4387-Article Text-27652-1-2-20260327.docx

by mh hasbi

Submission date: 12-Feb-2026 03:31PM (UTC+0800)
Submission ID: 2875475456
File name: 4387-Article_Text-27652-1-2-20260327.docx (78.63K)
Word count: 3842
Character count: 23511

ETDC Indonesian Journal of Research and Educational Review
Volume 5, No. 2, 2026, pp 922 - 931
e–ISSN 2809-3682
p–ISSN 2809-7505
https://doi.org/10.51574/ijrer.v5i2.4387

The Effectiveness of Sepak Takraw Smash Skills Through Drill Training Methods in High School Student Athletes

Saiful[1], Ramli[2], Ahmad Rum Bismar[3], Muh. Adnan Hudain[4], Suriah Hanafi[5]
[1, 2, 3, 4, 5] Pendidikan Jasmani dan Olahraga, Pascasarjana, Universitas Negeri Makassar, Indonesia

Article Info

Article history:

Received December 12, 2025
Accepted January 14, 2026
Published February 12, 2026

Keywords:

Drill Training;
High School Athlete;
Sepak Takraw;
Smash Skills;
Sports Pedagogy.

ABSTRACT

Smashing skills are a crucial element in achieving success in sepak takraw. However, many student-athletes at the regional level, particularly in Maros Regency, have not mastered this technique optimally due to repetitive and less varied training methods. This study aims to evaluate the effectiveness of the drill training method in improving smash skills among high school sepak takraw athletes. This research employed a quasi-experimental approach with a pretest–posttest control group design. A sample of 20 high school athletes was selected using purposive sampling and divided into an intervention group (n=10) and a control group (n=10). The instrument used was a standardized smash skills test. After a 4-week training program, paired sample t-tests were used to look at changes within groups and independent t-tests were used to look at differences between groups. The findings revealed a significant improvement in the intervention group's performance. The average score increased from 21.30 in the pretest to 33.60 in the posttest (a gain of 12.30 points). Statistical analysis yielded a p-value (Sig. 2-tailed) of 0.000 < 0.05, confirming that the drill method is highly effective. The drill training method significantly enhances the smash skills of high school sepak takraw athletes. This study suggests that coaches should implement structured drill programs to optimize technical performance in school-based sports development.

Corresponding Author:

Saiful,
Pendidikan Jasmani dan Olahraga, Pascasarjana, Universitas Negeri Makassar, Indonesia
Email: saifuliful028@gmail.com

1. INTRODUCTION

Sport is a vital human activity that serves as a cornerstone for maintaining health, enhancing performance, and fostering psychological well-being (Arga & Fitri, 2025; Badwi et al., 2025; Fusco et al., 2025). Beyond physical exertion, sport functions as an educational and social instrument that cultivates discipline, sportsmanship, and resilience—traits essential for character formation in youth (Mappaompo et al., 2024; Muyassar et al., 2025). For high school student-athletes, sport also serves as a critical tool for emotional regulation and cognitive development, necessitating an integrated approach to optimize their overall potential (Martín-Rodríguez et al., 2024).

Sepak takraw is a unique competitive net game requiring a blend of acrobatic agility and technical precision (Ayu et al., 2024; Yuliarto et al., 2024). Among its various techniques—such as the kick, serve, and block—the smash stands out as the most dominant skill. It is the primary offensive weapon used to score points and exert psychological pressure on opponents (Asri et al., 2025; Pagayang et al., 2025). Mastery of the smash is a crucial indicator of an athlete's quality, requiring a complex integration of leg strength, body coordination, and flexibility (Li et al., 2023; Watikasari et al., 2023).

For high school-aged athletes, achieving consistency in smashing is often challenging. Success in this technique depends on precise timing, speed, and movement accuracy (Bais et al., 2023). At the student-athlete level, technical errors and lack of accuracy are common obstacles that hinder performance (Gomez et al., 2018; Thompson et al., 2024). Therefore, selecting an appropriate training pedagogy is essential to transition these young athletes from basic mechanical movements to automatic, high-performance execution.

