



## The Effectiveness of Shadow Training on Improving the Responsiveness of Drop Shots in Badminton

Moh. Hafidz Alfa Rizqi<sup>1</sup>✉, Mohamad Da'i<sup>2</sup>✉, Hilmy Aliriad<sup>3</sup>✉, Afdol Febriansyah<sup>4</sup>✉

Department of Physical and Recreation, Faculty of Education, University Nahdlatul Ulama Sunan Giri, East Java, Indonesia<sup>123</sup>  
Shanghai University of Sport, Shanghai, Tiongkok<sup>4</sup>

### History Article

Received February 2026  
Approved March 2026  
Published vol 13 no 1 2026

### Keywords

Shadow Training; Responsiveness; Drop Shot; Badminton

### Abstract

Badminton is a popular sport in Indonesia and requires a thorough mastery of basic techniques to control the game and effectively place the shuttlecock in the opponent's court. One crucial technique is the drop shot, which demands precision, control, and high responsiveness, including reaction time, precise shot execution, and decision-making skills in game situations. This study aims to evaluate the effectiveness of shadow training in improving the responsiveness of drop shots in badminton players. The method used was a quasi-experimental one-group pretest-posttest design, involving 23 eighth-grade students of MTs Islamiyah Tulungagung who were divided into experimental and control groups. The experimental group underwent shadow training for six weeks at a frequency of once per week, while the control group received no special treatment. The research instrument was a drop shot accuracy test that measures reaction speed and shot accuracy. Data analysis used descriptive and inferential statistics, including the Shapiro-Wilk normality test and paired t-test. The results showed that the experimental group experienced a significant increase (sig. 0.001; the mean increased from 0.01 to 27.36), while the control group showed no significant increase (sig. 0.082). These findings confirm that shadow training is effective in improving the responsiveness of drop shots and supports the development of motor coordination, motor readiness, and technical quality of players. Therefore, shadow training can be recommended as a systematic and applicable training method for the overall development of badminton athletes' abilities.

### How to Cite

Rizqi, M. H. A., Da'i, M., Aliriad, H., & Febriansyah, A. (2026). The Effectiveness of Shadow Training on Improving the Responsiveness of Drop Shots in Badminton. *Journal of Physical Education, Health and Sport*, 13 (1), 170-175.

✉ Correspondence Author:  
E-mail: [farizqihafidz04@gmail.com](mailto:farizqihafidz04@gmail.com)  
[dai@unugiri.ac.id](mailto:dai@unugiri.ac.id)  
[hilmy@unugiri.ac.id](mailto:hilmy@unugiri.ac.id)  
[2026111014@sus.edu.cn](mailto:2026111014@sus.edu.cn)

## INTRODUCTION

Badminton is a very popular sport in Indonesia and is enjoyed by various age groups and ability levels, both men and women (Fauzan et al., 2023; Pambudi et al., 2023; Saleh et al., 2022). This game is generally played indoors, but can also be played outdoors for competition and recreation. In badminton, players are required to keep the shuttlecock from falling in their own court and to place it correctly in the opponent's court (Salahuddin, 2021). The importance of mastering basic technical skills in badminton is also emphasized by research Dai, (2025) which shows that the improvement in learning outcomes of badminton techniques is greatly influenced by structured training and learning methods.

In order for players to be able to carry out the game's objectives optimally, mastery of various basic hitting techniques is required. The basic badminton hitting techniques according to...Wengkau et al., (2023) states that the basic badminton techniques consist of the service, lob, netting, drive, drop shot, cop, and smash. Among these techniques, the drop shot is an attack technique that requires precision and control of movement, because although it does not require a lot of power, its success depends greatly on the quality of the racket touch and the accuracy of the shot (Gani et al., 2025). This shot aims to launch the shuttlecock into the opponent's area as close to the net as possible, which requires precision and strategy when executed (Kusnadi, 2020) A well-executed drop shot can be a very effective technique, as it can confuse your opponent and open up the opportunity to score a winning point (Gani et al., 2025).

