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The Effect of Special Exercises on Developing the Rolling Speed and Accuracy of Shooting in Futsal

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Abstract: *The aim of the research is to prepare special exercises to develop the rolling speed skill and shooting accuracy in futsal, and to investigate the effect of these special exercises on developing the rolling speed and shooting accuracy in futsal. The researchers used the experimental method as it is suitable for the nature of the research. The research community and sample were defined as futsal players in Diyala Governorate, and the sample was randomly selected through a lottery from the Shahrban Futsal Club, consisting of 16 players. The two programs were distributed by lottery, representing 100% of the research community. The researchers concluded that the special exercises have a positive effect on certain physical abilities and qualities, in addition to their positive effect on the rolling speed and shooting accuracy in futsal. They also found that the variety of skill exercises had a positive effect on some physical abilities and shooting skills in futsal. The high-intensity interval training method contributed directly and positively to developing some physical abilities and the rolling and shooting skills in futsal. The researchers reached several recommendations, including relying on special exercises in training curricula, especially for younger age groups (minors, juniors, and youth), conducting similar studies for other age groups with different training methods concerned with developing physical abilities and basic skills, and understanding the results of these studies.*

Keywords: *Special Exercises, Dribbling Speed, Shooting Accuracy, Futsal.*

Introduction

Futsal is considered one of the most exciting and thrilling sports, enjoying widespread attention at both the grassroots and academic levels. This is attributed to its distinctive nature and the variety of skills it demands, in addition to the integration and interconnection between its physical, technical, tactical, and psychological aspects. This diversity has made futsal matches a focal point for millions of spectators and has contributed to the emergence of its players as prominent stars on the sporting stage. Based on this esteemed position, coaches, educators, and academic researchers continue their efforts to develop this sport through in-depth studies that cover all aspects of physical and technical preparation, extending even to the finest details that influence its performance and development. What we witness today in terms of enjoyment and excitement in futsal competitions is the result of this ongoing scientific research.

Given the pivotal role that research and studies play in futsal development, understanding the nature of this sport requires more than simply considering each of its components in isolation; it necessitates an understanding of the close interconnection

between all its elements. Outstanding performance by an individual player or a team is the result of a harmonious interaction between various physical, technical, tactical, and psychological aspects.

The components of futsal, represented by physical, technical, tactical, and psychological aspects, are closely interwoven, so that any development or shortcoming in one of these areas directly and mutually reflects on the others. The final outcome of this interconnection is evident in the overall performance level of the team or individual players, as well as their ability to effectively employ these aspects to deliver outstanding performance that contributes to the team's success and achievement of its goals.

The fundamental skills in futsal are crucial for executing game plans and determining the outcome of matches. These skills are the cornerstone of performance in this sport, and without mastering them, executing strategies becomes exceedingly difficult. Among the most important skills is the ability to dribble the ball, as its mastery influences the success of many tactical aspects. Dribbling is essential for the individual player's effort to advance the ball, score by penetrating the opponent's defence, and create opportunities for teammates. Furthermore, dribbling is a vital aspect of the attacking phase of play.

Shooting is one of the most frequently used skills in futsal, and a team that excels in shooting and applies it accurately during matches demonstrates a cohesive style of play. This proficiency also enhances the players' self-confidence. Therefore, shooting is a crucial and influential factor in team movements, especially in modern play, and it must be prioritised in training and education to achieve a high degree of accuracy (Al-Taie: 2007: 42).

Based on the aforementioned points, developing the skills of dribbling and shooting accuracy in futsal is of paramount importance. From the researchers' experience, the speed of performing the dribbling skill and shooting accuracy are key requirements to meet the practical demands referred to earlier. This study aims to contribute to the enhancement of these two skills through the application of specific exercises focused on developing dribbling speed and shooting accuracy. The goal is to prepare players capable of executing futsal skills in the shortest time possible and with the highest degree of accuracy, thereby achieving the desired objectives of technical performance, which forms the core importance of this research.

Research Problem:

The research problem in the sports field is an ambiguous issue or situation encountered by the researcher in physical education and sports, which requires precise identification and analysis to uncover its causes and propose scientific and practical solutions, Futsal is characterised by its fast-paced nature, both with and without the ball, which demands a range of behaviours from players on the field closely linked to speed. The need to move into spaces, execute multiple sprints, change directions rapidly, and respond instantly all depend fundamentally on speed. Studies analysing the movement activity during international matches indicate that speed, in its various forms, is one of the key features of modern football players.

