Journal of Coaching Education Sports Vol. 7, No. 2, August 2026, pp. 435-442
E-ISSN: 2722-3450 P-ISSN: 2775-3808

Passing Accuracy Using the Inside and Outside of the Foot in Futsal

Fadhlan Aldiva Suwandi[1*], Komarudin[2], Herdiansyah Agus[3], Firmansyah Mujahid Fadluloh[4]
[1,2,3,4]Indonesian University of Education, Indonesia
e-mail: fadhlanaldiva@gmail.com[1*], komarudin_pko@upi.edu[2],
herdiansyah.agus@upi.edu[3],firmansyahmf178@upi.edu

Abstract

This study aimed to examine the effect of structured passing training using the inside and outside of the foot on passing accuracy among futsal athletes. A pre-experimental study employing a One-Group Pretest–Posttest Design was conducted with 20 active Triball FC athletes selected through total sampling. Passing accuracy was measured using a standardized futsal passing and stopping test. The intervention consisted of a six-week training program with three sessions per week, focusing on inside-foot and outside-foot passing drills. Data were analyzed using descriptive statistics, the Shapiro–Wilk normality test, and paired-sample t-tests. The results demonstrated significant improvements in passing accuracy following the intervention. The mean inside-foot passing score increased from 12.60 ± 1.19 to 18.20 ± 1.11 ($p < 0.001$), while the outside-foot passing score increased from 7.20 ± 1.11 to 14.00 ± 1.41 ($p < 0.001$). These findings indicate that systematic and progressive passing training effectively enhances technical passing performance in futsal athletes. The study highlights the importance of integrating both inside-foot and outside-foot passing drills into regular training programs, with inside-foot passing serving as the primary technique for accuracy and ball control, while outside-foot passing provides tactical flexibility in dynamic game situations.

Keyword: Futsal; Passing Accuracy; Inside-Foot Passing; Outside-Foot Passing; Passing Training

corresponding author: fadhlanaldiva@gmail.com
Info Article:
Submitted: **29/06/2026** Revised: **30/06/2026** Accepted: **15/07/2026** Published: **28/07/2026**

How to Cite: Suwandi, F, A., Komarudin., Agus, H., Fadluloh, F, M. (2026). Passing Accuracy Using the Inside and Outside of the Foot in Futsal. *Journal Coaching Education Sports*. 7(2), 434-442
Author's Contribution:a) Research Design; b) Data Collection; c) Statistical Analysis; d) Manuscript Preparation; e) Fundraising

A. Introduction

Futsal is a sport that requires optimal mastery of basic techniques in fast and dynamic game situations (Dewi & Pakpahan, 2018). In such situations, a player's ability to control and distribute the ball is a determining factor in the effectiveness of a team's play. One of the most dominant basic techniques used is passing, the skill of passing the ball to teammates to maintain possession and create attacking opportunities (Nugroho, 2021; R. Yusuf & Darmawan, 2020). Good passing quality has been shown to contribute directly to the overall effectiveness of the game (Novitasari, 2019; Wardana et al., 2022).

Technically, passing in futsal is generally done using the inside and outside of the foot. Passing with the inside of the foot is known to offer a higher level of accuracy and control due to the wider contact area, making it effective for short- to medium-range passes (Rahman, 2020). Conversely, passing with the outside of the foot provides a more dynamic and unpredictable variation in the direction of the ball, but requires more complex coordination to remain accurate (Sutrisno, 2021). The differences in the biomechanical characteristics of the two techniques indicate the potential for differences in effectiveness on passing accuracy.

Various previous studies have shown that basic technique training, especially passing, has a significant influence on improving futsal playing skills (Sari & Kurniawan, 2019; Zulkifli & Andika, 2022). Several previous studies have demonstrated that passing training contributes positively to futsal technical performance and game effectiveness (Nugroho, 2021; Wardana et al., 2022). However, most studies have focused on general passing skill development without distinguishing the effectiveness of specific passing techniques. In particular, empirical evidence comparing inside-foot and outside-foot passing techniques remains limited, especially among club-level athletes. Consequently, there is still insufficient understanding regarding how each technique contributes to passing accuracy improvement. Therefore, further investigation is needed to provide evidence-based recommendations for futsal training programs

Observations of Triball FC players revealed that passing accuracy was still suboptimal, both in using the inside and outside of the foot. Passing errors often resulted in loss of possession and disrupted the team's play. This situation highlights the need for more specific and measurable studies on the effectiveness of these two passing techniques in the context of real-life club training.

