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The impact of visual vision training on learning the throwing skill in the badminton and some visual variables among the youth of AL-Kut sports Club

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Abstract:
The research aims to identify the impact of visual vision training on learning the throwing skill in the badminton and some visual variables among the youth of AL-kut sports club The researcher used the experimental approach for its computability for the research application and its procedures, The research sample was selected in a deliberate manner among the juniors of the AL-Kut club in total (20) juniors divided into two groups each group contains 10 juniors one of them is the experimental and the other is the controlled group. The researcher applied the visual training program on the experimental group and the traditional method on the controlled group In light of the research goals and in terms of the sample size chosen and based on the results of the statistical calculations the researcher concluded the following: The visual training program has proven its effectiveness in improving junior's visual abilities and improving the skill performance of the throwing skill in badminton. The researcher recommends establishing an optical measurements laboratory within each of the specialized clubs, the need for a visual specialist who evaluates and develops the visual abilities and functions of young players and determines the type of glasses and contact lenses in terms of efficiency and color to protect them, Further studies on the impact of visual exercises is needed on other sports using different samples.
Keywords: *badminton, optical capabilities, throwing skills.*

I. INTRODUCTION

Scientific and practical applications of scientific research in the field of sports contribute to the development of sports technical performance level in general and tennis sport in particular as a result of the use of the application of knowledge, information and facts that contribute to improving the abilities and performance of learners and players to help them to adapt during the practice of table tennis in order to achieve athletic excellence. Different sensory organs play an important role during the individually performed skills which requires a single response or a number of skills that are characterized by bonding and one of which is a preliminary stage of the basic part of the movement, thus it affects the motor skills learning speed and in the formation of a primary motor perception. For new skills, as well as the development of compatibility process for complex movements, resulting in the ability to control movements accurately and maintain sound motor conditions and thus achieve the integration of motor performance.

Barry Seiller points out that the eye leads the body to performance, the learner performs as a result of visual information.[2]

Brian Ariel adds that (80%) Of the cognitive contribution is considered visual and some scientists have pointed out that it exceeds (90% and 10%) For the rest of the senses, hence the importance of sight, which contributes significantly to the formation of our life perceptions in general and in the sports field in particular.[3]

Isabel Walker points out that athletes and sports scientists are constantly searching for modern technologies to improve athletic performance, and visual training is one of those technologies offered in the field of sports.[4]

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[2] Seiller B.Positive Effects of a Visual Skills Development Program: Optometry & Vision Science;2004
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[4] Walker I.Why visual training programmed for sport don't work: Sports Sci; Mar 2001

Asseman and others points out that orthoptic is one of the ancient human sciences, and this word is an installation of the word ortho and means equalizer, systems and optics and means sight or sight to become the word Orthoptic, the word or topic means finding coordination in sight.[5]

Elmurr adds In the past, visual skills have not received sufficient attention in sports programs, as athletes perform vision by being unintentionally associated with traditional training, but studies have shown the importance of visual skills in athletic performance.[6]

According to Zeman and others visual training in the field of sports is a relatively small area in the sports performance system but it is very important, in recent periods the interest in it has become increasingly active.[7]

Williams and others point out that the first step to the success of sports vision training programs is to recognize the nature of the visual skills for the specified sport as each sport has its own visual skills which differ from other sports.[8]

Some educational leaders have carried out some Arab and foreign studies aimed at the effectiveness of visual skills training programs on various sports fields, including the study of Amr Hamza and others.[9]

In order to identify the effectiveness of a training program for specific visual skills on some visual variables, balance and level of performance in Fencing the results concluded that the training program led to improved visual skills (external awareness - visual tracking - accuracy - depth perception) in the two research groups It also improved the balance and performance level of fencing.

