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The effect of exercises similar to playing according to visual stimuli in developing visual accuracy and the accuracy of performing passing and shot skills in football for youth

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Abstract

The purpose of this paper is to preparing complex exercises according to visual stimuli to develop visual accuracy and some performance requirements for young football players, and identifying the effect of complex exercises according to visual stimuli in developing visual accuracy and some performance requirements for young football players. The researcher used the experimental method to solve his problem. The researcher chose the research population in a deliberate manner, which are the junior football players in Diyala Governorate, according to the clubs participating in the governorate's championship in 2022, and their number is (140 players) representing (10 clubs), and he chose as his experimental research sample the players of the Diyala Junior Football Club, who number ((20 players) represent the experimental group from the research community, and the control group consisted of (20 players) from Al-Khalis club youth football players. The researcher conducted the exploratory experiment on (6 players) from Diyala club from the total number of the research community. (6) players were excluded statistically (2) from Al-Khalis Club and (4) from Diyala Club, due to lack of commitment and repeated absence from the training units. The researcher conducted homogeneity and equivalence procedures between the experimental and control research groups. One of the most important results reached by the researcher is that: Complex exercises prepared according to visual stimuli have a positive effect in developing the physical and skill performance requirements of emerging football players, and use of exercises combined with visual stimuli has a positive effect in reducing performance time by helping players increase concentration and speed of response to football performance requirements. One of the most important recommendations recommended by the researchers is that: Using exercises prepared according to visual stimuli by coaches to develop visual accuracy and skill and physical variables for emerging football players, and need to use the most appropriate devices and assistive tools in the training field to make the most of developing their training levels in a way that enhances performance efficiency in the game of football.

Keywords: Visual stimuli, football, Al-Khalis Club, Diyala Club

Introduction

It is worth noting that the development of training curricula has made it necessary for coaches to pay attention to the minute details of technical performance requirements by carefully analyzing that performance and any of those details that can enhance the superiority of their team and thus win over competing teams. The fact of the convergence of performance levels in physical and skill capabilities can be overcome by paying attention to the most effective particles through visual accuracy and speed of response to the most appropriate visual stimulus by the player, as well as accuracy in executing the performance response as part of interacting positively with that performance situation, which leads to instant precedence and success in choosing the most appropriate performance with the required accuracy and thus superiority in decision-making. The most appropriate and most accurate, which reflects positively on the effectiveness of the overall performance of offensive and defensive skills if the player succeeds in outperforming his competitor or matching up with his teammate with the required accuracy, which means reducing the unproductive performance result through visual accuracy and speed of response to stimuli and thus precedence and effectiveness, or in other words, performance accuracy.

The motor duty of the game-specific skills and enhancing the opportunities to quickly perform the most appropriate offensive and defensive skill with a higher success rate, which leads to him and his team members being faster and more accurate in their performance output than competitors and thus more effective in their offensive and defensive performance.

This is the real-time analysis based on the accuracy of the performance of the skills specific to the game and the overall offensive and defensive performance situations of the movement and speed of competitors and teammates during the match, which is determined by the speed and accuracy of the player's comprehension of all sensory inputs at the moment, which therefore leads to accuracy in implementing the changing skill performance with every moment of the football match. Competitiveness indicates the efficiency of the player and the team in exploiting the effectiveness of the sense of sight, as well as the ability of the central and peripheral nervous systems to interpret and analyze the details of the technical performance, coupled with the speed of making the correct decision and high accuracy in the outcome of the movement represented by the speed and accuracy of the offensive and defensive performance and making the appropriate decision for the situations required by the circumstances of the match.

There is no doubt that the use of training methods helps greatly in enhancing the training process because these methods have a major role in developing the players' skills and performing exercises that would be difficult to perform without the presence of these devices and means. After all, they simulate the requirements of the game of football as well as the excitement and challenge they provide and achieve desired goals.

Hence the importance of research into using the visual stimuli device, preparing a group of special complex exercises, and using some training means such as balls, colored clothes, and colored hoops to develop visual accuracy and some performance requirements. This effort is a contribution from the researcher as he is one of those concerned with the game of football and believes that visual exercises come complementary to developing physical and skill aspects.

