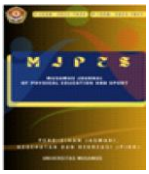
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Effects of Shadow Footwork Variations on Badminton Players' Agility at SMK PAB 8 Sampali

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Abstract
Objectives: This study aimed to determine the effect of Shadow Footwork training variations on improving the body agility of badminton player students at SMK PAB 8 Sampali and to determine the differences compared with Shuttle Run training.
Materials and Methods: This research employed a quantitative method with a quasi experimental approach and a Two Group Pretest Posttest Design. The research sample consisted of 28 students, divided into an experimental group of 14 students who received variations of Shadow Footwork training and a control group of 14 students who received Shuttle Run training.
Results: The results showed that the average agility test time in the experimental group decreased from 13.401 seconds in the pre test to 8.602 seconds in the post test, while the control group decreased from 12.916 seconds to 10.303 seconds. The hypothesis test resulted in a Sig. (2 tailed) value of 0.022 < 0.05, indicating that H_0 was rejected and H_a was accepted.
Conclusions: The results indicate that Shadow Footwork training has a positive and significant effect on improving the agility of badminton players at SMK PAB 8 Sampali, as demonstrated by the improvement in the experimental group's average time from 13.401 seconds in the pre test to 8.602 seconds in the post test. Furthermore, the Independent Samples t test showed a significant difference between the Shadow Footwork and Shuttle Run groups (Sig. 2 tailed = 0.022 < 0.05), indicating that Shadow Footwork training is more effective than Shuttle Run training in improving students' badminton agility.
Keywords: Shadow Footwork; Kelincahan Tubuh; Bulutangkis; Shuttle Run.

Introduction

Sports is a physical activity performed regularly and systematically with the aim of improving physical fitness, health, and individual achievement in a particular field. Badminton is one of the most popular sports in Indonesia and has become part of people's lives, both as a recreational activity and a competitive sport. Badminton requires not only basic technical skills, such as serving, strokes, and smashing, but also coordination between players' physical, technical, and mental abilities (Sindi & Adityatama, 2025).

Badminton is one of the learning materials taught at various educational levels, including vocational high schools (SMK). At SMK PAB 8 Sampali, badminton is considered not only a recreational activity but also a means of character development, physical improvement, and student achievement. However, observations of badminton students at SMK PAB 8 Sampali revealed several problems related to body agility, which affected their performance on the court.

In badminton, agility is essential for performing rapid movements, such as changing positions, chasing the shuttlecock, and executing effective offensive and defensive actions. Agility is a key factor in determining a badminton player's performance, particularly when facing opponents with high speed and effective playing strategies. Good agility enables players to anticipate opponents' attacks and maximize opportunities to score points (Sholeh, 2024).

Agility is an essential component of physical fitness in badminton because the sport requires players to move quickly, change direction suddenly, and adjust their body positions to reach the shuttlecock across different areas of the court. Good agility

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enables players to move efficiently, return the shuttlecock accurately, and maintain body balance during matches. Training variations are important in sports to prevent boredom, increase motivation, and optimize the development of players' physical and technical abilities. In badminton training, variations of shadow footwork exercises provide different stimuli to the leg muscles, improve movement coordination, and develop footwork patterns that correspond to actual playing situations. Through varied training methods, students are expected to become more motivated to practice, thereby significantly improving their agility.

Shadow footwork is a training method widely used in badminton athlete development to improve agility. It involves imitating badminton footwork movements without using a shuttlecock, allowing players to focus on footwork patterns and body positioning on the court. According to Kardani & Rustiawan (2020), shadow footwork training helps players improve basic footwork techniques, increase reaction speed, and strengthen the leg muscles that play an important role in court movement. Furthermore, this exercise can also improve players' physical endurance and concentration during matches.

However, practical training sessions still reveal problems regarding the effectiveness of footwork exercises in improving badminton students' agility. For example, shuttle run exercises are commonly used during physical training to improve agility, but their results have not been optimal in developing students' agility. The researcher also observed the implementation of 20 meter shuttle run exercises and identified several limitations, including restricted movement patterns that provide insufficient directional variation. The repetitive nature of these exercises also causes students to become bored and reduces their training motivation. Therefore, the researcher intends to improve badminton students' agility by implementing variations of shadow footwork exercises. This study will examine the effect of shadow footwork training variations on improving the agility of badminton students at SMK PAB 8 Sampali.

