

**THE EFFECT OF COMPOUND EXERCISES, KINETIC SENSE (HEARING- OPTICAL) USING A LIGHT-SENSOR ASSISTING DEVICE TO DEVELOP SOME PHYSICAL AND SKILL ABILITIES OF YOUNG FOOTBALL PLAYERS**

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**Abstract**

The purpose of this paper is to design a device and prepare compound exercises kinetic sense (hearing- optical) using a light-sensor assisting device to develop some physical and skill abilities of young football players. The researcher noticed that there is a clear problem in the technical performance related to the weakness of the players when receiving the ball and making it under their control there is another defect related to the physical abilities of the players that have a direct impact on the skill performance, Therefore, the researcher decided to study this problem and try to find a solution to this problem. The experimental method was used to suit the nature of the problem, by designing two equal groups, the control and the experimental. The research community was determined by the young players of the Governorate of Baghdad, and the youth of the Municipality of Baghdad were chosen in a deliberate way, and they numbered (20) players to represent the research sample. The researcher applied two exploratory experiments related to tests, exercises, and conducted the scientific basis for the tests. The training period lasted for (10) weeks with (3) units per week, and after processing the results that appeared statistically, they were presented and discussed. The researcher concluded that the kinetic (hearing- optical) compound exercises used and the device designed in the research have an effective impact on developing the research variables.

**Keywords:** Hearing- optical exercises. Light-sensor assisting device. Physical and skill abilities

**Introduction**

The development that took place in the last decades in all areas of human life, in general, was clearly reflected in the sports field. This development did not come randomly but came through good and proper planning and the use of scientific research methods and proper diagnosis and treatment of errors, and this is done by employing the foundations and principles of modern sciences in physical education and sports sciences such as the science of sports training, physiology, testing and measurement, biomechanics, sports medicine and others. Specialists and experts in the sports field have been interested in the science of training and keeping pace with its modernity because of its important role in upgrading the players' capabilities by developing their physical and skill capabilities and employing the best training methods and methods to develop their capabilities and make them able to reach the highest levels, as these capabilities and skills play an important and fundamental role in all games Sports, in which there is no motor skill, whether individual or team games. Specifically, this interest had a great impact on the progress that occurred for the game of football in the physical and skill aspects. Where (Ibrahim, 2010).defined it as "a science that studies the rules that govern the development of the level of athletes" (Beshtawi et al., 2010).states, "It is an organized educational process to achieve a balance between the requirements of the practiced sports activity and the player's capabilities and abilities to reach the

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highest levels of sports activity".

It is necessary to use advanced means that are compatible with scientific development, as the researcher intends, through his research, to introduce modern technology through his use of equipment and training aids to assist in the training process that he will perform, and it will be hearing- optical and through a light-sensitive device, as these devices and tools have become part of It is an integral part of the vocabulary of training units in recent times because of its positive impact on the players. Auxiliary devices and tools are one of the modern concepts in the world that are used in training units and work to develop the capabilities of players, as they give better results as a result of their use and dependence on them because they give accurate and objective results with minimal effort. This is what refers to (Al-Sakrana. 2011), "It is a set of means and equipment that are used to facilitate the process of sports training, as it increases interest and diversity in the training process".

The game of football is one of the most important games in the world, as it was not the first for them, because it fascinates and attracts millions of followers from around the world. Competitors and this is done by upgrading their physical abilities, which is the main part on which skills are built, as possessing them by players enable them to perform skillfully stronger, faster and more accurately than those who lack them, as well as improving their tactical and psychological side to enable them to integrate performance. The skill in football is defined as (Ghawi, 2020) "the possibility of carrying out the skillful motor duty smoothly and with high accuracy by coordinating the work of the muscle groups, whether it is the main task force or the one that plays a secondary role with correct timing and with the least effort and the level of thinking possible"

The skills of reception or suppression and handling are among the basic skills in the game of football, as it is necessary to master them by the players, because of their great importance in the height of the players' heels on the opposing team. The skill of receiving or suppressing makes the ball at the player's disposal without losing it. It is the team's strategy in order to keep the ball and reach the opposing team's goal safely without enabling them to cut it.

(Abdullah. 2007) states, "The skill of receiving the ball enables the player to perform the correct pass and scoring after the second technical step that follows the performance of receiving the ball."

The importance of handling, as indicated by (Laprath.2009), is "it allows the team to move the ball quickly on the field, maintain possession and create opportunities to score goals."