The study of Jehan Fouad and Iman Abdullah aims to identify the effectiveness of visual training on some of the skill variables and visual abilities in volleyball, and the results concluded that the proposed visual program is effective in improving visual abilities as well as improving the skills of tennis.[10]

The study of Magda Ismail and others aims to identify the impact of a visual training program on some visual skills and visual cognitive skills and the level of performance of control and hegemony skills is under research among the juniors of rhythmic gymnastics, and the results concluded that the training program has a positive impact on the improvement of visual and visual cognitive skills (under research), the level of performance of the control and hegemony skills among juniors, and the existence of a correlation between the variables (under research)[11]

The McLeod & Hansen study aimed at examining the effects of the visual training program on the level of consistent balance performance of the sexes, and one of the most important results was the superiority of the experimental group in the level of consistent balance performance compared to the control group, and the measurements of girls exceeds the boys in the level of consistent balance performance.[12]

The study of Quevedo and others with the aim of studying the impact of visual exercises at the level of performance in shooting, one of the most important results was the superiority of the experimental group in the skill of visual accuracy and the absence of differences between the two groups in the level of shooting performance.[13]

The Calder & Noakes study aimed to develop a training program for specific visual skills to improve performance in hockey, and one of the most important results was the statistically significant differences in performance level in favor of the experimental group.[14]

The study of Lenoir and others aimed at studying eye movements in table tennis players at different levels, and one of the most important results was the existence of statistically significant differences between research samples in favor of international players in the speed and accuracy of eye movement.[15]

The Abernethy & Wood study aimed to identify whether visual training programs are feasible in the field of sports, and one of the most important results was the existence of differences between tribal and dimensional measurements of the four

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groups in favor of dimensional measurements, and the absence of differences in the dimensional measurements of the four groups despite the presence of A clear improvement for the two experimental groups that used the visual program.[16]

Mazyn and others studied the contributions of vision when performing the skill of picking a tennis ball with one hand, and one of the most important results was that poor vision may be one of the main reasons for the lack of athletic achievement.[17]

AGAPE optometry centre indicates that visual difficulties in badminton can be identified by noting the following errors:

- Throwing routing inaccuracy
- Difficulty in estimating the distance and speed of the ball
- Throwing the ball away to the back.
- Hardening of the body and not performing the movement in a right manner
- The imbalance of the body
- Difficulty moving to receive the ball while playing

Through his education in Kut club teaching juniors badminton in general and the skill of throwing in particular and over the course of four consecutive seasons, the researcher noted the poor level of skill proficiency among most juniors in this skill as the game grew as did the throwing skills and it became more diverse and offensive strikes aimed at gaining points, and getting the win if the throw was fast and accurate, they may seem easy but it but in fact the learner (player) needs long hours of practice and exercise until he reaches a good level in performance as he must gain a neuromuscular compatibility, in addition to the speed of movement and the condition of the fall of the ball sent in the field to be a correct.[18]

By analyzing the results of development attempts in previous studies of badminton, and although it has been successful in highlighting what badminton curricula should be, and offering some suggestions for appropriate teaching methods and skill performance evaluation methods, there is a lack of use of Visual training in the educational process, especially in learning the skills of the badminton in general and the skill of throwing in particular.

Based on the above, the researcher conducted this study under the title of the impact of visual vision training on learning the throwing skill in the badminton and some visual variables among the youth of AL-Kut sports Club in IRAQ

II. RESEARCH GOALS:

The research aims to identify the impact of visual vision training on learning the throwing skill in the badminton and some visual variables among the youth of AL-Kut sports Club in IRAQ

I. THE RESEARCH IMPOSE:

1- There are statistically significant differences between the tribal and dimensional measurement of the experimental group in throwing skill and visual abilities in favor of dimensional measurement.

2- There are statistically significant differences between the dimensional measurement of the experimental and control groups in throwing skill and visual abilities in favor of the experimental group.

II. METHODOLOGY:

Participants:

The samples of the research were selected in a deliberate manner among badminton junior s at Al Kut Club in Iraq for the summer season 2018/2019 in total (26) juniors, 5 juniors were excluded for the survey (1) junior emerging irregular thus becoming the basic research sample (20) they were divided into two groups of 10 juniors one of them is the experimental group and the other is the controlled group The researcher identified the dominant eye (the eye that leads the body and which specializes in sending nerve signals to the brain) for the research sample before starting tribal measurements and a table (1) explains this.