While various methods exist—such as game-based training, which fosters creativity, or circuit training, which builds general fitness—they often fall short in refining specific technical nuances. Game-based approaches may overlook technical details, leading to slower mastery of the smash (Bais et al., 2023), while circuit training lacks the specificity required for technical motor patterns (Basyiruddin et al., 2024). In contrast, the drill training method offers a systematic advantage by focusing on controlled repetition. This repetition strengthens muscle memory and fosters "automaticity," allowing high school athletes to improve consistency and accuracy more rapidly than through varied play alone (Asri et al., 2025; Irawan et al., 2020).

Empirical evidence supports the efficacy of drills in school settings; for example, research demonstrated that drill variations improved smash success (Masail et al., 2025; Ridho et al., 2026; Yasriuddin et al., 2024). Despite this potential, athletes in Maros Regency—especially those at the high school level preparing for regional competitions like PORDA—still exhibit weaknesses in smash consistency. The current reliance on less structured training methods contributes to this suboptimal performance. There is an urgent need for measurable and structured interventions tailored to the developmental stage of high school students.

Building upon these considerations, this study aims to analyze the effectiveness of sepak takraw smash skills through drill training methods in high school student-athletes in Maros Regency. The findings are expected to provide a structured framework for coaches to optimize technical performance through repetition-based training, ensuring a sustainable pipeline of high-quality athletes for the region.

2. METHOD

This study employed a quasi-experimental design with a Pretest-Posttest Control Group approach. This design was specifically selected to evaluate the effectiveness of the drill training method by comparing the smash skill progression of the intervention group against a control group practicing under conventional training conditions.

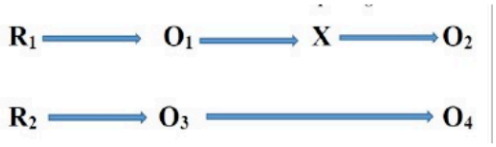

Figure 1. Pretest-Posttest Control Group Design

The population for this study consisted of high school student-athletes actively enrolled in coaching programs for sepak takraw in Maros Regency. A total of 20 student-athletes were selected using a purposive sampling technique based on criteria including active status, age (high school level), and basic mastery of sepak takraw techniques. The participants were divided equally into two groups: (1) Intervention Group (n=10): Subjected to a structured drill training program. (2) Control Group (n=10): Continued with the standard/regular training regimen.

The study was conducted over a period of four weeks, from October to November 2025, at the Sepak Takraw Training Center in Maros Regency. The timeline was divided into three distinct phases:

1. Phase I (Pretest): Initial assessment of smash skills to establish a baseline.
2. Phase II (Intervention): A 4-week training program where the intervention group received systematic drill exercises focusing on repetition, accuracy, and power.
3. Phase III (Posttest & Evaluation): The last test to see how much technical skill has improved.

To ensure objective measurement, a standardized sepak takraw smash skills test was utilized. The instrument employed a target zone system, where the opponent's court was divided into five strategic assessment areas (scoring zones). Points were given based on how well the student athletes hit the ball, where they hit it, and how well they did the smash.

Data was analyzed using statistical software. A paired sample t-test was conducted to measure the internal improvement within each group, while an independent sample t-test was used to determine the significant difference in effectiveness between the drill training method and the regular training method.

3. RESULTS AND DISCUSSION

Results

The results of this study are presented as a comprehensive overview of the data, synthesized into summary tables for comparative analysis. The findings objectively illustrate the performance trajectory of high school student-athletes before and after the intervention. Following the presentation of data, a detailed discussion is provided to interpret the effectiveness of the drill training method. This discussion section goes into more detail about the basic ideas, key assumptions, and important factors—like practice repetition and skill consistency—that are crucial for improving sepak takraw smash skills. By analyzing these variables, the study clarifies how structured drill applications

specifically optimize the technical proficiency of adolescent athletes in a competitive context.

