

The Effect of Passing Exercise Variations on Soccer Passing Performance: An Experimental Study among Physical Education Students

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Abstract The present study investigated the effects of varied passing exercises on soccer passing performance among physical education students. Passing is a fundamental technical skill in soccer, crucial for maintaining possession, creating scoring opportunities, and enhancing overall team coordination. Despite its importance, many university-level students struggle with accuracy, consistency, and decision-making in passing due to limited exposure to diverse, game-relevant drills. The study aimed to evaluate whether incorporating short, long, and combination passing drills could improve technical performance and adaptability in soccer. A quantitative experimental design employing a one-group pretest–posttest model was conducted with 33 male students (aged 19–21) from the Sports Coaching Education Program at Universitas Negeri Medan, Indonesia. Participants underwent a four-week structured training intervention, consisting of three weekly sessions, each lasting 45 minutes. The training program progressed from fundamental short passes to dynamic short- and long-passing drills, culminating in combination passing exercises under mild defensive pressure. Passing performance was assessed pre- and post-intervention using standardized scoring on a target wall system. Data were

analyzed using paired-sample t-tests and Cohen's d_z to determine statistical significance and effect size. The results demonstrated significant improvements across all training types ($p < 0.001$), with very large effect sizes observed for short ($d_z = 3.58$), long ($d_z = 2.85$), and combination passing ($d_z = 4.14$). The combination passing group achieved the highest gains, with 54.5% of participants reaching the "very high" performance category post-intervention. These findings highlight that structured, varied passing drills not only enhance technical accuracy but also promote perceptual-cognitive development and adaptability in dynamic game situations. In conclusion, the study provides empirical evidence supporting the inclusion of varied, game-relevant passing exercises in soccer training to optimize skill acquisition. Practically, coaches and physical educators are encouraged to implement combination passing drills to improve student engagement, decision-making, and motor adaptability. Limitations include the small, homogeneous sample and the short intervention period, suggesting future research should adopt randomized controlled designs, use larger and more diverse samples, and examine long-term retention and transfer to competitive match contexts. The study contributes to evidence-based pedagogical strategies

in university-level soccer training, emphasizing the role of practice variability in fostering technical and cognitive skill development.

Keywords Passing Drills, Soccer Performance, Technical Skills, Experimental Design, Training Variation

1. Introduction

Sport plays a vital role in human life, contributing not only to physical well-being but also to social and psychological development [1]. Among the many sports practiced worldwide, soccer remains one of the most popular and widely played team sports [2]. Soccer is played by two teams of eleven players, each consisting of goalkeepers, defenders, midfielders, and forwards [3]. According to Akhmad [4], soccer involves kicking a ball to score goals while preventing the opposing team from doing the same.

Mastery of fundamental technical skills is essential for effective soccer performance [5]. These skills include passing, shooting, dribbling, controlling, heading, tackling, and goalkeeping [6]. Technical proficiency is widely recognized as a key component of player development and overall game success [7]. Among these, passing is one of the most frequently executed and influential skills during a match [8]. Players who lack passing accuracy and decision-making skills often struggle to contribute effectively to team play [9]. A cohesive team is characterized by players capable of executing precise and well-timed passes, which facilitate the creation of space, build-up play, and the maintenance of possession [10].

Passing can be performed using different techniques—inside foot, outside foot, or instep—depending on the tactical situation [11]. Based on distance, passes are categorized into short, medium, and long types [12]. Players must assess distance, teammate position, and game context to select the appropriate technique and ensure accuracy [13]. In modern soccer, effective passing is not only a matter of technical execution but also of perceptual-cognitive ability and contextual awareness, as shown by Magnaguagno [14], who highlighted that players' decision-making strongly influences passing efficiency in dynamic game situations.

