



The Effect of Right-Left Smash Drill Training Patterns on Smash Direction Accuracy in Badminton Athletes Aged 10-12 Years

Mochammad Dhiva Satria Elwanda^{1✉}, Anggi Setia Lengkana^{2✉}, Encep Sudirjo³

Program Studi Pendidikan Jasmani. Universitas Pendidikan Indonesia, Bandung, Indonesia¹²³

History Article

Received April 2026

Approved April 2026

Published vol 13 no 1 2026

Keywords

Badminton;

Smash Drill;

Smash Accuracy

Abstract

The precise direction of a smash is an essential ability in badminton that must be cultivated from a young age. Nonetheless, numerous athletes aged 10 to 12 continue to experience difficulties with precise smash direction. Consequently, right-left smash workouts are essential for enhancing this skill. This study seeks to ascertain the baseline accuracy of athletes' smash direction abilities prior to the implementation of training interventions, hence establishing the fundamental skill level of the athletes. This study employs a quantitative technique utilising a pre-experimental design, especially a one-group pretest-posttest framework, to examine the effect of right-left smash training on smash direction accuracy in PB Sampoerna badminton competitors aged 10 to 12 years. The training occurred at PB. Sampoerna event in the North Sumedang District, Sumedang Regency, includes 20 participants aged 10 to 12 years, who were selected as research participants through a saturated sampling method. The research procedure includes initial measurements (pretest), providing treatment in the form of right-left smash. The results of the normality test show that the significance value (p-value) of the pretest data is 0.055, while the significance value of the posttest data is 0.569. Both significance scores exceed 0.05 ($p > 0.05$), indicating that the pretest and posttest data are regularly distributed. The statistical analysis of the paired sample t-test yielded a significance value (Sig. 2-tailed) of 0.000. This value is less than the designated significance level ($\alpha = 0.05$). This indicates that the right-left smash drill training pattern has a significant effect. Systematic and repetitive practice has demonstrated enhancements in motor coordination, shot consistency, and shuttlecock directional control, leading to increased accuracy in smashes for athletes. The right-left smash training pattern is a useful technique for enhancing smash skills, especially directional precision, in young athletes.

How to Cite

Elwanda, M. D. S., Lengkana, A. S., & Sudirjo, E. (2026). The Effect of Right-Left Smash Drill Training Patterns on Smash Direction Accuracy in Badminton Athletes Aged 10-12 Years. *Journal of Physical Education, Health and Sport*, 13 (1), 427-433.

✉ Correspondence Author:

E-mail: dipaelwanda10@upi.edu

asetialengkana@upi.edu

© 2026 Universitas Negeri Semarang

p-ISSN 2354-7901

e-ISSN 2354-8231

INTRODUCTION

Sport is a physical activity that not only aims to maintain health but also significantly improves quality of life. Consistent exercise improves fitness, increases endurance, and reduces the risk of disease. Furthermore, sport provides significant social and psychological benefits. Socially, sport also offers significant advantages. Participating in sports activities, especially in groups or teams, can strengthen social relationships and improve communication and cooperation skills between individuals (Rahman, 2023). Indonesia's badminton achievements on the international stage are impressive, with many athletes bringing home medals from prestigious championships. The government and sports associations prioritize sports, one of which is badminton (Simandjuntak et al., 2024). Badminton is a sport that uses a racket and shuttlecock. This game is played by two people (singles) or two teams of two people (doubles). These basic techniques include grip (racket grip), stance (body position), footwork (movement patterns), and several important strokes including serve, clear, drop shot, drive, and smash (Irsan Kahar et al., 2022).

One of the most frequently used basic techniques and a weapon is the smash. This technique is characterized by a powerful shot delivered by hitting the shuttlecock from an overhead position at a sharp angle, sending the shuttlecock flying quickly toward the opponent and making it difficult to return. Smashes play a strategic role in the game, as they not only score points but also create pressure on the opponent (Maulana & Pranata, 2023)). By executing an effective smash, players can manipulate the dynamics of the game, forcing opponents to adopt a more defensive position. A player needs physical strength, especially in the arm and back muscles, to execute an effective smash. Arm muscle strength and hand-eye coordination significantly improve smash accuracy in badminton (Digantara et al., 2020). A key component of most sports and games, balance is a basic skill needed in daily activities like walking and running (Sudirjo et al., 2019).

