

## The Relationship Between Peripheral Vision, Visual Imagery, and Skill Performance in the Indirect Simple Attack with Direction Change Among Fencing Athletes in the Third Stage.

<sup>1</sup>Isam mansoor Mohin alhameed\*

[isam.alhameed@utq.edu.iq](mailto:isam.alhameed@utq.edu.iq)

College of Physical Education and Sport Science, University of Thi-Qar, Thi-Qar 64001, Iraq

### Abstract

The importance of the research lies in studying the relationship between peripheral vision, visual imagery, and the skill performance of the indirect simple attack with direction change. The problem of the research, through the researcher's experience as a fencing instructor and from observing most of the lessons, was the noticeable weakness among female students, in particular, in learning the indirect simple attack with direction change. Hence, the researcher decided to study this problem by exploring the relationship between peripheral vision, visual imagery, and the skill performance of the indirect simple attack with direction change. The objectives of the research are -To identify the levels of peripheral vision and visual imagery among third-stage female students in the College of Physical Education and Sports Sciences at Al-Ayen Iraqi Private University -To determine the level of skill performance of the indirect simple attack with direction change among third-stage female students in the College of Physical Education and Sports Sciences at Al-Ayen Iraqi Private University -To explore the relationship between peripheral vision, visual imagery, and the skill performance of the indirect simple attack with direction change among third-stage female students in the College of Physical Education and Sports Sciences at Al-Ayen Iraqi Private University. The researcher used the descriptive method with a correlational approach as it suits solving the problem. The research population consisted of third-stage female students in the College of Physical Education and Sports Sciences at Al-Ayen Iraqi Private University for the academic year 2025-2026, totaling 31 students. A sample of 20 students was selected, representing 64.51% of the population. Among the most important conclusions is that peripheral vision and visual imagery have a direct relationship with the evaluation of the skill performance of the indirect simple attack with direction change.

**Keywords :** Peripheral Vision, Visual Imagery, Skill Performance of the Indirect Simple Attack with Direction Change.

### Introduction

#### 1-1 Research Introduction and its Importance:

The world has witnessed rapid developments in recent decades, encompassing all aspects of life. This has prompted nations to strive to keep pace with these developments and build their societies, with humanity becoming the primary focus of these advancements. Therefore, the significant achievements in sporting events were not a spontaneous occurrence. It is not by chance, but rather the result of sound planning and the adoption of scientific methods in education and training, as reaching high athletic levels in all sports

activities depends on the integration of many physical, skill, tactical and other requirements, and improving them.

The sport of fencing has taken on a new dimension of advancement and development thanks to some nations that have made significant strides and efforts, such as Russia, England, and Hungary. Since this renaissance is a real phenomenon in the field of fencing, we must work to develop this sport.

The fencer's goal is to defeat their opponent, as the outcome of the match naturally depends on the number of touches each fencer manages, according to the rules of the game. Attacking in fencing relies on the element of initiative.

Reaching the opponent's goal and scoring a touch is one type of attack in fencing. The simple indirect attack involves changing direction, and it is performed by the attacking player, requiring the movement to be executed in a single sequence. The term "attack by changing direction" refers to This attack is carried out in the union of the two blades, as the attacking player changes the position of the fly from the side to which the fly was directed to the other side and takes a touch.

Visual abilities are important in sports, whether individual or team-based, and many of them require focus and attention. Fencing is one such sport where the player must have good eyesight to be able to hit the target, and this can only be achieved through visual abilities. Good vision led to the creation of a new interdisciplinary field known as sports vision, a new interdisciplinary field in sports science that originated from optometrists, ophthalmologists, and sports science researchers who were interested in the relationship between vision and athletic performance from a correction perspective. Vision and its enhancement, and eye injury or trauma, which began in the United States in the 1960s.

Hence the importance of this research in studying the relationship between peripheral vision and visual perception with the skill performance of the simple indirect attack by changing direction

### **1-2 Research Problem:**

Wheelchair fencing presents diverse and varied situations that require precise attacks to resolve the situation. This relies on the combination and formation of necessary offensive skills, which are essentially reciprocal reactions between the competing fencers. The researcher's experience as... As a fencing instructor, and through observing most of the lessons, the researcher noticed a weakness among female students, in particular, in learning the simple indirect attack with a change of direction. Therefore, the researcher decided to study this problem by examining the relationship between peripheral vision and visual perception in the skill performance of the simple indirect attack with a change of direction.

