

## The Effect Of Visual Vision Exercises On Some Visual Variables And The Level Of (4x 100m) Relay Racing Performance

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### Introduction And Research

#### Problem:

Scientific progress has become the hallmark of the current era, as the struggle to break the records of various sports competitions, especially field and track competitions, has become a preoccupation among the minds of workers and those interested in this field throughout the world, and this has led to increased interest in directing scientific research methods to explain many of the Phenomena and the discovery of modern scientific methods and theories in the field of training.

In recent years, there has been an increase in interest in the applied field of sports psychology, and it has become customary to devote programs to training psychological skills, while developing kinetic skills, physical abilities, and planning aspects. (4: 124)

Sports scientists, as indicated by "**Isabel walker**" (2001), are constantly and continuously searching for modern educational and training methods in order to

improve athletic performance and gain a competitive advantage, and visual vision exercises are one of these modern techniques in the sports field as they are a frequent series of eye exercises with a view to improving the basic visual abilities which are important for athletes in all competitive sports (82: 203-220).

**Brian (2007)** has indicated that the visual sense is one of the senses that plays an important role in sports activity, as it provides athletes with an estimated 80% of sensory inputs during sports activity, especially activities that require a high level of sensory perception. The visual skill

provides the athlete with accurate and fast information, which a skill that can be developed by training, and whenever the information or data are unclear, complete, or distorted to any degree, the degree of response in this case is less than expected (50: 74).

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Both "Ziemane et al.," (1993) believe that the training of visual skills in the sports field is a relatively small area in the system of sports performance, but it is very important and the interest in it has become increasingly large and active in recent periods. (22:234,235)

**Hussein Ahmed Heshmat (2004)** considers that track competitions are distinguished and varied sporting activities that require certain biological characteristics due to the nature of the performance of their races that require the development of a level of digital achievement depending on improving the efficiency of these characteristics as the process of discovering the talented captured the interest of workers in this field in order to take care of them to raise the level of local and national sports and prepare the Olympic champion to have a global level (4: 165).

Relay races are fun and interesting races involving (4) players and considered as the athletics bride that is executed at the end of the sports concert (championship) in athletics, and each of them takes a distance equal to the distance almost covered by the other

and the player holds a short stick and transfers to the next player and so on until the players finish moving the stick with specified distances running, and the stick is delivered and received within a specific area of length (20) meters in the middle of which the distance end line is located, and in this way the area is divided into two equal parts in which the delivery and receipt process is completed (6: 131).

The relay races are characterized by excitement and suspense because of its diversity in the stage of racing performance, which requires awareness, focus, visual tracking, and eye and hand compatibility to follow these kinematic performances.

**"Calder" (2000)** believes that visual skills are a set of neuropsychological skills that can be transferred and developed and include many components such as 3D vision, visual tracking, and visual focus (18: 15).

Visual vision exercises are also known as that special program of a group of exercises that work to strengthen the various visual capabilities through a variety of exercises with high mental visual performance that leads to increasing the different

mental adaptations of the process of vision in various conditions in a manner that is commensurate with the forms, sizes and colors of the stimuli that are exposed (11:19).

Through the researchers work as faculty members at the college of Physical Education, Assiut University, and the first was occupied in the student evaluation committee in the practical exams for the track competitions course for third-year students and the second has taught the course, the researchers have noted a decrease in the level of skill performance of the 4x100m relay races, despite the fact that to explain and give the special model for each stage of the race with repeated training on it during the lectures, and the researchers attribute this decrease to the lack of diverse and appropriate educational methods and programs that may be based on visual vision exercises, and thus the students' lack of some visual variables during the learning process that such races require such as, optical tracking eye compatibility, and efficiently seeing surroundings.

Some studies, such as (7), (8), (9), (14), (15) through their use of visual exercises in codified educational programs, have shown in their results that visual exercises have had a positive impact on the skill level of sports and different games. This is what prompted

the two researchers to carry out this research because of its importance in helping workers in the sports field in general and sports track competitions in particular to advance the level of skill performance of the research sample.

