https://doi.org/10.29407/js_unpgri.v10i1.21732



Improved passing accuracy by using pair practice in adolescent soccer players

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Received: 14 December 2023; Revised: 28 January 2024; Accepted: 14 March 2024; Available online: 27 March 2024.

Abstract

Passing is one of the fundamental techniques in football. Good passing skills enable players to participate in the game effectively and maintain possession of the ball. Paired short passing drills also help improve individual skills. This research aims to find out whether short passing training in pairs can increase the accuracy of soccer passing in adolescent soccer players. The quantitative method used in the research is a pre-experimental design through one group pretest and posttest. The research instrument used a ball passing accuracy test for 30 seconds and used the short passing practice method in pairs. The population in this study consisted of 20 male Rekminers Club soccer players aged 15-17 years. The sample was selected using a total sampling technique, and the entire population sampled was 20 players. The data analysis technique uses the t-test to test the hypothesis to increase soccer passing accuracy in the pretest and posttest treatment using SPSS version 26. Based on the results of hypothesis testing using the t-test in paired short passing exercises with football passing accuracy ability, there is a significant influence based on pretest and posttest data analysis of 0.000 < 0.05. This exercise was successfully carried out to improve the accuracy of football passing. The research results show that short passing training in pairs is an effective method for improving the passing accuracy of football players.

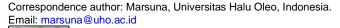
Keywords: Training, short passing, passing accuracy, soccer.

How to Cite: Marsuna, M., Rusli, M., & Saman, A. (2024). Improved passing accuracy by using pair practice in adolescent soccer players. Jurnal SPORTIF: Jurnal Penelitian Pembelajaran, 10(1), 31-46. https://doi.org/10.29407/js_unpgri.v10i1.21732.

Authors contribution: a – Preparing concepts; b – Formulating methods; c – Conducting research; d – Processing results; e – Interpretation and conclusions; f - Editing the final version

INTRODUCTION

Basic techniques in soccer are a very important foundation for every player. Basic soccer techniques, such as ball control, passing, dribbling, kicking, and passing, are initial skills that every player must master. Without a good mastery of these basic techniques, it is not easy to contribute effectively to the game (Pratama et al., 2020). Passing is one of the keys to success in football (Bayan et al., 2020). Teams that have good passing skills can control the game, build attacks, and create goal





opportunities. Good passing techniques allow a team to carry out attacks more effectively. By passing the ball accurately and quickly between players, teams can open up space in the opponent's defence and create goal opportunities (Rajidin, 2023).

Players who are able to send passes well can open up the opponent's defence and create space for teammates to score goals (Lüdin et al., 2022). Good technique helps ensure the ball goes to the goal. Players must be able to observe the situation on the field quickly and accurately. They need to see where their teammates are, where their opponents are, and the best options for passing the ball. Good observation helps in making the right decisions. Good passing mastery has an impact on ball control. Players with strong basic techniques can receive and send the ball well, making it easier to maintain control of the ball in various game situations (Modric et al., 2019).

The ability to control the ball well before passing it is important. This includes how players receive the ball and keep it within reach so they can throw it easily (Rojas Ferrer et al., 2020). Mastering basic techniques such as good passing can help reduce the risk of losing the ball. Accurate and precise passes can minimize opportunities for opponents to seize the ball so that the team can maintain possession better (Asy'ary, 2023). Good passing mastery allows players to adapt to various styles of play. Players who can adapt well to various game situations have higher scores (Sidik et al., 2021). Players must coordinate various elements such as body movement, foot position, and throwing direction when passing the ball. This requires the player to control his body well (Sobko et al., 2023). As with many things, practice and repetition are key to improving soccer passing accuracy. The more players practice, the better they become at throwing the ball correctly (Stone et al., 2021).