Drills are crucial in developing a player's skills, especially for those just starting out or for young athletes seeking to improve their basic techniques (Irsan Kahar et al., 2022). Drills are considered an effective method for practicing both basic and advanced techniques because they emphasize repetition of movements. The effect of training patterns with the drill method and showing that this combination is positive

on smash accuracy, provides a strong argument for the use of this method in developing athlete abilities (Hasby Baihaqi & Husnul Hadi, 2022). For example, in smash drills, players practice hitting the shuttlecock towards a specific target repeatedly. The effect of training on performance, and although focused on tennis, the results can be applied generally in a sports context (Irjaba et al., 2022). There is a significant correlation between arm muscle strength and smash accuracy, which means that strong muscles can generate greater power to hit the shuttlecock (Setiawan et al., 2020). Thus, drill training not only develops technical skills but also supports prime physical condition. The discipline built in drill training is essential for achieving individual and team goals (Astutik & Aziz, 2023).

Based on observations at PB Sampoerna Sumedang, some athletes still experience difficulty directing smashes accurately, both to the right and left sides of the opponent's court. This indicates that smash direction accuracy still needs to be improved through more structured and specific training. Furthermore, current training methods tend to lack variety and do not fully emphasize directional accuracy. With the right-left smash drill, it is hoped that athletes will become accustomed to alternating smashes in different directions, thereby improving control, coordination, and accuracy. This training can also help athletes read game situations and determine effective attack directions. The urgency is also driven by contemporary evidence that sports diversification at an early age can improve motor skills and neuromuscular control, and reduce injury risk factors related to repeated repetition of the same movements in a highly structured and results-oriented sports environment (Komotska & Sushko, 2022).

Previous research has shown that drill-based training methods have a significant impact on improving smash direction accuracy in badminton. Research by (Wiratama, 2017). examined the effect of drill training methods on smash accuracy of badminton athletes aged 10–12 years in Yogyakarta, with results showing a significant increase of 61.02% after repeated training treatment ($p < 0.05$). In addition, (Ramadhan, 2024), Examined the relationship of physical components such as muscle strength and coordination to smash accuracy and found that eye-hand coordination and muscle strength had a significant relationship to smash accuracy. Research by (Fahmi, 2024) using a literature study approach concluded that the drill training method is effective in improving basic badminton

techniques including smashes through systematic repetition of movements. Furthermore, (Aditya Dwi Candra, 2024). Showed that drilling smash training for several weeks effectively increases smash accuracy through systematic technique repetition.

The research problem is how the right-left smash drill training pattern affects the accuracy of smash direction in badminton athletes from PB Sampoerna Sumedang aged 10–12 years. This includes whether there is a significant effect of the right-left smash drill training pattern on the accuracy of smash direction in badminton athletes from PB Sampoerna Sumedang aged 10–12 years, and how much improvement in smash direction accuracy results after being given this training treatment.

The purpose of this study was to analyze the effect of right-left smash drills on smash direction accuracy in badminton athletes aged 10–12 years at PB Sampoerna Sumedang. This study also aimed to determine the athletes' initial abilities and assess the accuracy of smash direction after structured training. The results are expected to demonstrate the effectiveness of this training method and serve as a reference for coaches in developing more effective training programs. Based on the results of previous research showing that drill-based training methods and physical factors such as coordination and muscle strength influence smash accuracy, it can be formulated a hypothesis that the application of the right-left smash drill training pattern is thought to have a significant effect on increasing the accuracy of the smash direction in badminton athletes aged 10–12 years. Repeated and systematic training is thought to be able to improve motor coordination and shot control, so that the accuracy of the smash in the desired direction is better.

This study offers novelty in the study of badminton training, specifically on improving smash accuracy through a structured and systematic right-left smash drill pattern for young athletes (10–12 years old). Unlike previous research, which generally focused only on increasing smash power or speed, this study emphasizes a combination of right-left bilateral training to simultaneously develop coordination, balance, and accuracy. Furthermore, this study also examines the effectiveness of specific training methods for the basic coaching age group at PB Sampoerna Sumedang, a practice rarely studied in depth. Therefore, the results of this study are expected to provide a new contribution in the form of a more effective training model for improving smash accuracy and serve as a reference for

coaches in developing training programs based on the age and needs of athletes.