Table (1)

The dominant eye for the research sample

Left eye	Right eye	Statement Variables
4	16	Dominant eye

The sample was equal in height, weight, age and visual efficiency to the dominant eye of each junior and a table (2) shows this.

Table (2)

N=20 Sample parity in variables (in progress)

[16] Abernethy B, Wood J. Do generalized visual training programmes for sport really work? An experimental investigation. J: Sports Sci; 2001 Mar;19

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distortion coefficient	Mean	±A	S-	Measruing unit	Statement Variables	م
0.97 -	158.27	5.26±	157.15	cm	Length	1
0.46	64.94	4.67±	65.14	Kg	Weight	2
0.10	20.65	1.88±	20.91	Year	Age	3
0.09-	5.40	1.39 ±	5.41	Dgree	The efficiency of the dominant eye vision	4

It is clear from table (2) that the values of the distortion coefficient are limited to (±3) which indicates the equality of the research sample

Junior badminton boys at Al Kut Club in Iraq

The researcher used the experimental method because of its suitability for the application of the research and its procedures.

Measures:

- Skill performance evaluation form for badminton throwing skill
- Rstameter for measuring height
- Measuring Tape
- Colored Shuttlecocks
- Colored Badminton Wood Rackets
- Calibrated medical balance for weight measurement
- Wooden boxes with different sizes
- Colored plastic hoops
- Labeled Shuttlecocks
- Safety Glasses
- (V-N-G) Video Nystagmography to measure the speed and accuracy of eye movements

Visual tests (annex 4) include:

- Sacade test to measure eye movement in the form of jumps.
- Jazz test to measure eye stability in different directions.
- Tracking test to measure eye movement while following the clock pendulum.
- Apotechnical test to measure eye movement while counting points on the device.

Video Nystagmography (V-N-G) to measure the speed and accuracy of eye movements:

It is a special device to measure the speed and accuracy of eye movements it's basically a glasses, an infrared camera connected to another small device, both connected to a computer.

As far as the researcher is aware of, not a single study in the field of physical education dealt with the use of this device in measuring the speed and accuracy of eye movements, and the measurements were made on the device of the "Specialized Eye Center in Kut Iraq, and figure (1) shows the device.

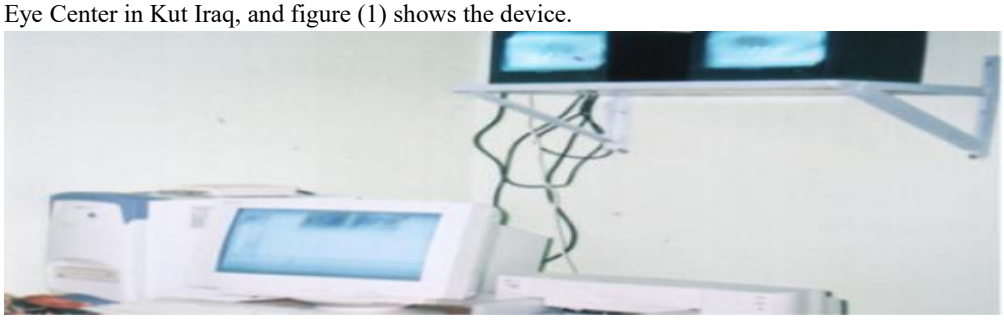

Fig (1) V.N.GVideo Nystagmography device

Skill performance evaluation form for badminton throwing skill:

After reviewing the Arabic and foreign scientific references for badminton to analyze the motor performance of throwing skill, it was possible to extract a (12) of successive motor characteristics distributed on three dynamic stages in addition to the position of readiness where two dynamic characteristics are included the preliminary stage has four characteristics, the basic stage has four characteristics, and the final stage has two dynamic characteristics. (0.5) half degrees have been placed for six kinetic characteristics, one degree for four properties, and (1.5) degrees and a half for two properties, thus the great end of the form is ten degrees and the minimum end (zero) (annex 5).