So (Moneim and Al-Zahawi. 2012) defines it as "a technical method or a means by which the balls are transferred between the members of the possessing team to reach the opposing team's goal with the least effort and the fastest possible time"

The importance of the research lies in preparing complex kinetic exercises (hearing- optical) with a photosensitive auxiliary device to develop some of the physical and skill abilities of young football players, which is a scientific contribution aimed at identifying the best ways to develop the training process.

**Research problem**

Football is a game that depends heavily on the basic skills and the degree of mastery of these skills by the players, and one of its most important skills is the skills of reception and handling, as it requires players to develop their capabilities to perform these two skills well, as they are the main means of maintaining the ball and delivering it to the attacking players. In addition, put them in the best picture for the purpose of enabling them to score. We point out here that there are players who depend on watching their colleagues when they perform the handling skill, and another group of players who depend on hearing the voices of their colleagues for handling the ball to them.

And through the researcher's experience as a player, coach and academic in the field of specialization, as well as through his follow-up to the youth league and also benefiting from the opinion of coaches and experts in the field of the game, the researcher noticed that there is a clear problem in technical performance related to the weakness of the players when receiving the ball and making it completely under their control, as its distance About them while they are trying to control the ball helps the opponent to get it, as well as the inability to perform the handling well due to the lack of good appreciation between the hearing and the optical, which leads to a failure to perform the handling and therefore the ball will be abandoned in favor of the opponent. There is another defect related to the physical abilities of the players that have a direct impact on the skill performance, as it was clear to notice through the slowness that characterizes this performance through movement, decision-

making, lack of fluidity and coordination during the performance.

Therefore, the researcher decided to study this problem by designing a using a light-sensor assisting device that works to address the weakness of players in the skills of receiving and handling, as well as physical abilities by following a complex training method that combines (hearing and optical) together, in an attempt to find a solution to this problem.

#### **Research objective**

- Designing a photosensitive device that develops some of the physical abilities and basic skills of young football players.
- Preparing complex kinetic exercises (hearing- optical) using a using a light-sensor assisting device to develop some of the physical and skill abilities of young football players.
- Knowing the effect of compound exercises, a kinetic sense (hearing-optical) with using a light-sensor assisting device, to develop some of the physical and skill abilities of young football players.

#### **Research hypotheses**

The researcher hypothesized that there are statistically significant differences between the results of the pre and post-tests for the two experimental and control groups in the research variables in favor of the post-tests, and the presence of statistically significant differences between the post-tests of the two experimental and control groups in the research variables and in favor of the experimental group.

#### **Research methodology and field procedures**

##### **Research Methodology**

The researcher used the experimental method for its suitability to the nature of the problem to be solved, by designing two equal groups, the control and the experimental, with a pre- and post-test.

##### **Community and sample research**

The researcher decided to identify a research community that he intends to study with the players of Baghdad Governorate for the youth category, which numbered (10) clubs for the season (2021-2022), and then chose the research sample represented by the youth team of the Baghdad Municipality, which numbered (20) players after excluding three goalkeepers and players. They were divided randomly (lots) into two equal groups (10) for each group, as the proportion of the sample from the original population was (10%), as shown in Table (1).

The researcher collected information through observation and experimentation, Arab and foreign sources, measurement and testing / as well as a data collection and unloading form. A set of devices and tools were used, such as the auxiliary optical sensor (optical/optical), hearing headset, ball launcher, lamps, small targets (8), computer, video camera, stopwatch, balls, whistle, tape measure, signposts, playground Football.

This device was manufactured by the researcher after studying it in theory and consulting with specialists, to be applied practically on the ground, and the purpose of its manufacture was to help coaches and players to train and develop basic skills and physical abilities through compound exercises in a manner consistent with the conditions of skill performance in the match, Where this device develops the skills of reception and handling, as well as the speed of motor response and motor speed through working with an (hearing-optical) stimulus.

The device consists of a photocell, an optical sensor for movement, as well

as ultrasonic sensors that work on transmitting and receiving such as radar, as they emit high-frequency sound waves that the human ear cannot hear. Arduino, which manages the work, the 24 ultrasonic sensors are installed on eight small targets, and one lamp is placed on top of the four targets (each target has a lamp), and four other targets are placed numbered plates above each target bearing a single number ( 1,2,3,4), with a headset that gives us sounds in numbers when the signal is cut off, and there is also an electronic clock to calculate the time, so we count the player's movement in front of the sensor. The four or the pronunciation of one of the four numbers, and the action is random through (random memory) that is programmed in advance and at the same moment the time is calculated, and then the player is required to kick the ball towards one of the targets on which the signal appeared (optical or hearing). When the ball reaches the target, the ultrasonic sensors cut the signal and stop the counting to show us the performance time on the watch as shown in the Figure (1).

