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Research Article

The Effectiveness of Visual Skills Exercises in Visual Scanning for Futsal Players

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ABSTRACT

Futsal has developed rapidly and effectively in recent years, requiring high levels of skill, mentality, psychology, and even technical proficiency. Visual scanning has played a significant role in raising the level of players and developing their various abilities.

This development came as a result of scientific studies and research conducted by concerned parties and specialists to address the problems and obstacles they face in a scientific and thoughtful manner to develop players' performance and bring them to the highest sporting levels and achieve the best results and accomplishments.

Given the lack of resea.rch in this field, researchers decided to develop visual skills exercises and apply them to futsal players to determine their effectiveness in visual scanning.The researchers benefited from the experimental approach using the two equivalent groups method to complete the research procedures afterThe number of Al-Mahawil Club players, numbering (20), was determined and divided randomly into two groups, a control group and an experimental group, with (10) players in each group.The researchers concluded that visual skills exercises were effective in visual scanning among the research sample.

Keywords: Accomplishments, Effectively, Performance

1- Introduction

1-1 Introduction to the research and its importance:Futsal is a sport that is widely popular in many countries due to its fast-paced and tactical nature. The game requires multiple skills that go beyond just the ability to control the ball, but also extends to include mental, psychological, and technical aspects, etc. Among these aspects are visual skills, which play a vital role in improving players' performance, whether in receiving or passing the ball, or even in recognizing the most dangerous places for the team itself or the opposing team. These are factors that directly influence players' decisions during the game, which can change the course of the game in favor of their team.

Futsal relies heavily on a player's ability to quickly and effectively scan the field in order to make the right decisions at the right time. Developing this ability can make a significant difference in individual and team performance. For this reason, visual skills exercises are particularly important, as they can significantly improve visual scanning ability.

To highlight the importance of visual exercises in enhancing the ability to quickly and effectively scan among futsal players, developing these skills can also contribute to improving their tactical decisions, thus raising the team's overall performance. Hence, the importance of this research lies in developing visual skills exercises and determining their effectiveness in scanning among futsal players, which will lead to an improvement in the player's level and the game, leading to greater achievement.

1-2 Research problem:

Futsal is one of the sports that requires high concentration and quick decision-making on the field. Players face multiple challenges, including visual scanning, a mental ability that requires visual acuity, quick interaction with

the surrounding environment, and a keen eye for detail, as well as a quick awareness of everything surrounding the players, their opponents, and the field.

These visual skills can have a significant impact on their performance on the field, helping them quickly read the flow of play and identify optimal locations for passing, receiving, and moving without or with the ball. Despite the importance of visual skills in futsal, there is a paucity of research on these important variables.

Hence, the research problem stems from the weakness in the level of studies on visual skills, how to develop them, and their effectiveness in visual scanning among futsal players.

1-3 Research objectives:

1- Knowing the reality of visual scanning among futsal players.

2- Preparing visual skills exercises and determining their effectiveness in visual scanning for futsal players.

1-4 Research hypotheses:

1- Visual scanning exercises are effective for futsal players.

1-5 Research areas:

- **Human domain**:Al-Mahawil Club Futsal Players for the 2024-2025 season.
- **Time domain**: 10/9/2024 - 24/02/2025.
- **Spatial domain**: The indoor sports hall in the closed Al-Mahaweel Club.

1-6 Definition of terms

1- Visual skills: Visual skills are similar to physical skills. They can be learned, trained, practiced, and developed. It is not only about the strength of vision (6/6), which is essential, but rather the extent to which the athlete can use the information transmitted to them from their eyes in order to perform on the field..

Visual scanning:

These are the quick glances that a player takes to explore the surroundings and scan the field, in order to facilitate decision-making after receiving the ball, assess the condition of the field, and get a proactive idea of what he will do after receiving the ball. All of this is facilitated if the player performs a visual scan.

- Research methodology and field procedures:

2-1 Research methodology: The researchers used the experimental method because it is suitable for the nature of the research problem, using the experimental design method with “pre-test and post-test for the control and experimental groups.”

2-2 Research community and its samples: The researchers identified the players of Al-Mahawil Club for the futsal game and by drawing lots they were divided into two groups, a control and an experimental group, with (10) players in each group.

