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THE EFFECT OF IMAGERY TRAINING METHODS ON THE UNDERHAND PASSING SKILLS OF STUDENTS IN THE VOLLEYBALL CLUB

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Abstract
This study aims to determine the effects of imagery training methods on the underhand passing ability of members of the volleyball student activity unit. The problem addressed in this study is the low level of underhand passing skills caused by monotonous training methods and a lack of variation in practice. This research employed a pre-experimental design with a one-group pretest-posttest. The sample consisted of 10 students selected using a total sampling technique. The instrument used to measure underhand passing ability was the Brady Volleyball Test. Data were analyzed using a paired sample t-test at a significance level of 0.05. The results showed that the mean score increased from 18 in the pretest to 21 in the posttest. The hypothesis test indicated that tcount (4.45) was greater than ttable (1.833), indicating a significant effect of imagery training on underhand passing ability. These findings indicate that imagery training can enhance motor coordination, concentration, and understanding of movement techniques. In conclusion, the imagery training method is an effective and innovative approach to improving volleyball skills, particularly students' underhand passing ability.
Keywords: *imagery method; passing; volleyball; motor coordination; skill performance*

INTRODUCTION

Sport is an integral part of human life, serving not only to improve physical fitness but also to contribute to mental and social development and to the overall quality of life. In the context of education and performance development, sport plays a strategic role in shaping character, discipline, and an individual's ability to cooperate (Indah et al., 2025; Muliawan, 2025). Volleyball is one of the fastest-growing and most popular sports in educational settings. The game of volleyball demands mastery of basic techniques, good physical condition, and optimal motor coordination to achieve effective performance (Nova Risma, Syahrial Bakhtiar, & Umar, 2024; Wang & Guo, 2025).

In volleyball, mastery of basic techniques is a determining factor in a team's success. These basic techniques include the serve, pass, spike, and block, which are interlinked in establishing the game's patterns (Almaliki & Khalaf, 2024; Batilo et al., 2025). Among these techniques, the underhand pass is a fundamental skill that serves as the initial step in receiving the opponent's serve or attack and as the

foundation for building the next attack. Good underhand passing ability enables a team to control the ball effectively and increases the chances of creating high-quality attacks (Costa et al., 2017; Iqbal, Zaki, & Imran, 2025). Therefore, mastery of the underhand passing technique is a crucial aspect in volleyball learning and training, particularly at the university level.

However, in practice, various issues persist regarding students' poor underhand passing skills in the volleyball club. This lack of skill is not only due to physical factors, but is also influenced by technical and psychological aspects, as well as the training methods employed. Monotonous training methods, a lack of variety, and a focus on repetitive movements without a deep understanding often lead to boredom and low training effectiveness (Cummings, Gao, & Thornburg, 2016; Ricciardi, Maggi, & Nocera, 2019; Westgate, 2020). Furthermore, the lack of integration of mental aspects into the training process is also a factor hindering the improvement of students' motor skills.

In line with developments in sports coaching science, modern training approaches emphasize integrating physical and mental aspects. One method that has emerged and proven effective in enhancing sporting performance is imagery. Imagery is a mental training technique that involves the conscious visualization or mental rehearsal of movements without directly performing physical activities (Frank, Bekemeier, & Menze-Sonneck, 2021; Janjigian, 2024). Through imagery, athletes can activate a mental representation of a movement, thereby strengthening motor memory and improving movement coordination (Iorga, Jianu, Gheorghiu, Creţu, & Eremia, 2023; Zemková, 2022).

In theory, imagery is closely linked to the concepts of motor learning and neural activation, whereby visualizing a movement can activate the same brain areas as performing the movement in reality (Mizuguchi & Kanosue, 2017). This suggests that mental training through imagery can make a significant contribution to improving motor skills. Furthermore, imagery also enhances concentration, self-confidence, and psychological readiness in athletes when facing game situations (Hidayat et al., 2023). Consequently, the use of imagery in training for basic

volleyball techniques, particularly the underhand pass, represents a relevant and promising approach to enhancing the quality of training.

