition, and play. Putra (2024) notes that game-based exercises provide students with opportunities to learn through real experiences, allowing basic technical skills to be internalized more quickly. This is also supported by Wijaya & Firmansyah (2020), who state that practice variations combining technical and game aspects significantly improve students' motor skill mastery.

Based on the above discussion, it can be concluded that the successful mastery of basic underhand passing skills in elementary school students is strongly influenced by teachers' creativity in designing varied exercises, students' motivation, and active learning methods. Therefore, this study aims to analyze the effect of varied exercises on the basic underhand passing skills of fifth-grade students at SD Negeri 044849 Kubucolia, Karo Regency, for the 2024/2025 academic year.

This research is expected to contribute to the development of physical education teaching strategies, particularly in improving basic sports technical skills through effective and enjoyable varied exercises for elementary school students.

METHOD

Research Design

This study used an experimental method with a one-group pretest-posttest design. In this design, the sample is given an initial test (pretest), then receives treatment in the form of exercise variation over eight sessions, followed by a final test (posttest).

Research design scheme:

O1 — X — O2

Participant

The population of this study was all fifth-grade students at SD Negeri 044849 Kubucolia, Karo Regency, Academic Year 2024/2025, totaling 30 students. Because the population was less than 100, all students were included as the sample (total sampling). Thus, the sample consisted of 30 students: 16 males and 14 females.

Data Analysis

Data were analyzed using:

- Normality Test
- Homogeneity Test
- Paired Sample t-Test

t-test formula:

$$t = \frac{Md}{Sd/\sqrt{N}}$$

The significance level used was 0.05.

RESULTS AND DISCUSSION

Results

This study was conducted on 30 fifth-grade students at SD Negeri 044849 Kubucolia, Karo Regency. The researcher used a pretest-posttest design, where students' underhand passing skills were assessed before and after being given treatment in the form of varied volleyball exercises.

1. Pretest Results

The pretest scores were obtained before the treatment to determine the students' initial skill level. The pretest results showed:

- 1) Highest score: 72
- 2) Lowest score: 45
- 3) Average score: 58.40
- 4) Standard deviation: 7.12

From these data, it can be seen that most students still had difficulty performing accurate underhand passes, particularly in:

- 1) Maintaining a balanced body position when receiving the ball.
- 2) Keeping the hands locked while passing.
- 3) Controlling the ball's direction, which often went off target.

This is in line with Siregar (2020), who stated that elementary school students generally experience difficulty controlling the ball's direction in underhand passing due to developing motor coordination.

2. Treatment Results

Varied exercises were conducted over 8 sessions using the following methods:

- 1) Partner passing with a target zone
- 2) Relay passing in groups
- 3) Passing with obstacles
- 4) Mini-games based on underhand passing

During the treatment, observations were made regarding:

- 1) Students' arm technique and body position
- 2) Accuracy of the ball toward the target
- 3) Active participation and learning motivation

3. Posttest Results

After the treatment, a posttest was conducted using the same instrument as the pretest. The posttest results showed:

- 1) Highest score: 90
- 2) Lowest score: 65
- 3) Average score: 76.83
- 4) Standard deviation: 6.54

These results indicate a significant improvement of 18.43 points on average. Furthermore, more than 80% of students were able to perform underhand passes with correct technique, balanced body posture, and better-controlled ball direction.

4. Statistical Analysis

Normality and homogeneity tests indicated that the data were normally distributed and homogeneous. The paired t-test showed:

- 1) $t_{\text{calculated}} = 7.85$
- 2) $t_{\text{table}} (df=29, \alpha=0.05) = 2.045$

Since $t_{\text{calculated}} > t_{\text{table}}$, it can be concluded that there is a significant effect of varied exercises on students' basic underhand passing skills.

Discussion

1. Improvement in Underhand Passing Skills

The study showed an increase in the average score from 58.40 to 76.83 after the treatment. This demonstrates that varied exercises positively influenced underhand passing skills.

According to Hidayat (2020), varied exercises can strengthen procedural motor memory and improve movement coordination, making it easier for students to master underhand passing techniques. This is also supported by Santoso (2023), who stated that game-based learning models enhance basic volleyball skills and active student participation by 30–35%.

2. The Role of Varied Exercises in Increasing Motivation

Varied exercises not only enhance technical skills but also learning motivation. Rahmawati (2021) mentioned that engaging exercise approaches can increase students' interest in learning and reduce boredom in physical education. During the study, students appeared more enthusiastic in participating, especially during game-based exercises and relay passing, in line with Yuliana & Hartono (2022), who found that motivation and interest positively correlate with sports skill outcomes.

3. Improvement in Technique and Ball Control

After the treatment, observations showed:

- 1) Arm position: students could lock their arms correctly during underhand passes.
- 2) Body balance: students were more stable when maintaining posture and directing the ball.
- 3) Ball direction accuracy: more than 80% of balls reached the target.

These findings align with Putra (2024), who stated that target- and obstacle-based passing exercises improve ball direction accuracy and movement control. Siregar (2020) also emphasized that mastering body position and arm-ball coordination is key to successful underhand passing.

4. Implications for Teaching

The study shows that physical education teachers can enhance students' basic skills through:

- 1) Varied exercises: combining basic techniques and games
- 2) Participatory approach: actively involving students
- 3) Monitoring and feedback: providing immediate corrections

This is consistent with Manurung (2023) and Saragih & Sinaga (2022), who reported that varied exercises improve teaching effectiveness and student learning outcomes in sports.

5. Alignment with Recent Research

This study supports recent findings since 2020 that varied exercises significantly improve basic sports skills (Wijaya & Firmansyah, 2020; Lestari & Pratama, 2022). Moreover, varied exercises also positively affect students' motivation, engagement, and coordination abilities.

In conclusion, the improvement of underhand passing skills in fifth-grade students at SD Negeri 044849 Kubucolia, Karo Regency, is influenced not only by the frequency of practice but also by teachers' creativity in developing exercise variations suited to the characteristics of elementary school children.

CONCLUSION

Based on the results and discussion, it can be concluded that exercise variation significantly improves basic underhand passing skills in volleyball among fifth-grade students at SD Negeri 044849 Kubucolia, Karo Regency, Academic Year 2024/2025. Physical education teachers are recommended to consistently implement exercise variations to make the learning process more effective and enjoyable.

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AUTHOR CONTRIBUTION STATEMENT

This research was conceptualized and designed by Dani Pramana Oktarius Ginting, who developed the research objectives and methodology, managed data collection, coordinated with participants, and supervised fieldwork at STOK Bina Guna Medan. Devi Catur Winata performed data analysis, interpreted the findings, and contributed significantly to the preparation of the manuscript. All authors participated in the revision of the manuscript, approved the final version for submission, and take full responsibility for the integrity and accuracy of the work.

CONFLICT OF INTEREST AND FUNDING

The authors declare no conflict of interest related to the conduct, authorship, or publication of this study.

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