Research problem

Through the researcher's follow-up of Iraqi teams in local and international competitions and his previous experiences as a football player, as well as the assistance of game specialists who reinforced the researcher's vision, which was represented by slow motor response when performing changing playing situations, as well as lack of accuracy, which results in performance errors, which is an indication that there is a weakness in the effectiveness of The technical performance of young people, especially in official competitions, which can be attributed to multiple factors, perhaps the most prominent of which is the lack of interest in quick decision-making with the accuracy required during the momentary situation, defensively or offensively. The researcher believes that this is due to the teams' lack of interest in developing accuracy in performing skills specific to the game using modern training methods. By the nature

of football, its skills fall within open skill activities, and every performance situation is variable and diverse, requiring the player to respond to that performance situation with the speed and accuracy required in all stages of that situation.

This is what the researcher considered a research problem that must be highlighted in order to solve it, especially in the early stages of training young football players and thus integrating the effectiveness of performance in the subsequent training stages. It is known that accuracy in executing the motor duty represented by offensive and defensive skills must be coupled with quick decision-making. The most appropriate and accurate method for directing purposeful skill performance, that is, with correct performance and high accuracy, the details of which, if analyzed, two specialists would not disagree on, is that it is done initially based on visual vision and the accuracy of the momentary analysis of the requirements of the performance situation, and therefore its effectiveness will be based on performing the motor duty with the speed and accuracy required to complete it successfully.

Research objective

- Preparing complex exercises according to visual stimuli to develop visual accuracy and some performance requirements for young football players.
- Identifying the effect of complex exercises according to visual stimuli in developing visual accuracy and some performance requirements for young football players.

Research hypotheses

- There are statistically significant differences between the two tests (pre- and post-tests) for the control and experimental groups and in favor of the post-test in the research tests.
- There are statistically significant differences for the experimental and control groups in the post-test and in favor of the experimental group in the research tests.

Research fields

- Human field: Diyala and Al-Khalis clubs in Diyala Governorate in youth football
- Time field: (3/1/2022) to (15/3/2022)
- Spatial field: Diyala and Al-Khalis football club stadium

Research Methodology

The researcher used the experimental method to solve his problem, which is defined as "the deliberate and controlled change of the specific conditions of a particular incident, and then observing the resulting changes in this same incident as well as interpreting them" (Amer Ibrahim Qandilji. 2012) ^[1], by designing two equal groups (experimental and control) with a pre- and post-test in order to suit the nature of the research. Its objectives are that the two groups are pre-tested to identify the variables or skills under study they possess, and then the approach that includes the independent variable is applied to them, then a post-test is applied to compare and draw conclusions.

Table 1: Shows the experimental design of the research

Groups	First step	Second step	Third step	Fourth step	Step five
Experimental group	Pre-test	Complex exercises Using visual stimuli	Post-test	The difference between the pre- and Post-tests for the experimental and control groups	The difference between the Experimental and control groups in the post-test
Control group	Pre-test	Approach followed	Post-test		

Community and sample research

In order for the researcher to achieve the goals of his research, he must select an appropriate research sample. "The researcher is the one who determines the sample that suits his research and he is the one who estimates his need for information that achieves the purpose. (Abdul Rahman Adas. 1988) [2]. In order to be able to judge the level of society to which the sample belongs. Where, "So the researcher chose the research population in a deliberate manner, which are the junior football players in Diyala Governorate, according to the clubs participating in the governorate's championship in 2022, and their number is (140 players) representing (10 clubs), and he chose as his experimental research sample the players of the Diyala Junior Football Club, who number ((20 players) represent the experimental group from the research community, and the control group consisted of (20 players) from Al-Khalis club youth football players. The researcher conducted the exploratory experiment on (6 players) from Diyala club from the total number of the research community. (6)

players were excluded statistically (2) from Al-Khalis Club and (4) from Diyala Club, due to lack of commitment and repeated absence from the training units. The researcher conducted homogeneity and equivalence procedures between the experimental and control research groups.

