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Analysis Of Passing Accuracy Using the Dominant and Non-Dominant Foot Among Players of The Tunas Inti Tengeran Youth Football Club

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Abstract: Youth soccer players often rely on their preferred foot, potentially limiting their passing options when match situations require the use of the opposite foot. This study compared Loughborough Soccer Passing Test (LSPT) performance between the preferred and non-preferred feet of 20 youth players from the Tunas Inti Tengeran Soccer Academy. Participants were recruited through purposive sampling and completed the LSPT separately with each foot using a within-participant design. Performance was assessed using the total LSPT score, which incorporated completion time and applicable penalties; lower scores indicated better performance. Participants performed better with their preferred foot than with their non-preferred foot, as reflected by lower mean scores for the preferred-foot condition (46.55) than for the non-preferred-foot condition (58.80). A paired-samples t-test confirmed that this difference was statistically significant, $t(19) = -6.25$, $p < .001$, with a large effect size (Cohen's $d = -1.40$). These findings indicate a substantial within-player performance disparity between the two feet under standardized LSPT conditions. Youth soccer training programs should therefore incorporate systematic practice with the non-preferred foot to promote more balanced passing competence and expand players' technical options during match play.

Keywords: passing, soccer, dominant foot, non-dominant foot, LSPT

Introduction

Regular participation in planned physical activity contributes to physical fitness, psychosocial development, and athletic achievement. For young people, organized sport also provides an environment in which sporting potential can be identified and developed alongside academic pursuits (Rahayuningsih & Jariono, 2022). From a health perspective, exercise can be understood as structured, controlled, and regularly performed bodily movement intended to maintain or improve physical functioning (Safitri et al., 2024). These benefits

emphasize the importance of providing young athletes with systematic and developmentally appropriate training.

Soccer is one of the most widely practiced team sports and requires players to integrate technical proficiency with physical capacity (Putra et al., 2023). Fundamental skills must be performed consistently under rapidly changing spatial, temporal, and tactical conditions. Youth soccer schools (Sekolah Sepak Bola [SSB]) therefore have an important role in establishing these competencies during the early stages of player development. The quality of training provided at this level may influence players' subsequent technical adaptability and readiness for more advanced competition.

Youth soccer training commonly emphasizes passing, dribbling, and shooting. Among these skills, passing is fundamental to maintaining possession, connecting teammates, changing the direction of play, and progressing the ball into advantageous attacking positions. Passing involves directing the ball toward a teammate using an appropriate surface of the foot (Muhammad Sidik et al., 2021), thereby transferring possession and ball momentum between players (Rabus, 2022). The ability to execute an appropriate pass quickly and accurately is therefore central to collective team performance.

Passing actions may be classified according to the distance over which the ball is delivered. Short passes are typically used to combine with nearby teammates, whereas long passes are intended to reach players in more distant areas of the field (Arrosyid et al., 2023). Effective passing, however, involves more than the mechanical execution of a kick. It requires coordinated technique, perceptual awareness, rapid decision-making, and appropriate tactical timing. Passing efficiency is consequently determined by the interaction of accuracy, speed of execution, ball control, and the player's ability to respond to the surrounding game situation.

Soccer players commonly display a preference for one foot when performing technical actions. The preferred or dominant foot generally demonstrates greater familiarity, coordination, and control and is therefore used with greater confidence (Nurhidayat et al., 2019). Such lateral preference may create a performance advantage when the dominant foot is used. Conversely, limited proficiency with the non-dominant foot may restrict a player's passing options, delay decision-making, and make subsequent actions more predictable to opponents.

Differences between the two feet may arise from several interacting factors, including muscular asymmetry, unequal practice exposure, perceived comfort, motor coordination, and self-confidence. Foot selection during competition may also be influenced by positional constraints, defensive pressure, playing-surface conditions, coaching instructions, and immediate tactical demands. Because players cannot always position the ball onto their preferred side, functional competence with both feet is important. Systematic bilateral training may therefore be required to reduce performance asymmetry and improve players' ability to respond effectively when

the dominant foot cannot be used (Haaland and Hoff, 2003; Ben Kahla et al., 2022).