Through the researchers' field experience as players, coaches, and futsal instructors, along with reviewing numerous studies and observing training sessions and matches, it has been found that the performance of youth players in the skills of dribbling and shooting tends to be slow, with a marked lack of accuracy. This is attributed to the reliance on traditional training methods that do not sufficiently motivate players to push themselves, make efforts, or engage with enthusiasm to master the skills. Therefore, the researchers focused on improving these skills by applying specially chosen exercises designed to enhance the technical abilities of youth players and achieve noticeable improvements in their performance.

Research Objectives:

1. To develop specific exercises aimed at improving the speed of performing the dribbling skill and the accuracy of shooting in futsal.
2. To assess the impact of the specific exercises on the development of dribbling speed and shooting accuracy in futsal.

Methodology

Research Method:

The researchers employed the experimental method due to its suitability for the nature of the research.

Research Population and Sample:

The research population consisted of futsal players in Diyala Governorate. The research sample was randomly selected through a lottery system, represented by the Shahreban Futsal Club, consisting of 16 players. The two training programmes were distributed by lottery, representing 100% of the research population.

Equipment and Tools Used in the Research:

2.3.1 Data Collection Tools:

- Scientific sources
- Questionnaire
- Personal interview
- Tests and measurements

2.3.2 Tools Used in the Research:

- Measuring tape
- Medical scale
- Stopwatch (Adanac brand) measuring time to the nearest 1/100 second (8 units)
- Futsal ball
- Medical balls weighing 5 kg (3 units)
- Cones (18 units)
- Whistles (2 units)
- Elastic ropes of varying intensities

Field Research Procedures:

2.4.1 Physical and Technical Tests

First Test: Hopping (Left and Right)

- **Objective of the Test:** To measure the speed-strength of the leg muscles.
- **Required Equipment:** A flat area (space), measuring tape, whistle to signal the start.
- **Performance Specifications:** The subject stands on the starting line with one foot, the same foot used for performing the hop. The subject performs three consecutive hops to cover the greatest distance possible.
- **Conditions:**
    1. The foot must push off from a stationary position.
    2. The performance must be done quickly.
    3. Measurements are taken to the nearest centimetre.
    4. Each subject is allowed two attempts per leg (left and right), and the best result is recorded.
    5. The distance recorded by each subject is announced to the next subject to ensure a competitive environment.
- **Recording:** The subject's score is recorded to the nearest centimetre, measuring the distance from the starting line to the farthest point reached by the subject.

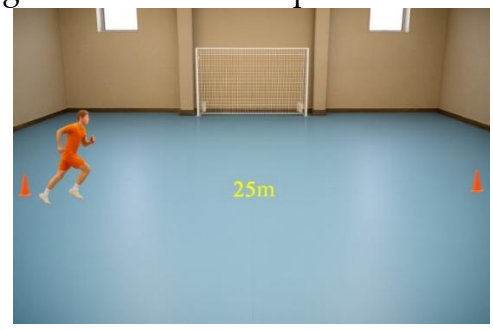

Figure (1) illustrates the Hopping Test (Left and Right).

Second Test: Speed Endurance Test (Al-Taie: 2014: 86)

- **Test Name:** Shuttle Run (7×20 meters)
- **Objective of the Test:** To measure speed endurance.
- **Required Equipment:** Measuring tape, whistle, 2 cones, a running area with a minimum length of 25 meters, and a stopwatch.
- **Performance Method:** The subject stands behind the first cone, and upon hearing the whistle, starts running to cover a distance of 20 meters to the second cone. The subject continues running back and forth until the total distance of 140 meters is completed.
- **Recording:** The time taken by the subject to complete the 7×20 meter distance is recorded.

Figure (2) illustrates the Speed Endurance Test.

2.4.1.2 Technical Tests:

Third Test: Zigzag Running with the Ball Between Five Cones (Mohsen: 1999: 160)

- **Objective of the Test:** To measure the ability to dribble while changing directions.
- **Required Equipment:** Five cones, a futsal ball, stopwatch, whistle.
- **Performance Method:** The player stands at the starting line, 2 meters away from the first cone. Upon hearing the whistle, the player dribbles the ball between the five cones, running back and forth. The distance between each cone is 1.5 meters. After completing the zigzag dribble, the player returns to the starting line.
- **Recording Method:** The timer starts counting from the moment the whistle is heard and stops when the player returns to the starting line.
- **Attempts:** The player is given two attempts, and the best result is counted.

Figure (3) illustrates the Zigzag Running Test with the Ball Between Five Cones.