METHOD

This study used a quantitative methodology with a pre-experimental design, specifically a one-group pretest-posttest framework, to investigate the impact of right-left smash training on smash direction accuracy among PB Sampoerna badminton athletes aged 10 to 12 years. The training was conducted at the Sampoerna Sports Center in North Sumedang District, Sumedang Regency, involving 20 players aged 10 to 12 years, only male, who were selected as research participants through a saturated sampling method. Data collection. The research procedure included an initial measurement (pretest), treatment in the form of right-left smash drill training carried out in a structured manner for ± 3 weeks with a frequency of 3 times per week, and a final measurement (posttest) using the same instrument. The data obtained were analyzed statistically through normality and homogeneity assumption tests, followed by a paired sample t-test if the data were normally distributed and homogeneous, or a Mann-Whitney test if the assumptions were violated. It was analyzed using SPSS version 26 software to ensure significant differences in the level of directional impact before and after the implementation.

This study used a badminton smash precision measurement test for data collection. by (Saleh Anasir, 2010) in (Bundala, 2024) with a validity of 0.926, in accordance with the requirements of the round robin tournament, and a reliability of 0.90 from the test-retest method. The protocol for conducting the badminton smash precision assessment is described as follows:

- Before the test, players are given an explanation and examples of the test, which will consist of two straight smashes on the right and left sides. Each time the testee performs a smash, the official will record the results according to whether the shuttlecock lands in the designated target.
- The testee positions themselves in the designated position.
- The testee smashes after being served a forehand by the tester.
- After receiving the pass, the testee smashes. The smash targets are placed to the right and left of the opponent's center position, with different scoring rules.
- Smashes that land in the target area above the back line of the long service line for singles

are considered a point. Meanwhile, for shots that land outside the target area and outside the court without reaching an opponent, the following are determined.

1. If the shuttlecock lands on the sideline for singles, 1.98 m from the net with a width of 35 cm, it is scored 1.
 2. If the shuttlecock lands on the right or left service court of the opponent's court, 1.32 m from the short service line, it is scored 2.
 3. If the shuttlecock lands on the right or left service court of the opponent's court, 1.32 to 2.64 m away, it is scored 3.
 4. If the shuttlecock lands on the right or left service court of the opponent's court, 2.64 to 3.96 m away, it is scored 4.
 5. If the shuttlecock lands on the long service line for singles, it is scored 5.
 6. If the shuttlecock lands on the line between two smash targets, the highest score is taken.
 7. If the tester delivers a pass, but the testee does not hit the shuttlecock, the testee is considered to have hit the shuttlecock and receives a score of 0. If the tester delivers a bad shuttlecock pass, the testee is allowed to refuse to hit the shuttlecock and the pass can be repeated.
 8. The testee can try 20 times.
- f. an score. The scoring criteria are if the shuttlecock enters the court area.

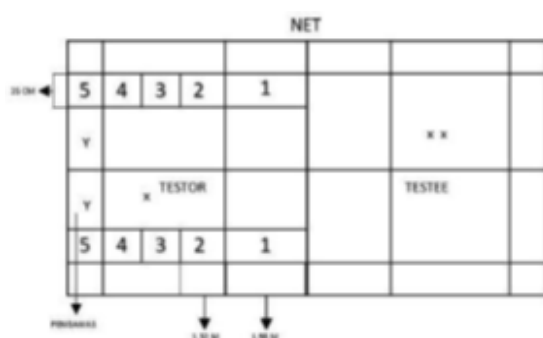


Figure 1. Smash Directional Accuracy Test 1

RESULTS AND DISCUSSION

Based on the study findings and data analysis, the Right-Left Smash Training Method affects the accuracy of smash direction in badminton. Athletes aged 10-12 years from Sampoerna Sumedang are at the basic motor development stage aimed at developing specific movement abilities in badminton. Pre-test findings showed variability in respondents' right-left smash abilities, with a minimum score of 39 and a maximum

score of 77. After therapy, post-test results showed a significant improvement, with a minimum score of 65 and a maximum score of 89. Overall, all participants showed an increase in scores from pre-test to post-test, indicating a positive impact of the treatment on smash accuracy. The results of the drill method training improvement and the increase in smash speed were obtained from the Pre-test and Post-test results after a 3-week treatment period, consisting of 4 sessions per week with a 1-day interval, making a total of 12 training sessions.