Passing accuracy in a soccer game can be influenced by pressure in match situations. Players who can maintain their composure and concentration even in pressure situations tend to be more accurate in passing the ball (Fernández-Cortés et al., 2023; Jud & Sariul, 2022; Tarju & Wahidi, 2017). Improving passing accuracy is an ongoing effort in

football player development. This requires dedication, hard work, and patience (Kelly et al., 2023). Short passing exercises are needed in pairs to improve passing accuracy in a soccer game. One of the main goals of short passing training is to improve a player's passing accuracy (Beheshtian-Ardakani et al., 2023). This involves training by kicking with precise short passes to teammates within a certain distance so that the ball can be received easily (Jordet et al., 2020).

Short passing drills help players improve basic techniques such as correct body alignment, proper foot position, and use of the inside of the foot to control the ball. This is important to improve accuracy and control in passing the ball (Buckthorpe et al., 2019; Ariffudin & Pramono, 2022). Training in pairs or small groups helps players develop coordination with their teammates. They learn to communicate, signal, and move to receive and throw the ball efficiently (Yokoyama et al., 2020). Short passing is an important component in tactical football play. Through this exercise, players can understand how to maintain ball control in the team, build attacks, and avoid losing them (Sokoli et al., 2020). Short passing allows players and teams to develop complex playing combinations. They can combine several short passes in a series of actions that can create goal opportunities (Stoeve et al., 2021).

Research conducted by Fauzi and Hariyadi (2021) evaluated paired passing with a ground pass training model in soccer games. In this research, it was found that there was a significant improvement with maximum results, although there were differences in training, namely using ground passes, but the effect was the same to increase passing accuracy. Short passing is an important component in the game of football (Sokoli et al., 2020). Short passing with maximum practice can develop complex game combinations in the game, and the results of this practice can combine several short passes in a series of actions that can create goal opportunities (Stoeve et al., 2021).

Paired short passing drills help players improve accuracy in receiving the ball short distances. By practising in pairs, players can properly hone these basic skills, which are an important aspect of a fast-

paced game of soccer. This exercise helps players improve their reaction speed in responding to movements and situations in the game. Players can improve their overall reaction time by practising receiving the ball quickly and accurately (Wood et al., 2021).

Concentration in soccer passing is a key factor that can influence the quality and success of a pass. Mastery of basic techniques in passing will only be effective if combined with a high level of concentration (Yılmaz & Oğüdücü, 2022). High concentration helps players to focus on the target or teammate who is the target of the pass. This increases the accuracy and precision of passing so that the ball reaches the desired target (Rodriguez-Giustiniani et al., 2022). Concentration allows players to respond quickly to situations on the field. In fast and dynamic game situations, the ability to focus on the best options for passes becomes critical (Fatahilah & Firlando, 2020). High concentration helps avoid passing errors due to negligence. Players who are not focused may make less accurate or too strong passes, which can result in losing possession or giving opportunities to the opponent (Pelamonia & Hutapea, 2020). Concentration allows a player to understand his team's tactics better. With a good understanding, players can make better decisions in terms of timing and direction of passes, thus being more effective in carrying out game strategies (Subarja et al., 2022).

So, consistency in training is very important for this problem. Athletes who do not train regularly cannot develop their passing abilities well, and psychological factors such as lack of motivation or lack of focus during training can affect passing accuracy (Souglis et al., 2023). Physical injuries or accidents while playing soccer can hinder an athlete's ability to carry out passing drills well (Zhou et al., 2023). To overcome this problem, athletes need to work closely with coaches, receive proper training, and commit to training consistently. Developing basic techniques, physical training and a better tactical understanding will help improve passing accuracy in soccer. Constructive feedback and regular evaluation can also help athletes overcome the problems they face. And to improve the accuracy of football passes, players need to practice regularly and

regularly to improve their basic techniques. Short passing drills should be an integral part of the team's training routine (Calle-Jaramillo et al., 2023).