Based on preliminary observations conducted at SMK PAB 8 Sampali, most badminton students participating in agility training experienced difficulties in performing quick and accurate movements on the court. An initial T Test agility assessment (pre test) involving 20 students showed that the majority scored below the average, while only a few achieved the good category and none reached the very good category. These results were reflected in students' limited ability to change positions, slow reaction times on the court, and inadequate basic footwork skills. These problems are suspected to result from the lack of training variations, particularly in footwork exercises, which prevents students from developing their agility optimally (Limbong & Doni, 2021).

Previous studies have extensively discussed the importance of footwork training in improving badminton players' performance. However, a research gap remains regarding the application of specific shadow footwork training variations among vocational high school students. Most previous studies have focused on professional athletes or adolescent players in badminton clubs, meaning that their findings cannot be fully generalized to the educational context of vocational high schools. Furthermore, the variations of shadow footwork exercises used in previous studies remain limited. Therefore, further research is needed to examine the effect of shadow footwork training variations on improving the agility of badminton students in the school environment.

Materials and Methods

Study Design

This study employs a quantitative method with a quasi experimental approach, which aims to systematically examine the effect of a specific variable the treatment without achieving full experimental control. The research design is an extension of the one group pretest posttest experimental design; specifically, it utilizes a two group pretest posttest design. This involves two groups: an experimental group, which receives a treatment

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consisting of various shadow footwork exercises, and a control group, which does not receive any specific treatment.

Study Participants

The population for this study consists of students from class X TKJ 1 who participate in extracurricular activities at the school; there are 40 students in class X TKJ 1. The sample for this study comprises the 28 students who participate in the badminton extracurricular activity.

Study Organization

The instrument used in this study is an agility test, designed to measure the physical agility of student badminton players at SMK PAB 8 Sampali both before and after they undergo an intervention consisting of various shadow footwork drills. This instrument was selected because it aligns with the movement characteristics of badminton, which require rapid changes in direction, speed, and bodily coordination.

Statistical Analysis

The data in this study were analyzed using quantitative analysis techniques, employing a statistical approach. Data analysis was conducted to determine differences in agility outcomes before and after the intervention, for both the experimental and control groups. Statistics serve as a set of methods and procedures used for processing, interpreting, and drawing conclusions from research data.

Results

The control group in this study consists of students participating in badminton extracurricular activities who receive the training regimen currently implemented by their coach specifically, shuttle run exercises. They continue with this conventional training program, serving as a point of comparison against the experimental group. Prior to the implementation of the training program, all students in the control group undergo an initial assessment (pre test) using an agility test instrument to determine their baseline level of physical agility. This pre test is conducted to establish an overview of the students' initial agility, which can then be compared with the results obtained after the training program is completed. The pre test data for the control group are presented in Table 1 below.

Table 1. Pre Test Data on Physical Agility for the Control Group

Description of Pre Test Data for the Control Group	
Sample Size	14
Fastest Value	9.42
Slowest Value	16.09
Average	12.916

Based on Table 1 above, the pre test measurements for the control group consisting of 14 students participating in the badminton extracurricular program provide baseline data on physical agility prior to the implementation of the Shuttle Run training intervention. The measurements were conducted using an Agility Test instrument to assess the initial level of physical agility for each student. Descriptive analysis indicates that the control group comprised 14 individuals, with the fastest time recorded at 9.42 seconds, the slowest at 16.09 seconds, and a mean value of 12.916 seconds. This mean value reflects the baseline physical agility of the students in the control group, who were following the existing training program the Shuttle Run already in use by their instructor. The disparity between the fastest and slowest times suggests that the students' physical agility levels remain quite varied and can be considered relatively low or slow.

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The control group continued to receive the evaluated Shuttle Run training program to improve students' badminton agility. After completing the training, students underwent a post test using the same agility test instrument as the pre test. The control group's post test results are presented in Table 2 below:

Table 2. Post Test Data on Body Agility for the Control Group

Description of Post Test Data for the Control Group	
Sample Size	14
Fastest Value	6.58
Slowest Value	13.45
Average	10.303

Based on the descriptive analysis results in Table 2, the research sample for the control group consisted of 14 students. The measurements show a fastest time of 6.58 seconds, a slowest time of 13.45 seconds, and an average time of 10.303 seconds. When compared to the pre test results which had an average of 12.916 seconds there is a reduction in the average completion time of 2.613 seconds. This decrease in time indicates that the Shuttle Run training has an effect on improving the students' physical agility; in an agility test, a shorter time required to complete the test signifies a higher level of physical agility.
The experimental group consisted of students participating in the badminton extracurricular program who received the conventional training method applied by the coach, namely Shuttle Run training. All students completed an initial test (pre test) using the Agility Test instrument to measure their agility before the treatment. This pre test aimed to identify the students' initial agility levels and provide baseline data for comparison with post test results after the training program. The experimental group's pre test results are presented in Table 3 below.