Table 1. Results of Descriptive Statistical Analysis of Pre-Test

Statistics	Mark
Mean	53.30
Median	51.50
Modus	51
Standar Deviation	8.163
Minimum	39
Maksimum	77

Based on **Table 1**, Overall, the descriptive data analysis from the pretest yielded a mean score of 53.30, indicating that individuals' initial abilities were generally categorized as moderate. The median score of 51.50 indicates that half of the participants scored below this number, while the other half scored above it. The mean score of 51 indicates that a score of 51 was the most frequent. The standard deviation of 8.163 indicates considerable variability in the distribution of the data, indicating substantial differences in aptitude among individuals. The minimum recorded score was 39, while the maximum achieved score was 77, indicating a substantial spread of scores among participants with varying aptitudes. The pretest results indicate that individuals' initial abilities were inconsistent and generally moderate, thus requiring treatment or training to improve learning outcomes or skills.

Table 2. Results of Descriptive Statistical Analysis of Post-Test

Statistics	Mark
Mean	74.65
Median	74.50
Modus	66
Standar Deviation	6.862
Minimum	65
Maksimum	89

Based on **Table 2**, the results of the desc-

riptive statistical analysis of the post-test obtained an average value (mean) of 74.65, indicating that in general the participants' abilities after being given treatment increased and were in the good category. The median value of 74.50 indicates that most participants had relatively even scores around that number. The mode value of 66 indicates that the most frequently occurring score was 66, although overall the participants' scores tended to be higher. The standard deviation of 6.862 indicates that the data distribution was smaller than the pre-test, meaning that the participants' abilities became more homogeneous or even after the treatment was given. The minimum value of 65 and the maximum value of 89 indicate an increase in the range of scores towards a higher level compared to the pre-test results. Overall, the results of this post-test illustrate a significant increase in participants' abilities and a more even distribution of scores after being given training or treatment.

Table 3. Normality Test Results (Shapiro Wilk)

Data	Sig (p-value)	Conclusion
Pretest	0,055	Normal
Posttest	0,569	Normal

Based on **Table 3**, The outcomes of the normalcy assessment. Prior to doing hypothesis testing, the data were initially assessed for normality to ascertain compliance with the assumptions of the parametric test. The normality assessment in this study employed the Shapiro–Wilk test due to the responder count being fewer than 50 individuals. The normality test results indicated a significant value (p-value) of 0.055 for the pretest data and 0.569 for the posttest data. Both significance levels above 0.05 ($p > 0.05$), indicating that the pretest and posttest data were regularly distributed. The assumption of data normality has been satisfied, hence fulfilling the prerequisites for employing parametric testing. Consequently, subsequent analysis will proceed with a paired sample t-test to assess the impact of right-left smash drill training on the accuracy of smash direction.

Table 4. Test Results Paired Sample T Test

	T	Sig (2-tailed)
pretest & posttest	16,368	0,000

Based on **Table 4**, The hypothesis testing results in this study were obtained by a paired sample t-test, after the confirmation of normal distribution of the pretest and posttest data via the

Shapiro–Wilk normality test. The paired sample t-test is employed to assess the difference in the average long pass proficiency of participants before and after undergoing calf raises training during eight sessions. The statistical analysis yielded a significance value (Sig. 2-tailed) of 0.000. The value is less than the designated significance level ($\alpha = 0.05$), hence the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) is accepted. Consequently, it can be inferred that a substantial disparity exists between the pretest and posttest outcomes of long pass proficiency following calf raises training. The right-left smash drill training pattern significantly impacts the accuracy of the right-left smash direction in PB Sampoerna badminton competitors aged 10 to 12 years.