The basic technique in short-passing training is correct body alignment, correct foot position, and correct use of the inside of the foot (Hodgson et al., 2014). Drills that focus on improving these basic techniques will have a positive impact on passing accuracy. Short passing drills can vary in terms of distance, speed and intensity (Arrosyid et al., 2023). Including this variety in practice helps players adapt to the various game situations they may encounter (Moustakidis et al., 2023). Players may perform short passing drills under pressure from teammates or coaches acting as opponents. This allows players to improve their ability to make passes in more realistic situations. Players can practice short passing techniques repeatedly to improve accuracy. This is supported by research conducted by (Pelamonia & Hutapea, 2020), which shows that in football passing, there are several methods that must be mastered, namely passing using the inside of the foot, with the tortoise foot, and the outside of the foot, so that when passing The ball will be easier to pass to opponents or teammates. Therefore, ball reception training must also be integrated into short passing training sessions. Players can practice passing by aiming at a specific target or target. This helps in developing passing accuracy. It is important to understand the player's need to see which way the ball should be passed. This includes observing the positions of teammates and opposing players to make the right decisions.

The research aims to find short passing exercises in pairs to improve passing accuracy in football, which is carried out by identifying the most effective training methods and techniques for improving the passing accuracy of football players. The short passing training method in pairs was carried out 18 times over 6 weeks. One of the main goals of short passing drills is to reduce passing failures, which can result in losing the ball to the opponent. Through research, players can also develop a better tactical understanding of when and how to make short passes in various game situations. This includes understanding how to build attacks and maintain control of the game. The research aims to help players and

teams become more competitive in soccer competitions by understanding and implementing effective drills. By practising short passes, you will be able to increase passing accuracy in the game of football.

METHOD

This research is experimental, with quantitative methods used in the research using a pre-experimental design through one group pretest and posttest (Kusumawati, 2015). The population in this study was 20 men and adolescent soccer players; while the sample was selected using total sampling techniques, the entire population sampled was 20 people aged 15-17 years.

The research instrument used a 30-second ball passing accuracy test for pretest and posttest (Setiawan, 2020). The short passing training method in pairs is carried out for 18 sessions over 6 weeks and 3 times a week. The short-passing training method in pairs is carried out for 18 sessions over 6 weeks and 3 times a week (Al Attar et al., 2022). The validity test result was 0.805, which was more significant at the 0.05 significance level, while the reliability test was 0.889, which was more significant than 0.05, so the data was reliable.

The training method provides structured training in accordance with a sustainable program so that the improvement results have a significant impact. The procedure was to give an initial test by measuring football passing accuracy for 30 seconds. After seeing the test results, the next step was to give short passing exercises in pairs for 18 training meetings, giving a final test, namely passing accuracy. To see the final test, whether there is any improvement from the initial test and after doing the exercise.

Research Procedure

The description of the implementation of the training program is as follows:

Based on maximum ability, it can be determined through the resulting training intensity, namely moderate 70% with 43 seconds of running in pairs, heavy 80% with 50 seconds of running, and 60% light with 38 seconds of running. From the intensity results, sets can be given,

namely for the first and second weeks, namely medium (3 sets) with a training volume of 129, heavy (4 sets) with a training volume of 200, and light (2 sets) with a training volume of 76. For the third and fourth weeks, namely medium (4 sets) with a training volume of 172, heavy (5 sets) with a training volume of 250, and light (3 sets) with a training volume of 114. For the fifth and sixth weeks, namely medium (4 sets) with a training volume of 172, heavy (5 sets) with a training volume of 250, and light (4 sets) with a training volume of 152. Rest time between sets is 1-5 minutes, and rest between repetitions is 0-30 seconds. This training program is determined based on the participant's maximum ability, which is 30 seconds, and the distance between partners is 5 meters. Based on maximum ability, it can be determined through the resulting training intensity, namely moderate 70% with 43 seconds of running in pairs, heavy 80% with 50 seconds of running, and 60% light with 38 seconds of running. From the intensity results, sets can be given, namely for the first and second weeks, namely medium (3 sets) with a training volume of 129, heavy (4 sets) with a training volume of 200, and light (2 sets) with a training volume of 76. For the third and fourth weeks, namely medium (4 sets) with a training volume of 172, heavy (5 sets) with a training volume of 250, and light (3 sets) with a training volume of 114. For the fifth and sixth weeks, namely medium (4 sets) with a training volume of 172, heavy (5 sets) with a training volume of 250, and light (4 sets) with a training volume of 152. Rest time between sets is 1-5 minutes, and rest between repetitions is 0-30 seconds.

