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Analysis of Training Methods for Passing Accuracy in Futsal Sports: Systematic Literature Review

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ABSTRACT

The objective of this study was to analyze training methods that can improve passing accuracy in futsal. Materials and methods: The PRISMA table will be used for systematization and meta-analysis in this observational investigation. Various studies were published from January 2020 to December 2024. In the search procedure, the following keywords were used: (1) Futsal and (2) Training. The search in this study used the Scopus research journal database. The overall theme of this study was obtained 42. Contains 19 articles, and then 10 relevant articles were taken. Based on the research that has been done, the researcher found that the Small-sided Games (SSG) training method is a valid and reliable training method and has been proven to improve the quality of passing in futsal. The SSG training method can also increase VO2 Max which will also affect the quality of players in futsal games. This study also found a valid and reliable instrument or test tool in the form of change of direction speed (CODS) and reactive agility (RAG) to measure the quality of basic passing techniques in futsal.

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INTRODUCTION

Futsal is a high-intensity sport, where each player must be fast and precise in every action (Komang Ari Selin et al., 2024). Decision-making based on the situation and condition of teammates and opponents also needs to be considered. Futsal and football have significant differences in terms of game rules, technical actions and tactical actions. Players must master these components to adapt and organize every game action.

Futsal can be said to be one of the dynamic sports because, in futsal, players are required to have speed and precision of movement based on physical size, technique, and tactics. Futsal is played by 5 players and during the match the number of players is not limited. In futsal, players are required to have high physical strength, because futsal

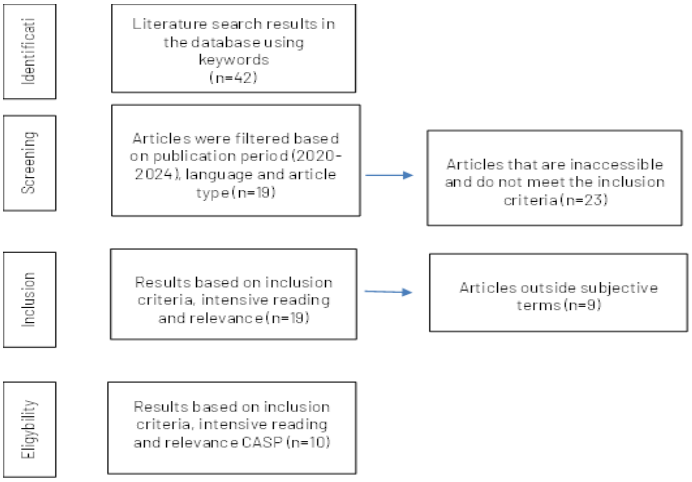
players must be able to maintain the intensity of the game so that it is always at a high intensity. Futsal players must drain the ball as quickly as possible to reduce the decrease in intensity. To achieve this, futsal players must be able to perform various basic techniques in futsal matches. The most dominant basic techniques in futsal are passing, dribbling, and shooting. Ball circulation in futsal matches is recommended for passing techniques because it will save more energy compared to ball circulation with dribbling techniques.(Nurcahya et al., 2020)

Many studies have been conducted to observe what training methods can affect the level of basic passing technique skills and other basic techniques in futsal. However, several training methods can be said to have not succeeded in proving whether the training method can affect the level of basic passing technique skills and other basic techniques in futsal. For example: 1. In the article titled "The learning of decision-making on interception and passing in futsal", researchers conducted 4 experiments. This study aimed to examine the learning of passing (experiments 1 and 2) and interception (experiments 3 and 4) decision-making in futsal. For this purpose, spatio-temporal information about interpersonal coordination (relative angle, ball passing trajectory, movement of teammates) was converted into instructions. In the study, The researchers found no difference in tests 1 and 2, meaning that the exercise did not affect skill levels (de Pinho et al., 2021). 2. In the article titled "How Informational Constraints for Decision-Making on Passing, Dribbling and Shooting Change With the Manipulation of Small-Sided Games Changes in Futsal" the research produced the following results: Coaches' decisions to change floater positions during SSG- widow. Can change the informational variables that support the dribbling decision, but no changes in SSG variables affected passing DM (Pizarro et al., 2021). 3. In the article entitled "Futsal Shooting Moving Ball Test (FSMT) Assessment as a New Testing Protocol", the results show that training does not affect the quality of the passes, but only the quality of shots (Doewes et al., 2022c).