#### **Research Goal:**

The research aims to improve the level of visual vision and the level of skill performance for a 4x100m relay race for the third year students, specializing in teaching track competitions.

#### **Research Hypotheses:**

1- There are statistically significant differences between the mean scores of the previous and post measurements in the level of the visual variables in the research sample in favor of the post measurement.

2- There are statistically significant differences between the mean scores of the previous and post measurements in the performance level of a 4x100m relay race in the research sample in favor of post measurement.

#### **Research Terms:**

##### **- Visual Vision Exercises**

The special program of a group of exercises that work to strengthen the various visual abilities through a variety of exercises with high mental visual performance leading to increasing the different mental adaptations of the process of vision in various conditions in a manner commensurate with the shapes, sizes and colors of

stimuli that are exposed. (11:19).

### **External Awareness: (Peripheral Vision)**

It is the ability to see things outside the focus from both sides, up and down, and it is one of the most valuable visual abilities that an athlete can possess, and seeing beyond 180 degrees from both sides is an abnormal phenomenon that enables the player to see greater playing areas, the movement of other players and the ball, all at once (17:21)

### **Eye-Hand Coordination**

It is a perceptual kinetic skill that includes solidarity and processes in the central nervous system of visual information for these movements that can be implemented in the integration and work of the hand with the eye as it determines the effect and effectiveness of kinesthetic perception according to the visual stimulus (13: 10)

### **Visual Tracking:**

It is the use of eye movement to perform a survey of the place of the race with

visual follow-up during performance.(23)

### **Research Plan And Procedures:**

#### **-Research Methodology:**

The researchers have used the experimental approach using the experimental one-set design, as it fits with the nature of the research.

#### **-Research Community:**

The research community represented in the third year students specializing in track competitions at the college of Physical Education, Assiut University, and they are (60) students for the academic year 2018/2019.

#### **-The Research Sample:**

The research sample was chosen intentionally from the third year students, specializing in track competitions in the Curriculum and Physical Education Teaching Department, and they are (40) students, (20) students, as a basic sample and (20) for the exploratory study for the academic year 2018/2019.

#### **- Identifying the dominant eye Of The Research Sample:**

**Table (1)**

**The dominant eye Of The Research Sample**

<b>variable</b>	<b>Right eye</b>	<b>Lift eye</b>
<b>the dominant eye</b>	16 students	4 students

It is clear from Table (1) Identifying the dominant eye Of The Research Sample, the Right eye it dominant eye

(16) students, the Lift eye it dominant eye (4) students

#### **- Homogeneity Of The Research Sample:**

The researchers have conducted the homogeneity of the individuals in the sample under consideration to ensure that the data of the members of the sample under consideration are distributed fairly in all the

growth variables under consideration, and this is evident in Table (2) Homogeneity in the anthropometric variables (time-age-height-weight), which may affect the research results.

**Table (2)**  
**Arithmetic Mean, Standard Deviation, And Torsional Coefficient**  
**Of The Basic Growth Variables "Age, Height, Weight, And**  
**Training Age" For The Individuals**  
**Of The Research Sample N = 20**

n	variables	Measurement unit	Statistical significance of characterization			
			Arithmetic mean	standard deviation	median	torsional coefficient
1	age	Year/month	21,38	0,32	21,00	0,11
2	height	cm	174,21	4,01	174	0,21
3	weight	kg	69,07	5,84	69	0,63

It is clear from Table (2) for the homogeneity of the research sample data that all coefficients of torsion in the variables (time age, length, weight) were confined between

(□ 3), where the highest value of the torsion was (0.63) and the lowest value (0.11) , Which indicates the moderation of the research sample in the basic growth variables.