Training is a systematic and purposeful process aimed at improving physical, technical, and psychological performance through repeated and progressive exercises [15]. One key principle in training is variation, which helps prevent monotony, sustain motivation, and promote continuous adaptation [16]. Training variation refers to modifications in structure, intensity, or type of exercise while maintaining focus on specific skill outcomes [17]. According to Clemente et al. [18] and Hargreaves [19], incorporating varied and game-relevant training tasks improves both technical execution and tactical

understanding among players.

In university-level soccer instruction, students are expected to develop high technical proficiency across all fundamental skills. However, observations from practical sessions revealed persistent difficulties in executing accurate and controlled passes. Common errors included inaccurate direction, excessive force, and mistimed execution. Moreover, the lack of variation in passing drills contributed to reduced engagement and slower skill progression.

Given these issues, the present study aims to examine the effect of varied passing exercises on soccer passing performance among physical education students. By analyzing how short, long, and combination passing drills influence performance, this study provides empirical evidence on the role of training variation in enhancing technical skills and offers practical implications for optimizing instructional design in soccer coaching education.

2. Materials and Methods

2.1. Study Design

This study employed an experimental research design using a one-group pretest–posttest model to examine the effect of varied passing training on soccer passing performance. The intervention consisted of progressive passing drills incorporating a range of techniques delivered over four weeks. Participants first completed a pretest to assess their baseline passing ability, followed by the intervention program, and concluded with a posttest to evaluate improvement in performance.

The experimental design is represented as follows:



Where:

O₁ : Pretest (Passing Test)

X : Intervention (Varied Passing Training)

O₂ : Posttest (Passing Test)

This quasi-experimental design allowed within-group comparison to identify the direct impact of the intervention.

2.2. Participants

The participants were 33 male students (aged 19–21 years) enrolled in the Sports Coaching Education Program (PKO), Faculty of Sports Science, Universitas Negeri Medan, Indonesia. All participants were active football course students and had shown a need for improvement in passing techniques based on preliminary observations.

The participants were divided equally into three groups

according to the type of training intervention: Short Passing Group ($n = 11$), Long Passing Group ($n = 11$), and Combination Passing Group ($n = 11$).

All participants possessed relatively homogeneous physical characteristics, reflecting the typical profile of university-level soccer players. On average, they had a height of 171.2 ± 5.8 cm and a body weight of 64.5 ± 6.2 kg, indicating that they were within a healthy and athletic range suitable for soccer training and performance. Their playing experience ranged from three to five years, suggesting that all participants had a foundational understanding of the game and prior exposure to basic technical and tactical concepts. These characteristics ensured that the groups were physically comparable and adequately prepared to undertake the structured training interventions focused on improving passing performance.

Participants were selected using purposive sampling, focusing on students with moderate skill levels and consistent attendance. All participants were informed about the study procedures and provided consent to participate voluntarily. No control group was included, which is acknowledged as a limitation of this design.

2.3. Instruments and Materials

The instruments utilized in this study consisted of standardized soccer equipment and measurement tools designed to ensure precision and consistency in data collection. The primary instrument was a standard size 5 FIFA-approved soccer ball, which provided uniformity in ball dynamics throughout the testing and training sessions. A passing target wall was constructed and divided into five vertical scoring zones, each valued between 1 and 3 points based on difficulty, with every section measuring approximately 90 cm in width (**Figure 1**).

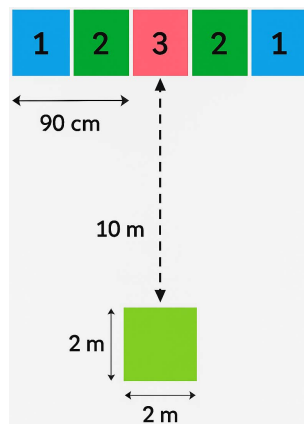


Figure 1. Passing Target Wall and Execution Area

To define the testing area, measuring tapes and cones were used to mark a 2×2 meter execution zone, positioned exactly 10 meters from the wall. During the testing phase, participants performed ten passing attempts toward the target wall, earning points according to the

zone hit. All results were systematically recorded using a score sheet, and the total accumulated score from the ten passes determined each participant's performance category as outlined in **Table 1**.