Previous studies have primarily examined interventions intended to improve passing performance. Wicaksana et al. (2021) investigated give-and-go drills and rondo activities, Muhammad Sidik et al. (2021) evaluated a four-goal exercise for developing passing and stopping skills, and Permono and Ramadhani (2025) assessed drill-based training for passing accuracy. These studies provide useful evidence regarding the effectiveness of different training methods. However, their principal emphasis is on improvement following a training intervention rather than on the magnitude of the performance difference between the dominant and non-dominant feet within the same players.

Within the literature reviewed for the present study, direct within-player comparisons of dominant- and non-dominant-foot passing performance remain limited, particularly among youth players enrolled in soccer-school programs. Consequently, it remains unclear whether young players who routinely participate in structured training demonstrate comparable performance with both feet or retain a substantial lateral imbalance. Addressing this question is important because group-level evaluations of passing ability may conceal meaningful differences between a player's preferred and non-preferred sides.

Passing performance can be evaluated using the Loughborough Soccer Passing Test (LSPT), a standardized protocol that requires players to execute passes while responding to spatial and decision-making demands (Wang et al., 2024). The test integrates passing accuracy and ball control with movement, attention, and concurrent cognitive processing (Ganji et al., 2025). These characteristics make the LSPT suitable for examining foot-related performance differences under conditions that are more representative of the demands of play than an isolated stationary passing task. Nevertheless, the resulting LSPT value should be interpreted as a composite indicator of passing performance rather than as a direct measure of accuracy alone.

The novelty of the present study lies in its use of a within-participant design to compare dominant- and non-dominant-foot LSPT performance among youth players from SSB Tunas Inti Tengeran. Unlike intervention studies that compare performance before and after a training program, this investigation evaluates lateral performance asymmetry by testing the same players under both foot conditions. This approach reduces the influence of between-player differences and allows the direction and magnitude of the dominant-foot advantage to be estimated more directly. The study also complements previous training research by establishing whether a meaningful bilateral performance gap is present before a targeted corrective program is designed.

The study is significant from both scientific and practical perspectives. Scientifically, it contributes evidence concerning foot laterality and within-player variation in youth soccer passing performance. Practically, quantifying the difference between the two

feet may assist coaches in identifying technical imbalances, allocating training time, and developing exercises that provide sufficient practice for the non-dominant foot. Improved bilateral competence may broaden players' passing options, support faster responses under pressure, and reduce dependence on a single preferred side during competition.

Accordingly, this study aimed to describe LSPT performance under dominant- and non-dominant-foot conditions and determine whether the within-player difference was statistically significant and practically meaningful. It was hypothesized that players would demonstrate better LSPT performance when using their dominant foot. The findings are expected to provide an empirical basis for designing youth training programs that promote more balanced and adaptable passing competence.

Method

Study Design and Participants

This study employed a comparative quantitative design to compare passing accuracy using the dominant and non-dominant feet among players at SSB Tunas Inti Tenganan, using the Loughborough Soccer Passing Test (LSPT) as the instrument. The study population consisted of all active players of SSB Tunas Inti Tenganan, while the sample comprised 20 players selected using purposive sampling, specifically based on the criterion that the players were still actively participating in training at the club. The sample consisted of young soccer players, and the entire research procedure was conducted in accordance with research ethics standards, whereby participants and coaches were first provided with an explanation of the research objectives and procedures and gave their consent to participate.

Ethical approval statement

The study received approval from the Institutional Ethics Review Committee (IERC) of Universitas Muhammadiyah Surakarta. Before participation, each player received written and verbal information concerning the study objectives, procedures, potential risks, expected benefits, confidentiality protections, and voluntary nature of participation. Written informed consent was obtained from every participant. Participants were informed that they could withdraw at any time without penalty, and their data were anonymized before analysis.

Research Instruments

The primary research instrument was the Loughborough Soccer Passing Test (LSPT), a standardized field-based assessment of soccer-specific passing performance (Ali et al., 2007; Clemente et al., 2022; Wen et al., 2018). During each trial, participants completed a predetermined sequence of 16 passes directed toward four designated target areas. Performance was quantified using raw completion time together with time penalties assigned for inaccurate passes, incorrect target selection, poor ball control, and other

protocol violations (Ali et al., 2007; McDermott et al., 2015). Consequently, the final LSPT value was interpreted as a composite measure of passing efficiency rather than as an isolated measure of passing accuracy, with a lower adjusted score representing better performance (Wen et al., 2018; Wang et al., 2024). Previous research has reported acceptable reliability and discriminant validity for the LSPT, although its measurement properties may vary according to participants' age, competitive level, familiarization, testing surface, and scoring procedures (Ali et al., 2007; McDermott et al., 2015; Wen et al., 2018). The test has also demonstrated limited criterion validity for predicting passing performance during competitive match play; therefore, the present findings were interpreted specifically as standardized LSPT performance rather than direct evidence of match-passing ability (Serpiello et al., 2017). Observation sheets and video recordings were used to document execution errors and verify penalty decisions, while a stopwatch measured completion time. These procedures were applied consistently during both the dominant- and non-dominant-foot conditions.