**Table (3)**  
**Homogeneity Of The Research Sample In The Basic Research**  
**Variables (N = 20)**

n	basic research variables		Measurement unit	Statistical significance of characterization			
				Arithmetic mean	standard deviation	median	torsional coefficient
1	External awareness	Right eye	Degree	2,21	0,57	2,00	0,06
		Left eye	Degree	2,21	0,57	2,00	0,06
2	Eye-Hand Coordination		second	48,47	1,83	48,00	0,37
	Optical path		Degree	2,15	0,59	2,00	0,06
3	4×100 m relay race		Degree	9,93	3,31	10,00	0,083

It is clear from Table (3) that the basic research variables follow the moderate distribution, and this is evident in the coefficient of torsion, where the values were limited

between (□ 3), where the highest value of the torsion was (0.37) and the lowest value (0.06), which indicates the moderation of the research

sample in the research variables .

### **Data Collection Tools:**

The researchers questionnaire in collecting data related to the research with the following tools and devices:

#### **A- Analysis Of Scientific References And Previous Studies:**

The researchers have reviewed appropriately the references and previous studies in the field of sports psychology such as (1,4,10) and the field of track competitions such as (4,6,9) on studies that were interested in the field of vision and visual variables as well as studies that concerned with the level of skill performance of track competitors.

#### **B- Observation:**

- The researchers have identified the research problem through scientific observation.

#### **C - Expert Opinion Poll**

##### **Forms Used in the Research:**

- The researchers have designed the registration form of players' data (name - age - height - weight) attachment (2).  
- Expert Opinion Poll Form. Attachment (1) on the most important visual variables under consideration. Attachment 3 and Table (4) explain this.

- Expert Opinion Survey Form. Attachment (1) on the most important tests of visual variables under consideration.

Attachment 4 and Table (5) show that.

- Expert survey form on determining the axis and time periods of visual vision exercises. Attachment (5)

#### **D - Tests Of Visual Variables:**

- Test the dominant eye  
- External awareness test.  
- Optical tracking test  
- Eye -hand compatibility test.

Attachment (6)

**F- A Form Of Measuring The Skill Performance Level (4x100m Relay)**, prepared by Mohamed Ehab (2016) (9). Attachment (7)

#### **L- Devices And Tools Used In The Research:**

The researchers have identified the tools and devices used in carrying out the research procedures to obtain the data to be obtained.

A medical scale for weight measuring in kilograms

- a wrist meter for height measuring (in cm).  
- Stop Watch- Boards of paper with drawings - Plastic cones - Mathematical numbers- Collars with balls of different colors - tape measure - tennis balls- A stick with balls of different colors - Medical balls - a vision measuring board- Wooden box - Swedish seats - Black curtain- Whistle - Labels - Chalk of colors.- Geometric shapes - Relay sticks - Running track - Footballs with sticky tape

**Table (4)**

**Expert opinions on the most important visual variables associated**

## with the 4x100m relay race (n = 10)

N	Visual variables	appropriate		inappropriate	
		k	%	k	%
1	Realizing the depth of vision	6	60	4	40
2	Second optical resolution	7	70	3	30
3	Animated optical resolution	7	70	3	30
4	External awareness (seeing surrounding things)	9	90	1	10
5	Visual focus	5	50	5	50
6	Visual tracking	10	100	—	—
7	Visual reaction speed	6	60	4	40
8	Eye-hand compatibility	8	80	2	20
9	Visual perception	5	50	5	50
10	Eye-foot compatibility	6	60	4	40

It is clear from Table (4) the percentage of expert opinions about the most important visual variables related to the 4 x 100m relay race, ranged between (50: 100%). The researchers have

agreed with the percentage of 80% or more, and thus the visual variables are (external awareness) seeing the surrounding things. (Visual tracking, eye-hand compatibility).