Table 2: Shows the homogeneity of the sample in variables (age - Length - Mass - training age)

No.	Variables	Measuring unit	Mean	Std. Deviations	Median	Skewness
1	Age	Year	14.84	1.73	14.32	0.382
2	Length	Cm	167.33	5.38	166	0.710
3	Mass	Kg	62.3	5.26	61.5	0.595
4	Training age	Month	20.63	15.74	21	0.213-

Sample equivalence

The researcher conducted equivalence for the experimental and control groups for the pre-tests in the research variables, and Table (3) shows this.

Table 3: Shows the experimental and control groups for the pre-test (equivalence) in the research variables

Variables	Sample number	Measuring unit	Experimental		Control		Deviations of differences	T value	level Sig	type Sig
			Mean	Standard deviation	Mean	Standard deviation				
Visual accuracy	40	Degree	1.5	0.84	1.52	0.82	0.198	0.844	1.5	Sig
Passing accuracy		Degree	3.76	0.82	3.35	0.97	0.573	0.571	3.76	Sig
Shot accuracy		Degree	10.76	2.51	10.67	2.54	0.343	0.734	10.76	Sig

Means and tools

Means

- Observation.
- Arab and foreign sources.
- Global Information Network (Internet).
- Data dump form.
- Tests and measurement.
- Personal interviews

Tools

- Acer laptop calculator.
- (1 Sony) manual electronic calculator.
- Casio 240 images/second camera.
- Training signs containing manufactured visual stimuli.
- Tape measure to measure lengths and distances, length (10) m, number (1).
- Phosphorescent colored bands.
- Factory ball holder (1).
- Legal and colored footballs (20).
- Colored T-shirt (dress), number (20).
- Legal football field.

Field research procedures

Identifying search variables

The researcher designed a questionnaire form explaining the research variables, which the researcher chose from scientific sources and references specialized in football, and it was presented to the specialists and experts in the field of the game to choose the most appropriate variables under research. The researcher chose the variables that obtained a

percentage of (70%), so what above the percentage of expert agreement, as shown in Table (6).

Preparing special compound exercises under study

After reviewing the sources and references specialized in football training, the researcher prepared special complex exercises amounting to (30) exercises that included all the variables of the research. These exercises were distinguished by their diversity and excitement by ensuring a competitive atmosphere and smoothness in their progression, as they were prepared according to the requirements of skill performance with the presence of visual stimuli in each. An exercise to ensure targeting the sense of sight in reducing the time required to perform the skill as well as the accuracy of performing that skill.

Tests used in the research

- **First:** Visual accuracy test (Nizar Nazim Hamid. 2019).
- **Second:** Testing shot accuracy test: Shot against a goal divided into squares.
- **Third:** passing accuracy test.

Exploratory experiments

First exploratory experiment

The exploratory experiment is "practical training for the researcher in order to identify the negatives and positives that he encounters while conducting the test in order to avoid them" (Qasim Al-Mandalawi and *et al.* 1990.) [4]. The first exploratory experiment was conducted on (17/1/2022) on Friday at exactly 3 pm in the afternoon Diyala Club

Stadium contains (6) players from Diyala Club in Diyala Governorate for the sports season (2021-2022 AD). The researcher conducted the tests with the help of the assistant work team, and the first experiment aimed to:-

- Identifying and verifying the work of the training staff and its suitability to the research sample.
- Learn how to measure variables accurately.
- The assisting staff learned how to perform the test and where to place the cameras.
- Knowing the time required to complete each test and thus knowing the total time of the tests.
- Knowing the validity of devices and tools used in tests.
- Knowing the extent to which the research sample accepts the established tests.
- Knowing the obstacles and difficulties that occur and avoiding mistakes.
- Determine the efficiency of the assistant work team and place them in the appropriate place when performing the pre-tests.