Testing Procedure

Data collection was conducted on at the Academy's training ground using a natural-grass playing surface. All participants wore their usual soccer footwear and used a regulation size-5 ball. Before testing, participants completed a standardized 30-minute warm-up consisting of general warm up and dynamic stretching. The LSPT area, passing targets, distances, and penalty criteria were arranged in accordance with the standardized protocol described by Wang et al., (2024).

Before the recorded trials, each participant received standardized instructions and completed 10 familiarization trials. Participants subsequently performed the LSPT under dominant- and non-dominant-foot conditions. The order of the two conditions was randomized, with 15 minutes of seated or active recovery between trials to minimize fatigue and carryover effects. Both conditions were completed on the same day under comparable environmental conditions. During each condition, participants were instructed to use only the designated foot for all passes; any use of the opposite foot was recorded as invalid.

Completion time was measured using a manual stopwatch to the nearest 0.1 second. Passing errors and protocol violations were recorded on a standardized observation sheet, while video recordings were used to verify uncertain decisions. The final LSPT score was calculated by adding the prescribed time penalties for inaccurate passes and other execution errors to the raw completion time. A lower adjusted score therefore represented better overall LSPT performance.

Testing was administered by 3 trained assessors. Before data collection, the assessors reviewed the scoring criteria and independently evaluated 10 practice trials. When scoring

disagreements occurred, the video recording was reviewed and a final decision was reached by consensus.

Data Analysis

For each foot condition, the distribution was summarized by its minimum, maximum, mean, and standard deviation. Distributional normality and variance homogeneity were examined before inferential testing. Because every player completed both conditions, dominant- and non-dominant-foot scores were contrasted with a paired-sample t test in IBM SPSS Statistics 25.

Results

The results of this study were obtained by administering the Loughborough Soccer Passing Test (LSPT) to measure passing accuracy using the dominant and non-dominant feet among players from the Tunas Inti Tenggara Youth Soccer Club. The data obtained were then presented in tables and descriptions to facilitate analysis.

Based on the data analysis, it was found that there was a difference in the average completion time of the passing test between the use of the dominant foot and the non-dominant foot. In the LSPT, the lower the time recorded, the better the player's ability, as it indicates a faster passing process and fewer errors.

Table 1. Descriptive Statistics of LSPT Completion Time

Foot	N	Min	Max	Mean	SD
Dominant	20	34.00	73.00	46.55	9.32
Non-dominant	20	37.00	87.00	58.80	10.87

Table 1 shows that the average time taken to complete the passing test using the dominant foot is lower than that for the non-dominant foot. This suggests that players' passing ability is better when using their dominant foot. Conversely, using the non-dominant foot results in a longer time, indicating that players take longer and are more likely to make mistakes.

In addition, the frequency distribution results show that, when using their dominant foot, most players fall within the mid-range, indicating a fairly good skill level. Meanwhile, for the non-dominant foot, the distribution of scores is concentrated more toward higher scores. This suggests that, in general, players have not yet achieved a balance of skill between both feet.

To clarify these differences, the data can also be presented in the following graph:

Table 2. Paired-Sample Analysis of Dominant and Non-Dominant Foot Scores

Pair	t	df	p	Cohen's d
Dom.-non-dom.	-6.25	19	< .001	-1.40

Based on Tables 2 and 3, it is evident that there is a clear difference in passing ability between the dominant foot and the non-dominant foot, with the dominant foot performing better than the non-dominant foot.

Furthermore, based on the results of statistical tests using a paired-sample t-test, a p-value of less than 0.05 was obtained. This indicates that the difference in passing ability between the dominant and non-dominant legs is significant and not due to chance. Thus, the research hypothesis stating that there is a difference in passing ability between the two legs can be accepted.