In order to confirm the validity of the use of this form, the researcher carried out its statistical calculations by calculating the authenticity of the form by correcting the content by presenting it to a group of experts specialized in the sports of badminton annex (1), and calculating the stability of the form by applying it to the sample of the study The survey and re-

application after a week and the creation of the correlation coefficient between the two applications which reached (0.848) which is a positive high correlation at a degree of confidence (99%), thus making the form applicable to the sample of the basic study.

Testing the throwing skill in the badminton (annex 6)

The researcher has studied the scientific references for the badminton sport and he chose this test because of its suitability to the relative phase of the research sample, The researcher calculated the sincerity of the test on the survey sample, the result of the honesty equation was (0.748) , and also calculated the stability of the test by applying it to the sample of the survey and reapplying after a week and finding the coefficient of correlation between the two applications which reached (0.748) It is a positive high correlation at a score of confidence (99%), Thus the test is applicable to the baseline sample.

Procedure:

This study was carried out from (10/9/2018 to 10/11/2018) with the aim of identifying implementation aspects of the proposed program in terms of training time ,the number of repetitions per training and the appropriate time for the daily units where the first three units of the proposed program were tested, This is after conducting a survey of references and studies to find out which exercises are used and the appropriate times for each training and the number of repetitions, and the results of the study indicated:

1- Set the daily application time for the research experiment to (45) minutes during the daily learning module.

2- Distributing the times of the daily application as follows:

Physical preparation (warm-up) (5) minutes

Visual exercises (38 minutes)

Cool out (2 minutes)

3. Determine the number of appropriate exercises for the performed application during application time with (12) distributed training as follows:

- Training to maintain the stability of the head position (3) daily exercises.
- Training for the development of fixed and moving visual accuracy (3) exercises per day.
- Exercises to improve the distance of vision (3) exercises per day.
- Visual cognition development exercises (3) daily exercises.

4- The distribution of the application times for the visual exercises (38 minutes) for the research experiment on daily exercises as follows:

- (9 minutes) training to maintain the stability of the head position (3 minutes) per training, (10 seconds) rest to move to the next training.
- (9 minutes) Visual accuracy development exercises (3 minutes) per training, (10 seconds) rest to move on to the next training.
- (9 minutes) exercises to improve visibility distance, (3 minutes) per training, (10 seconds) rest to move on to the next training.
- (9 minutes) Visual perception development exercises (3 minutes) per training, (10 seconds) rest to move on to the next training.

5. The number of repetitions for each training is determined by the sample conditions according to the total time of the training.

The proposed visual training program:

The proposed program aims to use visual training to develop the visual abilities of the eye among badminton juniors at al-Kut Club in Iraq.

The construction foundations of the proposed visual training program:

The visual training program was built according to the following scientific bases:

- Taking into account the principle of diversity in the performance of training within the educational unit so that the young person does not feel bored and monotonous.
- The suitability of the selected contents for the chosen age group
- Following the principles of ascension from easy to hard and from simple to complex in trainings.

The program contents characteristics:

The program included the exercises described in the (annex 2), and the selected exercises were classified to:

Training to maintain the stability of the head position, (17) training from (1-17).

Training for the development of visual accuracy, (20) training from (18-38).

Exercises to improve the distance of vision, (12) training from (39-50).

12 visual perception development trainings from (51-61).

The program's application period (8) weeks, 3 units per week.

The researcher points out that the content of the proposed visual training program that aims to develop the visual capabilities of the throwing skill in the badminton is explained in detail in (annex 3).