Second exploratory experiment

The second exploratory experiment was conducted on (1/20/2022) on Monday at exactly (3) pm in the Diyala Sports Club stadium on (6) players from the Diyala Junior Club in Diyala Governorate (2021-2022 AD). The aim of this experiment was to To learn how to perform complex exercises according to visual stimuli, and have the trainer and the assisting team learn how to perform the exercises and know the time used for each exercise.

Pre-test

Pre-tests were conducted for the experimental research sample on Friday, corresponding to (1/24/2022) at exactly 3 pm in the Diyala Sports Club arena, and for the control group in the Khalis Club arena on Saturday, corresponding to (1/25/2022) at exactly At (3) pm, the tests related to the subject of the research were carried out by the coach and his assistants on the players, and the researcher was supervising them. The researcher sought to establish the conditions related to all the tests in terms of time, place, tools used, method of implementation, and the assistant work team in order to control as much as possible the creation of similar conditions when conducting posttests.

Main experiment

The main experiment began on Friday, February 7, 2022 AD, as the exercises prepared by the researcher and administered by the trainer were applied to the sample members at the rate of three training doses per week on (Friday - Saturday - Monday) for a period of (6) weeks, as the total number of doses reached (18) training dose. The application of the compound exercises was in the main part, the time of which was (60) minutes, and the duration of application of the compound exercises was between (40-60) minutes, which is the time during which the researcher applied the exercises, as Abu Al-Ala Ahmed confirms that “the number of units in A week is between (2-3) units and

the number of weeks is not less than (6) weeks so that development can appear” (Shark. 1997) ^[5]. The exercises were characterized by excitement, challenge, progression from easy to difficult, and organized repetitions with the speed required in performing the exercises for the research variables, where another was conducted Training session on Monday, 28/3/2022.

General features of the special complex exercises method used by the researcher

- The goal of the exercises (to develop visual accuracy and some skill performance requirements using visual stimuli).
- The time of the training dose ranges between (40-60) minutes.
- The time of one exercise ranged from (3 seconds to 10 seconds).
- The repetitions of the exercises in the training unit ranged from (17 to 30) repetitions.
- The rest periods between repetitions and sets were (1-1, 1-1, 2-3).
- “The researcher adopted the method of high-intensity interval training and repetitive training, in which the intensity of the exercises used ranges between (80-100%) of the individual’s maximum level” (2).
- The researcher relied on scientific sources to determine the percentages of training intensity for special exercises according to the level of the sample members, and the number of groups and rest periods between repetitions were fixed for each training intensity, based on the time element.
- Special compound exercises were applied during the special preparation period.
- The number of exercises for one training session was (4), performed one after the other out of a total of (30), and the progression in them ranged from easy to difficult.

Post-tests

Post-tests were conducted for the members of the research sample after completing the implementation of the special exercise curriculum on Friday and Saturday, corresponding to (1-2/4/2022) at exactly (3) in the afternoon in the courtyard of the Diyala and Al-Khalis clubs. The researcher, with the help of the assistant work team, took care to provide the same the conditions in which the pre-tests were conducted for the purpose of obtaining highly reliable results.

Statistical methods: Use the (SPSS).

Results and Discussion

Presenting, analyzing and discussing the results of the tests (pre-post) for the experimental group
Presentation and analysis of the results of visual accuracy tests (pre-post) for the experimental group

Table 4: Shows the results for the experimental group in tests (pre-post) of visual accuracy

Variable	Measuring unit	Pre-test		Post-test		Difference between arithmetic mean	Difference between standard deviations	Standard error of the mean	T value calculated	Level Sig	Type Sig
		Mean	Standard deviation	Mean	Standard deviation						
Visual accuracy	Degree	1.5	0.894	3.812	1.276	2.312	0.873	0.218	10.593	0.000	Sig

Presentation and analysis of the results of the skill performance requirements tests (pre-post) for the experimental group

Table 5: Shows the results of the experimental group in the two tests (pre-post) of skill performance