Descriptive Analysis

Table 1. Frequency Distribution of Sepak Takraw Smash Skill Results

	N	Minimum	Maximum	Mean	Std. Deviation
Intervention Pre-Test	10	16	25	21.30	2.584
Intervention Post-Test	10	29	37	33.60	2.989
Control Pre-Test	10	18	25	21.30	2.312
Control Post-Test	10	19	26	22.40	2.271
Valid N (listwise)	10				

The descriptive statistical analysis in Table 1 indicates that the smashing powers of sepak takraw athletes in the intervention and control groups varied before and after treatment. The intervention group exhibited pretest scores ranging from a minimum of 16 to a maximum of 25, with a mean of 21.30 and a standard deviation of 2.584. This figure signifies that the athletes' starting capabilities fell within the moderate range and showed moderate variability. Following four weeks of drill training, the intervention group's posttest scores exhibited considerable enhancement, ranging from a minimum of 29 to a maximum of 37, with an average of 33.60 and a standard deviation of 2.989. The average improvement of 12.30 points signifies that the drill training strategy significantly enhanced players' smashing skills.

The control group exhibited pretest scores ranging from a minimum of 18 to a maximum of 25, with a mean of 21.30 and a standard deviation of 2.312. The average score was identical to that of the intervention group, signifying that the beginning capabilities of both groups were equivalent. Following consistent training without any extra interventions, the control group's posttest scores exhibited only marginal improvement, ranging from a minimum of 19 to a high of 26, with an average of 22.40 and a standard deviation of 2.271. The average rise of about 1.10 points suggests that consistent training did not substantially enhance the participants' smashing abilities.

Table 2. Results of the Normality Test of Research Data

	Group	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Smash results	Intervention Pre-Test	.154	10	.200*	.965	10	.837
	Intervention Post-Test	.189	10	.200*	.906	10	.256
	Control Pre-Test	.213	10	.200*	.937	10	.517
	Control Post-Test	.170	10	.200*	.959	10	.780

Table 2 indicates that all data from both the pretest and posttest exhibited a significant value in the Shapiro–Wilk test exceeding 0.05. Given that all significance values are

above 0.05, it is determined that the data are regularly distributed. Consequently, the data satisfies the assumption of normalcy, allowing for the continuation of analysis using parametric tests. The parameter tests include a paired sample t-test to assess the pretest-posttest difference and an independent sample t-test to compare the two groups.

Table 3. Results of the Paired Sample T Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Intervention Pre-Test - Intervention Post-Test	-12.300	1.418	.448	-13.314	-11.286	-27.428	9	.000
Pair 2	Control Pre-Test - Control Post-Test	-1.100	.316	.100	-1.326	-.874	-11.000	9	.000

Building upon the statistical analysis presented in Table 3, the Intervention Group (Pair 1) yielded a significant value of 0.000 ($p < 0.05$). This result confirms a statistically significant improvement in the average smash skills of high school student-athletes following the implementation of the drill training method. While the control group also showed a significance value of 0.000, the magnitude of improvement in the intervention group—driven by systematic repetition and structured drills—demonstrates a more robust enhancement in technical proficiency. These findings show that while regular training helps improve skills, using specific drill methods is very effective in speeding up the learning of sepak takraw smash techniques for young athletes.

Table 4. Results of the Sepaktakraw Smash Skill Homogeneity Test

		Levene Statistic	df1	df2	Sig.
Smash Results	Based on Mean	1.956	1	18	.179
	Based on Median	1.920	1	18	.183
	Based on Median and with adjusted df	1.920	1	17.971	.183
	Based on trimmed mean	1.957	1	18	.179

According to Table 4, the significant value based on the mean is 0.179, which exceeds 0.05. Therefore, it can be inferred that the post-test data for the intervention group (drill technique) and the control group (without the drill method) are homogeneous or equivalent. Consequently, one of the non-mandatory prerequisites for the independent sample T-test has been satisfied.