Search execution steps:

Tribal measurements:

Tribal measurements were conducted from (1/12 to 7/12/2018) in the following order:

An agreement was set with the Specialized Eye Center to make the necessary measurements to identify the visual skills among juniors using the device (V. N. G), and the researcher transferred the juniors to perform visual measurements from (8/12 to 12/12/2018)

The skilled performance evaluation test of the throwing skill was conducted at (18/12/2018), and the researcher considered it the tribal measurement. (Annex 5)

Basic study:

The units of the proposed visual training program were implemented in the period of (8) weeks by (3) times per week i.e. (24) meetings from (20/12 to 11/2/2019) on members of the experimental group, as well as teaching the control group the throwing skill at the same time period in the traditional way according to the scheduled period to learn the throwing skill in badminton.

Dimension measurements:

The dimensional measurements were made from (14/2 to 16/2019) in the same order as the tribal measurements.

Statistical analysis:

The statistical processing plan for the preliminary data included:

The average arithmetic.

Standard deviation.

Twisting factor.

"T" Test

III. DISCUSSION:

The first hypothesis:

There are statistically significant differences between the tribal and dimensional measurement of the experimental group in throwing skill and visual abilities in favor of dimensional measurement.

To verify the validity of the first hypothesis, the differences between the tribal and dimensional measurements of the experimental group in throwing skill and visual abilities were found, which is illustrated in table 3 and 4

Table (3)

Indication of the differences between tribal and dimensional measurement of the experimental group in the skilled performance of throwing

N=10

Improvement rate	**Tabular T value**	**dimensional measurement**		**Tribal Measurement**		**Measruing unit**	**Statement skilled performance of throwing**
		±A	**S-**	**±A**	**S-**		
%9.32	*2.67	2.61	8.19	2.13	5.87	degree	**Throwing**

Tabular T value at 0.05 =2.14

Table 3 shows that there are statistically significant differences at the level of (0.05) in the throwing skill performance level in favor of the dimensional measurement of the experimental group.

Table (4)

Indication of the differences between tribal and dimensional measurement of the experimental group in visual abilities

N=10

Improvement rate%	Tabular (T) value	**dimensional measurement**		Tribal Measurement		Measuring unit	Statement Visual ability
		±A	S-	±A	S-		
%14.64	*7.34	1.32	20.12	1.67	17.55	Number	Sacade test to measure eye movement in the form of jumps.
%20.23	*7.11	1.97	24.3	2.09	20.21	Number	Jazz test to measure eye stability in different directions.
%34.85	*8.67	0.42	3.77	0.69	2.64	degree	Tracking test to

							measure eye movement while following the clock pendulum.
%35.89	*8.89	1.08	8.69	1.52	6.38	degree	Apotechnical test to measure eye movement while counting points on the device.

Tabular T value at 0.05 =2.14

The second hypothesis:

There are statistically significant differences between the dimensional measurement of the experimental group and the controlled group in throwing skill and visual abilities in favor of the experimental group.

In order to validate the second hypothesis, the differences between tribal and dimensional measurements and the rate of improvement of the controlled group in throwing skill and visual abilities were found, as illustrated in table 5 and 6

Table (5)

Indication of the differences between tribal and dimension measurement of the control group in throwing skill performance.

Improvement rate %	Tabular (T) value	**dimensional measurement**		Tribal Measurement		Measuring unit	Statement **skilled performance of throwing**
		±A	S-	±A	S-		
%9.164	*3.781	2.44	5.36	2.12	4.91	Degree	Throw

Tabular T value at 0.05 =2.14

Table 5 shows that there are statistically significant differences at the level of (0.05) in the skill performance level in favor of the dimensional measurement of the control group.

Table (6)

Indication of the differences between tribal and dimensional measurement of the control group in visual abilities

Improvement rate %	Tabular (T)	dimensional measurement		Tribal Measurement		Measuring unit	Statement Visual ability
		±A	S-	±A	S-		
% 5.787	*12.5	1.01	16.45	1.67	15.55	Number	Sacade test to measure eye movement in the form of jumps
% 0.221	0.465	1.05	18.16	2.09	18.12	Number	Jazz test to measure eye stability in different directions.
% 1.923	0.740	0.24	1.06	0.69	1.04	Degree	Tracking test to measure eye movement while following the clock pendulum.
% 5.172	*4.615	1.01	6.10	1.52	5.80	Degree	Apotechnical test to measure eye movement while counting points on the device.