#### **Tests used-**

##### **First test:-**

- Name test: The kinetic response test with a hearing stimulus (Saqr test). (Erhim. 2015)
- Purpose of the test: - To measure the time of the motor response with a hearing stimulus.

- Performance description: - The tester stands in front of the device at a distance of (30-40 cm) approximately, and when he hears the whistle or is instructed by the test operator, he passes the device and cuts off the optical sensor, which will give him an hearing signal to one of the four numbers, and the laboratory touches that number according to the stop pressure. The target number fixed on the funnel, returning from the front of the device again and repeating the performance six times, and calculating the time for each repetition separately, using an electronic timer located in the device. By taking the player's best attempt, knowing that the distance between the device and the cones and between one funnel and another is (2) m as shows in figure (2).

##### **Performance Conditions:-**

- The tester stands in front of the device and focuses his attention on the person doing the test who will give him the starting instruction.
- The person based on the test records the time of each touch to extract the time taken within 6 touches.
- Retry to the laboratory only in case of injury or fall after a sufficient rest period.
- Recording: The time of the six touches is calculated, each touch separately, and the time of the best attempt is taken (Figure2).

##### **Second test:**

- Name test: The kinetic response test with an optical stimulus (Saqr test). (Erhim. 2015)
- The purpose of the test: - To measure the kinetic response time with an optical stimulus.
- Description of performance: The tester stands in front of the device at a distance of approximately (30-40 cm), and when he hears the whistle or is instructed by the test operator, he passes the device and cuts off the optical sensor that will give him a optical signal to one of the four colors (lights), and the tester touches that Color Compressor stop according to the desired color fixed on the funnel, and return from the front of the device again, and repeat the performance six times and according to the time of each repetition separately,

**Table 1:** Shows the equivalence of the two groups in the research variables.

Variables	Measuring unit	Experimental group		control group		T value	Level sig	Type sig
		Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation			
Speed of kinetic response / hearing stimulus	Time	1.2630	.04498	1.2390	.07680	.853	.405	Non sig
Speed of kinetic response / optical stimulus	Time	1.2440	.05168	1.2430	.04165	.048	.963	Non sig
Speed of kinetic	Degree	26.8000	1.31656	26.4000	1.50555	.632	.535	Non sig
Time and accuracy of reception and passing/ hearing stimulus	Degree/ sec	.4519	.03411	.4134	.10381	1.114	.280	Non sig
Time and accuracy of reception and passing/ / optical stimulus	Degree/ sec	.4647	.07450	.4424	.05872	.743	.467	Non sig

Significant < (0.05) at the degree of freedom (18) and below the level of significance (0.05).



**Figure 1:** Shows the design of a device of the photodetector.



**Figure 2:** Shows the kinetic response test with an hearing stimulus.

using an electronic timer located in the device. The motor response of each laboratory by taking the time of the best attempt out of the six attempts of the player, bearing in mind that the distance between the device and the cones and between one funnel and another is (2) m as shown in figure(3).

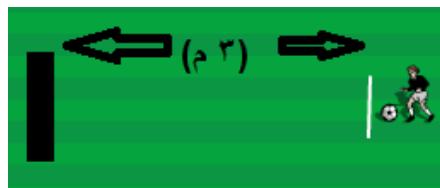
- Performance Conditions:-
- The tester stands in front of the device and focuses his attention on the person doing the test who will give him the starting instruction.
- The person based on the test records the time of each touch to extract the time taken within 6 touches.
- Retry to the laboratory only in case of injury or fall after a sufficient rest period.
- Recording: The time of the six touches is calculated, each touch separately, and the time of the best attempt is taken (Figure3).

#### Third test:

- Name test: - passing test towards a bench for 30 seconds. (Kamel, 2003, p. 39)
- The purpose of the test: - To measure the kinetic speed (performance speed).



**Figure 3:** Shows the kinetic response test with an optical stimulus.



**Figure 4:** Shows passing test towards a bench for 30 seconds.

- Tools used - football, pitch, stopwatch, whistle, tape measure.
- Performance description: - When the player hears the whistle, the player hits the ball with the right or left foot in any part the player prefers from a distance of (3) m towards a platform with a width of (3) m and a height of (50) cm and continues handling after the ball bounces for (30) seconds as shown in figure (4).
- Recording: The number of manipulations he performs within (30) seconds is calculated for the player.