According to Khanina et al., (2025) optimal drop shot execution requires high responsiveness, including reaction speed, decision-making ability, and shot accuracy. This aligns with research findings in sports coaching, which indicate that technical performance is significantly influenced by the athlete's motoric response readiness in dynamic match situations (Aliriad et al., 2024). To improve this responsiveness, appropriate and systematic training methods are required. According to Devy et al., (2022) An effective and practical training method is shadow training, which is technical training carried out without using a shuttlecock, with the aim of systematically and structuredly imitating the movement patterns of the actual game. This training includes a series of footwork movements in various directions on the court, coordination of racket swings, and structured and repeated

body positioning, in order to improve the player's mastery of technique, agility, and motor response readiness in match situations (Marpaung & Manihuruk, 2021; Wismanadi et al., 2020). Shadow training functions to optimize mastery of movement patterns, increase agility, improve the mechanics of punching techniques, and build effective motor responses through rhythmic and controlled repetition of movements, based on the trainer's instructions (Ihsan et al., 2023).

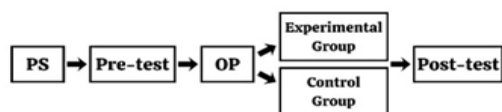
According to Sholeh et al., (2024) agility does not just form by itself, it is necessary to have a form of training so that agility can be increased, and one of these can be through shadow training. Other research by Putra & Lubis, (2024) footwork training and shadow training have a significant influence on the agility of badminton athletes. Most previous research still focuses on improving the footwork and shadow aspects only, while research that specifically examines the effect of shadow training on the responsiveness of drop shots involving reaction speed, technical accuracy, and decision making is still limited (Widhiyanti et al., 2022).

Based on this gap, this study is crucial to evaluate the effectiveness of shadow training in improving drop shot responsiveness in badminton players. This study was designed to determine whether shadow training not only contributes to increased agility but also improves players' ability to respond quickly to the shuttlecock and execute drop shots accurately and controlled. This study focuses specifically on analyzing the effectiveness of shadow training on comprehensively improving the responsiveness of drop shots, including reaction speed, technical accuracy, and decision-making ability when executing shots. Furthermore, this research contributes to the development of badminton learning practices at the junior high school level, by highlighting the application of shadow training as a method that can improve motor response and the quality of drop shot execution in a more focused and systematic manner.

## METHOD

The research method applied in this study is an experimental method. According to Salahuddin, (2021) experimental research is conducted carefully to uncover causal relationships between variables. This study uses a quasi-experimental design, in which the grouping of research subjects is not completely random, but the treatment procedure remains under the supervision and control of the researcher (Kurniawan et al., 2024). The

design used is a two-group pretest–posttest, as shown in the following **Figure 1**.



**Figure 1.** Research Design

Information :

PS : Population and Sample

Pre-test : Initial test using dropshoot test

OP : Ordinal Pairing (dividing Groups)

Post-test : Final test using dropshoot test

A conceptual design overview for a study using pre-tests and post-tests. The following two variables may be involved:

**Table 1.** Research Design Concept

| Group      | Pre-Test  | Treatment             | Final Test (Post-Test) |
|------------|-----------|-----------------------|------------------------|
| Experiment | Drop Shot | Shadow Media Training | Drop Shot              |
| Control    | Drop Shot | -                     | Drop Shot              |

This research was conducted from January to February 2026 at MTs Islamiyah Tulungagung. The research population was all 23 students of class VIII A, aged 14 years, consisting of male and female students. The population is a group of subjects with certain characteristics, which serves as the source of research data (Hidayat & Wirawan, 2023). The research variables consist of the independent variable of shadow training and the dependent variable of drop shot responsiveness. The sampling technique used total sampling, so that the entire population was used as the research sample (Nugraheni et al., 2023). The sample was then divided into two groups using the ordinal pairing technique so that the initial abilities of the two groups were relatively balanced, namely the experimental group of 12 students and the control group of 11 students, without differentiating gender.

The research instrument consisted of a pre-test and post-test on drop shot accuracy to measure responsiveness, namely the ability to move quickly to the right position and execute an accurate shot after receiving a stimulus. Shadow training was given for six weeks, once per week, and each session lasted 90 minutes. The test was conducted using rackets, shuttlecocks, a standard court, and different target zones with different points. The feeder threw the shuttlecock randomly, while the player moved with fast footwork and

executed 10 drop shots, with scoring based on response speed and zone accuracy (5, 4, 3, 2, 1, or 0 points). After the shadow training, a post-test was conducted with identical procedures.