Table 3. Pre Test Data on Body Agility for the Experimental Group

Description of Experimental Pre Test Data	
Sample Size	14
Fastest Value	8.91
Slowest Value	18.36
Average	13.401

Based on the descriptive analysis results in Table 3, the research sample consisted of 14 students, with the fastest time recorded at 8.91 seconds, the slowest at 18.36 seconds, and an average time of 13.401 seconds. These results indicate that the students' initial level of physical agility in the experimental group varied; therefore, this pre test data serves as a baseline for comparing changes in physical agility following the implementation of an intervention involving various shadow footwork exercises.
In this study, students in the experimental group underwent Shadow Footwork training a type of exercise they had already been introduced to during the pre test phase. It is expected that the Shadow Footwork training provided to the experimental group will have a positive and significant impact on improving the physical agility of the students (badminton players). The post test data for this study are presented in Table 4 below.

Table 4. Post Test Data on Physical Agility for the Experimental Group

Description of Experimental Post Test Data	
Sample Size	14
Fastest Value	6.04

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Slowest Value	10.53
Average	8.602

Based on the descriptive analysis results in Table 4, the study sample consisted of 14 students, with a fastest time of 6.04 seconds, a slowest time of 10.53 seconds, and an average time of 8.602 seconds. When compared to the pre test results which had an average of 13.401 seconds there was a reduction in the average time of 4.799 seconds. This decrease in completion time indicates an improvement in the students' physical agility; a shorter time required to complete the Agility Test signifies a higher level of physical agility.

These results indicate that the implementation of various shadow footwork drills has a positive impact on improving students' physical agility. In addition to enhancing the speed at which they can change direction, these drills also develop coordination, balance, step speed, and movement responsiveness all of which are essential for the game of badminton. Consequently, the physical agility of the students in the experimental group showed improvement following the intervention provided throughout the study.

Discussion

The results showed that Shadow Footwork training variations improved the agility of badminton players at SMK PAB 8 Sampali. This was demonstrated by the comparison between the experimental group's pre test and post test results. Before treatment, the group's mean pre test time was 13.401 seconds, with most students classified in the moderate category. After participating in Shadow Footwork training, the mean post test time decreased to 8.602 seconds, accompanied by an improvement in performance categories, with most students classified as good and very good. These findings indicate that Shadow Footwork training can effectively improve students' physical agility.

Before hypothesis testing, the data were examined using normality and homogeneity tests. The Shapiro Wilk normality test showed that all pre test and post test data from both groups had significance values greater than 0.05, indicating a normal distribution. Furthermore, Levene's Test showed significance values greater than 0.05, indicating homogeneous variances between the two groups. Therefore, the data met the assumptions for hypothesis testing using the Independent Samples t test.

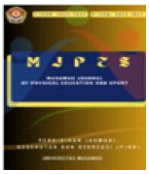
The hypothesis testing results showed a Sig. (2 tailed) value of 0.022, which was lower than 0.05; therefore, H_0 was rejected and H_a was accepted. It can be concluded that Shadow Footwork training has a positive and significant effect on improving the agility of badminton players at SMK PAB 8 Sampali. These findings are consistent with the research conducted by Muthiarani, Lismadiana, and Yuniana (2021), which reported that Shadow Footwork training effectively improves badminton players' agility. Therefore, Shadow Footwork training variations can be used as an effective training method to improve agility in badminton extracurricular activities.

Conclusions

The results indicate that Shadow Footwork training has a positive and significant effect on improving the agility of badminton players at SMK PAB 8 Sampali, as demonstrated by the improvement in the experimental group's average time from 13.401 seconds in the pre test to 8.602 seconds in the post test. Furthermore, the Independent Samples t test showed a significant difference between the Shadow Footwork and Shuttle Run groups (Sig. 2 tailed = 0.022 < 0.05), indicating that Shadow Footwork training is more effective than Shuttle Run training in improving students' badminton agility.

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Conflict of Interest

The authors declare no conflict of interest.

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References

Achmad, R., Domi, B., & Sumbara, H. (2020). Perbandingan Latihan Footwork Dan Shadow Terhadap Kelincahan Atlet Tim Bulutangkis Pb. Setia Putra. Jurnal Kejaora (Kesehatan Jasmani Dan Olahraga), 5(1), 25–31.

