



THE RELATIONSHIP BETWEEN DYNAMIC KINETIC BALANCE AND THE ACCURACY OF SHORT PASSING IN FEMALE FUTSAL PLAYERS

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Abstract: Futsal is a sport that requires a high level of technical skill, particularly in short and accurate passing, which is heavily reliant on dynamic kinetic balance. This research aims to study the relationship between dynamic kinetic balance and the accuracy of short passing in futsal. It seeks to determine the extent to which improving dynamic kinetic balance impacts the accuracy of short passes and ball control. This research contributes to: enhancing the technical performance of futsal players; shedding light on the kinetic factors that influence short passing accuracy; and assisting coaches in designing training programs to improve dynamic kinetic balance. Based on field observations of the performance of female players from Al-Zawraa Futsal Club, the researchers noted a clear deficiency in the execution of short passing among most players, despite the great importance of this skill in futsal. The researchers attributed this weakness to a deficit in the physical quality of dynamic kinetic balance, which is a vital physical attribute that directly affects skillful performance. From this perspective, the research aimed to uncover the relationship between dynamic kinetic balance and the accuracy of short passing performance in futsal. Hypothesis: The research hypothesis was that there is a statistically significant relationship between dynamic kinetic balance and the accuracy of short passing. The researchers found a correlation between these two variables. Based on these findings, the researchers recommended focusing on developing dynamic kinetic balance in players through training programs that enhance fundamental futsal skills, due to its positive impact on improving short passing accuracy.

Keywords: Dynamic Kinetic Balance, Accuracy, Short Passing, Futsal.

Introduction

The passing skill is one of the fundamental pillars of futsal, playing a vital role in building team performance and achieving tactical cohesion among players. Specifically, short passing is a precise skill that requires a high level of physical and kinetic attributes. Dynamic kinetic balance stands out as a key attribute due to its direct role in controlling body movement during skill execution under changing game conditions.

Successful short passing requires the pass to be delivered to the right teammate with the appropriate force, timing, and height. This necessitates a high degree of body control during the movement, which can only be achieved if the player has a good ability to maintain dynamic kinetic balance. This importance is evident both in the initial stages of skill learning and during advanced training phases. Any deficiency in this attribute, whether during general or specific preparation, will negatively impact passing accuracy and, consequently, the overall level of the team's technical performance.

Conversely, teams whose players can execute accurate short passes often have better tactical effectiveness and more cohesive team performance, which enhances their chances of achieving their tactical and strategic objectives.



From this perspective, the significance of this research lies in demonstrating the relationship between dynamic kinetic balance and the accuracy of short passing. The goal is to provide a clear scientific understanding for coaches and futsal specialists about the impact of this physical attribute on developing fundamental skills. This approach is also a first step toward establishing training principles that focus on developing the kinetic attributes that influence skillful performance, which will positively reflect on the development of players' level in the game.

It is worth noting that futsal, like other team sports, relies on the integration of physical, skillful, tactical, and psychological preparation to achieve optimal performance. In this context, dynamic kinetic balance—as defined by Risan Khrebit (1992, 168)—is "the individual's ability to control the physiological and anatomical capabilities that contribute to regulating balance, along with the ability to perceive the spatial position of the body, either with or without visual senses, through mental and neural integration."

Therefore, developing dynamic kinetic balance is considered one of the basic requirements for improving short passing skills and, subsequently, for enhancing overall skillful performance in futsal.

Research Problem

Through field observations and monitoring conducted by the researchers—who are former international youth players for the Iraqi national team and specialized futsal coaches—a clear deficiency was noted in the performance of the short passing skill among most female players of the Al-Zawraa Club. This was evident in both static and dynamic situations, using different parts of the foot depending on the requirements of the competitive situation during play. This weakness persists despite the great importance of this skill in the context of team and tactical performance.