Therefore, the author's goal in this article is to find out what things can influence basic passing techniques and other basic techniques in futsal by reviewing or identifying articles that contain training methods that can influence basic passing techniques in futsal.

METHODS

The words "Futsal", and "Passing" were searched for in published articles from the Sinta (Science and Technology Index) and Scopus Collection (Science Citation Index Expanded; Social Science Citation Index; Arts & Humanities Science Citation Index) from the years 2020 through 2024. PRISMA 2020 reflects recent advances in terminology and methodology by facilitating transparent and complete reporting of systematic reviews (Page et al., 2021). Some PRISMA 2020 checklist items were overlooked in the systematic review and meta-analysis article published in the Korean Journal of Radiology (Park et al., 2022).



As shown in the flow diagram (Figure 1), a total sample of 10 articles was obtained from a total of 42 articles by adhering to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines (Page et al., 2021) during the phases of identification, screening, suitability, and inclusion.

Study Organization

The following variables were taken into account in the bibliometric analysis: (a) The annual trend of articles published between 2020 and 2024; (b) The references used are limited to journals only; (c) Relevant article; (d) distribution of publications in the article authors' institutions; (e) subject area (training, health, management, education, other, or mixed); (f) study type (experimental, descriptive, correlational, other); and (g) average number of citations per article.

Statistic Analysis

Article titles, abstracts, and keywords were highlighted as sufficient to generate a reliable core of the article and suitable for further use and analysis. Only open-access articles were included in this review study, as the authors of this review did not want to exclude anyone who did not have access to their research. The following inclusion and exclusion criteria were used to obtain relevant studies that only addressed a specific topic.

RESULTS AND DISCUSSION

Result

The following table shows the number of publications published during the selected period. Year published.

Table 1.
Number of publications published during the selected period

Year of publication	Number of articles	Percentage
2020	6	31%
2021	5	26%
2022	3	16%
2023	2	11%
2024	3	16%
Total	**19**	**100%**

Table 2.
Examples of Table Forms

Title/source	Sample	Result
Lateral Preference and Inter-limb Asymmetry in Completing Technical Tasks During Official Professional Futsal Matches: The Role of Playing Position and Opponent Quality (Palucci Vieira et al., 2021),	Athlete	The use of the dominant limb can improve the accuracy of control, passing, and shooting.
Development OF a Test Instrument To Measure the Basic Pass Technique in FutsaL (Doewes et al., 2022b)	Athlete	Valid and reliable passing test tool
Analysis of the passing distance of professional futsal players in the Indonesia Pro Futsal League (Doewes et al., 2022a).	Athlete	Passing distance exercises.
The Positive Impact of Small-Sided Games Training on VO2 Max and Passing Accuracy in Futsal Players (Fitrian et al., 2023)	Student Athlete	Increase of VO2 max and passing accuracy
Women's Futsal Ability: VO2 Max and Futsal Techniques(Alexander et al., 2024)	Athlete	Increases VO2 max, futsal techniques in female futsal players and athlete weight loss although not significant.
Analysing the manipulation of the number of players on tactical, technical, and physical performance in youth futsal(Gomes et al., 2024)	Athlete	Increase the number of passing and shooting actions.
Development of chipping and passing skill test instruments for U-23 futsal players in Central Java Province(Kustiawan et al., 2024)	Athlete	Reliable measuring tool for assessing futsal skills in players.
Higher variability in dyadic interaction plays a positive role in the decision-making of futsal passing(Corrêa et al., 2020)	Student	interaction of passer and receiver dyads was more variable than the remaining dyads.