The novelty of this study lies in its examination of two commonly used passing techniques—inside-foot and outside-foot passing—within a structured training program among club-level futsal athletes. Unlike previous studies that primarily assessed passing ability in general, this study specifically evaluates the contribution of each passing technique to passing accuracy improvement in a real training environment.

Based on the description, this study aims to analyze the differences in the effectiveness of passing using the inside of the foot and the outside of the foot on passing accuracy in futsal players at the Triball FC club.

B. Methods

This study used an experimental method with a One Group Pretest–Posttest Design to determine the effect of passing exercises using the inside and outside of the foot on futsal passing accuracy. The research design began with a pretest, followed by treatment in the form of passing exercises, and concluded with a posttest (Sugiyono, 2019). Prior to data collection, all participants were informed about the objectives and procedures of the

study. Participation was voluntary, and informed consent was obtained from all athletes before the research commenced. Participants were assured that their personal information would remain confidential and would only be used for research purposes. Athletes who were injured or absent during the intervention period were excluded from the study. The entire population was sampled because its size was relatively limited and allowed for comprehensive research (Arifin, 2021).

The research instrument employed a futsal passing and stopping test developed to measure passing accuracy. During the test, participants were instructed to perform passes toward a designated target area according to standardized testing procedures. Each successful pass that reached the target area was awarded a score, while unsuccessful attempts received no score. The total score obtained by each participant represented their passing accuracy performance. The instrument has previously demonstrated acceptable validity (0.80) and reliability (0.73) for assessing futsal passing skills (Ramadiarsyah, 2020).

The treatment, which involved passing exercises using the inside and outside of the foot, was carried out for 6 weeks, three times per week, for a total of 18 sessions. Each training session consisted of a warm-up, core exercises in the form of pair passing and target passing, and a cool-down. The training program was delivered in stages according to the principle of progressive training to improve the athletes' passing techniques (Bompa & Haff, 2021). The research data were analyzed using descriptive statistics, the Shapiro–Wilk normality test, and the paired sample t-test with the help of the SPSS application at a significance level of 0.05 (Fadluloh et al., 2024).

C. Results and Discussion

Descriptive Statistics

Table 1. Desciptive Statistics

	N	Minimum	Maximum	Mean	Standard Deviation
Inner Foot PreTest	20	10	15	12.60	1,188
Inner Foot Post Test	20	16	20	18.20	1.105
Outer Foot PreTest	20	5	9	7.20	1.105
Post Test Outer Foot	20	11	16	14.00	1,414
Valid N (listwise)	20				

Based on the results of the descriptive analysis, the average value obtained (*mean*) The inside foot pretest average was 12.60 and increased to 18.20 in the posttest. Meanwhile, the outside foot pretest average was 7.20 and increased to 14.00 in the posttest. These results indicate an increase in passing accuracy after being given passing practice using both the inside and outside of the foot.

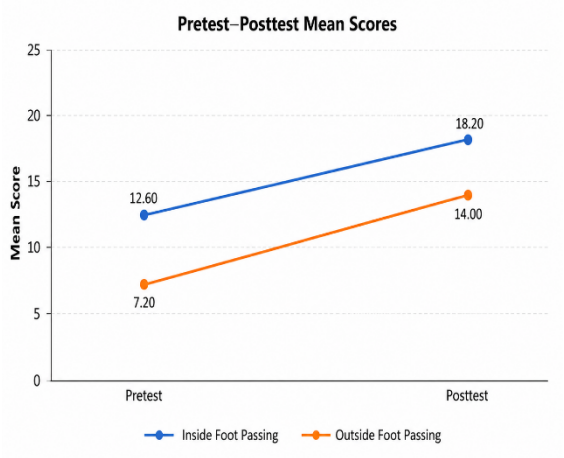

Figure 1. Pretest and Posttest Mean Scores

Figure 1 illustrates the comparison between pretest and posttest mean scores for inside-foot and outside-foot passing techniques. Both techniques demonstrated an increase in passing accuracy following the six-week training program. The mean score for inside-foot passing increased from 12.60 to 18.20, while the mean score for outside-foot passing increased from 7.20 to 14.00, indicating that the training intervention effectively improved passing performance among Triball FC athletes.