Table (5)

## Expert Opinions On The Most Important Visual Variables Tests Related To The 4x100m Relay Race (N = 10)

N	Visual variables		appropriate		inappropriate	
			k	%	k	%
1	external awareness	External awareness test.	9	90	1	10
		3D vision test.	6	60	4	40
2	Visual tracking	Visual tracking test.	10	100	—	—
		Table tennis balls thrower test.	6	60	4	40
		Three plate test.	6	60	4	40
3	eye-hand compatibility	Eye-hand compatibility test.	7	70	3	30
		Numbered circuit test	9	90	1	10

It is clear from Table (5) the percentage of expert opinions about the most important tests for the visual variables related to the 4x100m

relay race ranged between (60: 100%). The researchers agree with the percentage of 80% or more, and thus the tests are (external awareness test, visual

tracking test, Eye-hand compatibility test).

### exploratory study:

The researchers have conducted an exploratory study on a sample from the research community and outside the basic research sample, and they are (10) students in the period from 18/9/2019 to 24/9/2019, in order to conduct scientific transactions for the tests used and know their suitability for the current research.

### Scientific Transactions Used In The Research.

Validity :

The researchers have used the validity of differentiation by finding the differences between two groups, one of them is a distinct group composed of (10) students who are regular in attending the lectures, and the other group is non-distinct and composed of (10) students, and this test was conducted on 18/9/2019, and the researchers have calculated the significance of the differences between the two distinct and non-distinct groups to ensure the accuracy of the scale, and Table (5) illustrates this.

**Table (6)**  
**Differentiation validity coefficients of visual variable tests and relay racing performance level 4 x 100m (n1 + n2 = 20)**

N	Research variables		distinct groups		non-distinct group		T value
			Arithmetic mean	standard deviation	Arithmetic mean	standard deviation	
1	external awareness	Right eye	3,25	0,63	2,15	0,75	7,89
		Left eye	3,63	0,61	2,15	0,75	8,25
2	eye-hand compatibility		42,46	2,35	48,65	1,03	6,33
3	Visual tracking		2,88	0,50	1,50	0,73	6,21
4	4x100 m relay race		12,94	1,49	8,50	1,46	9,86

Tabular value of (T) at the level  $0.05 = 2.086$

From Table (6), it is clear that there are statistically significant differences between the averages of the distinct group degrees and the averages of the non-distinct group in the

level of the visual variables and the level of the performance of the  $4 \times 100$  m relay race in the direction in favor of the distinct group, where the calculated value (T) ranged

between (6.21 - 9.86) which is greater than the tabular value of (T) at the level (0.05), which indicates the validity of the tests.

#### **Stability:**

The researchers have used the method of applying and re-applying the test ((Test - Re test) with a time difference

of (8) days from the application of the first measurement on 18/9/2019 to 24/9/2019 on the distinct group (10) students from the research community and outside the basic research sample, and table (6) shows the coefficients of stability between the two applications.

**Table (7)**

**Correlation coefficients between the first and second application of visual variable tests and the performance level of a 4x100m relay race (n = 10)**

N	Research variables		1 <sup>st</sup> application		2 <sup>nd</sup> application		r value
			Arithmetic mean	standard deviation	Arithmetic mean	standard deviation	
1	external awareness	Right eye	3,25	0,63	3,15	0,64	0,976
		Left eye	3,63	0,61	3,61	0,61	0,989
2	eye-hand compatibility		42,46	2,35	43,01	2,22	0,889
3	Visual tracking		2,88	0,50	2,80	0,53	0,942
4	4×100 m relay race		12,94	1,49	12,98	1,48	0,986

The tabular value of (R) at the level  $0,05 = 0,576$

It is clear from Table (7) that there are no significant differences in the level of the visual variables and the level of the performance of a 4 x 100m relay race between the first application and the second application where the correlation coefficient reached between (0.889 to 0.989), which confirms that the tests are characterized by stability and that they give the same

results if they re-applied again on the same sample and under the same conditions.