Table 5. Results of the Independent Sample T-Test for Sepaktakraw Smash Skills

		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Smash Results	Equal variances assumed	1.956	.179	9.436	18	.000	11.200	1.187	8.706	13.694
	Equal variances not assumed			9.436	16.793	.000	11.200	1.187	8.693	13.707

A significant value of 0.000 < 0.05 was obtained, as indicated in table 5. The intervention group (drill method) and the control group (without the drill method) exhibit a discrepancy in their average sepak takraw crush results. Please refer to table 6 below to determine the extent of the disparity in the athletes' post-test training results between the intervention group (drill method) and the control group (no drill method).

Table 6. Descriptive Statistics Results of Differences in Sepaktakraw Athletes' Smash Training Results

	Group	N	Mean	Std. Deviation	Std. Error Mean
Smash Results	Intervention Post-Test	10	33.60	2.989	.945
	Control Post-Test	10	22.40	2.271	.718

Table 6's comparative analysis shows a clear difference in technical achievement between the two study groups. The intervention group, which utilized the drill training method, achieved a substantially higher post-test average score of 33.60, compared to the control group's average of 22.40. This significant margin of 11.20 points underscores that the systematic repetition inherent in drill exercises is far more effective in optimizing the smash skills of high school student-athletes than conventional training methods. These results show that the drill method is a better teaching tool for improving the technical skills and consistency of young sepak takraw players.

Discussion

The findings of this study demonstrate that the drill training method significantly enhances the smash skills of high school sepak takraw athletes in Maros Regency. Based on the inferential statistical analysis, the intervention group exhibited a robust improvement, with average scores rising from 21.30 to 33.60—a substantial gain of 12.30 points. The significance value ($p = 0.000 < 0.05$) confirms that systematic repetition through drills is a decisive factor in technical mastery. For student-athletes, this method strengthens basic technical foundations, refines leg-swing velocity, and sharpens motor coordination. As suggested by Akbar et al. (2024), repetitive drills

solidify motor memory, allowing adolescent athletes to transition from conscious, effortful movements to more automatic and fluid executions. This aspect is particularly critical for high schoolers who are in a peak phase for neuromuscular adaptation (Rusdiyanto et al., 2025).

In contrast, the control group—comprising student-athletes undergoing routine, non-specific training—showed minimal progression. While their scores were statistically significant ($p = 0.000$), the marginal increase of only 1.10 points (from 21.30 to 22.40) is practically insignificant in a competitive context. This underscores that general training, while beneficial for overall physical fitness, fails to provide the specialized technical stimulus required to master complex movements like the sepak takraw smash. This aligns with Xiao et al. (2025), who argue that general exercise regimens are insufficient for developing high-level technical precision. For high school athletes, who often have limited training hours, relying solely on routine play without structured drills results in stagnated technical growth (Putro & Ismoko, 2024).

The disparity between the two groups (a difference of 11.20 points) highlights the superior effectiveness of the drill method. The independent sample t-test ($p = 0.000$) provides empirical weight to the argument that structured repetition is the most efficient pedagogical approach for this demographic. According to training theories by Liu et al. (2025); Zemková and Zapletalová (2022), specific technical drills stimulate the neuromuscular system to create more efficient movement patterns. By adhering to the principles of specificity and repetition, the drill program ensures optimal skill transfer.

Furthermore, implementing a systematic model that emphasizes hands-on, repetitive practice is essential for honing specific motor skills in school-based sports programs (Ikhsan et al., 2025; Shorouk et al., 2025). As noted by Abusleme-Allimant et al. (2023), providing structured technical material at the student level improves both understanding and physical execution. Therefore, this study concludes that for high school sepak takraw athletes, the drill method is not just an alternative but a necessary strategy to optimize smashing performance and competitive readiness.