2-2-1 Homogeneity and equivalence of the two research samples: In order to start with a single line for both samples, it is necessary to know the normal distribution of the two samples, and this is done by extracting the skewness coefficient for the morphological variables, which are (age, height, mass, and training age for the control and experimental groups, as shown in Tables (1) and (2).

Table (1) shows the homogeneity of the research community by finding the value of the skewness coefficient.

Coefficient of skewness	standard deviation	The mediator	arithmetic mean	Unit of measurement	Variables	Sq.
0.82	1.75	19	19.75	year	the age	1
0.74	3.23	177	177.8	poison	height	2
0.28	2.66	74	74.25	kg	mass	3
0.64	2.36	4	4.5	year	Training age	4

Table (2) shows the equivalence of the two research groups.Control and experimental

Significance level	Table value	value (t) calculated	Experimental		Officer		Units of measurement	Visual Scan Test Positions	Sq
			±A	S	±A	S			
Non-moral	2.26	**0.42**	**0.65**	**5.54**	**0.52**	**5.43**	**degree**	**clear the field**	**1**
Non-moral		**1.77**	**1.43**	**5.27**	**0.50**	**4.42**	**degree**	**Track spaces**	**2**
Non-moral		**0.68**	**0.76**	**4.39**	**0.21**	**4.22**	**degree**	**Anticipate events**	**3**

Under degree of freedom (18) and at a significance level of (0.05)

2-3 means of collecting information:

2-3-1 Methods, tools and devices used in the research:

Means:-(Personal interview**,**Data entry form**)**

Tools: -

- (10) indoor footballs.
- Adhesive tape (30) m long.
- measuring tape
- Large speakers (2)
- Plastic collar number (6)
- Eye cover number (10)
- (5) colored balls
- Bowling balls, number (7)
- Plastic signs (10).
- (5) barriers made of iron and wood.
- Plastic basket for storing balls, number (6).
- tabletsCD and special forms for evaluation purposes
- Whistle number (2)
- Small goals (2)
- (4) plastic rings of different sizes
- Wooden sticks (5) each (120) cm long
- Colored ribbons (2)

Devices: -

- Two (2) electronic stopwatches, type (hanhart).
- computer
- Camera typeSone Japanese made
- drone for filming from above

2-4 Field research procedures:

2-4-1 Visual scanning test:After reviewing numerous studies, scientific sources, and similar studies, the researchers chose the visual scanning test, which consists of the following items:

1- clear the field
2- Track empty spaces

3- Anticipate events

These components are the basic vocabulary of the visual scanning test.

2-4-2Determine test specifications and conditions The researchers worked to determine the conditions and specifications for applying the visual scanning test according to its three positions, as follows:

- **General test requirements:**

1- The test field has dimensions of (20 x 40) meters, planned according to the test map for the futsal field.
2-(10) players.
3- Football number (6).
4- (4) people administer the test, the first is temporary, the second is responsible at the start of the test, the third joins the players, and the fourth records the data.
5- Number of cones (12).
6- Timer (2).
7- Legal whistle at the timer.
8- Video camera number (2) One back and one side.
9- Goal number (1).

- **First position test (field survey):-**

The player stands facing the field for (5) seconds and the field is divided into three sections as follows:
1- First section: colored flags and cones.
2- The second section: The goal area is divided into:The goal is divided into two colors (red, green, white). The goalposts are divided into two colors: red and blue, and the crossbar is white.
3-Section Three: Colored balls of different sizes are placed..
4- All players must be outside the closed hall (so that the test features are hidden from them)
5- The player enters the hall with his eyes closed with a harmless rubber cover.
6- The player is allowed to lift the cover for a period not exceeding (5) seconds, then return the cover to the eyes.
7- Ask the player three questions, each question worth three points, so the final total for this situation is (9 points).
8- The player remains inside the hall until all players are tested.
9-We use stopwatch number 1.
10-We use whistle number 1.
11-Data registration form.

- **Second situation test** (Track empty spaces): -

1- The player stands facing two players.

2- Draw three square areas behind the defenders with an area of (1) square meter.

3- The attacker passes the ball upon hearing the whistle within a period not exceeding (3 seconds) to one of the colored and numbered squares (1-2-3) and according to the request of the team coach, as each square has a specific score and the highest value that can be recorded is (9 points).