#### **Visual Vision Exercises Used In The Research Description Of Visual Vision Exercises:**

It is a set of exercises that improve the visual abilities of the eye and that used in the sports field or in public life such as (visual accuracy - perception of depth - visual

tracking - visual focus - external awareness - eye and hand, eye and foot compatibility).

### **The Objective Of The Visual Vision Training:**

Visual vision exercises aim to improve the level of skill performance of the 4x100m relay race for the students of the college of physical education by improving some visual vision variables (external awareness, eye and hand compatibility, visual tracking).

### **The foundations of setting visual vision exercises:**

- The exercises should achieve the goals for which they were set.
- Taking into account the characteristics of the age group and the individual differences between the members of the sample under consideration.
- Taking into account the element of flexibility in visual vision training, adapting to emergency conditions and putting solutions.

### **The content and dimensions of the visual vision exercises in the research sample:**

The first dimension: external awareness exercises (seeing surrounding things):

#### **-Dimension Description:**

It is a group of exercises that increase the

ability to see things outside the focus point from both sides, up and down, and it is one of the most valuable visual capabilities that an athlete can possess, and the researchers believe that external awareness is the ability to see things from the corners of the eye with focus on a specific point.

#### **Objective of the dimension:**

- Developing the external awareness skill of the research sample.
- Helping the sample members to increase their ability to see the surrounding objects during the race.

#### **The second dimension:**

Training to develop compatibility between the eye and hand:

#### **Description of Dimension :**

A group of exercises which increase the ability to coordinate what you see from an appropriate response from the hand, i.e. unifying movement with vision, so the eye leads the body parts to performance and the competitor performs according to the result of qualitative visual information, and the importance of this skill appears in the delivery stage of the relay stick delivery.

#### **Objective of the dimension:**

- Give the study sample more ability to have good eye-to-eye compatibility.
- Easy performance during the delivery process of the relay stick.

### **The Third Dimension: Visual Tracking:**

#### **Dimension Description:**

It is a group of exercises that increase the ability to follow the moving body accurately and clearly whatever its speed, and the athlete who does not have that ability suffers from several problems during his athletic

activity, and visual tracking is important in all athletics races and this appears in the relay race through follow up of the receiving player to the relay stick during the handover process.

#### **Objective Of The Dimension:**

- Increasing the ability to follow the moving body of the research sample.
- Reaching the beginner to an optimal state of visual tracking, which helps to improve the level of skill performance.

#### **Duration Of Visual Training Exercises:**

**Table (8)**

**Time distribution of the contents of the visual vision exercises**

<b>Dimensions of visual vision exercises</b>	<b>No. of weeks</b>	<b>Unit week</b>	<b>Unit no.</b>	<b>Unit time during a week</b>	<b>Total time of dimension</b>
External awareness (seeing the surrounding things)	3	3	9	30	270 m
Eye-hand compatibility	3	3	9	30	270 m
Visual tracking	2	3	6	30	270 m
<b>total</b>	<b>8</b>	<b>3</b>	<b>24</b>	<b>90 m</b>	<b>810 m</b>

It is clear from Table (8) that the time duration for visual vision training reached (8) weeks by (3) weekly units with a total of (24) units and at a rate of (30) minutes per unit.

#### **Procedures for implementing the basic research experiment:**

The researchers have carried out visual vision training on the research sample as follows:

#### **Conducting The Previous Measurements:**

On Saturday, 26/9 / 2019 AD, the two researchers have conducted the previous measurements of the variables

under consideration on the research sample, which included: Measuring the level of visual variables (external awareness, visual tracking, eye-hand compatibility) and the skill level of the race.

### **Application Of Visual Vision Training:**

The researchers have applied visual vision training in the period from Saturday 28/9/2019 to 24/11/2019, Assiut University Stadium, for a period of (8) weeks at the rate of (3) three units per week, as the number of units reached (24) eighteen units, and unit time was determined by (30) minutes, and the researchers took into account the following during the application of the training:

- Taking into consideration the standardization of days, times and location of the training for the individuals in the research sample.