Furthermore, the effect size, which falls into the large category, indicates that this difference is not only statistically significant but also has a tangible impact on actual gameplay on the field

Analysis and Interpretation of Results

Based on the research results presented, it can be interpreted that players tend to be more skilled, more confident, and have more stable motor coordination when using their dominant foot. This is evidenced by faster completion times and lower error rates.

Conversely, when using their non-dominant foot, players took longer to complete the tests, indicating that their ball control, coordination, and passing accuracy were not yet optimal. This difference suggests that the players have not yet achieved a balance of ability between both feet.

Thus, the results of this study indicate that the dominance of one foot remains a major factor in determining a player's passing ability, making balanced training necessary to improve the non-dominant foot.

Discussion

This The present study compared Loughborough Soccer Passing Test (LSPT) performance between the dominant and non-dominant feet of youth players from SSB Tunas Inti Tengeran. The dominant-foot condition produced a lower mean score than the non-dominant-foot condition, indicating more efficient performance when the preferred foot was used. The paired-sample analysis confirmed that the difference was statistically significant, $t(19) = -6.250$, $p < .001$. The standardized difference was also large, Cohen's $d = -1.398$, demonstrating that the observed difference was not only statistically detectable but also potentially meaningful in practical performance.

These findings should be interpreted according to the scoring characteristics of the LSPT. The test evaluates passing performance through a combination of task-completion time and penalties imposed for inaccurate passes and other execution errors. It also requires players to respond to spatial, technical, attentional, and decision-making demands (Wang et al., 2024). Ganji et al. (2025) further demonstrated that the LSPT can be incorporated into assessments involving ball control, movement, attention, and concurrent cognitive processing. A lower LSPT value therefore

represents more efficient overall passing performance rather than accuracy in isolation. Accordingly, the present findings indicate that players completed the test more efficiently with their dominant foot through a possible combination of faster execution, better control, and fewer passing errors.

The dominant-foot advantage may be related to the repeated use of the preferred limb during training and competition. Soccer performance depends on the integration of technical execution, physical capacity, coordination, and perceptual decision-making (Putra et al., 2023; Wang et al., 2024). Greater practice exposure with the dominant foot may produce a more stable motor pattern and allow players to regulate kicking force, supporting-foot position, body orientation, and ball direction more consistently. Nurhidayat et al. (2019) identified coordination, agility, speed, balance, endurance, and lower-limb power as important physical determinants of soccer performance. These components may contribute to the more efficient execution observed when players use their preferred foot.

The longer scores recorded in the non-dominant-foot condition indicate that participants had not developed equivalent technical efficiency on both sides. When required to use the non-dominant foot, players may need additional time to adjust their body position, organize the supporting leg, control the ball, and prepare the passing movement. Passing is not limited to striking the ball toward a teammate; it requires appropriate control of ball momentum, direction, and timing within a coordinated technical action (Rabus, 2022). Short- and long-distance passing tasks may also impose different technical demands, particularly with respect to force production and directional control (Arrosyid et al., 2023). Insufficient familiarity with these actions on the non-dominant side may increase execution time and the probability of errors.

The difference between the two feet may have important implications for competitive play. Soccer requires players to perform technical actions under changing spatial and tactical conditions (Putra et al., 2023). Defensive pressure, field position, passing angle, and the movement of teammates may prevent a player from repositioning the ball onto the preferred side. Under such conditions, limited non-dominant-foot proficiency may delay ball circulation, reduce the available passing options, and make the player's actions more predictable. Because passing supports possession, progression, and interaction between teammates, deficiencies on one side may affect both individual adaptability and collective play (Muhammad Sidik et al., 2021; Rabus, 2022).

Previous research has primarily investigated interventions intended to improve passing performance rather than directly comparing dominant- and non-dominant-foot performance within the same players. Wicaksana et al. (2021) reported that give-and-go and rondo activities contributed to improvements in soccer passing performance. Muhammad Sidik et al. (2021) examined a four-goal exercise designed to develop passing and stopping ability, whereas Permono and Ramadhani (2025) found that drill-based training

improved passing accuracy among youth players. Arrosyid et al. (2023) also emphasized the importance of varied passing exercises for the development of young soccer players. Collectively, these studies show that passing performance can be modified through systematic and task-specific practice.