### **1-2 Research Objectives:**

1- To identify the values of peripheral vision and visual perception among third-year students at the College of Physical Education and Sports Sciences at Al-Ain Iraqi Private University

2- Identifying the skill performance level of the simple indirect attack by changing direction among third-year students at the College of Physical Education and Sports Sciences at Al-Ain Iraqi Private University

3- Identifying the relationship between peripheral vision and visual perception with the skill performance of the simple indirect attack with a change of direction among third-year female students at the College of Physical Education and Sports Sciences at Al-Ain Iraqi Private University.

### **1-3 Research Hypothesis:**

1. There is a relationship between peripheral vision and visual perception with the skill performance of the simple indirect attack by changing direction among third-year female students in the College of Physical Education and Sports Sciences at Al-Ain Iraqi Private University.

#### **1-5 - Research Areas:**

1-5-1 Human Scope: Third-year female students at the College of Physical Education and Sports Sciences, Al-Ain Iraqi Private University, for the academic year 2025-2026.

1-5-2 Time Scope: September 21, 2025 to November 19, 2025.

1-5-3 Spatial Scope: The fencing hall at the College of Physical Education and Sports Sciences, Al-Ain Iraqi University.

#### **2- Research Methodology and Field Procedures:**

##### **2-1 Research Methodology:**

The researcher used the descriptive method with a correlational approach, as it was suitable for solving the problem.

#### **2-2 Research Community and Sample:**

The research community consisted of third-year female students in the College of Physical Education and Sports Sciences at Al-Ain Iraqi Private University for the 2025–2026 academic year. In total, 31 students—including fencing players—were part of this community. From these, 20 students were chosen to form the research sample, representing 64.51% of the total group

#### **2-3 Sample Homogeneity:**

The coefficient of variation was used to determine the presence or absence of variation. A value of less than 30% indicates a homogeneous sample, as shown in Table (1).

Table (1) shows the homogeneity of the research sample.

n	Body Measurements	Unit of Measurement	Arithme tic Mean	Standard Deviation	Coeffic ient of Variation
	Age	Year	<b>21,03</b>	<b>0,94</b>	<b>٪4,46</b>
	Height	Cm	<b>160,49</b>	<b>1,86</b>	<b>٪1,15</b>
	Weight	Kg	<b>60,17</b>	<b>5,45</b>	<b>٪9,05</b>

#### 4-2. Tools and Equipment Used:

- Equipment and Tools:
- Metric measuring tape.
- Medical scale.
- HP Core i5 laptop calculator.
- Four fencing suits.
- Twenty foils.
- Two Canon cameras.
- One Final Great eye chart.
- Arabic and foreign sources.
- Personal interviews.
- Tests and measurements used in the research.

#### 2-5 Tests under investigation:

1- Peripheral vision test: (Ali Hussein Hashem: 2012, p. 62)

Purpose of the test: To measure peripheral vision.

Test materials: A wooden stick with two colored balls at the end.

Procedure: The teacher gives the student a wooden stick with two colored balls at the end to hold behind her back without looking at it.

The student rotates the stick from behind while keeping her head still.

The student extends the arm holding the stick to the side, and the student must identify the color of the ball that is above or below.

Test conditions: The test is taken once with the right hand and once with the left hand.

Scoring: -

- Each test-taker is given five attempts with the right hand and five attempts with the left hand.

- One point is awarded only for correct selections.

2- Visual Perception Test (Ali Hussein Hashem: 2012, p. 57)

Test Purpose: To measure visual perception.

Test Materials: Four 15 x 20 cm cards with four shapes drawn on them, placed at the student's eye level on the wall.

How to perform the activity: The student looks at the four shapes and is asked to answer the following questions:

If you were looking at the shape from behind, what would it look like?

If you turned the shape upside down, what would it look like?

If you were looking at this shape from behind and then it was turned upside down, what would it look like?

Scoring: A card with (4) possible answers is given to the test taker, and three questions are asked about each of the four shapes. The number of correct answers is counted out of a total of 12 questions.

2- Technical Performance Evaluation Form:

To evaluate the technical performance of each student in fencing using the foil weapon, a form was required to assess performance in the (simple indirect attack with a change of direction). Therefore, the researcher prepared the technical performance evaluation form, which was then reviewed by a group of experts. The modifications and changes made to it have made the form valid for evaluation, noting that the final grade for the evaluation is (10) points, which I rely on the outward appearance of the skill.