Several previous studies have shown that the imagery method positively influences the improvement of sporting skills. For example, research by (Lindsay, Larkin, Kittel, & Spittle, 2023) demonstrated that imagery training can significantly improve technical skills in sport. Furthermore, (Yazgan, Kara Kaya, Tiryaki, Atlı, & Cavlak, 2026) also found that imagery is effective in enhancing athletes' motor coordination and movement performance. However, research specifically examining the influence of the imagery method on underhand passing ability among university volleyball students remains limited, particularly within the context of sports coaching in a university setting.

Given this gap, this study offers a novel approach by examining the application of imagery training as a mental training method to improve underhand passing skills among University of Kent volleyball students. This study not only emphasizes the improvement of technical skills but also integrates a mental approach into the training process, thereby aiming to make a more comprehensive contribution to the development of sports training methods.

Consequently, the objective of this study is to determine the effect of the imagery training method on the underhand passing ability of volleyball club students. The results of this study are expected to provide a theoretical contribution to the development of sports coaching science and a practical contribution to coaches and students in improving the effectiveness of volleyball training programs.

METHOD

This study employed a pre-experimental design using a one-group pretest-posttest approach. This design aimed to determine the effect of imagery training methods on the underhand passing ability of members of the volleyball student activity unit by comparing performance before and after the treatment.

The study population consisted of all members of the volleyball club student, totaling 10 students. Due to the limited number of participants, a total

sampling technique was used, in which all population members were included as the research sample.

The independent variable in this study was the imagery training method, while the dependent variable was the underhand passing ability. The imagery training was conducted as a structured mental training program, where participants were guided to visualize correct underhand passing techniques before performing them physically. The training program consisted of 16 sessions, each lasting approximately 90-120 minutes.

The instrument used to measure underhand passing ability was the Brady Volleyball Test. This test measures the participant's ability to control and perform repeated passes against a wall within a specified time. In this study, the test was modified by requiring participants to use only underhand passing techniques. Participants stood approximately 2 meters from a wall and performed continuous passes for 60 seconds. Each successful pass that hit the target area and returned in a controlled manner was scored as one point.

The research procedure consisted of three stages: (1) pretest to determine the initial ability of underhand passing, (2) treatment in the form of imagery training combined with physical practice, and (3) posttest to measure improvement after the intervention.

Data analysis was conducted using descriptive and inferential statistics. Prior to hypothesis testing, prerequisite tests were performed, including normality and homogeneity tests. The normality test used the Lilliefors test, and homogeneity was tested with the Kruskal-Wallis test. Hypothesis testing was performed using a paired-samples t-test at $\alpha = 0.05$ to determine whether there was a significant difference between the pretest and posttest results.

RESULT AND DISCUSSION

A normality test was conducted to determine whether the data were normally distributed. The results of the normality test are shown in Table 1 below:

Table 1. Normality

Group	Observed L	Table L	Notes
Pretest	10	18.40	Normal
Posttest	10	24.70	

Based on Table 1, the calculated L-value for both the pretest and posttest is smaller than the table L-value (calculated L < table L), indicating that the data are normally distributed. The homogeneity test determines whether the variances of the pretest and posttest data are equal. The results of the homogeneity test can be seen in Table 2 below:

Table 2. Homogeneity

$F_{calculated}$	F_{table}	Notes
1.02	3.18	Homogen

Based on Table 2, Fcalc is smaller than Ftable (Fcalc < Ftable), indicating that the data have homogeneous variances. The hypothesis test was conducted using a t-test (paired sample t-test) to determine the effect of the imagery training method on underhand passing ability. The results of the hypothesis test are shown in Table 3 below:

Table 3. Hypothesis

Variable	Mean	SD	$t_{calculated}$	t_{table}
Pretest	18	7.09	4.45	1.833
Posttest	21	7.03		

Based on Table 3, the calculated t-value is 4.45, and the critical t-value is 1.833 at a significance level of $\alpha = 0.05$. Since the calculated t-value is greater than the critical t-value (4.45 > 1.833), there is a significant difference between the pretest and posttest results.