The analysis also revealed a noticeable deficiency in the physical attribute of dynamic kinetic balance, which is one of the fundamental physical attributes that effectively contribute to the accuracy and correctness of executing motor skills, especially short passing. From this perspective, the researchers saw the need to address this problem through a scientific study that aims to diagnose its dimensions and propose appropriate solutions to contribute to development.

Research Objectives

1. To identify the performance level of Al-Zawraa Club's female players in executing the short passing skill in futsal.
2. To determine the level of dynamic kinetic balance possessed by Al-Zawraa Club's female players in futsal.
3. To uncover the nature of the relationship between dynamic kinetic balance and the accuracy of the short passing skill among Al-Zawraa Club's female futsal players.

Research Hypothesis

1. There is a statistically significant correlation between dynamic kinetic balance and the accuracy of the short passing skill among Al-Zawraa Club's female futsal players.

Material methods

Research Methodology

The researchers used the descriptive method, as it is suitable for the research problem, given that it is a "description of the situation, no matter how the direction of the study changes" (Wajeih Mahjoub, 1992, 297).

Population and Sample

The research population included seven clubs participating in the Iraqi Futsal Clubs League: Al-Zawraa, Al-Quwa Al-Jawiya, Naft Al-Shamal, Biladi, Fatat Baghdad, Shaharban, and Fatat Nineveh. Al-Zawraa Club was chosen through a random lottery and represented the research population. The research sample consisted of



the female players of Al-Zawraa Futsal Club, numbering 24 players. A random sample of 10 players was selected by lottery, representing 41% of the original research sample population. The remaining players were excluded from the sample for the following reasons: 2 players for the pilot study, 2 injured players, 3 players for test reliability, 5 players for their involvement in training with the Iraqi women's national futsal team, and 2 players for lack of attendance commitment.

Equipment, Tools, and Information Gathering Methods

1. Equipment and Tools Used in the Research:

1. Measuring tape.
2. Stopwatch.
3. Futsal balls (10 balls).
4. Adhesive tape in different colors.
5. Whistle.
6. A flat wall.
7. Lenovo computer.
8. Wooden balance beam measuring 4m in length, 10cm in width, and 5.3cm in height.
9. Standard futsal court.
10. Special drawing pens for futsal court surfaces.

2. Information Gathering Methods:

1. Arabic sources.
2. Foreign sources.
3. The Internet.

Research Procedures

1. Test Selection

The researchers conducted personal interviews with a group of experts and specialists in futsal to determine the appropriate tests for measuring the accuracy of the short passing skill and the dynamic kinetic balance attribute, as shown in Tables (1) and (2).

Table (1): Tests for Short Passing Accuracy Presented to Experts

N	Skill	Tests	Percentage %
1 2 3	Short Passing Accuracy	Short Passing and Shooting Accuracy	51%
		Short Passing Accuracy with a Ball Towards a Small Target at a Distance of 8m	54%
		Short Passing Accuracy with a Ball Towards Three Concentric Circles Drawn on the Ground	81%

Table (2): Tests for Dynamic Kinetic Balance Attribute

N	Physical Attribute	Tests	Percentage %
1	Dynamic Kinetic Balance	Walking on a Wooden Balance Beam	87%
2		Standing on the Ball of the Foot	48%
3		Walking on a Hexagonal Polygon	52%

(1) Ahmed Omar Suleiman: *Kinetic Perceptual Abilities of the Child*, Cairo, Dar Al-Fikr Al-Arabi, 1995, p. 75.

2. Test Execution Method

1. The Wooden Balance Beam Walking Test

(Ahmed Omar, 1995, 75)

- **Test Name:** Walking on a wooden balance beam.
- **Test Objective:** To measure dynamic kinetic balance.
- **Tools:** A wooden balance beam (4m long, 10cm wide, 5.3cm high), and a stopwatch.
- **Test Specifications:** Upon hearing the start signal, the player walks on the wooden balance beam towards the other end, then turns and returns to the starting point as quickly as possible. It is emphasized that no part of the body should touch the ground outside the beam's boundaries during the performance.
- **Scoring:** The time taken to walk on the wooden balance beam is measured to the nearest 1/10th of a second. If any part of the body touches the ground outside the beam, one second is added to the total time.