4. CONCLUSION

This study concludes that the drill training method is highly effective in enhancing the sepak takraw smash skills of high school student-athletes in Maros Regency. The evidence from the intervention group shows a substantial performance gain, with an average score increase of 12.30 points (from 21.30 to 33.60). Statistical verification ($p = 0.000 < 0.05$) confirms that structured and intensive drill interventions provide a significantly greater impact compared to conventional training methods. By prioritizing systematic repetition and technical precision, the drill method effectively addresses the issue of suboptimal technical mastery often found in regional-level student-athletes, bridging the gap between basic ability and competitive proficiency.

As a suggestion, sepak takraw coaches, particularly at the high school and regional levels, are strongly advised to integrate structured drill modules into their core training curriculum. This approach is essential for optimizing the technical consistency and accuracy of student-athletes during their developmental years. For Sports

Organizations: Regional sports bodies in Maros should consider implementing standardized drill-based programs to elevate the overall quality of youth athletes preparing for competitions like PORDA. To further strengthen these findings, future studies should consider expanding the sample size and incorporating additional variables such as psychological resilience (mental toughness), leg muscle power, and agility to provide a more holistic view of athlete performance.

REFERENCES

Abusleme-Allimant, R., Hurtado-Almonacid, J., Reyes-Amigo, T., Yáñez-Sepúlveda, R., Cortés-Roco, G., Arroyo-Jofré, P., & Páez-Herrera, J. (2023). Effects of structured and unstructured physical activity on gross motor skills in preschool students to promote sustainability in the physical education classroom. *Sustainability*, *15*(13), 10167. https://doi.org/10.3390/su151310167

Akbar, H. R. A., Irawan, D. S. I., & Rahim, A. F. R. (2024). Efektivitas Ladder Drill Exercise dan Core Stability Exercise terhadap Peningkatan Kecepatan Siswa SSB Karlos Malang. *SPRINTER: Jurnal Ilmu Olahraga*, *5*(1), 105-113. https://doi.org/10.46838/spr.v5i1.506

Arga, A., & Fitri, R. (2025). Peningkatan Kemampuan Motorik Kasar Melalui Permainan Interaktif Di TK Thalabul Ilmi. *SPORTIVE: Journal Of Physical Education, Sport and Recreation*, *9*(6), 273–283. https://doi.org/10.26858/sportive.v9i6.10071

Asri, A., Adil, A., Fahrizal, F., Suwardi, S., & Hudain, M. A. (2025). Drill Methods in Sepak Takraw Learning for Middle School Students: A Study of Sepak Sila Ability. *ETDC: Indonesian Journal of Research and Educational Review*, *4*(2), 298-310. https://doi.org/10.51574/ijrer.v4i2.2945

Ayu, P., Alnedral, A., Kiram, P. Y., Padli, P., & Zarya, F. (2024). Exploring the impact of high jump, flexibility, and confidence on the smash accuracy of sepak takraw athletes. *Jurnal SPORTIF: Jurnal Penelitian Pembelajaran*, *10*(1), 1-14. https://doi.org/10.29407/js_unpgri.v10i1.21514

Badwi, A., Arba, M. A., Rahmatullah, W., Rerung, C. T., Aulria, S. N. M., Arga, A., & Hasran, H. (2025). Socialization of Petanque Sports at SMAS YASPIB Bontolempangan Gowa. *Jurnal Perjuangan Dan Pengabdian Masyarakat: JPPM*, *1*(2), 1–8. https://journalpejuang.web.id/index.php/perjuanganpengabdian/article/view/38

Bais, S., Padli, Arwandi, J., Iyakrus, Martha, A., Rudyanto, & Arifan, I. (2023). The contribution of flexibility and eye-to-foot coordination to the basic skills of sepak takraw. *Journal of Physical Education and Sport*, *23*(12), 3341–3348. https://doi.org/10.7752/jpes.2023.12382

Basyiruddin, B., Purwanto, D., Hanafi, M., Hidayat, R., & Resmana, D. (2024). Pengembangan Model Latihan Kelincahan Pada Atlet Sepak Takraw Pusat Pendidikan Dan Latihan Olahraga Mahasiswa Universitas Negeri Jakarta. *STAND: Journal Sports Teaching and Development*, *5*(1), 38-50. https://doi.org/10.36456/j-stand.v5i1.9356