Research findings indicate that the use of a right-left smash training pattern significantly improved the smash direction accuracy of badminton players aged 10 to 12 years. The athletes' ability to direct smashes more precisely improved as a result of this training, as evidenced by the increase in the average score of the posttest results compared to the pretest. The training method's emphasis on continuous and structured movements is responsible for this improvement. Research shows that regular bidirectional training improves the technical ability of the shot, but the training design (progression, variation, feedback) and the relevant sport context influence its effectiveness (Syarifudin et al., 2023). Right-left smash drills help athletes get used to hitting in two different directions. They do this by automating the right and left hitting motion through repeated, structured practice. This allows athletes to quickly adjust the direction of their shots based on the demands of the game (Mircea-dan et al., 2020). Therefore, athletes can improve their basic smash methods through repeated practice, especially in terms of adjusting the angle and trajectory of the shot.

The success of this training is also influenced by the athlete's age, which is between 10 and 12 years old. Children's motor skills are well developed at this age, making it easier for them to adopt and learn new skills through practice. Because the motor development period from early childhood to pre-puberty tends to show high neuromuscular plasticity, namely the ability to learn motor skills through structured and adaptive responses to progressively calibrated and repetitive training programs, the athlete age range of 10 to 12 years supports the success of drill training (Nurhayati et al., 2023). Drilling is a learning method that focuses on repeatedly teaching

specific motor skills until they become automatic. Literature describing drills as a method of repeated, organized, and sustained practice to build practical skills aligns with this concept (Lestari & Pakuan, 2023). Regular practice is considered a systematic strategy that allows the development of technical skills through focused concentration, and also helps improve motor memory (muscle memory).

The findings of this study are consistent with other research that has found that a repetitive practice approach is beneficial for improving smash accuracy. By reinforcing repetitive movement patterns centered on accuracy targets, repetitive practice is considered a powerful strategy for developing consistent motor skills in smashing (Endrawan et al., 2024). Systematic and repeated practice improves shot accuracy, as athletes can efficiently correct errors with each repetition. Furthermore, smash accuracy is influenced by hand-eye coordination, racket position, body support, and synchronized upper and lower body movements at the moment of impact with the shuttlecock (Juni et al., 2023).

As a solution, various techniques can be used to improve smashing ability during training. One example is the right-left smash drill. One method widely used in badminton training is the drill method. The drill method significantly improves smash accuracy in young badminton athletes, with an average increase of 61% after 16 training sessions (Pradanata et al., 2024). The training focuses on methodical repetition of movements. A characteristic of this method is the continuous repetition of the same movement. Therefore, it can be concluded that training is a practice that is carried out repeatedly or continuously to acquire practical skills and dexterity related to the knowledge that has been learned. (Irawan et al., 2020). On the other hand, smash training prioritizes mastery of various hitting techniques, speed control, and concentration on the shuttlecock's trajectory.

Based on the study's findings, the authors present the following recommendations. Badminton instructors are encouraged to adopt a systematic and sustained right-left smash training pattern to improve athletes' smash accuracy, especially during the early stages of development. Coaches should also adjust the intensity and variety of training according to the athlete's skill level to achieve optimal results. Athletes are encouraged to maintain disciplined and consistent training while focusing on proper fundamental techniques to optimize improvements in smash accuracy.

Future researchers should complement

this study by using a larger sample size, extending the training period, and incorporating additional variables such as muscle strength, coordination, and speed to achieve more comprehensive results. Furthermore, future research could investigate alternative training methodologies that can be compared with this training approach to assess their overall effectiveness in improving smashing ability among badminton athletes.

CONCLUSION

The study's findings indicate that the right-left smash drill training pattern greatly increased the smash accuracy of badminton players at PB Sampoerna Sumedang who were between the ages of 10 and 12. The improvement in athletes' skills following rigorous training in comparison to their baseline levels serves as evidence of this.

It has been demonstrated that systematic and frequent drill training enhances athletes' balance, coordination, and shot control, which improves smash accuracy to the left and right. As a result, the study's goal of identifying participants' starting skills and enhancing smash accuracy following training was accomplished.