- Carrying out measurements with the same system, method, and arrangement of the research sample before and after the experiment.

Performing visual vision exercises for (30) minutes.

- The two researchers supervise the application of the research on the research sample.

### **Conducting Post Measurements:**

After completing the application of visual vision training on the research sample, the researchers have conducted the post measurements on the members of the research sample, on, 26/11/2019 with the same conditions and arrangement of conducting the previous measurements, which included: measuring the level of visual variables (external awareness, visual tracking, Eye-hand compatibility) and skill level for a 4x100 m relay race.

### **Statistical Processors Used:**

**According to the nature of the research and its goals, the researchers have used the following statistical processors :**

- SMA. - -percentage. -
- Coefficient of torsion. -T. Test for the significance of the statistical differences. -
- standard deviation. -
- Correlation coefficient. -
- median

### **Presentation And Discussion Of The Results:**

In light of the aims of the research, and to achieve its hypotheses, the two researchers indicate to present the results that were reached and discuss them through the statistical processors of the data obtained,

in accordance with the nature of the research and its hypotheses.

### **First: Presentation And Discussion Of The Results Of The First Hypothesis:**

"There are statistically significant differences between

the averages of degrees for the previous and post measurements in the level of some visual variables for the research sample in favor of the post measurement."

**Table (9)**

**Significance of the differences between the averages of degrees of the previous and post measurements in the level of the visual variables (n = 20)**

N	Research variables		Post measurement		Previous measurement		T value
			Arithmetic mean	standard deviation	Arithmetic mean	standard deviation	
1	external awareness	Right eye	2,21	0,57	4,50	0,51	8,67
		Left eye	2,21	0,57	4,65	0,49	8,63
2	eye-hand compatibility		48,47	1,83	29,21	1,56	9,25
3	Visual tracking		2,15	0,59	3,75	0,79	9,21

\* Tabular value of (T) at 0.05 = 2.101

It is clear from Table (9) that there are statistically significant differences between the averages of the previous and post measurement degrees in the level of the visual variables in favor of the post measurement of the research sample at the level of (0.05) where the calculated value of (T) of the visual variables ranged between (8.63 to 9.25 which is greater than its tabular value at (0.05) level.

In the light of the results of the statistical analysis, and within the limits

of the measurements used and through the objectives of the research, the researchers have discussed the results, guided by the results of the associated studies and available scientific references to verify the validity of the first hypothesis, which states "There are statistically significant differences between the averages of the degrees of previous and post measurement in some of the visual variables at the research sample for the benefit of post measurement. The researchers have attributed this improvement to the

practice of the research sample individuals the visual vision training, which included the special type of exercises (peripheral vision (external awareness) - visual tracking - eye -hand compatibility) which led to the improvement of these visual variables, which is reflected positively on the level of player performance in the relay race.

Where "Brian Arian (2007) (17) adds that visual skills are similar to physical skills that can be learned, trained, practiced and developed, and it is not related to the power of vision 20/20 which is essential, but the extent of the ability of athletes to use the information transmitted to them from their eyes in order to perform within the stadium.

This is what "Hassan Hassan Allawi" (1994 AD) (10) pointed out that learning is the change of performance or kinetic behavior as a result of training and practice not as a result of maturity or fatigue or the effect of some stimulant drugs and other factors that affect performance or kinetic behavior temporarily. This is also consistent with the study of Hoda Hassan Saber (2008) (15), who believes that the visual exercises help to

develop both fixed and moving optical accuracy, depth perception, peripheral vision and focus of attention.

This finding is consistent with what "Abernethy & Word" indicated (2004 AD) (16) on the importance of visual vision exercises in improving the flexibility and compatibility of the eye muscles, and also indicated that the program should start from the simple to the complex.