2-6 The Exploratory Experiment

The researcher conducted an exploratory experiment on Wednesday, October 8, 2025, at eleven o'clock in the morning on (5) female students from outside the sample. The exploratory experiment is used to avoid shortcomings, with the location, time, and duration of the experiment being determined (Wajih Mahjoub, 1993, p. 27).

The objectives of the pilot study were:

1- To prepare and guide the support team in accordance with the research objectives.

2- To prepare the necessary equipment and tool.

3- To determine the time required for the test.

2-7 Field Research Procedures:

An experiment is a carefully organized set of conditions under which a specific phenomenon can be observed, with the aim of identifying the factors influencing, causing, or causating this phenomenon (Fouad Abu Hatab, Muhammad Saif Al-Din Fahmi: 1984, p. 58).

After reviewing the data obtained from the exploratory experiment, the researcher conducted the field experiment On Wednesday, October 29, 2025, in the fencing hall at the College of Physical Education / Al Ain University, Iraq, the testing procedures continued from nine in the morning until eleven in the morning.

After the researcher obtained the data for the students, which consisted of (height - age - weight), he carried out the main experiment procedures by giving each student attempts in the test according to the number of times mentioned in the test and choosing the best attempt.

### **8-2. Statistical Methods:**

- Arithmetic Mean
- Standard Deviation
- Coefficient of Variance
- Pearson Correlation Coefficient
- Percentage

### **3- Presentation, analysis, and discussion of results:**

3-1 Presentation and analysis of the results of peripheral vision, visual perception, and skill performance in the simple indirect attack with a change of direction among third-year female students.

**Table (2) shows the arithmetic means and standard deviations of the variables under study.**

<b>Variables</b>	<b>Unit of Measurement</b>	<b>Research Sample</b>	
		<b>x</b>	<b>Sd</b>
<b>Peripheral Vision</b>	<b>Degree</b>	<b>6,61</b>	<b>1,23</b>
<b>Visual Perception</b>	<b>Degree</b>	<b>7,93</b>	<b>1,11</b>
<b>Skill Performance of the Simple Indirect Attack with Change of Direction</b>	<b>Degree</b>	<b>6,60</b>	<b>1,74</b>

Table (2) shows that the arithmetic mean for the peripheral vision test was (6.61) with a standard deviation of (1.23), and the arithmetic mean for the visual perception test was (7.93) with a standard deviation of (1.11), and the arithmetic mean for the skill performance test was (6.60).

With a deviation of (1.74)

- 2. Presenting the results of the correlation between peripheral vision and visual perception with the skill performance of the simple indirect attack with a change of direction among third-year female students.

Table (3) shows the correlation coefficient for the variables under study.

<b>Variables</b>	<b>Research Sample</b>	
	<b>Correlation</b>	<b>Significance</b>
<b>Peripheral Vision</b>	<b>0.896</b>	<b>Significant</b>
<b>Visual Imagery</b>	<b>0.888</b>	<b>Significant</b>

Degrees of freedom (n-2) = 18 (0.444)

Table (3) shows that there is a correlation between peripheral vision and the skill performance of the simple attack with a change of direction, and there is also a correlation between visual perception and the skill performance of the simple attack with a change of direction because the calculated value of (r) is greater than the tabulated value of (r) of (0.444).

### 3-2 Discussion of Results:

Table (3) shows a correlation between peripheral vision and visual perception with the skill performance of the simple indirect attack by changing direction among third-year female students. The researcher attributes this correlation to peripheral vision, which expresses the ability to see things outside the focal point from both

Sideways, up, and downward vision is one of the most valuable visual skills a student can possess. Seeing beyond 180 degrees from both sides is an extraordinary phenomenon, enabling the student to observe the movement of the weapon and the opponent simultaneously. These visual stimuli directly contributed to enhancing the students' senses.