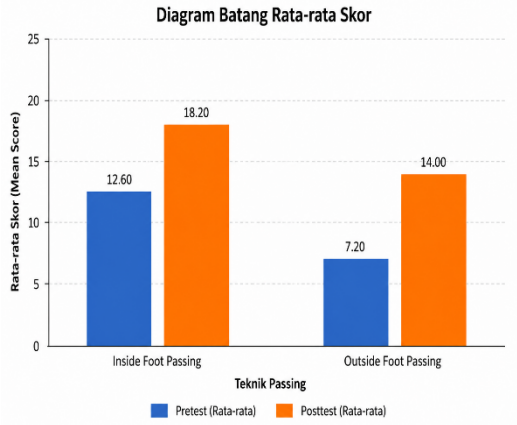

Figure 2. Mean Scores of Pretest and Posttest Passing Accuracy

Figure 2 shows the comparison of the mean pretest and posttest scores for inside-foot and outside-foot passing techniques. The results indicate that both passing techniques experienced improvements following the six-week training program. The mean score for inside-foot passing increased from 12.60 in the pretest to 18.20 in the posttest, representing an increase of 5.60 points (44.44%). Similarly, the mean score for outside-foot passing increased from 7.20 to 14.00, representing an increase of 6.80 points (94.44%). These findings demonstrate that structured passing training effectively improved passing accuracy among Triball FC athletes.

The relatively small standard deviation value indicates that the data obtained is

quite homogeneous and does not have too much spread among the research subjects. To determine the magnitude of improvement following the training program, the percentage increase was calculated. The results showed that the mean score of inside-foot passing increased from 12.60 to 18.20, representing a 44.44% improvement. Meanwhile, the mean score of outside-foot passing increased from 7.20 to 14.00, representing a 94.44% improvement. These findings indicate that both training methods contributed substantially to improving passing accuracy among the athletes.

Table 2. Results of the Shapiro–Wilk Normality Test

Variable	Statistic (W)	df	*p*-value
Inside-Foot Passing (Pretest)	0.913	20	0.072
Inside-Foot Passing (Posttest)	0.918	20	0.090
Outside-Foot Passing (Pretest)	0.915	20	0.078
Outside-Foot Passing (Posttest)	0.905	20	0.052

Normality tests were conducted using the Shapiro-Wilk method because the sample size was less than 50 people. The analysis results showed that all data had a significance value greater than 0.05, namely the inside foot pretest (0.072), the inside foot posttest (0.090), the outside foot pretest (0.078), and the outside foot posttest (0.052). Thus, all data were normally distributed and met the requirements for parametric testing using the paired sample t-test.

Table 3. Paired-Samples t-Test Results for Passing Accuracy

Comparison	Mean Difference	SD	SE	95% CI	*t*	*df*	*p*
Inside-Foot Passing (Pretest – Posttest)	-5.60	1.273	0.285	-6.196 to -5.004	-19.670	19	<0.001
Outside-Foot Passing (Pretest – Posttest)	-6.80	1.609	0.360	-7.553 to -6.047	-18.898	19	<0.001

The results of the paired sample t-test showed that in passing exercises using the inside of the foot, a significance value of 0.000 (<0.05) was obtained, with an average increase of 5.60 points. Meanwhile, in passing exercises using the outside of the foot, a significance value of 0.000 (<0.05) was obtained, with an average increase of 6.80 points. Because the significance value of both variables is less than 0.05, H_0 is rejected and H_1 is accepted. Thus, it can be concluded that passing exercises using the inside and outside of the foot have a significant effect on increasing the accuracy of futsal passing in Triball FC athletes.

Discussion

The Based on the results of theresearch results showed that passing exercises using the inside and outside of the foot significantly improved futsal passing accuracy. This improvement in passing ability occurred because the exercises were structured and repeated, improving motor coordination, ball control, and passing accuracy.

The improvement in passing accuracy observed in this study can be explained through motor learning and skill acquisition processes. Repeated practice facilitates the development of stable movement patterns and enhances coordination between the nervous system and muscles, leading to greater movement efficiency and accuracy (Schmidt et al., 2019; Magill & Anderson, 2021). According to skill acquisition theory, continuous exposure to task-specific practice enables athletes to refine technical execution and improve

performance consistency during competitive situations (Williams & Hodges, 2020). Furthermore, the principles of training adaptation suggest that systematic and progressive training promotes neuromuscular adaptations that support the development of technical skills and overall athletic performance (Bompa & Buzzichelli, 2019). From a biomechanical perspective, effective passing performance depends on the coordination of lower-limb segments, force production, and ball-contact mechanics, which improve through repeated technical practice (Lees et al., 2010; Kellis & Katis, 2007).