Table 1. Passing Scores Classification

No	Category	Score
1	Excellent	17–20
2	Good	13–16
3	Moderate	9–12
4	Low	5–8
5	Very Low	1–4

2.4. Intervention Procedures

The intervention in this study was implemented over a period of four weeks, with training conducted three times per week, resulting in a total of twelve sessions. Each session lasted approximately 45 minutes and was structured into three phases: a warm-up phase, a main exercise phase, and a cool-down phase.

The warm-up phase, lasting about ten minutes, included dynamic stretching such as lunges, high knees, leg swings, and torso rotations, along with ball control drills such as dribbling within a marked 5×5 m grid and passing to moving teammates under time pressure. These activities aimed to prepare participants physically and mentally by increasing heart rate, improving flexibility, and activating neuromuscular pathways relevant to ball handling and passing.

The main exercise phase, lasting 30 minutes, consisted of structured passing drills designed according to the principles of progressive overload and motor learning, with complexity increasing each week. Exercises were carefully arranged to simulate real-game situations, incorporating variations in passing distance, target zones, player movement, and defensive pressure, conducted on natural grass surfaces using FIFA-approved size 5 balls. Participants were divided into three groups — Short Passing, Long Passing, and Combination Passing — each following a tailored training program focusing on their specific passing type.

The structured program was designed progressively to systematically develop technical passing skills while enhancing decision-making and adaptability:

Week 1 focused on fundamental short passing, involving stationary short passes (inside foot) over a distance of 10–15 m. This foundational phase aimed to establish control and accuracy under minimal pressure, allowing participants to build consistency before progressing.

Week 2 advanced to dynamic short and wall passing, where participants executed short passes while moving to new positions and incorporating wall rebounds at varying angles. This introduced movement variability, time

constraints, and reactive decision-making, aligning with motor learning principles by increasing contextual complexity.

Week 3 emphasized long passing and target zone accuracy, where players performed long-range passes (20–30 m) aiming at marked target zones. This phase focused on ball trajectory, contact technique, and distance control, increasing technical challenge and requiring greater strength, spatial awareness, and precision.

Week 4 integrated combination passing and decision-making in circuit drills under mild defensive pressure. This phase combined short and long passing patterns, requiring players to adapt to changing scenarios and make quick tactical decisions, simulating realistic match conditions.

The choice of a four-week intervention with training conducted three times per week, totaling twelve sessions, was based on established findings in sports training literature. Previous studies have demonstrated that a minimum duration of three to four weeks is sufficient to produce measurable improvements in technical skills such as passing accuracy and decision-making in soccer players [18]. Conducting three training sessions per week strikes a balance between providing adequate skill exposure and allowing sufficient recovery time, which is crucial for both physical adaptation and motor learning consolidation [20]. The 45-minute session length was selected to ensure sufficient time to execute all phases — warm-up, main exercise, and cool-down — without causing excessive fatigue that could impair technical performance. This duration aligns with best practices in skill-based training interventions for team sports at the university level [16], [21].

This progressive sequence — from controlled, simple tasks toward complex, context-rich drills — embodies the principle of progressive overload by gradually increasing difficulty, and the principle of motor learning by introducing variability and decision-making complexity. These deliberate progressions ensured that each training

session built upon the previous one, fostering continuous skill acquisition and enhancing performance transferability to game situations.

The cool-down phase lasted approximately five minutes and consisted of light jogging and static stretching targeting major muscle groups such as hamstrings, quadriceps, calves, and lower back to promote recovery and reduce muscle stiffness. The combination of progressive training design, realistic game simulations, and continuous feedback from the coach ensured that participants maintained focus, motivation, and engagement throughout the intervention.

Table 2 presents the detailed weekly structure and focus of the passing training program for each group.