Fourth Test: Shooting Accuracy Test on a Segmented Goal from a Distance of 6 meters (Kamel: 2007: 82)

- **Test Name:** Shooting Accuracy Test on a Segmented Goal from a Distance of 6 meters.
- **Objective of the Test:** To measure shooting accuracy.
- **Required Equipment:** Measuring tape, 3 futsal balls, a goal segmented into 9 sections using ropes, a cone, a recording form, and a whistle.
- **Performance Method:** The subject stands 6 meters away from the goal, and upon receiving the signal, they attempt to shoot at the goal.
- **Recording Method:** The subject is given 3 attempts, and the scores are recorded based on the section of the goal hit.

Figure (3) illustrates the Shooting Accuracy Test on a Segmented Goal from a Distance of 6 meters.

3.4.3 Pilot Experiment

The researchers, along with the team, conducted a pilot experiment with 4 players outside the research population. These players were excluded when performing the main research procedures. The experiment took place on February 6, 2025, at 3:00 PM, in the sports hall of Shahreban Club. The objectives of the pilot experiment were as follows:

- To ensure the suitability of the environment and equipment used for the research procedures.
- To test the validity of the tools and devices used for measurement.
- To verify the clarity of performance instructions for the participants.
- To determine the actual time required to perform the tests.
- To identify and address any organizational or technical issues before starting the actual application.

2.4.4 Pre-tests:

The pre-tests were conducted on the research sample by applying the physical and technical tests. This was done to gather the results of each test and record them on a data recording form. The pre-tests took place on Monday, February 10, 2025, at 3:00 PM in the sports hall of Shahreban Club in the Muqdadiya district.

2.4.5 Main Experiment:

The main experiment aimed to apply a carefully designed training programme that focuses on developing certain physical abilities related to skill performance, particularly the shooting skill in futsal, through integrating specific exercises as the core training method. The idea behind using these exercises was to motivate players to adapt to various performance variables, thus helping to improve their ball control through dribbling and enhance shooting accuracy under conditions similar to actual competitive situations.

Training Programme Components:

- **Exercises Used:** The training sessions included a combination of individual and group exercises using specific drills, with an emphasis on varying performance conditions (stationary, dynamic, and under pressure from opponents).
- **Repetitions and Intensity:** The exercises were structured based on a progressive overload principle, gradually increasing the intensity of the performance and the number of repetitions over the six weeks, while ensuring active rest periods between attempts to maintain execution quality.
- **Total Time for Each Training Session:** Each training session lasted 90 minutes, consisting of 15 minutes for warm-up, 65 minutes for the main training session (focused on applying the exercises), and 10 minutes for cool-down and relaxation exercises.

Implementation Process:

The programme began on February 12, 2025, and concluded on March 27, 2025, spanning 6 consecutive weeks with 2 training sessions per week, resulting in a total of 12 training sessions. The training took place in an indoor sports hall to ensure consistent

performance conditions, with all necessary tools and equipment provided. Observations on players' responses and performance improvements were systematically recorded.

2.4.6 Post-tests:

The researchers conducted the post-tests on March 31, 2025, on the same sample used in the pre-tests, under identical conditions, with the presence of the supporting team. The tests took place in the late Ahmad Salam Sports Hall in the Muqdadiya district of Diyala Governorate.

Statistical Methods:

The researchers used the SPSS statistical software package to extract the results.

Result and Discussion

Presentation and Discussion of the Mean Values and Standard Deviations of the Research Variables:

Table (1) shows the mean values and standard deviations of the physical and technical research variables.

o	Variables	nit of Mea.	est	Mean	Standard Deviation	Standard Error	Value	rror Per.	Significance
1.	Speed Strength	m.	re-Test	197.857	7.177	1.918	.502	.000	Significant
			ost-Test	222.142	5.972	1.598			
2.	Speed Endurance	ec.	re-Test	32.642	2.677	0.715	.413	.001	Significant
			ost-Test	28.571	2.765	0.739			
3.	Dribbling	ec.	re-Test	24.071	2.525	0.675	.025	.001	Significant
			ost-Test	21.214	2.118	0.566			
4.	Shooting Accuracy	eg.	re-Test	7.857	1.703	0.455	.911	.000	Significant
			ost-Test	12.214	1.423	0.380			

Discussion of the Results:

Based on the results in **Table (1)**, the findings showed significant differences between the pre-test and post-test, with the post-test results being superior. The researchers attribute this improvement to the specific exercises used, which are capable of providing diversity in developing the physical abilities, depending on the intensity of the exercises and the specific durations assigned to them. As Al-Rubai (2001) points out, "Variation in sports performance

is one of the key factors for achieving balance in physical integration, and it increases the desire to train" (Al-Rubai: 2001: 126-127).

