Jurnal Ilmiah Mandala Education (JIME)
Vol 12 No.3 Agustus 2026
p-ISSN : 2442-9511, e-2656-5862
DOI: *10.58258/jime.v12i3.11276/http://ejournal.mandalanursa.org/index.php/JIME*

Application of Drill Exercises to Improve Backhand Stroke Accuracy in Badminton Extracurricular Activities

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Article Info

Article history:
Accepted: 30 July 2026
Published : 13 Agustus 2026

Keywords:
Drill exercise;
Backhand stroke;
Badminton;
extracurricular activity.

Abstract

This study aimed to determine the effectiveness of drill exercises in improving backhand stroke accuracy in badminton extracurricular activities at MTs 7 Tulungagung. The research used a quantitative approach with a one-group pretest-posttest experimental design. The participants were 24 students selected through total sampling. Data were collected using a backhand accuracy skill test before and after training, supported by observation and documentation. The training was conducted in 18 sessions over eight weeks, three times per week. Data were analyzed using descriptive statistics, the Shapiro-Wilk normality test, and a paired sample t-test. The results showed that the mean score increased from 51.83 in the pretest to 61.38 in the posttest. The paired sample t-test showed a significance value of 0.000 < 0.05, indicating a significant difference between pretest and posttest scores. Therefore, drill exercises significantly improve students' backhand stroke accuracy.

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1. INTRODUCTION

Extracurricular activities are an important component that complements formal learning in schools (Arduta et al., 2020). In badminton, technical mastery is a key factor in achieving good performance. One of the most difficult techniques for students to master is the backhand stroke, which is often less developed due to lack of structured and specific training (Dwijaya & Pradipta, 2020). Observations at MTs 7 Tulungagung showed that students' backhand skills were still low and inconsistent. Most students found this technique difficult because they were not accustomed to the movement pattern and had never received specialized training (Prastawa et al., 2022). Drill exercise is a systematic training method that focuses on repeating specific movements to build muscle memory and improve technique consistency (Muhdar, 2020).

Although previous studies have reported that drill exercises can improve badminton techniques, most studies have focused on specific skills such as backhand clear or backhand service and have generally emphasized the effect of training on technical performance. Limited attention has been given to the application of a structured drill program for overall backhand stroke accuracy in a school extracurricular context while also considering the training environment, student motivation, and difficulties experienced during practice. This study therefore differs from previous research by examining the improvement in backhand stroke accuracy through an 18-session drill program conducted over eight weeks among students at MTs 7 Tulungagung, while also documenting environmental and motivational factors that may support the training process. The findings are expected to provide practical recommendations for improving the quality of badminton extracurricular training programs in schools.

Backhand accuracy is important because the backhand stroke is frequently used to return shots directed to the non-dominant side of the body. Students who have not mastered the movement pattern may produce inaccurate and inconsistent strokes, which can reduce the effectiveness of their game. Therefore, training should not only provide repeated movement practice but also develop correct body position, racket control, timing, and direction of the stroke. Drill exercises are relevant to this need because they provide repeated and structured practice that allows students to gradually stabilize the required movement pattern.Therefore, the objective of this study is to determine the effect of drill exercises on the accuracy of backhand strokes among students participating in badminton extracurricular activities at MTs 7 Tulungagung.

2. METHOD

2.1 Research Design

This study employed a quantitative approach with a one-group pretest-posttest experimental design. The research was conducted at MTs 7 Tulungagung, East Java, Indonesia. The independent variable was drill exercise, while the dependent variable was backhand stroke accuracy.

2.2 Population and Sample

The population consisted of all students participating in the badminton extracurricular activity at MTs 7 Tulungagung, East Java, Indonesia. The sample consisted of 24 students who participated in the extracurricular activity and were selected using total sampling. Thus, all 24 participants in the population were included as research respondents.

2.3 Instruments and Data Collection

Skill test: A standardized backhand accuracy test was administered during the pretest and posttest. Students performed backhand strokes toward designated target areas, and scores were recorded based on accuracy. The procedure followed the backhand accuracy assessment reported by Dwijaya and Pradipta (2020) and was applied consistently in both tests.

Data collection techniques included skill testing, observation, and documentation. The skill test was conducted twice, namely before the intervention (pretest) and after the intervention (posttest), using the backhand accuracy test. Observation was conducted during the training sessions to record participation, training implementation, facilities, and student motivation. Documentation was used to record the training activities and supporting research information. The training program consisted of 18 sessions over 8 weeks, conducted three times per week. Each session followed a structured sequence consisting of warm-up, coach demonstration and explanation of the backhand movement, repetitive drill practice, target-based backhand exercises, and cool-down. The drills were performed progressively, beginning with basic movement and swing patterns, followed by repeated shuttle-feeding exercises and target-direction practice. Exercise intensity increased progressively from approximately 40% to 100% of maximum heart rate, with the progression adjusted to the students' ability and training response (Satria, 2018). The same sequence and training objectives were applied across sessions to maintain consistency of the intervention. The coach also provided direct correction and positive feedback during practice so that students could immediately correct grip, body position, swing direction, and follow-through.