RESULT

Based on the results of descriptive statistics, a significant increase in passing in soccer games was obtained. The mean obtained for the pretest was 4.1, and the mean for the posttest was 7.2. The research results above show a significant increase in the final test.

Jurnal SPORTIF: Jurnal Penelitian Pembelajaran, 10 (1) 2024 | 31-46

ISSN : 2477-3379 (Online) ISSN : 2548-7833 (Print)

Table 1. Results of pretest and posttest implementation

Variable	Mean	Standard Deviasi	Minimum	Maximum
Pretest results for passing	4.1	1.07	2	6
accuracy				
Posttest results for passing	7.2	1.20	5	9
accuracy				

Normality test on data with 20 subjects (n 20) using the Shapiro-Wilk test. Normality test results for soccer athletes can be seen in the following table:

Table 2. Results of data normality testing

	Data analysis used the one-sample Kolmogorov-Smirnov test.		
	Statistical Results	df	Significance
Pretest accuracy passing	0,187	20	0,064
Posttest accuracy passing	0,184	20	0,076

The results carried out through a normality test through short passing exercises in pairs to improve soccer passing accuracy have a significant value based on the pretest results, namely 0.187 with a significant value of 0.064 and posttest 0.184 with a significant value of 0.076. Based on the results above, it is more significant than 0.05, so the data obtained is normally distributed. From the data analysis above, it can be concluded that the data is normal and can be continued at the hypothesis testing stage.

Table 3. Data homogeneity test

	Statistic	df1	df2	Significance
Homogeneity of Pretest and Posttest	0,271	1	38	0,605

Based on the homogeneity test results, the sample comes from a homogeneous population because it is based on decision-making from a significance value of 0.605 > 0.05, meaning the resulting data is homogeneous. From the data analysis above, it can be concluded that the data is homogenity and can be continued at the hypothesis testing stage.

Table 4. Test the hypothesis using the t-test

	t	df	Significance
Pretest and posttest results	19,304	19	0,000

Based on the results of hypothesis testing using the t-test in paired short passing training with soccer passing accuracy ability, there is a significant influence based on pretest and posttest data analysis of 0.000 < 0.05. This exercise was successful for Rekminars Club athletes.

DISCUSSION

The results of short passing exercises in pairs to improve passing accuracy in football are significant if done correctly and regularly. After players and teams follow the appropriate training program. The most obvious result of short passing practice is an increase in passing accuracy. Players will become more skilled at passing the ball precisely to teammates over short distances, thereby reducing the risk of losing the ball and increasing the chances of maintaining control of the game. Players will develop better basic techniques in terms of correct body alignment, proper foot position, and proper use of the inside of the foot. This helps in controlling the ball better during practice and matches. Increasing passing accuracy also has an impact on a player's ability to receive the ball well. They will become more skilled at stopping, controlling, and manipulating the ball after receiving passes from teammates. Short passing drills in pairs help players and teams develop better coordination.

Short passing drills also help players improve their field awareness. They learn to read situations better, see where teammates and opponents are, and make quick and informed decisions (Sun et al., 2022). The results of this training not only affect passing accuracy but also affect the game as a whole. Improving players' technical and tactical abilities in short passing will help the team build attacks, maintain game control, and create goal opportunities. Players and teams can develop more complex game combinations as short passing abilities improve. They can combine several short passes in a series of actions that can create goal opportunities (Anzer & Bauer, 2022).

Short passing drills also include practising under pressure from opponents. The result is that players become more skilled at releasing the ball quickly and accurately, even when opposing players are pressuring them. As passing accuracy increases, players will also increase their confidence in handling game situations. This can make them more successful in real competition (Plakias et al., 2023). The results of short-passing training in pairs can positively impact players and teams in various aspects of the game of football. This is an important component in the

development of better and more effective players in achieving team goals in scoring goals and maintaining control of the game (Forcher et al., 2023).