Alfarizi, I. (2022). Pengaruh Latihan Ladder Drill Terhadap Kelincahan Atlet Bulutangkis Putra Usia 12 14 Tahun PB. Pratama Kota Sungai Penuh. Universitas Jambi.

Amri, A., Rambe, R. M., & Fadhillah, S. A. (2024). Upaya Meningkatkan Pemahaman Siswa Tentang Olahraga Prestasi, Kebugaran, Kesehatan, dan Rekreasi melalui Metode Pembelajaran Partisipatif di Kelas X SMA Rantau Prapat. Pendalas: Jurnal Penelitian Tindakan Kelas Dan Pengabdian Masyarakat, 4(2), 117 130

ancie, V. K., Pandra, V., & Febrianti, Y. (2024). Penerapan latihan shadow footwork untuk meningkatkan kelincahan (agility) pada atlet bulutangkis putra PB Buana Sakti pada usia anak anak. Silampari Journal Sport, 4(2). https://doi.org/10.55526/sjs.v4i2.748

Arnando, M., Syafruddin, A. O., Sasmitha, W., Saputra, M., Sepriadi, Z., Amra, F., ... & Ahmed, M. (2024). Pengaruh latihan Agility terhadap kemampuan atlet bulutangkis. International Journal of Human Movement and Sports Sciences, 12(2), 356.

Assegaf, A., Wismanadi, H., Wahyudi, H., Pudjijuniarto, & Rusdiawan, A. (2025). Pengaruh Pelatihan Shadow Terhadap Peningkatan Kelincahan Pada Atlet Bulutangkis. Jurnal Kejaora (Kesehatan Jasmani Dan Olahraga), 10(2), 251–256.

Assegaf, A., Wismanadi, H., Wahyudi, H., Pudjijuniarto, & Rusdiawan, A. (2025). Pengaruh pelatihan shadow terhadap peningkatan kelincahan pada atlet bulutangkis. Jurnal Kejaora (Kesehatan Jasmani dan Olah Raga), 10(2). https://doi.org/10.36526/kejaora.v10i2.4179

Bafirman, B., Wahyuri, A. S., Sahri, J., & Ihsan, N. (2020). Implementation Analysis of Digitally Pencak Silat Agility Instrument. Eksakta: Berkala Ilmiah Bidang MIPA (E ISSN: 2549 7464), 21(2), 139 14

Byan, B. B., Sapto, A., & Ardhiyanti, P. R. (2024). Pengaruh Latihan Shadow Terhadap Kelincahan Footwork Siswa Ekstrakulikuler Bulutangkis Sekolah Menengah Atas Katolik ST. Albertus Malang. Bersatu: Jurnal Pendidikan Bhinneka Tunggal Ika, 2(2), 160–171.

Gunawan, R., Subarjah, H., & Sudirjo, E. (2020). Perbandingan antara metode latihan shadow dan permainan sentuh warna terhadap keterampilan footwork bulutangkis. Journal SPORTIVE, 2(1), 1–10.

Haifa, N. M., Nabilla, I., Rahmatika, V., & Hidayatullah, R. (2025). Identifikasi Variabel Penelitian , Jenis Sumber Data dalam Penelitian Pendidikan. : Jurnal Pendidikan Dan Bahasa, 2(2), 256–270.

Harefa, D. (2020). Pengaruh Antara Motivasi Kerja Guru IPA dan Disiplin Dengan Prestasi Kerja. Aksara: Jurnal Ilmu Pendidikan Nonformal, 6(3), 225.

Herdiman, D. C., Lubis, J., & Yusmawati, Y. (2022). Model Latihan Kelincahan Tendangan Sabit Pencak Silat Menggunakan Alat Bantu Ladder Drill. Journal of Speed (Sport, Physical Education, Empowerment), 5(2), 121–126.

Ihsan, F. (2023). Pengaruh Latihan Shadow dan Daya Tahan Otot Terhadap Kelincahan Atlet Bulutangkis [Universitas Yogyakarta]. In Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis.

Kardani, G., & Rustiawan, H. (2020). Perbandingan Hasil Latihan Lari Shuttle Run Dengan Latihan Shadow Terhadap Kelincahan Footwork Pada Cabang Olahraga Bulutangkis. Jurnal Keolahragaan, 6(2), 105.

Kuantitatif, P. P. (2016). Metode penelitian kunatitatif kualitatif dan R&D. Alfabeta, Bandung.