Data analysis in this study was carried out using spss for windows software to process quantitative data obtained from measurement results (Rosidin et al., 2024). The initial stage of analysis was conducted using descriptive statistics to provide an objective overview of the data characteristics. Furthermore, the assumption of normality was tested using the shapiro–wilk test, considering the sample size was less than 50. Data were declared normally distributed if the significance value (sig.) Was greater than 0.05 (Udin et al., 2025). Pre-test and post-test data were analyzed using a paired t-test to determine significant improvements in drop shot responsiveness. All research procedures were systematically structured to obtain objective and valid data regarding the effectiveness of shadow play training.

## RESULTS AND DISCUSSION

The research data was analyzed for two groups: an experimental group that received shadow badminton training and a control group that did not receive the same treatment. The analysis was conducted using descriptive statistics, normality tests, and hypothesis testing using paired sample t-tests to determine differences in results between the initial and final tests in each group.

**Table 2.** Descriptive Statistics of Experimental Group

| Variable | N  | Mean  | Standard Deviation |
|----------|----|-------|--------------------|
| Pretest  | 12 | 0.01  | 0.875              |
| Posttest | 12 | 27.36 | 2,656              |

**Table 3.** Descriptive Statistics of Control Group

| Variable | N  | Mean | Standard Deviation |
|----------|----|------|--------------------|
| Pretest  | 11 | 4.27 | 2,328              |
| Posttest | 11 | 4.55 | 2,423              |

Based on **Tables 2** and **Tables 3**, descriptive statistics show a difference in the development of results between the experimental and control groups. The experimental group experienced an increase in average scores from 0.01 in the pretest to 27.36 in the posttest, while the control group only showed a relatively small increase from 4.27 to 4.55. This difference indicates that the group that received shadow badminton training experienced a greater increase in ability than the group that did not receive treatment.

**Table 4.** Normality Test Results

| Variable              | Statistics | Sig.  | Description |
|-----------------------|------------|-------|-------------|
| Experimental Pretest  | 0.172      | 0.619 | Normal      |
| Posttest Experimental | 0.191      | 0.415 | Normal      |
| Pretest Control       | 0.183      | 0.414 | Normal      |
| Posttest Control      | 0.153      | 0.756 | Normal      |

The results of normality tests using the Kolmogorov–Smirnov and Shapiro–Wilk tests showed that all data had a significance value greater than 0.05, thus concluding that the research data were normally distributed. Thus, the data met the assumptions for analysis using parametric statistical tests, namely the paired sample t-test.

**Table 5.** Paired Sample t-test Results

| Group        | Mean Difference | t       | df | Sig.  |
|--------------|-----------------|---------|----|-------|
| Experimental | -21,750         | -39,388 | 11 | 0.001 |
| Control      | -0.273          | -1,936  | 10 | 0.082 |

The results of the hypothesis test showed that the experimental group obtained a significance value of 0.001 ( $<0.05$ ), indicating a significant difference between the pretest and posttest scores after being given shadow badminton training. In contrast, the control group obtained a significance value of 0.082 ( $>0.05$ ), thus showing no significant difference between the pretest and posttest. These findings indicate that a significant increase in drop shot skills occurred in the group that received shadow badminton training, while the group that did not receive treatment did not experience any significant changes.

The results of the study showed that shadow badminton training had a significant effect on improving the drop shot technique in the experimental group, while the control group did not experience any significant changes (Devy et al., 2022). This confirms that providing structured training interventions can stimulate motor adaptation and movement coordination that supports optimal technical performance (Sholeh et al., 2024). This finding is in line with studies reporting that shadow training improves the accuracy of badminton hitting techniques and accelerates the improvement of hitting performance compared to conventional learning methods (Putra & Lubis, 2024; Zaidan et al., 2024).

In addition to the technical aspects of hitting, shadow training also contributes to increa-

sing agility and motor readiness, which are the basis for improving overall performance (Bramudya et al., 2024). Several studies have shown that shadow training significantly improves agility, footwork coordination, and speed of change of direction in badminton athletes (Ariandi et al., 2024; Nofiansyah et al., 2024). This improvement in ability allows players to position their bodies correctly when performing drop shots, significantly improving technical performance (Assegaf et al., 2025; Marpaung & Manihuruk, 2021).

In contrast, the control group that did not receive directed training showed relatively small and non-significant changes in performance, which confirms the importance of systematic training stimulation to improve technical skills (Wismanadi et al., 2020). This finding is in line with previous evidence that shadow training is effective in improving the physical and technical aspects that underlie overall badminton performance (Devy et al., 2022; Sholeh et al., 2024; Zaidan et al., 2024). Thus, the shadow training method is suitable for application in athlete development programs and physical education to significantly improve badminton technical skills (Putra & Lubis, 2024).