And motivating them to respond to those stimuli and improving the positive relationship and the degree of neuromuscular coordination, which is the basic foundation upon which all motor skills in fencing are built, as sensory stimuli were related to visual-visual abilities and offensive skills because these stimuli have the ability to distribute Visual stimuli that aid in visual development improve the relationship between the eyes and the brain, leading to increased coordination and flexibility of the eye muscles, thus enhancing their control (Ali Hussein Hashem: 2012, p. 57). The eye is not merely an organ that functions independently of the rest of the body; it also plays a role in visual perception. Its multiple parts and the fact that the influence affecting it is the ether, which remains one of the mysterious secrets, as its true nature and gender are still unknown, the eye has a great ability to distinguish influences from one another in strength, providing us with wide-ranging luminous sensations. It perceives not only lights and colors but also

The dimensions and characteristics of objects (Mona Salem Fathi Saloumi: 2005, pp. 35-36).

The sense of sight, more than any other sense, is of paramount importance in the processes of adapting to the environment. Most of what we perceive is through vision; it is as if sight were the brain's primary window, allowing us to understand the sizes and locations of objects. Its form, colors, the distances separating us from it, its beauty and ugliness—these can only be perceived through sight. Furthermore, it provides us with different patterns of form in three dimensions and is a means of perceiving space and time, observing sequence, movement, and change. Through it, we obtain 83% of our perceptions of the external world. (Majed Nafeh) (Al-Kinani: 1998, pp. 65-66) After the skill becomes automatic, sensation and perception of movement play an important role in achieving the accomplishment. We live in a world of optics because sight is the most important source that provides us with information from the external environment through motor behavior, which humans rely on primarily for sight. To solve the motor task, as it is a fundamental source in determining the movements required to be executed and performed for any skill. Likewise, vision helps us to know the results of the performance and identify its errors, for the purpose of performing several motor skills.

Effectively, it is necessary to make regular judgments about moving objects in space, supporting the spatial relationship of the body to individuals and other objects. This ability depends mainly on visual perception. (Wajih Mahjoub: 2002, p. 220)

Visual skills, like physical skills, can be learned, trained, practiced, and developed. It's not just about 20/20 vision, which is essential, but also about the player's ability to use the information received from their eyes to perform on the field. (Jihan Muhammad Fouad and Iman Abdullah Zaid: 2005, p. 25)

Jim Brown points out that visual perception is a science that arose as a natural and logical consequence of performance in athletic competitions. Vision encompasses several elements such as sharpness, tracking or following, accuracy of discrimination, peripheral vision, the ability to determine dimensions, and color vision. The contributions of vision are evident in various sports.

Vision plays a role in improving performance. A fullback in football needs good vision to see the entire field, basketball defenders use peripheral vision to see the whole field, and good baseball hitters usually have a better level of vision that enables them to track and catch fast-moving pitches. (Brown: 2001, p21)

#### **4- Conclusions and Recommendations:**

##### **4-1 Conclusions:**

1- Peripheral vision and visual perception are directly related to the evaluation of skill performance in the simple indirect attack skill (change of direction attack).

2- The research sample possesses a high level of peripheral vision speed and visual perception.

3- The research sample possesses a high level of skill performance in the simple indirect attack skill.

By changing direction.

**4-2 Recommendations:**

1- Emphasize training in peripheral vision, especially in the early stages.

2- Conduct similar studies on other skills not addressed in this study.

3- Ensure regular testing and measurement.

**Sources**

- Jim Brown : sport Talent : How to identify and develop outstanding athletes , April , 2001.
  - Jihan Mohamed Fouad and Iman Abdullah Zeid: The Effectiveness of Visual Training on Some Skill Variables and Visual Abilities in Volleyball, PhD Dissertation, Zagazig University, Egypt, 2005.
  - Ali Hussein Hashem: Some Visual Abilities and Their Relationship to the Performance of Some Offensive and Defensive Skills Among Players Al-Qadisiyah University's five-a-side football team, published research, Journal of Sports Education Sciences, Volume 12, Issue 1, 2012.
  - Fouad Abu Hatab, Muhammad Saif Al-Din Fahmi. Dictionary of Psychology and Training: Cairo, Al-Amiriya Press, 1984.
  - Majid Nafie Al-Kinani: Building an Educational System for Developing Sensory Perception in Perspective, PhD Dissertation, University of Baghdad, College of Arts, 1998.
  - Mona Salem Fathi Saloumi: A Proposed Approach to Developing Some Visual Perceptions and Its Impact on the Accuracy of Some Basic Skills in Handball, PhD Dissertation, University of Baghdad, 2005.
  - Wajih Mahjoub: Physiologically Learning, 1st Edition, Amman, Dar Al-Fikr for Printing, Publishing and Distribution, 2002.