The present findings complement this intervention-oriented literature by identifying a substantial difference between the two feet before the implementation of a targeted bilateral program. Although previous studies demonstrate that passing can improve through give-and-go activities, rondo exercises, four-goal games, and structured drills (Wicaksana et al., 2021; Muhammad Sidik et al., 2021; Permono & Ramadhani, 2025), they provide limited evidence about whether these interventions produce comparable development in both feet. Coaches may therefore need to evaluate dominant- and non-dominant-foot performance separately rather than assuming that an overall improvement in passing reflects balanced bilateral development.

The large effect size observed in this study suggests that non-dominant-foot training should be incorporated systematically into youth development programs. However, bilateral training should progress from controlled execution toward more representative playing conditions. Initial practice may emphasize body orientation, supporting-foot placement, contact quality, and force regulation. Training can subsequently progress to alternating-foot passing sequences, give-and-go combinations, rondo activities with specific foot-use constraints, and small-sided games that require players to select an appropriate foot under pressure. These recommendations are consistent with studies supporting varied, drill-based, and game-related passing activities (Arrosyid et al., 2023; Wicaksana et al., 2021; Permono & Ramadhani, 2025).

Rondo and small group passing activities may be particularly useful because they combine repeated technical execution with perception, positioning, and rapid decision-making. Wicaksana et al. (2021) showed that rondo and give-and-go exercises can contribute to passing development, while the review by Wang et al. (2024) emphasized that short-passing ability is influenced by multiple technical, perceptual, and contextual factors. Training the non-dominant foot within representative activities may therefore be more beneficial than relying exclusively on isolated passing repetitions. Nevertheless, controlled drills may remain useful during the early stages of learning because they allow players to concentrate on movement quality before additional tactical demands are introduced (Permono & Ramadhani, 2025).

The positive correlation between the two conditions, $r = .633$, $p = .003$, indicates that players who performed relatively well with one foot also tended to perform relatively well with the other. General attributes such as technical experience, movement efficiency, attention, and understanding of the test may have supported performance in both conditions. This interpretation is consistent with the multidimensional nature of LSPT performance, which incorporates

technical execution, ball control, movement, and cognitive processing (Wang et al., 2024; Ganji et al., 2025). Nevertheless, the significant difference between the condition means demonstrates that these general abilities did not eliminate the advantage associated with the dominant foot.

The correlation and paired-sample comparison should be interpreted as answering different research questions. The correlation describes the degree to which participants maintained a similar relative ranking across the two-foot conditions. In contrast, the paired-sample test determines whether the average LSPT values differed between conditions. Thus, the positive correlation does not indicate equality between the two feet. Players could demonstrate consistent relative ability across conditions while still obtaining substantially poorer scores with the non-dominant foot.

Several limitations should be considered when interpreting the findings. First, the study included only 20 purposively selected players from one youth soccer school. Participants may therefore have shared similar coaching practices, training exposure, and competitive experience. The findings should not be generalized directly to players from other clubs, age groups, competitive levels, or development systems. This limitation is particularly relevant because physical condition, technical experience, and training structure can influence soccer performance (Nurhidayat et al., 2019; Putra et al., 2023).

Second, the LSPT is a standardized assessment and cannot fully reproduce the dynamic conditions of competitive play. Although it incorporates passing, control, movement, attention, and decision-making demands (Wang et al., 2024; Ganji et al., 2025), it does not include active opponents, continuously moving teammates, tactical roles, or the full range of spatial constraints encountered during a match. The observed difference should therefore be interpreted specifically as an asymmetry in LSPT performance. Future investigations should examine whether a comparable difference is evident during small-sided games, training matches, and formal competition.

Third, the comparative and cross-sectional design does not establish why the difference between the two feet occurred. Although unequal practice exposure, motor coordination, physical asymmetry, and confidence offer plausible explanations, these factors were not measured directly. Research has identified physical and coordinative attributes as relevant to soccer performance (Nurhidayat et al., 2019; Putra et al., 2023), but the present study cannot determine which attributes accounted for the observed foot-related difference. These explanations should therefore be treated as theoretical interpretations rather than confirmed causal mechanisms.

Potential learning, fatigue, and order effects should also be considered if the order of the two-foot conditions was not randomized or counterbalanced. Familiarity with the test may improve performance during the second trial, whereas fatigue may have the opposite effect. Because the LSPT combines technical, physical, and cognitive demands (Wang et al., 2024; Ganji et al., 2025),

standardized familiarization, recovery intervals, testing order, and environmental conditions are important for ensuring a valid comparison. Future studies should report these procedures clearly and assess scorer agreement when execution penalties are determined observationally.