4- (5) Futsal balls.

5- The player uses a deep pass, a side pass or a through pass.

6- Changing the defenders' movements after each attempt.

7- We use stopwatch number 1

8-We use whistle number 1

9- Registration form.

- Situation Test 3 (Predicting Events):-

1- Two players stand in a space of (10) meters. The first player stands opposite the second player. The distance between them is (1) meter. There is a distance of (1) meter between the second player and the two small goals. The distance between the goals is (1) meter.

2- When the whistle sounds, the first player receives the ball, turns around, and shoots the ball towards one of the small goals.

3- The second player must predict the location of the target at which the ball will be shot. Each attempt has (3) points, and the most difficult one has three attempts. The highest score is (9).

4- The performance time should not exceed 3 seconds.

5- Small goal 1x1

6- 5 balls

7- Stopwatch No. 1

8- Whistle No. 1

9- Registration form.

2-4-3Preparing visual skills exercises:

The researchers prepared their own visual skills exercises after reviewing the literature on visual skills and what their main objectives were to be included in the exercises. The exercises were prepared as shown in the following diagram.

Diagram showingVisual skills exercises according to training units

Exercises applied	Today's date	Training unit	Exercises applied	Today's date	Training unit
6.2	Sunday 11/17/2024	13	1,2	Sunday 10/20/2024	1
8.9	Tuesday 11/19/2024	14	2.3	Tuesday 10/22/2024	2
7.1	Thursday 11/21/2024	15	1.9	Thursday 10/24/2024	3
1,3	Sunday 11/24/2024	16	3.4	Sunday 10/27/2024	4
2.4	Tuesday 11/26/2024	17	4.5	Tuesday 10/29/2024	5
9.3	Thursday 11/28/2024	18	2.8	Thursday 10/31/2024	6
5.7	Sunday 12/1/2024	19	6.7	Sunday 3/11/2024	7
6.8	Tuesday 3/11/2024	20	7.8	Tuesday 11/5/2024	8
8.4	Thursday 12/5/2024	21	18,9,2	Thursday 11/7/2024	9
7.3	Sunday 12/8/2024	22	18,3,17	Sunday 11/10/2024	10
6.2	Tuesday 12/10/2024	23	14,11,12	Tuesday 11/12/2024	11
9.4	Thursday 12/12/2024	24	9,20,8,21	Thursday 11/14/2024	12

2-4-4 Exploratory experiment:

The researchers conducted the exploratory experiment on Friday 10/14/2024 at ten o'clock in the morning in the indoor sports hall at Al-Mahaweel Sports Club and on a sample of (4) players from the research community to test the visual scanning for the purpose of identifying the obstacles and negatives during the test. The aim of the exploratory experiment was:

1-Find out how appropriate the tests were.

3-Knowing the validity of the devices and tools used in the test.

4-Knowing the time taken for the test, each player had (12-15) minutes.

2-4-5 Pre-tests:

The researchers conducted pre-tests on the two research samples (experimental and control) on Tuesday 10/18/2024 in the indoor sports hall at Al-Mahaweel Sports Club.

The researchers worked to prepare all the requirements for the visual scanning test, its implementation method, and the support team to maintain the same environment and achieve the required conditions for implementing the test according to the pre-established conditions.

- The tests were explained in detail by the researcher to the sample members before the test was administered.
- The test was administered by the support team members, in the presence of the team trainers, and under the supervision of the researcher, so that the sample members could understand the tests and ensure their correct application.
- The players were given a chance to warm up fully and try out the physical and skill tests before being tested.
- The results were recorded according to the terms and specifications specified for each test.

2-4-6 Main experiment:

After completing the implementation of the pre-tests, the researchers conducted the main experiment of the research, where the researcher prepared a group of exercises, the number of which was (13) exercises (mental - skill) in the hall of the Al-Mahaweel Sports Club, and the exercises were applied in the afternoon, as the researcher began applying the exercises, and these exercises were implemented in the Al-Mahaweel Club for eight weeks, with three weekly units, which are (Saturday, Tuesday, Thursday), so that the total number of units becomes (24 training units) and were implemented For the experimental group. As for the control group, the trainer manages the training unit according to the curriculum assigned to them. The exercises were applied in the main part of the training unit.The researcher started implementing visual skills exercises, and the first training unit was on Sunday.20/10/2024And the last training session on Thursday12/12/2024These exercises should also be suitable for the sample individuals.