Additionally, this study shows how innovative it is to use right-left bilateral drills, which highlight the balanced development of both sides of the body. This method improves simultaneous motor coordination and shot accuracy in addition to strength, especially in young athletes who are still in the basic developmental stage. The study's findings also support earlier research showing that drill training techniques are useful for enhancing fundamental badminton technical abilities, especially smashing. Consequently, a different, efficient, focused, and useful training paradigm for increasing smash accuracy is the right-left smash drill.

Additionally, this training's success shows how important it is to provide a structured, consistent, and age-appropriate training program for skill development. Athletes may perform better in games if they receive training that focuses on repeating the right movements. As a result, the right-left smash drill can be suggested as a useful training method for enhancing fundamental smash skills and promoting the continuous improvement of athlete performance.

REFERENCES

- Aditya Dwi Candra. (2024). 1, 2, 3, 4. 7(Ii), 361–369.
- Astutik, F. A. F., & Aziz, R. (2023). Strategi Pengembangan Karakter Peduli Sosial Melalui Aktivitas Kelas Pada Siswa Tingkat Sekolah Menen-

- gah Pertama. Research and Development Journal of Education, 9(2), 852. <https://doi.org/10.30998/rdje.v9i2.16152>
- Bundala, T. (2024). Tinjauan Ketepatan Pukulan Smash Dalam Permainan Bulutangkis Pemain Pb Koto Periang Kecamatan Kayu Aro Kabupaten Kerinci. 5, 348–360.
- Digantara, T., Ngadiman, N., Festiawan, R., Kusuma, I. J., & Wahono, B. S. (2020). Korelasi Power Otot Tungkai, Kekuatan Otot Lengan, dan Koordinasi Mata-Tangan terhadap Ketepatan Smash Bulutangkis. Media Ilmu Keolahragaan Indonesia, 10(2), 46–52. <https://doi.org/10.15294/miki.v10i2.27334>
- Endrawan, I. B., Sukmawati, N., Fikri, A., & Wardana, M. (2024). Badminton smashing punch training method Junior high school Athletes Eternal Badminton Association. 12(1), 106–114.
- Fahmi, M. N. (2024). Peningkatan Teknik Servis Pendek, Servis Panjang Dan Smash Dalam Bulu Tangkis Melalui Metode Latihan Drill : Suatu Studi Literatur Permainan Bulu Tangkis. 9(1), 136–142.
- Hasby Baihaqi, & Husnul Hadi. (2022). Efektivitas Metode Latihan Drill Dan Pola Pukulan Terhadap Ketepatan Smash Atlet Bulutangkis. STAND : Journal Sports Teaching and Development, 3(1), 19–28. <https://doi.org/10.36456/j-stand.v3i1.5163>
- Irawan, G., Sugiarto, T., & Kurniawan, A. W. (2020). Upaya Meningkatkan Akurasi Teknik Passing Menggunakan Metode Drill Pada Kegiatan Ekstrakurikuler Sepakbola. Jurnal Penjakora, 6(2), 92. <https://doi.org/10.23887/penjakora.v6i2.19976>
- Irjaba, D., Supriatna, S., & Sulistyorini, S. (2022). Pengaruh Latihan Metode Drill Fixed Target Terhadap Tingkat Konsisten Pukulan Forehand Groundstroke Pada Pada Atlet Tenis Lapangan Klub Bentar Kabupaten Probolinggo. Sport Science and Health, 4(2), 112–118. <https://doi.org/10.17977/um062v4i22022p112-118>
- Irsan Kahar, A. Heri Riswanto, Rasyidah Jalil, Ahmad, Husnani Aliah, Syahrul Husain, Aldi Firansyah, & Muh Risaldi Al Jufri. (2022). Pengenalan Teknik Dasar dan Aturan Bermain Bulutangkis pada Anak Usia 10 dan 12 Tahun di Desa Murante Kabupaten Luwu. Abdimas Langkanae, 2(2), 207–215. <https://doi.org/10.53769/jpm.v2i2.168>