2.5. Data Collection and Analysis

Data collection for this study was conducted during both the pretest and posttest phases using an identical passing performance protocol to ensure measurement consistency and reliability. Descriptive statistics, including mean, standard deviation, and percentage change, were employed to provide an overview of participants' performance before and after the intervention. To determine whether the varied passing exercises produced a statistically significant improvement, a paired-sample t-test was used to compare the mean pretest and posttest scores, while the Shapiro–Wilk test was applied to verify the assumption of data normality.

Furthermore, Cohen's *d* was calculated to assess the magnitude of the training effect, offering additional insight into the strength of the observed changes. The level of significance was set at $p < 0.05$, indicating that differences were considered statistically meaningful if the probability of error was less than 5%. The interpretation of the effect size followed Cohen's (1988) classification, where $d < 0.2$ indicates a small effect, $0.2 \leq d < 0.8$ represents a medium effect, and $d \geq 0.8$ signifies a large effect.

Table 2. Structure of Passing Training Intervention Program

Week	Focus	Exercise Types	Description
1	Fundamental Short Passing	Stationary short passes (inside foot)	Two players exchange passes at a distance of 10–15 m, emphasizing control and accuracy. Each pair performed 5 sets \times 10 repetitions, with 30 seconds rest between sets.
2	Dynamic Short & Wall Passing	Moving short passes, wall passing drills	Players performed short passes while moving to a new position after receiving the ball. Distances varied between 8–12 m. Wall passing included rebounds with different angles. Exercises incorporated time pressure (max 5 seconds per pass) and randomized passing directions to mimic match scenarios.
3	Long Passing & Target Zone Passing	Long-range passes (20–30 m) to marked zones	Participants executed long passes aiming at target zones on the wall or designated ground areas. Focus on ball trajectory, contact surface, and distance control. Exercises included 5 sets \times 8 passes with positional rotation to simulate match conditions.
4	Combination Passing & Decision-Making	Integrative passing circuits under mild defensive pressure	Players combined short and long passes in sequential patterns. Training included: (a) short pass (10–15 m) to teammate, (b) long pass (20–30 m) to another teammate, and (c) decision-making under mild defensive pressure. Sessions included realistic game scenarios with verbal feedback from the coach to enhance tactical thinking and adaptability.

3. Results

This section presents the results of the study on the effect of passing exercise variations (short passing, long passing, and combination passing) on football passing performance among PKO FIK UNIMED students in 2025. Performance levels were categorized into four groups: Low (scores 1–3), Moderate (4–6), High (7–9), and Very High (10–12). **Table 3**, shows the distribution of participants’ pretest and posttest scores across all experimental groups.

Before the intervention, most participants in all groups were in the moderate performance category, with smaller proportions in the low and high categories, and none in the very high category. Specifically, moderate performance ranged from 54.5% to 63.6% across groups, low performance from 18.2% to 36.4%, and high performance from 9.1% to 18.2%.

After the intervention, all groups showed substantial improvement. Low-category performers were completely eliminated in every group. The proportions of high and very high performers increased markedly, with the Combination Passing group showing the greatest gain —

54.5% of participants reaching the very high category and 36.4% in the high category. Both the Short Passing and Long Passing groups also exhibited significant shifts toward higher performance categories, confirming the positive effect of passing training, especially when combining short and long passing exercises.

Figure 2 illustrates the pretest–posttest category distribution for all experimental groups. The bar chart clearly shows a substantial shift from lower performance categories (Low and Moderate) toward higher performance categories (High and Very High) after the intervention.

In both the Short Passing and Long Passing groups, there was a clear shift in performance levels, characterized by a substantial decrease in the Low category and a corresponding increase in the High and Very High categories. Notably, the Combination Passing group demonstrated the most pronounced improvement, with the majority of participants achieving scores in the Very High category during the posttest. This visual trend strongly aligns with the statistical findings presented in Table 3, underscoring the superior effectiveness of combination passing training.