2-4-7 Post-tests

After completing the application of the exercises on the experimental group, the post-tests were conducted for the research sample (experimental group and control group), taking into account all the conditions, implementation method, and tools used in the pre-tests. The post-tests were conducted on Monday, December 23, 2024, for the visual scanning test.

5-3 Statistical methods: The researchers used the statistical bag.SPSS) for data processing.

3- Presentation, analysis and discussion of the results:

After collecting the data obtained by the researchers from the pre- and post-tests, for the control and experimental groups, and for the variable (visual scanning), they proceeded to process it statistically to verify the validity of the hypotheses that were previously assumed.

The researchers presented, analyzed and discussed the results they reached, as shown in the following tables.

3-1 Presentation and analysis of the results of the pre- and post-tests of the experimental group for visual scanning:

Table (3)

Shows the arithmetic means, standard deviations and the value of (T) calculated for the pre- and post-tests and for the experimental group for the visual scanning test

Statistical significance	Significance level	value (t) calculated	Post-test		Pre-test		variable
			A	S	A	S	
moral	0.001	5.262	1.619	17,800	2,529	13,800	visual scanning

Through Table (3) and when observing the statistical indicators of the experimental group, we find that there are significant differences between the pre- and post-measurement in favor of the post-measurement for the visual scanning variable, as the value (T) calculated at a level higher than the significance level, which confirms the preference for post-tests at the expense of pre-tests, and we found it clear through the statistical treatments of arithmetic means and standard deviations. This is confirmed by the value of (sig), as it was below the significance

level (0.05). Thus, we accept the alternative hypothesis, which states that there are significant differences between the pre- and post-measurement scores, in favor of the post-measurement of the visual scanning test.

Table (4) shows the arithmetic means, standard deviations and the value of (T) calculated for the pre- and post-tests and for the control group for the visual scanning test

Statistical significance	Significance level	value (t) calculated	Post-test		Pre-test		Variables
			A	S	A	S	
moral	0.001	5.075	2.242	13,900	2,860	12,200	visual scanning

From the data in Table (4) and when observing the statistical indicators (arithmetic mean and standard deviation) for the control group, we find that there are significant differences between the pre- and post-measurements in favor of the post-measurement for the visual scanning test because the calculated value was (5.075) which is a value higher than the significance level, which means that the preference was for calculating the post-tests if they were compared to the pre-tests. Accordingly, the alternative hypotheses were accepted, which confirm that there are significant differences in favor of the post-measurement of the control group for the visual scanning variable. This variable is confirmed by the value (sig) if it was below the significance level (0.05).

3-3 Discussion of the results of the post-tests for the control and experimental groups for the visual scanning test:

After the post-tests achieved superiority in the post-tests at the expense of the pre-tests for both groups, we had to know the direction of the compass of superiority for whom it is, whether it is for the experimental group or the control group. Here, Table (5) shows us the data that confirms this.

Table (5) shows the arithmetic means, standard deviations and the value of (T) calculated for the post-tests and for the control and experimental groups for the visual scanning test

Statistical significance	Significance level	value (t) calculated	experimental group		control group		Variables
			Post-test		Post-test		
			A	S	A	S	
moral	0.001	4,230	1.619	17,800	2,860	12,200	visual scanning

From the data in Table (5) and after processing the results, there appeared to be significant differences between the two dimensional measurements in favor of the experimental group if it was compared to the control group and to the visual scanning variable.

The researchers attribute the results to the effectiveness of the visual skills exercises that were applied to the experimental research sample, asVisual skills are somewhat similar to motor skills, meaning they can be learned, trained, practiced and developed, which are essential, but the extent to which an athlete can use the information transmitted to them from their eyes to perform on the field is uncertain.Which helps the player reach the best state in visual scanning, as the visual scanning training program has become an essential, main and important part of the training programs for futsal players.

Players may be similar in their body measurements, physical and motor abilities, and even in their level of skill performance, but one of the crucial differences is visual skills. When used together, they help the player see what is visible on the field. Good visual skills are important for all aspects of futsal.[1].