Tabular T value at 0.05 =2.14

It is clear from table 6 that there are no statistically significant differences in each of the Jazz test to measure eye stability in different directions and the tracking test to measure eye movement during the follow-up of the clock pendulum, and the presence of statistically significant differences at the level (0.05) in the Sakad test to measure eye movement in the form of jumps and aptokintic test To measure the movement of the eye during the counting of points on the device in favor of the dimensional measurement of the control group

Table (7)

Indication of the differences between the dimensional measurement of the experimental and control groups in the level of skill performance

Tabular (T) value	**Controlled group N=10**	**Experimental group N=10**	**Measuring unit**	**Groups** **skilled**

	±A	S-	±A	S-		performance of throwing
*4.217	2.44	5.36	2.61	8.19	Degree	Throw

Tabular T value at 0.05 =2.14

Table 7 shows that there are statistically significant differences at the level of (0.05) in the skill performance level in favor of the dimensional measurement of the experimental group.

Table (8)

Indication of the differences between the dimensional measurement of the experimental and controlled groups in visual abilities

Tabular (T)	Controlled group N=10		Experimental group N=10		Measuring unit	Groups / Visual ability
	±A	S-	±A	S-		
* 60.164	1.01	16.45	1.32	20.12	Number	**Sacade test to measure eye movement in the form of jumps**
* 73.975	1.05	18.16	1.97	24.3	Number	**Jazz test to measure eye stability in different directions.**
* 159.41	0.24	1.06	0.42	3.77	Degree	**Tracking test to measure eye movement while following the clock pendulum.**
* 47.962	1.01	6.10	1.08	8.69	Degree	**Apotechnical test to measure eye movement while counting points on the device.**

Table 8 shows statistically significant differences at 0.05 in Visual abilities (in research) in favor of the experimental group.

IV. RESULTS:

Through research hypothesis and from the data and results acquired and processed statistically, within the limits of the research sample the following results emerged:

The results of the (7) (8) tables indicate statistically significant differences at the level (0.05) in both the skill performance level of transmission, visual capabilities (under consideration) in favor of the dimensional measurement of the experimental group.

This is due to the fact that the visual training program has an effective effect on the level of performance

The researcher believes that the development of visual abilities in badminton contributes significantly to the advancement of young people, because the ability to perform properly skills is based on a good vision, the young person conveys what He sees it to the brain that performs a performance management cycle in the light of the data obtained from the eye and therefore the wrong vision is handled by the brain in a way that reflects on the performance in a bad way.

The researcher emphasizes the importance of developing visual capabilities with the development of physical and skill capabilities because of its positive impact in learning the skill of transmission in badminton.

In this regard, the researcher believes that badminton is one of the sports in which visual capabilities play an important role evidenced by the speed and effectiveness of performance, and that these capabilities can be developed through the design of visual training programs well.

This is consistent with the results of the study of Quevedo et al. Abernethy & Wood ,Calder & Noakes ,Mazen et al. That visual training programs contribute to improving visual abilities and skill level performance.

Conclusions

In the light of the objectives and hypotheses of the research and within the limits of the sample and based on the results of statistical treatments it was possible to reach that:

● the visual training program proved effective in improving the visual abilities of the youth.

● the visual training program proved effective in improving the skill performance of the badminton transmission skill.

Recommendations:

● applying the proposed visual training program to young people.

• The importance of activating the role of visual training in the sports field in general and in badminton in particular.

● The need for an optician who evaluates and develops the visual abilities and functions of young people and players and determines the type of glasses and contact lenses in terms of efficiency and color to protect them.

• Conducting further studies on the impact of visual exercises in other sports of tennis games and on different samples.

● Establishment of a laboratory for optical measurements within specialized clubs.

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Conflict of interest declaration

The authors have no conflict of interests

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