- Juni, V. N., Ketepatan, P., Bulutangkis, S., & Pb, C. (2023). Kontribusi Koordinasi Mata-Tangan Dan Kekuatan Otot Lengan Pendidikan Jasmani Kesehatan dan Rekreasi , FKIP , Universitas Islam Riau , Riau , Indonesia. 4(1), 179–185.
- Komotska, O., & Sushko, R. (2022). Modern Approaches For The Physical Training. 7989, 260–267. <https://doi.org/10.17309/tmfv.2022.2.17>
- Lestari, A. A., & Pakuan, U. (2023). Peningkatan Ketecampilan Tegak Bersambung Menggunakan Metode Drill di SDN Rumpin 01. 2(1), 32–36.
- Maulana, H., & Pranata, D. Y. (2023). Survey Of Pb Lauser Athletes ' Smash Abilities In Central Aceh Survei Kemampuan Smash Atlet Pb Lauser Di Aceh Tengah. 1(2), 98–102.
- Mircea-dan, M., Mereuță, C., & Iordan, D. (2020). Injuries Resulting From Practicing Performance Sports In Table Tennis And Tennis – Review. 20.
- Nurhayati, S., Sonjaya, A. R., & Permadi, A. A. (2023). Riyadhoh : Jurnal Pendidikan Olahraga Implementation Of The Use Of Abilities Training Tools In Karate Branch Kumite Number Of Martial Sports Dipublikasikan .. Oleh : UPT T Publikasiidan .. Pengelolaan .. Jurnal Universitas .. Islam .. Kalimantan .. Muhammad .. Arsyad Al-Banjari .. Banjarmasin Sri Nurhayati , Azhar Ramadhana Sonjaya , Asep Angga Permadi Riyadhoh ..: Jurnal .. Pendidikan .. Olahraga Volume 6 Nomor 1 , Tahun 2023 Tersedia .. Online : <https://ojs.uniska-bjm.ac.id/index.php/riyadhohjurnal> UPT T Publikasiidan .. Pengelolaan .. Jurnal Universitas .. Islam .. Kalimantan .. Muhammad .. Arsyad Al-Banjari .. Banjarmasin. 6, 9–15.
- Pradanata, Y. J., Khuddus, L. A., Sulistyarto, S., & Susanto, I. H. (2024). Manajemen Pembinaan Prestasi Pada Klub Bulutangkis Mikasa Badminton Akademik 2024. Jurnal Kejaora (Kesehatan Jasmani Dan Olah Raga), 9(2), 283–289. <https://doi.org/10.36526/kejaora.v9i2.4315>
- Rahman, D. (2023). Analisis gaya hidup sehat mahasiswa olahraga. Jurnal Patriot, 5(3), 239–246. <https://doi.org/10.24036/patriot.v5i3.1018>
- Ramadhan, M. G. (2024). Hubungan Power Otot Tungkai, Kekuatan Otot Lengan, Dan Koordinasi Mata-Tangan Terhadap Akurasi Smash Pada Atlet Bulu Tangkis Di Area Badminton Club.
- Setiawan, A., Effendi, F., & Toha, M. (2020). Akurasi Smash Forehand Bulutangkis Dikaitkan dengan Kekuatan Otot Lengan dan Koordinasi Mata-Tangan. Jurnal MAENPO: Jurnal Pendidikan Jasmani Kesehatan Dan Rekreasi, 10(1), 50. <https://doi.org/10.35194/jm.v10i1.949>
- Simandjuntak, C. N., Dwi Hanum, & Saputri, N. (2024). Peran Psikologi Olahraga dalam Meningkatkan Kinerja Atlet Bulutangkis. Jurnal Pendidikan Olahraga, 14(5), 330–337. <https://doi.org/10.37630/jpo.v14i5.1997>
- Sudirjo, E., Susilawati, D., Lengkana, A. S., Alif, M. N., Indonesia, U. P., Tubuh, K., & Dasar, S. (2019). Mentoring And Training Of Body Balance On Primary. 18(1), 93–101.
- Syarifudin, D., Erliana, M., Syarifudin, D., Mulhim, M., & Erliana, M. (2023). Analisis Ketepatan Pukulan Forehand Smash Pada Atlet Bulutangkis Club Pb . Puma Muara Uya Kabupaten Tabalong. 4(2), 112–118.
- Wiratama, S. A. (2017). Efek metode latihan drill terhadap ketepatan. 13, 60–67.