Table 3. Pretest–Posttest Category Distribution per Group

Category	Score Range	Short Passing Pretest (f, %)	Short Passing Posttest (f, %)	Long Passing Pretest (f, %)	Long Passing Posttest (f, %)	Combination Passing Pretest (f, %)	Combination Passing Posttest (f, %)
Low	1–3	4 (36.4%)	0 (0%)	3 (27.3%)	0 (0%)	2 (18.2%)	0 (0%)
Moderate	4–6	6 (54.5%)	2 (18.2%)	6 (54.5%)	2 (18.2%)	7 (63.6%)	1 (9.1%)
High	7–9	1 (9.1%)	4 (36.4%)	2 (18.2%)	4 (36.4%)	2 (18.2%)	4 (36.4%)
Very High	10–12	0 (0%)	5 (45.5%)	0 (0%)	5 (45.5%)	0 (0%)	6 (54.5%)
Total		11 (100%)	11 (100%)	11 (100%)	11 (100%)	11 (100%)	11 (100%)

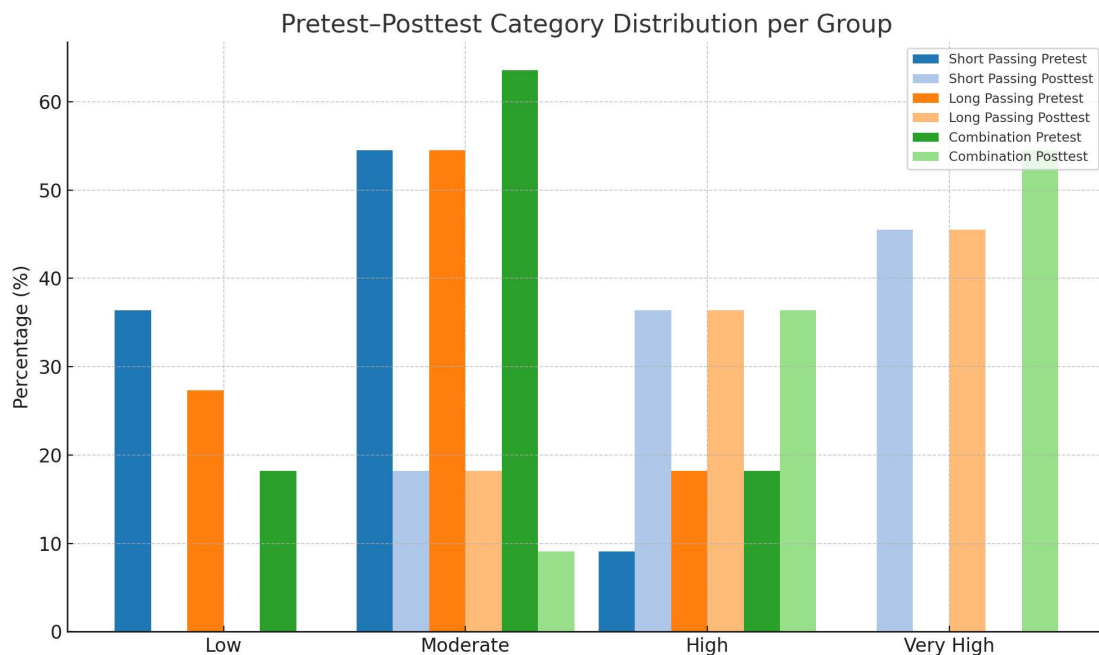


Figure 2. Pretest–Posttest Category Distribution per Group

Table 4. Paired Samples t-Test Results

Training Type	n	Pretest Mean \pm SD	Posttest Mean \pm SD	Mean Difference (Post – Pre)	SD _(diff, est., r = 0.60)	t (df = 10)	p (two-tailed)	Cohen's dz	Interpretation
Short Passing	11	5.36 \pm 1.21	9.45 \pm 1.33	4.09	1.14	11.89	< 0.001	3.58	Very large
Long Passing	11	5.82 \pm 1.17	9.18 \pm 1.42	3.36	1.18	9.45	< 0.001	2.85	Very large
Combination	11	5.64 \pm 1.09	10.09 \pm 1.28	4.45	1.07	13.75	< 0.001	4.14	Very large