Figure (1): The wooden beam for the dynamic kinetic balance test.

2. Short Passing Accuracy Test Towards Three Concentric Circles on the Ground

(Mohammed Sobhi, 1982, 211)

- **Test Objective:** To measure short passing accuracy in futsal.
- **Tools:** A specific area of a futsal court, 5 futsal balls, adhesive tape in different colors, a stopwatch, and a measuring tape.
- **Performance Method:** Three concentric circles are drawn with diameters of 2m, 4m, and 6m, respectively. The scoring is as follows: The 2m circle is worth 6 points, the 4m circle is worth 4 points, and the 6m circle is worth 2 points. The lines of the circles are also scored: the first circle's line is worth 5 points, the second's is worth 3 points, and the third's is worth 1 point. The distance from the center of the three circles to the starting line is 8m.
- **Scoring:** The number of points scored by the player during the five attempts is calculated. An attempt is considered invalid if the ball goes outside the three designated circles.

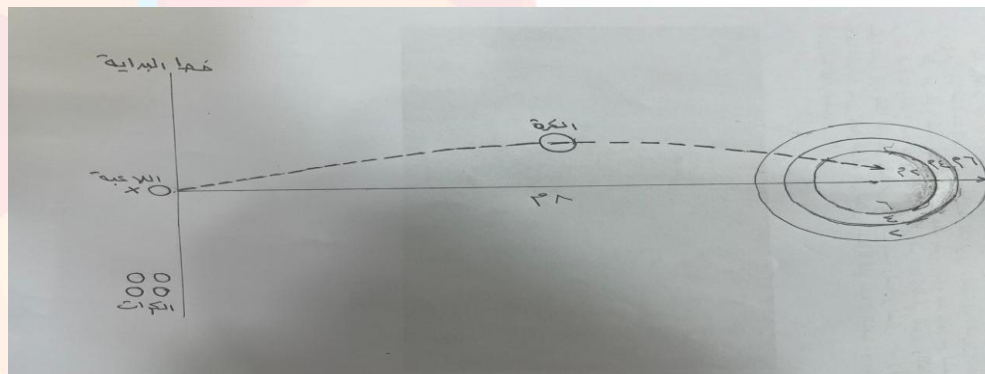


Figure (2): The short passing test towards three circles drawn on the ground.

Pilot Study

The researchers conducted a pilot study on Wednesday, January 2, 2025, at 2:00 PM in the futsal hall of Al-Zawraa Sports Club. Two players from the research population, but not from the main sample, participated. The purpose was to verify the suitability of the equipment and tools, determine the time required for the tests, train the assistant team on test procedures, and ensure the players' ability to perform the tests correctly (O. A. Ali, 2022; O. Ali & Hamid, 2021; Hammood et al., 2024).

Main Experiment

The research tests were conducted on Sunday, January 13, 2025, at 2:00 PM in the futsal hall of Al-Zawraa Sports Club, with the presence of the assistant work team. The scores obtained by the players during the tests were recorded, organized, and prepared for later statistical analysis.

Statistical Methods:

Arithmetic Mean, Standard Deviation, Pearson Correlation Coefficient (Fayyad et al., 2025; Khalaf et al., 2025). Percentage.