Research supports paired short passing drills to improve passing accuracy in soccer. Bennett et al., 2018) show that short passing exercises in pairs in small-sided games can improve the technical abilities of young players in retaining and releasing the ball better. Evaluation of the impact of passing training on research Kunz et al. (2019) evaluated the impact of training that includes strength training and passing technique training in improving the performance of soccer players. The results show that combining the two types of training can increase passing accuracy. The importance of agility in football players Sarmento et al. (2018) highlight the importance of agility training that involves using the ball to improve a soccer player's ability to pass opponents and defend the ball.

This research shows that short passing practice in pairs is an important component in the development of technical skills and passing accuracy in football. The combination of technical training with physical or strength training can also have a positive impact on improving a player's performance. Therefore, the use of such drills should be an integral part of the soccer training program for players of all ages and skill levels. The training method provided provides structured training in accordance with a sustainable program so that the improvement results have a significant impact. The procedure carried out was to provide an initial test by testing and measuring the accuracy of football passes for 30 seconds, and after seeing the results of the test, the next step was to provide short passing exercises in pairs for 18 meetings in training.

The study had a limited sample size, which may limit the generalizability of the findings. The number of participants involved does not include sufficient variation in skill level, age, or gender. Controlling all the factors that can influence results, such as weather conditions, physical fatigue or motivation levels, can be difficult. These variables can affect the accuracy of the research. Research depends on the subject's abilities and cooperation, which can vary from individual to individual. This may affect the consistency of the results and introduce bias. Research may be limited

to one type of exercise, while variation in exercise may be important for optimal results.

A player's physical condition, such as fatigue or injury, may impact their ability to participate in full-intensity training. This can limit the effectiveness of the exercise and prevent the player from gaining the expected benefits. Each player has a different skill level. Practice is only equally beneficial for some players, as some require focus on specific technical aspects while others may have already mastered them. A player's motivation, self-confidence, and mental focus can influence their performance in practice. Stress, anxiety or pressure to perform can also affect their passing accuracy. The amount of practice a player performs consistently can influence their progress. Training that is not frequent enough or too infrequent can hinder players' ability to improve their passing accuracy.

CONCLUSION

Research findings regarding the practice of short passing in pairs that prove their effectiveness in improving the accuracy of passing soccer have a wide range of interests and relevance that players, coaches and football teams can feel. Paired passing practice encourages collaboration and communication between team members. Some of the limitations faced in future research include the following: Each player has a different level of skill and physical characteristics. This variability can affect the response to partner training and the study results. Research can be conducted in a variety of different contexts and practice environments. Factors such as the type of field surface, weather conditions, or exercise intensity can affect the study results. Psychological aspects, such as motivation, concentration and confidence, can affect a player's performance in pair training. Contribution, that is, through pair practice, can hone players to improve technical skills, namely in controlling and releasing the ball. A practical suggestion or recommendation is to provide variety in pairwise short passing drills, including drills with different distances, speeds, and

intensities. This will help players to develop their passing skills in various game situations.

ACKNOWLEDGMENT

Thank you to the Rekminers Club football coach, Kendari City. To athletes who are very enthusiastic about carrying out tests and training,