Variable	Measuring unit	Pre-test		Post-test		Difference between arithmetic mean	Difference between standard deviations	Standard error of the mean	T value calculated	Level Sig	Type Sig
		Mean	Standard deviation	Mean	Standard deviation						
Passing accuracy	Degree	3.76	0.82	7.15	0.78	1.562	0.93	0.24	6.44	0.000	Sig
Shot accuracy	Degree	10.76	2.51	20.97	2.82	6.97	1.436	0.39	19.33	0.000	Sig

Discussing the results of the visual accuracy tests and the skill performance requirements (pre-post) of the experimental group

Through the table that shows the presence of significant differences between the tests (pre-post) and in favor of the post-tests in (visual accuracy), the researcher attributes these differences to the effectiveness of special complex exercises that were developed according to sound scientific foundations that are compatible with the characteristics of the work of visual stimuli and the capabilities of the research sample and its progression from easy to difficult, which enhanced the players' desire to perform, commit, persevere, summon latent energies, and not feel tired or bored, because the exercises used are characterized by modernity and diversity. This was confirmed by (Kamal Darwish and *et al.* 1998) [6] "diversity in exercises renews activity to play and motivation for continuity of performance and also gives him the opportunity to face the changing playing situations that occur in competition".

The researcher also attributes it to the effectiveness of these exercises with the visual stimuli used, represented by (An electronic system, light signs, colored balls, and colored

clothes), which had a significant impact on developing visual accuracy, in addition to the fact that these stimuli played a major role in improving the players' performance, effective motor behavior, and choosing the optimal stimulus at the appropriate moment and increase the athlete's ability to quickly respond to the momentary performance situation, and this is what Barry Seiler confirms that "Visual abilities can be evaluated, trained, practiced, and improved using aids such as "colored balls, colored lamps, display screens, and colored floors" (Barry. Seiller. 2004) [7].

The researcher believes that the introduction of visual stimuli in sports training as a new variable in impotence training for this important category of players. The use of these stimuli in training gave the players an incentive to perform the exercises with desire and enthusiasm, and their implementation of them while correcting errors through feedback during performance gave positive results in terms of performance during their improvement in skill performance variables.

Presentation and analysis of the results of visual accuracy tests (pre-post) for the control group:

Table 6: Shows the results of the two tests (Pre-post) for the control group in visual accuracy

Variable	Measuring unit	Pre-test		Post-test		Difference between arithmetic mean	Difference between standard deviations	Standard error of the mean	T value calculated	Level Sig	Type Sig
		Mean	Standard deviation	Mean	Standard deviation						
visual accuracy	Degree	1.562	0.892	2.562	0.727	1	0.73	0.182	5.477	0.000	Sig

Presentation the differences between the test (Pre-post) for the control group

Table 7: Shows the results of the two tests (Pre-post) for the control group in skill performance

Variable	Measuring unit	Pre-test		Post-test		Difference between arithmetic mean	Difference between standard deviations	Standard error of the mean	T value calculated	Level Sig	Type Sig
		Mean	Standard deviation	Mean	Standard deviation						
Passing accuracy	Degree	3.35	0.97	6.32	0.73	0.97	0.98	0.22	4.08	0.001	Sig
Shot accuracy	Degree	10.67	2.54	17.54	2.52	2.85	0.85	0.22	12.93	0.000	Sig

Discussing the results of the control group in the pre-and post-tests

Through the tables, significant differences appeared between the pre-test and post-test for the control group in all the research variables and in favor of the post-test. The researcher attributes this development to the control group that occurred in the control group that adopted the trainer's curriculum, which usually depends on repetitions of performance of the skills in the light of exercises that mainly deal with the skills, as All training units for the trainer are

not devoid of skill and physical exercises, which led to the emergence of significant differences in favor of the control group in the pre- and post-tests.

Presentation and analysis of the results of the post-tests for the experimental and control groups and their discussion.

Presentation and analyze the visual accuracy results of the post-test for the experimental and control groups

Table 8: Shows the results for experimental and control group for the post-test in the visual accuracy variable.