Despite these limitations, the present study provides preliminary evidence of a meaningful within-player difference between dominant- and non-dominant-foot LSPT performance in youth soccer. The findings extend previous research on passing-training methods (Wicaksana et al., 2021; Muhammad Sidik et al., 2021; Arrosyid et al., 2023; Permono & Ramadhani, 2025) by demonstrating that passing development should also be considered from a bilateral perspective. Improving overall passing performance may not be sufficient if substantial asymmetry between the two feet remains.

Future research should recruit larger samples from multiple clubs, report detailed participant characteristics, and determine foot dominance using a clearly defined procedure. Longitudinal or experimental studies are also needed to establish whether bilateral passing programs reduce the LSPT difference over time. These programs could integrate controlled drills, rondo activities, and small-sided games based on the approaches examined in previous passing research (Wicaksana et al., 2021; Muhammad Sidik et al., 2021; Permono & Ramadhani, 2025). Match-based indicators should additionally be included to determine whether improvements measured through the LSPT transfer to actual competitive performance.

Conclusions

Youth players from SSB Tunas Inti Tenggara demonstrated better LSPT performance when using their dominant foot than when using their non-dominant foot. This finding indicates a meaningful bilateral imbalance in overall passing performance, including the efficiency of task completion and the execution errors incorporated into the LSPT score. Although players who performed relatively well with one foot generally also performed well with the other, this relationship did not eliminate the substantial disadvantage associated with the non-dominant foot.

The findings emphasize the importance of incorporating systematic bilateral practice into youth soccer training. Coaches should provide progressive opportunities for players to perform passing and ball-control activities with both feet under controlled and game-related conditions. Such training may reduce dependence on the dominant foot, broaden the technical and tactical options available to players, and improve their adaptability when match situations require immediate use of the non-dominant foot. Further research involving larger and more diverse samples is required to determine whether structured bilateral training reduces this performance imbalance and whether improvements transfer to competitive match play.

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Author Contribution

The authors contributed to the entire research process. The lead author was responsible for research planning, data collection, data analysis, results interpretation, and draft preparation, including final manuscript revisions prior to publication. The second and third authors provided primary supervision throughout the study, contributing oversight to the research design, data interpretation, and critical revisions of the manuscript.

Conflict of Interest

The author declares that there are no conflicts of interest regarding the publication of this article.

Data Availability

The data sets generated and/or analyzed during this study are available from the authors upon reasonable request.

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Reference

- Ali, A., Williams, C., Hulse, M., Strudwick, A., Reddin, J., Howarth, L., Eldred, J., Hirst, M., & McGregor, S. (2007). Reliability and validity of two tests of soccer skill. *Journal of Sports Sciences*, 25(13), 1461-1470.
<https://doi.org/10.1080/02640410601150470>
- Arrosyid, M. I. A., Roesdiyanto, R., Rahayuni, K., & Hariadi, I. (2023). Pengembangan variasi latihan passing pendek pada pemain sepak bola usia 10-12 tahun di SSB Babat United berbasis modul. *Sport Science and Health*, 5(5), 501-511.
<https://doi.org/10.17977/um062v5i52023p501-511>
- Ben Kahla, A., Elghoul, Y., Ammar, A., Masmoudi, L., Trabelsi, K., Glenn, J. M., & Dahmen, R. (2022). Bilateral training improves agility and accuracy for both preferred and non-preferred legs in young soccer players. *Perceptual and Motor Skills*, 129(6), 1804-1825. <https://doi.org/10.1177/00315125221124373>
- Clemente, F. M., Praça, G. M., Oliveira, R., Aquino, R., Araújo, R. A., Silva, R., Sarmiento, H., & Afonso, J. (2022). A systematic review of the criterion validity and reliability of technical and tactical field-based tests in soccer. *International Journal of Sports*