The results of the study show an average increase in underhand passing ability from 18 in the pretest to 21 in the posttest. Furthermore, the statistical tests indicate that this increase is significant. It can therefore be concluded that the imagery training method significantly improves the underhand passing ability of volleyball club students.

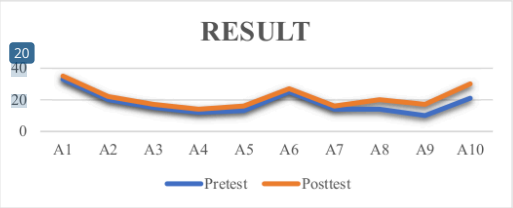

Figure 1. Results Graph

Discussion

The study's results indicate that the imagery training method significantly improves students' underhand passing skills in the volleyball club. This is evidenced by an increase in the average score from 18 in the pre-test to 21 in the post-test, as well as statistical test results showing that the calculated t-value (4.45) is greater than the critical t-value (1.833). These findings indicate that imagery training can make a positive contribution to the improvement of basic volleyball technical skills.

This improvement in underhand passing ability can be explained by the motor learning theory, which states that motor learning occurs not only through physical practice but also through mental practice, such as imagery (Frank, Land, & Schack, 2016; Schmidt, Lee, Winstein, Wulf, & Zelaznik, 2018). In imagery training, individuals visualize in detail the movement process to be performed, thereby activating the nervous system like when performing the movement in reality (Ferreira dos Santos et al., 2016; Shafir, 2016). This activation enables the formation of a stronger movement representation in motor memory, thereby enhancing movement coordination and accuracy.

Furthermore, the imagery method also helps improve students' concentration and focus during training. By visualizing the correct movement before performing an underhand pass, students gain a better understanding of the technique, thereby minimizing execution errors. This is consistent with the view that imagery can enhance athletes' mental readiness and self-confidence when performing sporting skills (Williams & Cumming, 2016).

From a practical perspective, the use of imagery provides variety in a training process that was previously rather monotonous. Training that focuses solely on the repetition of physical movements often leads to boredom and is less effective in improving skills. By integrating mental training, students become more cognitively active in understanding the movements, making the learning process more effective and meaningful (Mavilidi et al., 2018).

The findings of this study are also supported by previous research indicating that imagery training improves motor skills in sport. (Bedir & Erhan, 2021; Lin,

Lin, Ling, & Lo, 2021) found that imagery training can significantly improve technical skills. Furthermore, (Morone et al., 2022) also stated that imagery contributes to improved motor coordination and athletic performance.

Thus, imagery training methods can serve as an effective alternative to traditional training strategies in volleyball instruction, particularly for improving students' underhand passing skills. This method not only emphasizes physical aspects but also integrates mental aspects that play a crucial role in the motor learning process.

However, this study has several limitations, including a relatively small sample size and the absence of a control group. Furthermore, the limited duration of the intervention may also have influenced the study's results. Therefore, future research is recommended to employ a stronger experimental design, involve a larger sample size, and combine the imagery method with other training methods to achieve more optimal results.

CONCLUSION

Based on the study's results, it can be concluded that the imagery training method significantly improves the underhand passing ability of members of the volleyball student activity unit. This is evidenced by the increase in the average score from pretest to posttest, as well as by the results of the hypothesis test, which show a significant difference between the two measurements.

The application of imagery training not only improves technical skills but also enhances concentration, coordination, and understanding of movement. Therefore, imagery training can be an effective and innovative alternative in volleyball training, particularly for improving underhand passing skills.

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