The improvement in passing accuracy observed in this study can also be explained through neuromuscular adaptation mechanisms. Repetitive and structured passing exercises stimulate motor learning processes, enhance coordination between the nervous system and muscles, and improve movement efficiency. As athletes repeatedly perform passing movements, the activation patterns of the muscles involved become more coordinated, resulting in greater control, precision, and consistency during ball distribution. These adaptations contribute to the development of technical proficiency and support improved passing performance in competitive futsal situations.

According to Bompa and Buzzichelli (2019), systematic and continuous training can optimally improve technical skills. Passing with the inside of the foot tends to produce more accurate and stable passes due to a wider contact area (Lhaksana, 2021), while passing with the outside of the foot provides a more dynamic variation in passing direction, making it effective in certain game situations (Sutrisno, 2021).

This finding is in line with research Andika & Zulkifli (2020) as well asA. Yusuf & Darmawan (2020)which states that specific passing technique training can improve futsal playing skills. The increase in passing accuracy that occurred in this study can be explained through the training principles proposed by (Bompa & Buzzichelli, 2019), that structured, repetitive, and continuous training will produce neuromuscular adaptations that support improved motor skills. Through repeated training, players are able to develop coordination between the nervous system and muscles, resulting in more effective, efficient, and accurate passing movements.

In addition, according to (Lhaksana, 2021). Passing using the inside of the foot has a high level of accuracy because the contact area with the ball is wider, making it easier for players to control the direction of the pass. Meanwhile, passing using the outside of the foot provides a wider variety of passing angles and helps players adapt to dynamic game situations. Therefore, practicing both techniques not only improves technical ability but also enriches players' tactical skills in distributing the ball during the match. Thus, passing training using the inside and outside of the foot has proven effective in improving the passing accuracy of futsal athletes.

The findings of this study provide practical implications for futsal coaches and athletes. Coaches are encouraged to incorporate both inside-foot and outside-foot passing drills into regular training programs to improve passing accuracy and ball distribution skills. Inside-foot passing exercises can be prioritized during the early stages of technical development because they offer greater stability and accuracy. Meanwhile, outside-foot passing exercises can be integrated to enhance tactical flexibility and enable players to execute passes effectively in dynamic game situations. Therefore, mastering both techniques is essential for improving individual performance and overall team play effectiveness.

This study has several limitations. First, the sample size was relatively small and limited to athletes from a single futsal club, which may restrict the generalizability of the findings. Second, the study employed a One Group Pretest–Posttest Design without a control group.

Third, the intervention focused solely on passing accuracy and did not assess other technical or tactical aspects of futsal performance. Future research should involve larger samples, control groups, and additional performance variables.

D. Conclusion

Based on the research results, it can be concluded that passing exercises using the inside of the foot and the outside of the foot are equally effective in improving futsal passing accuracy in Triball FC athletes. However, passing using the inside of the foot is more recommended as the primary technique because it provides better accuracy and ball control, while passing using the outside of the foot acts as a supporting technique that can be used in certain game situations to provide pass variation. Therefore, both techniques need to be optimally mastered to support player performance in matches. Based on the findings, both inside-foot and outside-foot passing training significantly improved passing accuracy among Triball FC athletes. Therefore, both techniques can be effectively incorporated into futsal training programs. Future studies employing comparative experimental designs are recommended to determine which technique provides greater effectiveness in improving passing performance.

References

Andika, R., & Zulkifli, A. (2020). The Effectiveness of Specific Basic Technique Training on Futsal Playing Ability. Journal of Achievement Sports, 16(2), 45–55.

Arifin, Z. (2021). Educational Research Methodology. Rosdakarya Youth.

Bompa, T. O., & Buzzichelli, C. A. (2019). Periodization: Theory and Methodology of Training (6th ed.). Human Kinetics.

Bompa, T.O., & Haff, G.G. (2021). Periodization for strength and performance: revisiting the concept with current evidence. Sports Medicine, 51(11), 2323–2336. https://doi.org/10.1007/s40279-021-01515-4

Dewi, R., & Pakpahan, MT (2018). Development of a Dribbling Test Instrument in Futsal. Jurnal Prestasi, 2(3), 1. https://doi.org/10.24114/jp.v2i3.10124

Fadluloh, FM, Sartono, H., Kusumah, W., & Mulyana, M. (2024). Athletes' Perception of Parental Support and Achievement Motivation: A Correlational Study with Early Age Individual Sport Athletes in Swimming. 412–421. https://doi.org/https://doi.org/10.31949/ijsm.v4i4.11454

Lhaksana, J. (2021). Modern Futsal Techniques and Tactical Development. Asian Journal of Sport Science, 5(2), 95–104.