Limbong, M., & Doni, D. (2021). Pengaruh Latihan Dengan Lampu Reaksi Dan Shuttlerun Terhadap Kelincahan Gerak Kaki (Footwork) Pada Peserta Bulutangkis PB. Tj Prestasi Tebo. Indonesian Journal of Sport Science and Coaching, 3(2), 68–74.

Maksum, Ali. (2012). Metodologi Penelitian dalam Olahraga. Surabaya: UNESA

Maulana, H. (2023). Pengaruh Latihan Skepping Terhadap Hasil Smash Pada Atlet Bulutangkis PB Lauser Aceh Tengah. Universitas Bina Bangsa Getsempena Banda Aceh.

Pradinata, F. (2022). Kemampuan Pukulan Netting pada Atlet Bulutangkis PB Juanda Sport Center Kota Sungai Penuh. Universitas Jambi.

Prasetya, R. A., Subekti, A. A., Widianto, B. K., Prasetyo, K., & Sutrisno, T. (2025). Efektivitas Model Latihan untuk Meningkatkan Penguasaan Teknik Pukulan Backhand Drive untuk Atlet Bulutangkis. JSH: Journal of Sport and Health, 6(2), 65 72

Pratama, Y. 2019. Pengaruh Bentuk Bentuk Latihan Kelincahan Terhadap Kemampuan Footwork Atlet Bulutangkis Pb. Nada Junior Kerinci. Encyclopedia of Journal, 1(3), 267 271.

Putra, A. Y., & Lubis, M. H. (2024). Pengaruh Metode Latihan Footwork Dan Shadow Terhadap Kelincahan Pemain Bulutangkis. Jurnal Pendidikan Jasmani, Kesehatan, Dan Rekreasi, 02(01), 9–24.

Ramadani, N. M. (2024). Pengaruh Metode Service Challenge Drill terhadap Peningkatan Hasil Long Service Bulutangkis pada Ekstrakurikuler MAN 2 Kota Jambi. In Edu Research Indonesian Institute For Corporate Learning And Studies (IICLS) (Vol. 5, Issue 1). Universitas Jambi.

Setiawan, M. Y., Erliana, M., & Hamid, A. (2024). Pengaruh latihan menggunakan metode variasi shadow drill terhadap kelincahan footwork bulutangkis untuk atlet usia 9–12 tahun di PB Daun Muda Banjarbaru. Jurnal Pedagogik Olahraga, 10(2). https://doi.org/10.24114/jpor.v10i2.57985

Sholeh, M., Afandi, M. W. N., & Asfuri, N. B. (2024). Pengaruh Metode Latihan Footwork dan Shadow terhadap Ketepatan Smash Bulu Tangkis pada Siswa Ekstrakurikuler Bulu Tangkis Putra di SMK Negeri 1 Randudongkal. Jurnal Pendidikan Kesehatan Rekreasi, 10(2), 232–242.

Sianturi, R. (2025). Uji normalitas sebagai syarat pengujian hipotesis. Jurnal Pembelajaran dan Matematika Sigma (JPMS), 11(1), 1 14.

Sindi, R., & Adityatama, F. (2025). Pengaruh Latihan Shuttle Run dan Shadow Terhadap Kelincahan Footwork dalam Cabang Olahraga Bulutangkis. Jurnal Pendidikan Jasmani Kesehatan Dan Rekreasi (Penjaskesrek), 12(2), 11–21.

Sumroti, N. A. (2021). Kondisi Fisik Olahraga Bulutangkis Physical Condition of Badminton Sports. Jurnal Ilmiah Sport Coaching and Education, 5(1), 47–54.

Vitho, K. T., Viktor, P., & Yuli, F. (2024). Penerapan Latihan Shadow Footwork Untuk Meningkatkan Kelincahan (Agility) Pada Atlet Bulutangkis Putra Pb Buana Sakti Pada Usia Anak Anak. SJS: Silampari Journal Sport, 4(2), 78–93.

Warni, H., Arifin, R., & Bastian, R. A. (2017). Pengaruh Latihan Daya Tahan (Endurance) Terhadap Peningkatan Vo2Max Pemain Sepak Bola. Multilateral Jurnal Pendidikan Jasmani Dan Olahraga, 16(2), 121–126.

Yuda, M. T. (2023). Pengaruh Latihan Imagery dan Drill terhadap Ketepatan Jumping Smash Putra pada Atlet Persatuan Bulutangkis Prakarsa Kota Jambi [Universitas Jambi]. In Acta Universitatis Agriculturae et Silviculturae Mendelianae (Vol.53, Issue 1).