Results

Presentation and Analysis of the Relationship Between Dynamic Kinetic Balance and Short Passing Accuracy in Futsal

Table (4): Arithmetic Means, Standard Deviations, and Pearson Correlation Coefficient for Dynamic Kinetic Balance and Short Passing Accuracy Tests.

no	Test	Unit of Measurement	Mean	Standard Deviation	Calculated (r) Value	Tabulated (r) Value	Significance
11	Walking on a Wooden Balance Beam (Dynamic Kinetic Balance)	Score	5.5	0.81	0.77	0.63	Significant
22	Short Passing Accuracy with a Ball Towards Three Concentric Circles Drawn on the Ground (Passing Skill)	Score	3	0.60			

Degrees of Freedom (8), Significance Level (0.05)



Table (4) shows that the mean for the wooden balance beam walking test (for dynamic kinetic balance) was 5.5, with a standard deviation of 0.81. The mean for the short passing accuracy test was 3, with a standard deviation of 0.60. The calculated correlation coefficient was 0.77, which is greater than the tabulated value of 0.63 at 8 degrees of freedom and a significance level of 0.05. This indicates a significant relationship between the dynamic kinetic balance attribute and the accuracy of the short passing skill in futsal.

Discussion

Discussion of the Results for Dynamic Kinetic Balance and Short Passing Accuracy in Al-Zawraa Futsal Players

Based on the presentation and analysis of the previous results, the findings showed a significant correlation between dynamic kinetic balance and the accuracy of the short passing skill in futsal. The researchers attribute this significant correlation to the fact that when a futsal player performs a short pass, she needs to maintain a balanced body position while kicking the ball. The player takes the first step with her left foot and kicks the ball with her right foot, or vice-versa. During the short passing skill, a futsal player (Munir Jarees Ismail, 2004, 95) needs "kinetic balance to generate the sufficient force to pass the ball and direct it correctly to a teammate. When a player's body is unstable and unbalanced, the ball cannot be pushed accurately and powerfully." Imad Zubair (2005, 112) believes that "the core of futsal is accurate passes at the right time between teammates to move the ball towards the opposing team as quickly as possible. Team play is a true evaluation of the team's ability to play futsal, which requires high performance during the match and mastering passes" (2).

The researchers also attribute the process of dynamic kinetic balance and short passing to creating a great sense of dealing with the ball in terms of its circumference and weight. Ammar Shihab (2008, 25) states that "the frequent interaction of players with the ball increases their feel for the ball and their perception of its mass, shape, and size."

The researchers also believe that a coach who diversifies the selection of appropriate exercises can develop the physical attributes that help players master many of the basic skills in futsal. Therefore, Hanafi Mahmoud (1998, 46) emphasizes that "the selection of appropriate exercises enables the coach to develop physical attributes while also helping the player master the basic skills."

Likewise, Kamal Jamil Al-Rabadi (2001, 25) states that "diversity in providing exercises for a single sport prevents mental confusion and increases the desire to train. Also, experience in diverse athletic performance gives the player diverse physical and skillful qualities and abilities." The researchers attribute the important correlation or relationship between dynamic kinetic balance and short passing skills in futsal players to the ability of the player to master short passes through her use of mental and intellectual skills. This allows her to mentally and physically link and use these skills for the best performance in terms of dynamic kinetic balance, and to link this physical attribute with the required skillful performance. Thus, Ghazi Saleh (2000) confirms that "improving the player's mental skills increases her ability to anticipate, which means an increased ability for the player to visualize, and also works to develop the player's ability to execute all basic skills, especially passing, due to its clear effect during a match."

Conclusions and Recommendations

Conclusions

1. The research results showed a statistically significant relationship between dynamic kinetic balance and the accuracy of the short passing skill among Al-Zawraa Futsal Club's female players.



2. The dynamic kinetic balance attribute is one of the fundamental physical requirements for a female futsal player, due to its great importance in achieving accurate performance when executing the short passing skill.

Recommendations

1. During training sessions, it is necessary to focus on developing dynamic kinetic balance in conjunction with the short passing skill when training fundamental futsal skills.
2. It is suggested to conduct similar research studies targeting other kinetic attributes that may be related to the accuracy of the short passing skill in futsal.
3. It is recommended to conduct additional research that examines the relationship between different kinetic attributes and other fundamental skills in futsal.

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