REFERENCES

- Al Attar, W. S. A., Khaledi, E. H., Bakhsh, J. M., Faude, O., Ghulam, H., & Sanders, R. H. (2022). Injury prevention programs that include balance training exercises reduce ankle injury rates among soccer players: a systematic review. *Journal of Physiotherapy*, 68(3), 165–173. https://doi.org/10.1016/j.jphys.2022.05.019
- Anzer, G., & Bauer, P. (2022). Expected passes: Determining the difficulty of a pass in football (soccer) using spatio-temporal data. *Data Mining and Knowledge Discovery*, 36(1), 295–317. https://doi.org/10.1007/s10618-021-00810-3
- Ariffudin, M. B., & Pramono, M. (2022). Pengaruh Latihan Small Sided Games Terhadap Akurasi Passing di La Brava Futsal Club. *Indonesian Journal of Kinanthropology (IJOK)*, 1(2), 95–101. https://doi.org/10.26740/ijok.v1n2.p95-101
- 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
- Asy'ary, A. (2023). Survei Kondisi Fisik dan Ketrampilan Dasar Bermain Sepak Bola Umur 12-15 Tahun. *Jurnal Sosial Dan Teknologi*, *3*(2), 153–161. https://doi.org/10.59188/jurnalsostech.v3i2.648
- Bayan Ardana Wikarta, & Muzni Rofik. (2020). Latihan small sided games dalam ketepatan passing pada ekstrakurikuler sepak bola. SPORTIF: Jurnal Pendidikan Jasmani, Kesehatan, Dan Rekreasi, 5(2). https://doi.org/10.54438/sportif.v5i2.51
- Beheshtian-Ardakani, A., Salehi, M., & Sharma, R. (2023). CMPN: Modeling and analysis of soccer teams using Complex Multiplex Passing Network. *Chaos, Solitons & Fractals*, 174, 113778. https://doi.org/10.1016/j.chaos.2023.113778
- Bennett, K. J. M., Novak, A. R., Pluss, M. A., Stevens, C. J., Coutts, A. J., & Fransen, J. (2018). The use of small-sided games to assess skill proficiency in youth soccer players: A talent identification tool. *Science and Medicine in Football*, 2(3), 231–236. https://doi.org/10.1080/24733938.2017.1413246

- Buckthorpe, M., Della Villa, F., Della Villa, S., & Roi, G. S. (2019). On-field rehabilitation part 2: A 5-stage program for the soccer player focused on linear movements, multidirectional movements, soccer-specific skills, soccer-specific movements, and modified practice. *Journal of Orthopaedic & Sports Physical Therapy*, 49(8), 570–575. https://doi.org/10.2519/jospt.2019.8952
- Calle-Jaramillo, G. A., Gonzalez-Palacio, E. V., Perez-Mendez, L. A., Rojas-Jaramillo, A., & Gonzalez-Jurado, J. A. (2023). Design and Validation of a Test to Evaluate the Execution Time and Decision-Making in Technical—Tactical Football Actions (Passing and Driving). Behavioral Sciences, 13(2), 101. https://doi.org/10.3390/bs13020101
- Fatahilah, A., & Firlando, R. (2020). Tingkat konsentrasi atlet kota lubuklinggau. *Riyadhoh: Jurnal Pendidikan Olahraga*, *3*(1). https://doi.org/10.31602/rjpo.v3i1.3096
- Fauzi, R. A., & Hariyadi, K. (2021). Pengaruh Model Latihan Ground Pass Terhadap Passing Permainan Sepakbola Pada SSB Perisai Muda Trenggalek KU 14-16 Di Gandusari. SPRINTER: Jurnal Ilmu Olahraga, 2(2), 180–186. https://doi.org/10.46838/spr.v2i2.123
- Fernández-Cortés, J., García-Ceberino, J. M., García-Rubio, J., & Ibáñez, S. J. (2023). Influence of Game Indicators on the Ranking of Teams in the Spanish Soccer League. *Applied Sciences*, *13*(14), 8097. https://doi.org/10.3390/app13148097
- Forcher, L., Forcher, L., Wäsche, H., Jekauc, D., Woll, A., Gross, T., & Altmann, S. (2023). Is ball-possession style more physically demanding than counter-attacking? The influence of playing style on match performance in professional soccer. *Frontiers in Psychology*, 14, 1197039. https://doi.org/10.3389/fpsyg.2023.1197039
- Hodgson, C., Akenhead, R., & Thomas, K. (2014). Time-motion analysis of acceleration demands of 4v4 small-sided soccer games played on different pitch sizes. *Human Movement Science*, 33(1). https://doi.org/10.1016/j.humov.2013.12.002
- Jordet, G., Aksum, K. M., Pedersen, D. N., Walvekar, A., Trivedi, A., McCall, A., Ivarsson, A., & Priestley, D. (2020). Scanning, contextual factors, and association with performance in English Premier League footballers: An investigation across a season. *Frontiers in Psychology*, 11, 553813. https://doi.org/10.3389/fpsyg.2020.553813
- Jud, J., & Sariul, S. (2022). Efektivitas Latihan Zig-Zag terhadap Kemampuan Dribbling Pada Permainan Sepak Bola. *Jurnal Eduscience*, 9(1), 54–64. https://doi.org/10.36987/jes.v9i1.2540
- Kelly, A., Wilson, M., & Wood, G. (2023). *Tactical: Measuring and Developing Tactical Knowledge and Performance in Youth Soccer Players* (pp. 34–46). https://doi.org/10.4324/9781032232799-3
- Kunz, P., Engel, F. A., Holmberg, H.-C., & Sperlich, B. (2019). A metacomparison of the effects of high-intensity interval training to those of