Researchers believe that the development of futsal and the multiplicity of motor tasks performed by players on the field throughout the duration of competition or training require visual preparation of players in addition to other stages of preparation, whether physical, psychological or mental. This is achieved by developing some visual skills that help players perform these motor tasks.

The researchers explain these results by including in the training curriculum exercises for visual skills that work to improve the ability to visually scan and the constant emphasis on using them during the competition helps the player to control his thoughts by dealing with situations that lead the player to weak visual ability and thus to weak motor duties and performance. This leads to the player being affected by the negative psychological state. In this

(1)Jihan Mohamed Fouad, Iman Abdullah Zaid: The effectiveness of visual training on some skill variables and visual abilities in volleyball, published master's thesis, Zagazig University, Egypt, 2005, p. 25.

regard, he indicates that the player during the competition is exposed to many mental and physical pressures, and as a result the sensory receptors (especially visual scanning) become disturbed, as the electrical sensitivity of the eye decreases under conditions of

Physical and psychological stress, low oxygen levels due to a decrease in visual perception(Lemmink, et al., 2005, 67)[1)]

The researcher attributes this to the fact that the experimental group achieved better improvement through repetition and practicing visual skills through the exercises applied and followed by the trainer, "Therefore, introducing visual exercises or training in the training unit, independently or implicitly, is one of the most important vital factors that help develop visual scanning."[2)]"In addition, the development of visual scanning that occurred among the members of the experimental group due to the repetitions of each skill, with the coach's role appearing significantly in the visual scanning exercises followed by him, as he directs the players during the education period to learn the skill, as the direction factor is one of the most important factors in the player's acquisition of movement."[3)].The researcher also attributes the reason for the development achieved in the experimental group to the visual scanning exercises prepared by the researcher and the method of applying them, with the provision of appropriate tools for them and a comprehensive and clear explanation of everything related to the exercise and how to give those visual skills, so that it depends on the command method "which is an immediate response to the decisions and instructions of the coach, and the player only has to wait and carry out the coach's orders, which reduced the period of practicing the motor activity."[4)].

In the last decade, several studies have emerged indicating that high performance is linked to ideal visual scanning, and that poor visual scanning causes performance impairment. If the visual information is inaccurate, the body loses the appropriate timing, causing a decline in the level of performance.[5)]"And its benefit lies in the fact that it is directed exercises, meaning that it has the ability to distribute motor effects more than other exercises, so it must be considered an effective means with effective conditions related to the physical aspect, and it has an effective and comprehensive role in various activities or sports, especially in the preparation stage, meaning the preparatory period."[6)].

4- Conclusions and recommendations:

4-1 Conclusions:

1. Visual skills exercises are effective in visual scanning among futsal players.
2. The experimental group outperformed the control group in visual scanning among futsal players.
3. Visual skills exercises were directly related to visual scanning in futsal players.
4. Diversifying and innovating visual skills training methods helped create an environment similar to play and competition.

4-2 Recommendations:

1. Conducting visual skills training exercises, as they are effective in visual scanning for futsal players.
2. The need to conduct more studies on visual skills for all players in different sports and at all age groups.
3. Raising the level of visual skills due to their effective role in developing players' visual scanning to achieve the best desired results.
4. Motivating players to develop their mental abilities alongside their physical and psychological aspects by providing a training environment that encourages quick thinking and decision-making during matches.
5. It is important to generalize the use of such training exercises (visual exercises) in clubs and sports institutions, especially for futsal players..

(1) (Lemmink, et al., 2005, 67)
(2Hussein Ali Kanbar Al-Aboudi: The previously mentioned source, 2014, p. 48.
(3Mahmoud Dawood Al-Rubaie, et al., Theories and Methods of Physical Education, Dar Al-Kutub for Printing and Publishing, Baghdad, 2000, p. 83.
(3) ChastityAbdul Karim: Methods of Teaching Physical Education, Alexandria, Dar Al-Nasher for Knowledge, 1997, p. 9.
(2) Hussein Ali Kanbar Al-Aboudi: The previously mentioned source, 2014, p. 45.
(3)Haitham Muhammad Kazim and others, Futsal (The New Art), Jordan, 2020, p. 76

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