To further verify these changes, a paired-samples t-test was conducted to assess the significance of the performance differences between pretest and posttest scores for each training group. **Table 4 summarizes these findings.**

All groups demonstrated highly significant improvements ($p < 0.001$), with very large effect sizes according to Cohen's d_z criteria. Among them, the Combination Passing group showed the largest mean improvement (4.45 points) and the highest effect size ($d_z = 4.14$), indicating that combined short and long passing training was the most effective method for enhancing football passing performance.

4. Discussion

The present study aimed to evaluate the effect of varied passing exercises on soccer passing performance. The findings revealed statistically significant improvements across all three training interventions—short passing, long passing, and combined passing—and among these, the combination passing variation showed the greatest gain.

These findings accord with the broader literature on training variability and game-based practice in soccer. For example, a recent systematic review by Wang et al. [16] showed that small-sided games and tactical drills positively influence short-passing performance in soccer players. Moreover, the study by Carlsson et al. [21] compared structured passing-skill training (PST) and small-sided games and reported that PST produced significantly higher side-foot passing accuracy than small-sided games did, supporting the advantage of structured multivariate passing drills over more generic practice.

The superior improvement observed in the Combination Passing group can be directly linked to specific elements of the intervention design. This group engaged in integrative passing drills combining both short and long passes under mild defensive pressure, as detailed in Table 2. Such drills inherently increase task variability, which aligns with the variability of practice principle in motor learning [22], [23]. By practicing a range of passing distances, angles, and decision-making scenarios, participants developed broader motor schemas, enabling them to adapt their technique more effectively to changing game contexts.

Furthermore, the progressive structure of the intervention — where complexity and contextual realism increased weekly — ensured continual adaptation and skill

refinement. This reflects the principle of specificity of training (SAID principle), whereby the practiced tasks closely resemble game demands [24]. The combination passing drills also required players to engage in perceptual-cognitive processing, such as assessing teammates' positions, selecting the appropriate pass type, and adjusting force and accuracy under dynamic conditions. These cognitive and motor demands are essential for developing adaptable passing skills, which explains why the Combination Passing group achieved the highest performance gains compared to the Short and Long Passing groups.

These findings extend current knowledge by demonstrating that structured variability in passing drills not only improves technical execution but also supports adaptability and decision-making under dynamic conditions. The combination passing exercises appear to simulate real match demands more effectively, engaging perceptual-cognitive processes and enhancing skill transferability. This suggests that adopting game-relevant training that integrates both short and long passes can bridge the gap between isolated skill practice and actual performance in competitive play.

Despite these encouraging results, several limitations must be addressed. The sample was relatively small and drawn from a single institution, which constrains the generalizability of conclusions. The intervention's duration was also limited, preventing evaluation of long-term retention and transfer of performance improvements into competitive matches. Future work should adopt randomized controlled designs, larger and more diverse samples, and include delayed post-tests to test retention and real-game transfer. Additionally, incorporating qualitative observations or cognitive performance measures could provide richer insights into the underlying mechanisms of skill improvement.

From a practical perspective, the results suggest that coaches and physical educators should incorporate structured variability in passing drills — combining different pass types, distances, and decision-making scenarios — to enhance both technical precision and adaptability. In educational settings, short- and long-pass combinations can foster student engagement, tactical thinking, and motor adaptability, which support holistic development in sport performance.

In conclusion, this study provides empirical support for the effectiveness of combined passing training in improving soccer passing performance. The findings

affirm that practice variability, when well-structured and aligned with task demands, can bridge technical execution and adaptive skill in dynamic environments.