small-sided games and other training protocols on parameters related to the physiology and performance of youth soccer players. *Sports Medicine-Open*, *5*(1), 1–13. https://doi.org/10.1186/s40798-019-0180-5

- Kusumawati, M. (2015). Penelitian Pendidikan Penjasorkes. Alvabeta, CV.
- Lüdin, D., Donath, L., Cobley, S., & Romann, M. (2022). Effect of biobanding on physiological and technical-tactical key performance indicators in youth elite soccer. *European Journal of Sport Science*, 22(11), 1659–1667. https://doi.org/10.1080/17461391.2021.1974100
- Modric, T., Versic, S., Sekulic, D., & Liposek, S. (2019). Analysis of the association between running performance and game performance indicators in professional soccer players. *International Journal of Environmental Research and Public Health*, 16(20), 4032. https://doi.org/10.3390/ijerph16204032
- Moustakidis, S., Plakias, S., Kokkotis, C., Tsatalas, T., & Tsaopoulos, D. (2023). Predicting Football Team Performance with Explainable Al: Leveraging SHAP to Identify Key Team-Level Performance Metrics. *Future Internet*, *15*(5), 174. https://doi.org/10.3390/fi15050174
- Pelamonia, S. P., & Hutapea, A. P. (2020). Pengaruh Latihan Passing 5, 10, 15 Meter Terhadap Ketepatan Passing Sepakbola. *Jurnal Porkes*, 3(2), 103–109. https://doi.org/10.29408/porkes.v3i2.2962
- Plakias, S., Moustakidis, S., Kokkotis, C., Papalexi, M., Tsatalas, T., Giakas, G., & Tsaopoulos, D. (2023). Identifying soccer players' playing styles: a systematic review. *Journal of Functional Morphology and Kinesiology*, 8(3), 104. https://doi.org/10.3390/jfmk8030104
- Pratama, M., Alnedral, A., Sin, T., & Soniawan, V. (2020). Metode Circuit Training Berpengaruh Terhadap Kemampuan Dribbling Sepakbola. *Jurnal Patriot*, 2(3), 874–884. https://doi.org/10.24036/patriot.v2i3.677
- Rajidin, N. G. M. S. (2023). Upaya Meningkatkan Keterampilan Passing Sepak Bola dengan Gaya Mengajar Cooperative Learning. *SPJ*, 12(1), 39–55. https://doi.org/10.24815/spj.v12i1.31634
- Rodriguez-Giustiniani, P., Rollo, I., & Galloway, S. D. R. (2022). A preliminary study of the reliability of soccer skill tests within a modified soccer match simulation protocol. *Science and Medicine in Football*, 6(3), 363–371. https://doi.org/10.1080/24733938.2021.1972137
- Rojas Ferrer, C. D., Shishido, H., Kitahara, I., & Kameda, Y. (2020). Read-the-game: System for skill-based visual exploratory activity assessment with a full body virtual reality soccer simulation. *PloS One*, *15*(3), e0230042. https://doi.org/10.1371/journal.pone.0230042
- Sarmento, H., Clemente, F. M., Harper, L. D., Costa, I. T. da, Owen, A., & Figueiredo, A. J. (2018). Small sided games in soccer–a systematic review. *International Journal of Performance Analysis in Sport*, *18*(5), 693–749. https://doi.org/10.1080/24748668.2018.1517288