DISCUSSION

Valid and reliable passing test tool

In futsal, athletes are required to master basic passing techniques with a high level of accuracy due to the narrow futsal field and the close distance between players. To determine the development of passing techniques in players, a performance test instrument is needed. In a study entitled "Development Of A Test Instrument To Measure The Basic Pass Technique In Futsal"(Doewes et al., 2022b), the aim was to develop a test instrument to measure futsal passing performance. This development research produces an instrument product that explains the implementation and assessment to complement the previous test instrument which had limitations in several ways. The study was applied to 120 athletes with the results proving validity in the instrument with a passing time of one minute; namely, the first pass is 0.855, and the second pass is 0.857. The reliability value of the first pass is 0.81, and the second pass is 0.812. The development of the CODS and RAG tests involving dribbling over a distance of more than 3.2 meters, especially on the dominant side, showed valid and reliable results to differentiate performance levels in futsal athletes (Sekulic et al., 2019). Development of a valid and reliable passing test tool to be used in measuring basic passing techniques in

futsal. Comprehensive development methods and ideal levels of reliability ensure the quantity and quality of information about athletes and coaches and the validity needed for scientific use. (O'Donoghue, 2007).

Passing distance exercises

Passing is a basic technique that is important to master in futsal (Ueda et al., 2020). There are 3 types of passing techniques when viewed from a distance, namely short-range passing, medium-range passing, and long-range passing (White & Griffiths, 2019). In 2021, more precisely during the final match of the Indonesian Futsal League, a study was conducted with a total of 459 passing results. Based on the total results of using the basic passing technique, researchers identified that the most widely used type of passing was long-range passing (average distance of 14.47 meters) with a percentage of 66.34%. Then medium passing with an average distance of 7.46 meters has a percentage of 29.29% and short-range passing has a percentage of 4.15% with an average passing distance of 3.58 meters. Passing skills must be developed in each training session to a certain level. The main consideration in achieving high-level passing skills is accuracy. Therefore, the results of this study can be used as a reference for training passing starting from the closest distance passing, then medium distance, and finally long distance. This futsal passing distance analysis can be used as a basis for passing mastery training. Thus, coaches can plan a passing training program with a certain distance and maximize the accuracy of the player's passing (Doewes et al., 2022a).

Small-side game training method

Small-side games (SSG) are a popular training method in futsal, designed to improve various skills and physical attributes with a game-like scenario copy with a smaller number of players. Small games combine skills, and specific training movements, with sufficient intensity to encourage aerobic adaptation and improve cardiovascular in players (Halouani et al., 2014). This approach is used to improve the technical ability, cognitive performance, and physical condition of players. In a study entitled "The Positive Impact of Small-Sided Games Training on VO2 Max and Passing Accuracy in Futsal Players", the results showed that the Small-Sided Games training method can affect passing accuracy in futsal. The small-side games training method can improve player accuracy because players often come into contact with the ball, make quick decisions under pressure from fast opponents, and must often pass to teammates (Fitrian et al., 2023). In addition, small-side games can also increase VO2 max because players must continue to move throughout the game (Pattimahu et al., 2021). In another study entitled Women's Futsal Ability: VO2 Max and Futsal Technique, the futsal training method using small side games can increase VO2 max, futsal technique in female futsal players and reduce athlete weight, although not significantly (Alexander et al., 2024).

CONCLUSION

Based on the research that has been done, the researcher found that the small-sided games (SSG) training method is a valid and reliable training method and has been proven to

improve the quality of passing in futsal. The SSG training method can also increase VO2 Max which will also affect the quality of players in futsal games. This study also found a valid and reliable instrument or test tool in the form of change of direction speed (CODS) and reactive agility (RAG) to measure the quality of basic passing techniques in futsal. There are limitations in previous research, there are training methods that are less effective and efficient, and the instruments used are less valid and reliable. So that further research is expected to develop effective and efficient training programs.

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