5. Conclusions

This study examined the effect of varied passing exercises—short passing, long passing, and combination passing—on soccer passing performance among physical education students. The findings indicate that all three types of passing drills significantly improved participants' passing performance, with the combination of short and long passes producing the greatest enhancement. These results suggest that structured, varied, and game-relevant passing exercises effectively develop technical skills, decision-making, and adaptability in dynamic soccer contexts.

From a practical perspective, coaches and physical educators are encouraged to incorporate combination passing drills in training sessions to improve student engagement, motor coordination, and tactical decision-making. While the study demonstrated positive outcomes, its scope was limited by the small, homogeneous sample and short intervention period, which restricted generalizability and assessment of long-term retention. Future research should consider larger, more diverse samples, longer training durations, and evaluation of skill transfer to competitive match situations.

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This study is dedicated to the advancement of evidence-based training methods in football and the continuous improvement of sports education at the university level.

REFERENCES

- [1] N. N. F. K. Karim and B. H. Hambali, "Improving Mental Health Through Sports: A Systematic Literature Review Study," *SPRINTER: Jurnal Ilmu Olahraga*, vol. 5, no. 2, pp. 247–257, Jun. 2024, doi: 10.46838/spr.v5i2.519.
- [2] A. R. Gema, R. Rumini, and T. Soenyoto, "Football Competition Management of the South Sumatra Super League (SSL) in Palembang City," *Journal of Physical Education and Sports*, vol. 5, no. 1, pp. 8–16, 2016, Accessed: Aug. 01, 2025. [Online]. Available: <https://journal.unnes.ac.id/sju/jpes/article/view/13273>
- [3] H. Ardiyanto, "Placing Mental Skills in Football Within Its Context," *Sepakbola*, vol. 1, no. 2, pp. 39–47, Oct. 2021, doi: 10.33292/sepakbola.v1i2.116.
- [4] N. Akhmad and A. Suriatno, "Analysis of Basic Football Skills of Bima Sakti Club Players," *Jurnal, Pendidikan*, vol. 3, no. 3, p. 48, Dec. 2018, doi: 10.58258/jupe.v3i3.517.
- [5] L. I. Rufi, M. Asshagab, and U. Asmuiddin, "An Analytical Study of Basic Football Techniques in Uho U-21 Football Players," *Journal Olympic (Physical Education, Health and Sport)*, vol. 3, no. 2, Art. no. 2, 2023, doi: 10.36709/jolympic.v3i2.40.
- [6] M. G. A. Dwipayana, D. Susilawati, and R. Mulyanto, "Implementation of Ball Feeling to The Results of Dribbling Agility in Football Games," *COMPETITOR: Jurnal Pendidikan Keperatihan Olahraga*, vol. 16, no. 1, Art. no. 1, Feb. 2024, doi: 10.26858/cjeko.v16i1.59655.
- [7] R. Yulmiando, "Basic Football Technical Skills in Self-Development Activities at SMA Negeri 2 Tembilahan," *Jurnal Olahraga Indragiri*, vol. 5, no. 1, pp. 353–367, Oct. 2021, Accessed: Aug. 01, 2025. [Online]. Available: <https://ejournal-fkip.unisi.ac.id/joi/article/view/1724>
- [8] T. F. Saputra and H. Humaid, "Modification of Passing Drills with Fixed and Moving Targets Using the Weaker Foot to Improve Football Passing Accuracy," *Jurnal Keperatihan Olahraga*, vol. 16, no. 1, pp. 57–64, Apr. 2024, doi: 10.17509/jko-upi.v16i1.66879.
- [9] R. Rein, D. Raabe, and D. Memmert, "Which pass is better? Novel approaches to assess passing effectiveness in elite soccer," *Human Movement Science*, vol. 55, pp. 172–181, Oct. 2017, doi: 10.1016/j.humov.2017.07.010.
- [10] J. Kim, "The attacking process in football: a taxonomy for classifying how teams create goal scoring opportunities," Phd, Middlesex University, 2022. Accessed: Aug. 01, 2025. [Online]. Available: <https://repository.mdx.ac.uk/item/89x xq>
- [11] V. Soniawan, Y. Setiawan, and E. Edmizal, "An Analysis of the Soccer Passing Technique Skills:," in *Proceedings of the 1st International Conference on Sport Sciences, Health and Tourism (ICSSHT 2019)*, Padang, Indonesia: Atlantis Press, 2021. doi: 10.2991/ahsr.k.210130.005.
- [12] S. A. Mitchell, J. L. Oslin, and L. L. Griffin, *Teaching Sport Concepts and Skills: A Tactical Games Approach*. Human Kinetics, 2020.
- [13] A. Ali, "Measuring soccer skill performance: a review," *Scandinavian Journal of Medicine & Science in Sports*, vol. 21, no. 2, pp. 170–183, Apr. 2011, doi: 10.1111/j.1600-0838.2010.01256.x.