Novitasari, VFD (2019). The Relationship Between Passing Skills and Futsal Game Effectiveness. Journal of Sports and Health. http://repository.unj.ac.id/1124/6/4. CHAPTERS 1-5.pdf

Nugroho, A. (2021). The Effect of Passing Training on Futsal Performance. Journal of Physical Education and Sport, 21(3), 120–128.

Rahman, A. (2020). Inside Foot Passing Accuracy in Competitive Futsal. Journal of Coaching Education, 4(2), 101–108.

Ramadiarsyah, F. (2020). Validity and Reliability of Futsal Passing and Stopping Tests. Journal of Sport Measurement and Evaluation, 4(1), 25–33.

Sari, N., & Kurniawan, D. (2019). Basic Futsal Skill Level of High School Extracurricular Students. Journal of Achievement Sports, 3(1), 66–73.

Sugiyono. (2019). Quantitative, Qualitative, and R&D Research Methods (2nd ed.). Alfabeta.

Sutrisno, E. (2021). Biomechanical Analysis of Outside Foot Passing in

Futsal. Journal of Sports Performance, 8(1), 15–24.

Wardana, A., Pratama, B., & Kurniawan, D. (2022). Technical Skills and Match Performance in Futsal. International Journal of Human Movement and Sports Sciences, 10(2), 150–158.

Yusuf, A., & Darmawan, T. (2020). The Relationship between Passing Practice and Teamwork in Futsal. School Sports Journal, 6(2), 20–28.

Yusuf, R., & Darmawan, D. (2020). The Relationship between Passing Practice and Team Coordination in Futsal. Journal of Sports Education, 6(2), 88–94.

Zulkifli, A., & Andika, R. (2022). Tactic-Based Passing Training in Futsal Game Development. Journal of Coaching Science, 10(1), 18–25.

Hermans, V., & Engler, R. (2011). *Futsal: Technique, Tactics, Training*. Meyer & Meyer Sport.

Sarmento, H., et al. (2018). Match analysis in futsal: A systematic review. *Sports*, 6(4), 1–17.

Clemente, F. M., et al. (2020). Technical and tactical performance indicators in small-sided soccer and futsal games. *International Journal of Performance Analysis in Sport*, 20(4), 1–15.

Schmidt, R. A., Lee, T. D., Winstein, C., Wulf, G., & Zelaznik, H. (2019). *Motor Learning and Performance: From Principles to Application* (6th ed.). Human Kinetics.

Magill, R. A., & Anderson, D. I. (2021). *Motor Learning and Control: Concepts and Applications* (12th ed.). McGraw-Hill.

Williams, A. M., & Hodges, N. J. (2020). *Skill Acquisition in Sport: Research, Theory and Practice* (3rd ed.). Routledge.

Davids, K., Araújo, D., Correia, V., & Vilar, L. (2013). An ecological dynamics approach to skill acquisition in sport. *Sports Medicine*, 43(1), 1–17.

Bompa, T. O., & Buzzichelli, C. (2019). *Periodization: Theory and Methodology of Training* (6th ed.). Human Kinetics.

Suchomel, T. J., Nimphius, S., & Stone, M. H. (2016). The importance of muscular strength in athletic performance. *Sports Medicine*, 46(10), 1419–1449

Kraemer, W. J., & Ratamess, N. A. (2021). Fundamentals of resistance training: Progression and exercise prescription. *Journal of Strength and Conditioning Research*, 35(3), 1–12.

Lees, A., Asai, T., Andersen, T. B., Nunome, H., & Sterzing, T. (2010). The biomechanics of kicking in soccer: A review. *Journal of Sports Sciences*, 28(8), 805–817.

Nunome, H., Ikegami, Y., Kozakai, R., Apriantono, T., & Sano, S. (2006). Segmental dynamics of soccer instep kicking with the preferred and non-preferred leg. *Journal of Sports Sciences*, 24(5), 529–541.

Kellis, E., & Katis, A. (2007). Biomechanical characteristics and determinants of instep soccer kick. *Human Movement Science*, 26(6), 911–928.