The researchers ensured that the exercises were structured according to the correct progression of the training process, taking into account the required exercises, which included multiple physical abilities in each training session. This holistic approach to training, where different physical abilities are developed simultaneously, is more effective than focusing on a single ability during the training process. This method leads to improved results more rapidly. (Oliver:2024: 637).

Furthermore, the researchers believe that the approach used in building the specific exercises within the framework of daily training sessions, alongside the duration and focus on appropriate repetitions based on players' abilities, contributed significantly to the positive effects observed in the players' performance. The continuous guidance to motivate players in executing these exercises, along with correcting mistakes through repeated practice and the structured repetitions in the training units, also played a vital role. The accuracy of the exercise design and avoiding randomness in forming the training load and varying its types and ratios based on training goals and methods led to rapid and effective progress in the experimental group. This, in turn, indicates a significant improvement in their physical abilities and performance, especially when the exercises were carried out consistently over the training period, with appropriate rest intervals between sets and exercises.

These results align with the findings of **Turky and Al-Rubaie (2022)**, who also noted that the use of well-structured, targeted exercises has a substantial impact on physical performance development (Turky, Al-Rubaie: 2022: 68).

As Ahmed Hussein Al-Luqai (2013) confirms, the variation in exercises used plays an important and effective role in the training process through the following benefits:

- It helps improve overall physical and skill levels, serving all sports and athletic levels for both genders.
- It contributes to the development and enhancement of physical, motor, and fundamental skills.
- When athletes are trained using these tools and methods, noticeable improvements occur that ensure the achievement of training goals.
- It aids in the development of muscular strength and other essential physical qualities.
- It improves cognitive processes and increases excitement and engagement among participants, fostering positive and active involvement in training and education (Al-Luqai: 2013: 12).

The researchers attribute the significant difference in results to the specific exercises they designed, which focused on maximizing the performance of the working muscles to enhance explosive strength, speed-strength, and speed endurance. This targeted approach in the training programme led to the significant differences in the post-test results. As Ben Buckley (2013: 24) asserts, "Organized and programmed training, along with the use of varying intensities and optimal rest periods between repetitions, leads to performance enhancement. Overcoming resistance through performing a specific movement as quickly

as possible or in the shortest time possible contributes to developing explosive power. Repeatedly executing these movements increases the effectiveness of speed-strength, as speed-strength is a combination of multiple explosive forces."

In addition to the fact that well-structured training programs, with the precise selection of intensity levels and the regulation of rest intervals between repetitions, are considered crucial elements for developing explosive strength, explosive strength itself depends on the ability of the muscles to generate the greatest possible force in the shortest possible time. This requires not only appropriate resistance or loading but also sufficient recovery between repetitions or sets to avoid muscular fatigue that weakens both speed and contractile force (de Salles, 2009, p. 768).

Moreover, Ramirez (2014) compared rest intervals of 30, 60, and 120 seconds between sets of plyometric exercises in futsal players over a seven-week period. The results showed that all groups experienced statistically significant improvements in physical capacities, explosive strength indices, and change-of-direction speed, although the differences between rest intervals were not substantial in the degree of improvement. This indicates that even relatively short rest periods can lead to enhancements in explosive performance, provided that sufficient intensity and appropriate training design are applied (Ramirez, 2014, p. 291).

Additionally, Guan (2021) examined the effects of rest duration between sets during training on explosive power, electromyographic activity, and tissue oxygenation. The findings revealed that comparisons among different rest intervals (1, 2, 3, or 5 minutes) showed no significant differences in explosive power, jump height, or electromyographic activity at lower loads. This suggests that optimal regulation of rest can maintain explosive performance without the need for either very short or excessively long rest intervals, as long as training design is based on adequate intensity (Guan, 2021).

This approach significantly contributed to the improvement in the speed of dribbling and shooting performance in futsal for the research sample.

Conclusion

The researchers concluded that specific exercises have a positive effect on certain physical abilities and qualities, as well as a positive impact on the shooting skill in futsal. The variation of specific skill-based exercises has a beneficial effect on certain physical qualities and the skills of dribbling and shooting in futsal. Additionally, the high-intensity interval training method contributed positively and directly to the development of certain physical abilities and the futsal shooting skill. The researchers also made several recommendations, including the integration of specific exercises into training programmes, particularly for younger age groups (junior, youth, and adolescent players). They also recommended conducting similar studies for other age groups and employing different training methods focused on developing physical abilities and fundamental skills, to explore the outcomes of these studies. Furthermore, they suggested utilizing modern and advanced training techniques, especially those closely related to performance, due to their positive impact on the development of various physical and technical abilities.

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