This study has several limitations that should be noted. First, the sample size was relatively small, consisting of only one class at MTs Islamiyah Tulungagung, so the results should be interpreted with caution if applied to a broader population. Second, the shadow training intervention was conducted over a six-week period, so its long-term effects on drop shot ability and overall game performance are unknown. Third, other factors that could influence the results, such as student motivation, physical condition, and previous playing experience, were not fully controlled. Furthermore, the study found that some students experienced more pronounced improvements in coordination and reaction speed than shot accuracy, although this was not the primary focus. These findings suggest that shadow training also has the potential to improve motor skills and responsiveness in general, making it an important direction for further research and the development of more comprehensive training methods.

## CONCLUSION

Based on the research results, shadow badminton training was proven to be effective in improving the drop shot ability in the experimental group, as seen from the increase in responsiveness to the shuttlecock, accuracy of shot execution, correct decision making, as well as in-

creased coordination of movement, agility, and motor readiness of the players, while the control group who did not participate in the training only experienced minimal changes; thus, shadow training can be used as a practical training method to improve the quality of technique and physical readiness of players, especially at the junior high school level, thus supporting the development of athletes' overall abilities.

## REFERENCES

- Aliriad, H., Adi, S., Saputro, DP, & Fahmi, DA (2024). Strengthening early childhood motor skills through outdoor activity exploration experiences Abstract. 3, 126–141. <https://doi.org/10.54284/jopi.v3i2.363>
- Ariandi, J., Nasuka, & Kusuma, DWY (2024). The Effect of Shadow Footwork Training and Body Mass Index on Agility of Pekanbaru Badminton Athletes. 7, 446–451. <https://doi.org/https://doi.org/10.31539/jpjo.v7i2.8478>
- Assegaf, A., Wismanadi, H., Wahyudi, H., & Rusdiawan, A. (2025). Journal of Education: Journal of Physical Health and Sports: The Effect of Shadow Training on Increasing Agility in Badminton Athletes. 10(November), 251–256. <https://doi.org/https://doi.org/10.36526/kejaora.v10i2.4179>
- Bramudya, BB, Adi, S., & Ratna, AP (2024). The Effect of Shadow Training on the Footwork Agility of High School Badminton Extracurricular Students. 2, 156–167. <https://doi.org/https://doi.org/10.51903/bersatu.v2i2.629>
- Dai, M. (2025). A problem-based learning model to improve learning outcomes in badminton short serve. Indonesian Journal of Sports Education (JOPI), 5(1), 32–42. <https://doi.org/https://doi.org/10.54284/jopi.v5i1.365>
- Devy, RD, Pratiwi, C., & Bahri, S. (2022). The Effectiveness of Shadow and Audio Visual Stroke Training on Badminton Dropshot Accuracy. 7(2), 114–129. <https://doi.org/https://doi.org/10.5614/jskk.2022.7.2.6>
- Fauzan, HA, Tafaqur, M., & Novian, G. (2023). Journal of Sports Coaching: The Effect of Self-Talk Training on Self-Confidence and Improving Dropshot Results in Badminton. 14(March), 14–26. <https://doi.org/10.17509/jko-upi.v14i1.42922>
- Gani, A., Dirham, & Dewi Ratna. (2025). Basic Badminton Dropshot Stroke Skills in Athletes of the Green House Sports Committee of Gorontalo Regency. Journal of Sports Education Students, 5(3), 811–818. <https://doi.org/https://doi.org/10.55081/jumper.v5i3.3329>
- Hidayat, E., & Wiriawan, O. (2023). Analysis of the Physical Condition of Men's Badminton Athletes of PB. Gemilang Surabaya in 2023. 6, 140–149. <https://doi.org/10.1234/jpo.v6i3.57812>
- Ihsan, F., Nasrulloh, A., & Yuniana, R. (2023). Effectiveness of Shadow Training Using Badminton Steps Application in Increasing Footwork Agility in Badminton Athlete. 23–30. <https://doi.org/10.7251/SSH2301023I>
- Khanina, N., Hazar, F., Dwi, E., Damayanti, R., & Bayu, S. (2025). The Effect of Ladder Drill Training on Speed and Agility Improvement in Junior Badminton Athletes Aged 11-14 Years.
- Kurniawan, IF, Suherman, A., & Mulyanto, R. (2024). Kinesthetic: Scientific Journal of Physical Education The Effectiveness of Hurdle Drill and Shadow Exercises to Improve Footwork Skills in Badminton. 8(1), 146–153. <https://doi.org/10.33369/jk.v8i1.33282>
- Kusnadi, N. (2020). Development of a Badminton Dropshot Training Model for 12-14 Year Olds. 4(1), 1–11. <https://doi.org/https://doi.org/10.37058/sport.v4i1.1561>
- Marpaung, DR, & Manihuruk, F. (2021). The effect of shadow training on improving agility and balance in badminton. 5(April), 40–50. <https://doi.org/https://doi.org/10.24114/so.v5i1.24167>
- Nofiansyah, EE, Komarudin, K., & Hidayah, N. (2024). The Effect of Skipping Rope and Shadow Training on Badminton Athletes' Agility. 8, 327–336. <https://doi.org/https://doi.org/10.31539/jpjo.v8i1.10925>
- Nugraheni, W., Belvana, S., & Bachtiar, B. (2023). Optimizing the Indonesian Physical Fitness Test. Indonesian Journal of Sports and Health (JOKI), 4, 61–68. <https://doi.org/https://doi.org/10.55081/joki.v4i1.1953>
- Pambudi, T., Mukarromah, Baitul, S., Rahayu, S., & Iwandana, DT (2023). Android-based physical condition of badminton athletes. Methods. 6, 214–227. <https://doi.org/10.31539/jpjo.v6i2.6170>
- Putra, AY, & Lubis, MH (2024). The Effect of Footwork and Shadow Training Methods. 02(01), 9–24. <https://doi.org/https://doi.org/10.59584/jurnalpjkr.v2i1.62>
- Rosidin, R., Fauziah, GE, Sholeh, B., Hardianty, S., Meulaboh, Riyanti, A., Rahmah, S., & Imanirubiarko, S. (2024). Research Data Processing Using Applications. 5(4), 6194–6199. <https://doi.org/https://doi.org/10.31004/cdj.v5i4.31390>
- Salahuddin, M. (2021). The Effect of Footwork Training on Dropshot Strokes in Badminton. 01(02), 87–94.
- Saleh, A., Kahar, I., & Galugu, NS (2022). Smash Shot Accuracy in Badminton Athletes in Palopo City. Journal of Physical Health and Sports, 7 (November), 164–171. <https://doi.org/https://doi.org/10.36526/kejaora.v7i2.2207>
- Sholeh, M., Wildan, M., Afandi, N., & Asfuri, NB (2024). The Effect of Footwork and Shadow Training Methods on the Accuracy of Badminton Smashes in Extracurricular Badminton Boys at SMK Negeri 1 Randudongkal.