Fusco, A., Gilic, B., Festino, E., & Papale, O. (2025). Human Performance and Health in Sport and Exercise. *Applied Sciences*, *15*(8), 4077. https://doi.org/10.3390/app15084077

Gomez, J., Bradley, J., & Conway, P. (2018). The challenges of a high-performance student athlete. *Irish Educational Studies*, *37*(3), 329-349. https://doi.org/10.1080/03323315.2018.1484299

Ikhsan, M. N., Bismar, A. R., Hudain, M. A., & Ridwan, A. (2025). Application of The Stad Type Cooperative Learning Model Towards Volleyball Underpassing Learning Outcomes. *COMPETITOR: Jurnal Pendidikan Kepelatihan Olahraga*, *17*(2), 1005–1016. https://competitor.idjournal.eu/index.php/competitor/article/view/83

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

Li, F., Li, S., Zhang, X., & Shan, G. (2023). Biomechanical insights for developing evidence-based training programs: unveiling the kinematic secrets of the overhead forehand smash in badminton through novice-skilled player comparison. *Applied Sciences*, *13*(22), 12488. https://doi.org/10.3390/app132212488

Liu, P., Liu, Y., Hao, X., Cheng, N., Kang, J., Xiao, Z., ... & Yan, J. (2025). The impact of an 8-week integrated neuromuscular training on strength, speed, and agility in military personnel: a randomized controlled trial. *BMC Sports Science, Medicine and Rehabilitation*, *17*(1), 127. https://doi.org/10.1186/s13102-025-01172-9

Mappaompo, M. A., Aprilo, I., Arfanda, P. E., & Arga, A. (2024). Shooting Accuracy of Sports Coaching Education Students: Goaling Game Practice. *ETDC: Indonesian Journal of Research and Educational Review*, *3*(3), 204-210. https://doi.org/10.51574/ijrer.v3i3.1995

Martín-Rodríguez, A., Gostian-Ropotin, L. A., Beltrán-Velasco, A. I., Belando-Pedreño, N., Simón, J. A., López-Mora, C., ... & Clemente-Suárez, V. J. (2024). Sporting mind: the interplay of physical activity and psychological health. *Sports*, *12*(1), 37. https://doi.org/10.3390/sports12010037

Masail, M. K., Pranoto, A., Siantoro, G., Marsudi, I., Orhan, B. E., Hafidz, A., ... & Triardhana, Y. A. (2025). The effect of combined skipping and smash drill training on smash accuracy of PB Garuda badminton players. *Retos*, *66*, 15-25. https://doi.org/10.47197/retos.v66.113338

Muyassar, A. M., Cariswan, C., & Hambali, B. (2025). Peran Olahraga Untuk Pengembangan Sosial Dan Keadilan Sosial. *Jurnal Pendidikan Olah Raga*, *14*(1), 91–106. https://doi.org/10.31571/jpo.v14i1.9057

Pagayang, R., Badaru, B., Wahyuddin, W., Hudain, M. A., & Suwardi, S. (2025). Sepak Takraw Sports Development Management in Improving Soft Skills and Student Achievement in Educational Units. *ETDC: Indonesian Journal of Research and Educational Review*, *4*(4), 1706-1715. https://doi.org/10.51574/ijrer.v4i4.3746

Putro, D. E., & Ismoko, A. P. (2024). Pengaruh Latihan Fisik Lari Teknik ABC Drill Terhadap Kelincahan Pemain Klub Bola Voli Arwis Tahun 2024. *JSH: Journal of Sport and Health*, *5*(2), 86-93. https://doi.org/10.26486/jsh.v5i2.3924