- [14] L. Magnaguagno and D. Beck, "Decision-making process in game sports: what do top-level players think of current research?," *Front. Sports Act. Living*, vol. 7, p. 1653834, Sep. 2025, doi: 10.3389/fspor.2025.1653834.
- [15] D. Birrer and G. Morgan, "Psychological skills training as a way to enhance an athlete's performance in high-intensity sports," *Scandinavian Journal of Medicine & Science in Sports*, vol. 20, no. s2, pp. 78–87, Oct. 2010, doi: 10.1111/j.1600-0838.2010.01188.x.
- [16] B. Wang *et al.*, "A Systematic review of the factors that affect soccer players' short-passing ability—based on the Loughborough Soccer Passing Test," *BMC Sports Sci Med Rehabil*, vol. 16, no. 1, p. 96, Apr. 2024, doi: 10.1186/s13102-024-00880-y.
- [17] M. P. Schweltnus, Ed., *Olympic Textbook of Medicine in Sport*, 1st ed. Wiley, 2008. doi: 10.1002/9781444300635.
- [18] F. M. Clemente *et al.*, "Effects of Small-Sided Game Interventions on the Technical Execution and Tactical Behaviors of Young and Youth Team Sports Players: A Systematic Review and Meta-Analysis," *Front. Psychol.*, vol. 12, p. 667041, May 2021, doi: 10.3389/fpsyg.2021.667041.
- [19] A. Hargreaves, *Skills & Strategies for Coaching Soccer*. Human Kinetics, 2009.
- [20] C. H. Shea, R. Kohl, and C. Indermill, "Contextual interference: Contributions of practice," *Acta Psychologica*, vol. 73, no. 2, pp. 145–157, Mar. 1990, doi: 10.1016/0001-6918(90)90076-R.
- [21] T. Carlsson, J. Broman, J. Isberg, and M. Carlsson, "Passing-skill training vs. small-sided games for improvement of side-foot kick accuracy among youth female soccer players," *Front. Sports Act. Living*, vol. 7, Apr. 2025, doi: 10.3389/fspor.2025.1506563.
- [22] C. H. Shea and R. M. Kohl, "Specificity and Variability of Practice," *Research Quarterly for Exercise and Sport*, vol. 61, no. 2, pp. 169–177, Jun. 1990, doi: 10.1080/02701367.1990.10608671.
- [23] R. A. Schmidt and T. D. Lee, *Motor control and learning: A behavioral emphasis, 5th ed.* in *Motor control and learning: A behavioral emphasis, 5th ed.* Champaign, IL, US: Human Kinetics, 2011, pp. ix, 581.
- [24] K. Skivington *et al.*, "Introducing the revised framework for developing and evaluating complex interventions: A challenge and a resource for nursing research," *International Journal of Nursing Studies*, vol. 154, p. 104748, Jun. 2024, doi: 10.1016/j.ijnurstu.2024.104748.