- 10(2), 232–242. <https://doi.org/https://doi.org/10.59672/jpkr.v10i2.3577>
- Udin, MCA, Priadana, BW, Aliriad, H., & Putri, WSK (2025). The effect of El Rondo drill and Triangle drill on the accuracy of short passing of young soccer players. *Football*, 5(1), 38–50. <https://doi.org/https://doi.org/10.33292/sepakbola.v5i1.356>
- Wengkau, IF, Wahyudi, W., & Rahman, A. (2023). Analysis of Wrist Flexibility in Dropshot Strokes in Athletes. 14(3), 17–28.
- Widhiyanti, KAT, Rusitayanti, NWA, Ariawati, NW, Palgunadi, IKA, Bagia, IM, & Artawan, IKS (2022). Shadow Shuttlecock Training to Improve Agility in Badminton Athletes. 8(2). <https://doi.org/10.5281/zenodo.6888685>
- Wismanadi, H., Kafrawi, FR, Pramono, M., Firman-syah, A., & Rusdiawan, A. (2020). Interval Training Ratio in Shadow Badminton Training for Power and Speed. 186–198. [https://doi.org/https://doi.org/10.25299/sportarea.2020.vol5\(2\).5019](https://doi.org/https://doi.org/10.25299/sportarea.2020.vol5(2).5019)
- Zaidan, AG, Pitriani, P., & Tafaqur, M. (2024). The Effect Of Shadow Training Using A Racket And Shadow Training Using A Shuttlecock On The Agility Improvement Of Athletes In Badminton. 20(1), 1–8. <https://doi.org/https://doi.org/10.21831/jorpres.v20i1.38956>.