Ridho, D. M., Sukardi, S., & Junaidi, I. A. (2026). The Effect of the Drill Method in Improving Smash Accuracy in Badminton Games. *JURNAL PENDIDIKAN OLAHRAGA*, *16*(1), 13-17. https://doi.org/10.37630/jpo.v16i1.3601

Rusdiyanto, R. M., Wiguno, L. T. H., & Kurniawan, A. W. (2025). Gamified Learning in Tennis: The Impact of Manipulative Motor Skill Levels on Forehand Groundstroke Performance. *Jp. jok (Jurnal Pendidikan Jasmani, Olahraga dan Kesehatan)*, *9*(1), 92-110. https://doi.org/10.33503/jp.jok.v9i1.2507

Shorouk, A., Vasugi Govindarajoo, M., Benlahcene, A., Teshome Taddese, E., & Santhira Segaran, V. (2025). Fine motor skills performance among Singaporean kindergarten students. *Cogent Education*, *12*(1), 2451506. https://doi.org/10.1080/2331186X.2025.2451506

Thompson, F., Rongen, F., Cowburn, I., & Till, K. (2024). A Longitudinal Mixed Methods Case Study Investigation of the Academic, Athletic, Psychosocial and Psychological

Impacts of Being a Sport School Student Athlete. *Sports Medicine*, *54*(9), 2423-2451. https://doi.org/10.1007/s40279-024-02021-4

Watikasari, S. U., Iyakrus, I., & Destriani, D. (2023). Pengembangan media pembelajaran PJOK berbasis web di kelas IV SD. *Jurnal Pendidikan Jasmani Indonesia*, *19*(2), 17-28. https://doi.org/10.21831/jpji.v19i2.67377

Xiao, W., Bu, T., Zhang, J., Cai, H., Zhu, W., Bai, X., ... & Geok, S. K. (2025). Effects of functional training on physical and technical performance among the athletic population: a systematic review and narrative synthesis. *BMC Sports Science, Medicine and Rehabilitation*, *17*(1), 2. https://doi.org/10.1186/s13102-024-01040-y

Yasriuddin, Y., Nur, M., Gunawan, M. R., Fahrizal, F., & Hudain, M. A. (2024). The Pressure of Smash Training Using the Drill Method for Male Athletes' Volleyball Smash Skills. *ETDC: Indonesian Journal of Research and Educational Review*, *3*(3), 158-165. https://doi.org/10.51574/ijrer.v3i3.1904

Yuliarto, H., Ali, S. K. S., Kauki, M. K., & Pratama, K. W. (2024). The Effect of Training Method and Coordination on First Ball Receiving Skills in Sepaktakraw. *Retos: Nuevas Perspectivas de Educación Física, Deporte y Recreación*, *55*. https://doi.org/10.47197/retos.v55.101334

Zemková, E., & Zapletalová, L. (2022). The role of neuromuscular control of postural and core stability in functional movement and athlete performance. *Frontiers in physiology*, *13*, 796097. https://doi.org/10.3389/fphys.2022.796097

4387-Article Text-27652-1-2-20260327.docx

ORIGINALITY REPORT

10%	9%	8%	3%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	etdci.org Internet Source	1%
2	cahaya-ic.com Internet Source	1%
3	www.siz-au.com Internet Source	1%
4	one.nhtsa.gov Internet Source	1%
5	ijsab.com Internet Source	1%
6	www.bio-conferences.org Internet Source	1%
7	jurnal.stain-madina.ac.id Internet Source	1%
8	Markel Rico-González. "Physical Education in Early Childhood - Movement and Development from 3 to 6 Years", Routledge, 2025 Publication	1%
9	competitor.idjournal.eu Internet Source	1%
10	epe.lac-bac.gc.ca Internet Source	1%
11	Submitted to Durban University of Technology Student Paper	1%

12	Submitted to University of Wales, Bangor Student Paper	1 %
13	journal.uinsi.ac.id Internet Source	1 %
14	researchonline.ljmu.ac.uk Internet Source	1 %

Exclude quotes	On	Exclude matches	< 1%
Exclude bibliography	On		