2.4 Data Analysis

Data analysis was conducted using descriptive and inferential statistical techniques. First, descriptive statistics were used to calculate the mean, minimum, maximum, and standard deviation of the pretest and posttest scores. Second, the Shapiro-Wilk test was used to determine data normality. Third, because the data were normally distributed, a paired sample t-test was used to examine the difference between pretest and posttest scores. A significance level of 0.05 was used as the decision criterion.

Descriptive statistics (mean, minimum, maximum, standard deviation), Normality test using the Shapiro-Wilk method, Paired sample t-test to compare pretest and posttest results.

3. RESULT

3.1 Descriptive Statistics

Table 1. Descriptive Statistics of Pretest and Posttest Scores

Variable	N	Mean	Minimum	Maximum	Std. Deviation
Pretest	**24**	**51.83**	**32**	**82**	**13.89**
Posttest	**24**	**61.38**	**44**	**82**	**12.18**

The table shows that the initial average ability (pretest) was 51.83, with a wide range of scores from 32 to 82 and a standard deviation of 13.89, indicating diverse skill levels among students. After training, the average score increased to 61.38, the minimum score rose to 44, and the standard deviation decreased to 12.18. This reduction in standard deviation means students' skill levels became more uniform and consistent after the intervention.

3.2 Normality Test

Table 2. Shapiro-Wilk Normality Test

Variable	Statistic	df	Sig.
Pretest	**0.942**	**24**	**0.179**
Posttest	**0.935**	**24**	**0.131**

The normality test ensures data follows a normal distribution, which is required for parametric statistical tests. The decision rule is: if significance > 0.05, data is normally distributed. Results show pretest significance = 0.179 and posttest = 0.131, both greater than 0.05. Thus, the data is normally distributed and suitable for further hypothesis testing.

3.3 Paired Sample T-Test

Table 3. Paired Sample T-Test Result

Comparison	Mean Difference	t	df	Sig. (2-tailed)
Pretest – Posttest	-9.542	-11.872	23	0.000

This test measures whether there is a statistically significant difference between results before and after training. The mean difference of -9.542 indicates an average improvement of 9.542 points. The significance value (Sig. 2-tailed) = 0.000 < 0.05, meaning the difference is highly significant. This confirms that drill exercises effectively improved backhand stroke accuracy.

4. DISCUSSION

The results show a significant increase in average scores after the implementation of drill exercises. This confirms that repetitive and structured training helps students build muscle memory, correct body posture, and improve the consistency of their backhand technique (Fauzan, 2022). The reduction in standard deviation indicates that the students' skill levels became more uniform after training. This finding aligns with the theory that systematic repetition in drills helps stabilize motor patterns and reduce variability in performance (Prastawa et al., 2022).

The training environment also played an important role. Adequate facilities, guidance from coaches, and support from peers created a positive atmosphere that encouraged active participation (Gani et al., 2023). Students with higher intrinsic motivation showed greater progress, as they were more willing to practice repeatedly and correct their mistakes (Pangestu et al., 2021). According to Mosoi (2020), motivation and a supportive environment are key factors that determine how well athletes engage in training and apply new techniques.

The main challenges faced were difficulty in understanding the correct movement pattern and lack of self-confidence. These obstacles were overcome by breaking down the technique into simpler steps, using visual aids, and providing regular positive feedback (Rizqi Azizah & Sudarto, 2021). This approach helped students feel more confident and reduced anxiety during practice. As stated by Adi Pamungkas & Indarto (2021), progressive training and immediate feedback are effective strategies to overcome technical and psychological barriers in learning new badminton techniques.

These findings are consistent with previous studies which also concluded that drill training is effective in improving technical skills in badminton. Dwijaya & Pradipta (2020) found that drill exercises significantly improved the accuracy of backhand clear strokes among students, while Muhdar (2020) reported similar results in improving backhand service skills through structured practice. This confirms that the drill method is a proven and reliable approach for developing technical proficiency in racket sports.

5. CONCLUSION

The results show that drill exercises significantly improved students' backhand stroke accuracy at MTs 7 Tulungagung. The mean score increased from 51.83 in the pretest to 61.38 in the posttest, with a paired sample t-test significance value of 0.000 < 0.05. Thus, structured drill exercises can be used as an effective training method for improving backhand accuracy in badminton extracurricular activities.

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