- Science & Coaching, 17(6), 1462-1487.
<https://doi.org/10.1177/17479541221085236>
- Ganji, S., Sepehri Rahnema, H., Németh, S., Jantal, D., Vadasz, K., & Prokai, J. (2025). The effects of motor-cognitive warm-up protocols on sport-specific skills in 8-year-old football players. *Sports*, 13(12), 416. <https://doi.org/10.3390/sports13120416>
- Haaland, E., & Hoff, J. (2003). Non-dominant leg training improves the bilateral motor performance of soccer players. *Scandinavian Journal of Medicine & Science in Sports*, 13(3), 179-184.
<https://doi.org/10.1034/j.1600-0838.2003.00296.x>
- McDermott, G., Burnett, A. F., Robertson, S. J., Chia, M., & Jenkins, D. (2015). Reliability and validity of the Loughborough Soccer Passing Test in adolescent males: Implications for talent identification. *International Journal of Sports Science & Coaching*, 10(2-3), 515-528. <https://doi.org/10.1260/1747-9541.10.2-3.515>
- Muhammad Sidik, N., Kurniawan, F., & Effendi, R. (2021). Pengaruh latihan sepakbola empat gawang terhadap kemampuan passing stopping sepakbola ekstrakurikuler di SMP Islam Karawang. *Jurnal Literasi Olahraga*, 2(1), 60-67.
<https://doi.org/10.35706/jlo.v2i1.4434>
- Nurhidayat, Syaifullah, R., Sudarmanto, E., & Syauckani, A. A. (2019). Dominant physical factor determinant to play football. In *Proceedings of the 4th Progressive and Fun Education International Conference (PFEIC 2019)* (pp. 49-53). Atlantis Press. <https://doi.org/10.2991/pfeic-19.2019.10>
- Permono, P. S., & Ramadhani, S. (2025). Pengaruh metode latihan drill passing terhadap akurasi passing pemain sepakbola usia muda. *Sepakbola*, 5(1), 51-58.
<https://doi.org/10.33292/sepakbola.v5i1.333>
- Putra, S., Emral, E., Arsil, A., & Sin, T. H. (2023). Konsep model latihan fisik pada sepakbola. *Jurnal EDUCATIO: Jurnal Pendidikan Indonesia*, 9(2), 974-985.
<https://doi.org/10.29210/1202323429>
- Rabus, E. A. K. (2022). Pengaruh model latihan rondo terhadap kemampuan passing pemain sepakbola SMA Negeri 3 Kabupaten Solok Selatan. *Jurnal Prestasi Olahraga*, 5(10), 121-126.
- Rahayuningsih, A. P., & Jariono, G. (2022). Pola pembinaan olahraga taekwondo pada masa adaptasi kebiasaan baru ditinjau dari context, input, process, dan product. *Jurnal Porkes*, 5(1), 12-22. <https://doi.org/10.29408/porkes.v5i1.5443>
- Safitri, K. N., Irdhillah, S., Deskia, M., Naufaldy, M. F., Rahayu, R., Kusumawicitra, N., Triwanvi, S., & Mulyana, A. (2024). Pembelajaran penjasorkes di sekolah dasar: Manfaat olahraga untuk kesehatan tubuh. *Sinar Dunia: Jurnal Riset Sosial Humaniora dan Ilmu Pendidikan*, 3(2), 44-56.
<https://doi.org/10.58192/sidu.v3i2.2108>
- Serpiello, F. R., Cox, A., Oppici, L., Hopkins, W. G., & Varley, M. C. (2017). The Loughborough Soccer Passing Test has impractical

- criterion validity in elite youth football. *Science and Medicine in Football*, 1(1), 60-64.
<https://doi.org/10.1080/02640414.2016.1254810>
- Wang, B., Wan, B., Chen, S., Zhang, Y., Bai, X., Xiao, W., Tang, C., & Long, B. (2024). A systematic review of the factors that affect soccer players' short-passing ability—based on the Loughborough Soccer Passing Test. *BMC Sports Science, Medicine and Rehabilitation*, 16, 61.
<https://doi.org/10.1186/s13102-024-00880-y>
- Wen, D., Robertson, S., Hu, G., Song, B., & Chen, H. (2018). Measurement properties and feasibility of the Loughborough Soccer Passing Test: A systematic review. *Journal of Sports Sciences*, 36(15), 1682-1694.
<https://doi.org/10.1080/02640414.2017.1409611>
- Wicaksana, A. S., Setyawan, D. A., & Zahraini, D. A. (2021). Kontribusi give and go passing drill dan rondo game terhadap passing sepak bola. *Jurnal Olahraga dan Kesehatan Indonesia*, 2(1), 14-21. <https://doi.org/10.55081/joki.v2i1.540>