This result is also consistent with the results of the study of Quevedo et al., (2001) (21), Calder and Noake (2000 AD) (18), Jihan Fouad, Iman Abdullah (2005) (3), Laila Rifaat. (2009) (7) and Nermin Fekry (2009) (13) on the importance of visual training programs in developing the visual abilities of individual and group sports players.

Through the previous presentation, based on the above results from Table (9), the first hypothesis of the research is validated, which states that "there are statistically significant differences between the degrees averages of the previous and post measurements in the level of the visual variables of the

research sample in favor of the post measurement."

**Second: Presenting and discussing the results of the second hypothesis:**

"There are statistically significant differences between

the degrees averages of the previous and post measurements in the performance level of a 4x100 m relay race in the research sample in favor of the post measurement.

**Table (10)**

**An indication of the differences between the degrees averages of the previous and post measurements in performance level of 4x100 m relay race (n = 20)**

N	Research variables		Post measurement		Previous measurement		T value
			Arithmetic mean	standard deviation	Arithmetic mean	standard deviation	
1	4×100 m Race	degree	9,93	3,31	19,73	1,14	11,65

\* Table (T) value at 0.05 = 2.101

It is clear from Table (9) that there are statistically significant differences between the degrees averages of the previous and post measurement in the level of performance of the race 4 × 100 m relay race in favor of the post measurement of the research sample at the level of (0.05) where the calculated value of (T) of the visual variables reached (11.65) which is greater than its tabular value at level of (0.05).

The researchers have attributed this positive influence in the performance level of the 4x100 m relay race to the practice of members of the research sample for the proposed exercises for visual vision of (peripheral vision

(external awareness) - visual tracking - eye -hand compatibility), which led to improvement and development of the performance level of the research sample.

This is in line with the findings of the studies of Majid Mustafa Ahmed Ismail and Abdel Mohsen Zakaria Ahmed (2006) (8) that the teaching and training process using visual vision training has a positive effect in advancing the level of skill performance, and that the visual capabilities play an important role in efficiency of the performance and these capabilities can be developed through a well-designed visual training programs.

These results are consistent with the studies of

Nadia Al-Sawy, Zainab Hathout (2008) (12), Mahmoud Abdel-Mohsen Abdel-Rahman (2008 CE) (11), Hoda Hassan Saber (2008) (15), Majed Mustafa Ahmed Ismail, Abdel Mohsen Zakaria Ahmed (2006) (8), Ashraf Khattab, Mervat Rashad "(2005) (8), Jihan Fouad, Iman Abdullah (2005) (3), Duaa Mohamed Mahmoud (2002) (5), in that training programs for visual exercises have positive effectiveness in improving the level of skill performance, as well as improving the cognitive skills and visual abilities.

Through the previous presentation and based on the above results from Table (9), the first hypothesis of the research is validated, which states that "there are statistically significant differences between the degrees averages of the previous and post-measurement in the level of the performance of a 4 x 100 m relay race of the research sample in favor of the post measurement"

### **Conclusions:**

In light of the research aims and hypotheses and within the limits of the research sample and its characteristics based on statistical processors and what the results of the

research show, the researchers reached the following conclusions:

1- The visual vision training are effective in improving the level of some visual variables (peripheral vision (external awareness) - visual tracking - eye - hand compatibility) in the research sample.

2- The visual vision training are effective in improving the skill performance level of the 4x100 m relay race.

### **Recommendations:**

In light of the research aims and results and within the limits of the sample, the researchers recommend the following:

1- The necessity of using visual vision training when teaching and training field and track competitions because of its effective impact on the level of sports performance.

2- The necessity to focus on the surrounding vision when teaching track events, as the race coincides to the players on adjacent lanes.

3- When teaching a 4x100m relay race, the need to give more moving visual vision exercises related to tracking moving targets, because the race has a way to deliver and receive in the event of movement.

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