Variables	Sample number	Measuring unit	Experimental		Control		Degree of freedom	T value	level Sig	type Sig
			Mean	Standard deviation	Mean	Standard deviation				
Visual accuracy	40	degree	3.812	1.276	2.562	0.727	30	3.403	0.002	Sig

Presentation and analysis of the results of the skill performance of the post-test for the experimental and control groups**Table 9:** Shows the results of the experimental and control group for the post-test on the research variables of skill performance

Variables	Sample number	Measuring unit	Experimental		Control		Degree of freedom	T value	level Sig	type Sig
			Mean	Standard deviation	Mean	Standard deviation				
Passing accuracy	40	degree	7.15	0.78	6.32	0.73	38	3.036	0.005	Sig
Shot accuracy			20.97	2.82	17.54	2.52		4.62	0.000	

Discussing the results of the experimental and control groups in the post-tests

Through the tables, significant differences appeared in the post-tests for the experimental and control groups and in favor of the experimental group, which shows the superiority of the approach adopted by the researcher over the methods followed. The researcher attributes that the differences occurring for the experimental group are due to the effectiveness of the special exercises based on an accurate scientific method, in terms of repetitions appropriate to the stress. The various training sessions that accompanied the training units, as well as appropriate rest periods and their suitability to the research sample, while staying away from very difficult exercises that do not guarantee performance by everyone, and this is what both (Hamdi Abdel Moneim, Mohamed Abdel Ghani. 1999) ^[8] emphasized that "importance is given to the intensity, size, and rest used so that they are appropriate to the level of the individual trainee." Also, the visual stimuli used and the way they work are considered a new addition, as the visual stimuli that it contains create a kind of suspense, excitement, and challenge, and have a role in reducing time and effort to develop research variables, "as the devices are a true measure of the goal of training and an indicator of achieving the desired purposes while saving effort and time." (Abdul Hamid Sioli. 2013) ^[2], and the mechanism of action of some visual stimuli is simple, clear, easy to use, accurate in their work, and appropriate to the research sample, their intelligence, and their connection to the subject of the study and the goals to be achieved. This is confirmed by (Laith Ibrahim Jassim. 2016) ^[10], "The basis for choosing the educational or training method must be simple, clear, and precise." It is manufactured, usable, its information is accurate, it is suitable for the age and intelligence of the players, it is compatible with the scientific and technological development of society, it is closely related to the subject of the study, and it is compatible with the goal to be achieved" (2). The nature of the work of some random visual stimuli helped the players to respond correctly to these stimuli by repeatedly performing the skills according to scientific foundations.

Conclusions and Recommendations**Conclusions**

- Complex exercises prepared according to visual stimuli have a positive effect in developing the physical and skill performance requirements of emerging football players.
- The use of exercises combined with visual stimuli has a positive effect in reducing performance time by helping players increase concentration and speed of response to football performance requirements.
- The use of exercises with visual stimuli contributed to raising the elements of suspense and excitement and increasing motivation, which enhanced the

development of the players' performance in all variables of the research.

- The integration and consistency of special compound exercises by the researcher was characterized by balance and comprehensiveness in developing the requirements for physical and skill performance.
- The modernity and diversity of the exercises used created an interactive atmosphere for the players, and the synergy between them during the implementation of the exercises contributed to what highlighted the team spirit among the players.
- Exercises using visual stimuli are more effective than traditional approaches in raising a football player's physical and skill abilities.

Recommendations

- Using exercises prepared according to visual stimuli by coaches to develop visual accuracy and skill and physical variables for emerging football players.
- Need to use the most appropriate devices and assistive tools in the training field to make the most of developing their training levels in a way that enhances performance efficiency in the game of football.
- The necessity of using visual stimuli for other training stages and for the general and private preparation stages to ensure maximum benefit from them.
- Necessity of constantly updating training methods and techniques in a way that is compatible with the newly developed devices and tools to ensure that the capabilities of the football player continue to be raised to keep pace with the competitive atmosphere locally and internationally.
- Emphasizing the use of visual stimuli, devices and tools developed for other age groups and other sporting events to ensure optimal development in performance requirements.

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