- Setiawan, A. (2020). Effect of Method of Playing on Passing Accuracy of Football School Players. 1st International Conference of Physical Education (ICPE 2019), pp. 249–251. https://doi.org/10.2991/assehr.k.200805.068
- Sidik, N. M., 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
- Sobko, I., Dovbnia, M., & Franshchuk, V. (2023). Mobile games in the training process of football players 5-6 years old. *Health Technologies*, 1(3), 19–28. https://doi.org/10.58962/HT.2023.1.3.19-28
- Sokoli, B., Ibrahimi, G., & Jahaj, Q. (2020). Differences in short and long passes of midfield footballers. *Journal of Education, Health and Sport*, 10(2), 140–147. https://doi.org/10.12775/JEHS.2020.10.02.019
- Souglis, A. G., Travlos, A. K., & Andronikos, G. (2023). The effect of proprioceptive training on technical soccer skills in female soccer. *International Journal of Sports Science & Coaching*, *18*(3), 748–760. https://doi.org/10.1177/17479541221097857
- Stoeve, M., Schuldhaus, D., Gamp, A., Zwick, C., & Eskofier, B. M. (2021). From the laboratory to the field: IMU-based shot and pass detection in football training and game scenarios using deep learning. *Sensors*, 21(9), 3071. https://doi.org/10.3390/s21093071
- Stone, J. A., Smith, A., & Barry, A. (2021). The undervalued set piece: Analysis of soccer throw-ins during the English Premier League 2018–2019 season. *International Journal of Sports Science & Coaching*, 16(3), 830–839. https://doi.org/10.1177/1747954121991447
- Subarja, R., Aminudin, R., & Nasution, N. S. (2022). Metode Latihan Drill Dapat Menjadi Solusi Untuk Meningkatkan Teknik Dasar Passing Sepakbola? *Jurnal Patriot*, *4*(3), 252–260. https://doi.org/10.24036/patriot.v4i3.878
- Sun, H., Soh, K. G., Mohammadi, A., Wang, X., Bin, Z., & Zhao, Z. (2022). Effects of mental fatigue on technical performance in soccer players: A systematic review with a meta-analysis. *Frontiers in Public Health*, 10, 922630. https://doi.org/10.3389/fpubh.2022.922630
- Tarju, T., & Wahidi, R. (2017). Pengaruh Metode Latihan Terhadap Peningkatan Passing Dalam Permainan Sepak Bola. *JUARA: Jurnal Olahraga*, 2(2), 66–72. https://doi.org/10.33222/juara.v2i2.35
- Wood, G., Wright, D. J., Harris, D., Pal, A., Franklin, Z. C., & Vine, S. J. (2021). Testing the construct validity of a soccer-specific virtual reality simulator using novice, academy, and professional soccer players. *Virtual Reality*, 25(1). https://doi.org/10.1007/s10055-020-00441-x
- Yılmaz, Ö. İ., & Öğüdücü, Ş. G. (2022). Learning football player features

Jurnal SPORTIF: Jurnal Penelitian Pembelajaran, 10 (1) 2024 | 31-46

ISSN : 2477-3379 (Online) ISSN : 2548-7833 (Print)

using graph embeddings for player recommendation system. *Proceedings of the 37th ACM/SIGAPP Symposium on Applied Computing*, 577–584. https://doi.org/10.1145/3477314.3507257

- Yokoyama, K., Tabuchi, N., Araújo, D., & Yamamoto, Y. (2020). How training tools physically linking soccer players improve interpersonal coordination. *Journal of Sports Science & Medicine*, 19(2), 245.
- Zhou, W., Yu, G., You, S., & Wang, Z. (2023). An Improved Passing Network for Evaluating Football Team Performance. *Applied Sciences*, 13(2), 845. https://doi.org/10.3390/app13020845