#### Fourth test:

- Name test: the test of time and accuracy of receiving and passing an hearing stimulus (modified) (Rajab. 2019)
- The purpose of the test: - To measure the time and accuracy of receiving and passing an hearing stimulus.
- Tools used: Footballs, stadium, small goals containing numbers, tape measure, whistle, light sensor to start the signal and calculate time, Burke.

- Description of the performance: - The player stands in front of the line of the receiving area at a distance of (30-40) cm approximately, which is (8) m away from the location of the ball thrower. Its measurement is (1) m<sup>2</sup>, where the player advances towards the reception area to receive the ball, as he is on the line of the reception area facing the photosensitive player and when the signal is cut off, the device emits an hearing signal bearing one of the following numbers (4,3,2,1) The player is required to receive the ball with any part of the foot and pass it towards the goal that bears the number mentioned (there are four goals, each goal bears a number of numbers (4,3,2,1) and these goals are 10) m for the reception area). The test is applied with two attempts from the right side and two attempts from the left side with the same instructions above. The player must perform reception and handling as quickly as possible as shown in figure 5.

- Recording: The player is given (4) two attempts from the right and two from the left. It is counted for the player (2) in the case of receiving the ball inside the receiving area and (1) a score in the case of receiving the ball on the area line and it is zero except for this. In addition, when handling, (2) a score is given to the player when the ball enters the goal with the same audible number and (1) a score when the post touches the goals and it is zero except for this. The performance time is calculated from the moment the optical sensor is cut off until the ball reaches the target after handling. A sensor that will cut off the signal also calculates it, and in turn, the time will appear on the electronic control screen. The sum of the accuracy scores is calculated by summing the degrees of the reception and handling skills, and calculating the total time of the test by summing the times of the four trials, after which

the skill performance score is extracted using the modified FITT law. (Khayon. 2010)

Which states: - Skilled performance = sum of degrees of accuracy / sum of time.

Where the unit of measurement is: (degrees/second) (Figure 5).

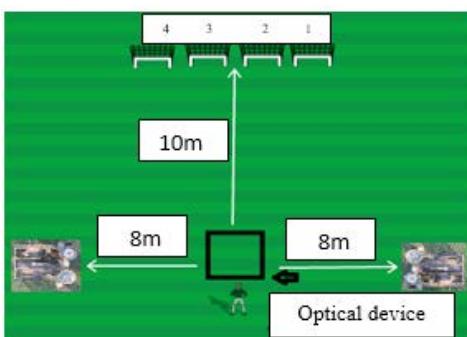
#### Fifth test:-

- Test name: Testing the time and accuracy of reception and passing with an optical stimulus (modified). (Rajab. 2019)
- Purpose of the test: - To measure the time and accuracy of receiving and passing an optical stimulus.
- Tools used: Footballs, stadium, small goals containing lights, tape measure, whistle, a light sensor to start the signal and calculate the time, Burke.
- Description of the performance: - The player stands in front of the line of the receiving area at a distance of (30-40 cm) approximately, which is (8) m away from the location of the ball thrower. Its measurement is (1 m<sup>2</sup>), where the player advances towards the reception area to receive the ball, as he is on the line of the reception area facing the photo-sensing player. Lighting one lamp for each attempt in a non-sequential, random way, so the player is required to receive the ball with any part of the foot and pass it towards the target on which the lamp above it is lit. (There are four targets, each one carries a lamp, and these targets are 10m away from the reception area). The test is applied with two attempts from the right side and two attempts from the left side with the same instructions above. The player must perform reception and handling as quickly as possible shown in figure 6 .

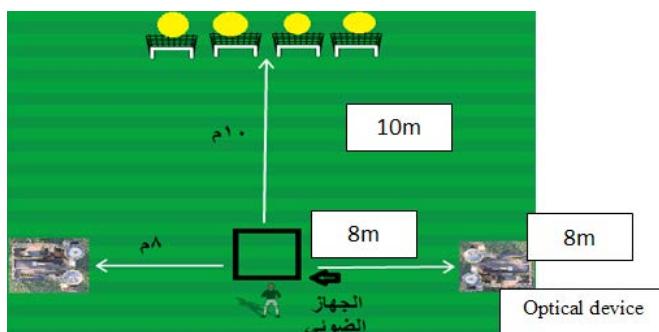
- Recording: The player is given (4) two attempts from the right and two from the left. It is counted for the player (2) in the case of receiving the ball inside the receiving area and (1) a score in the case of receiving the ball on the area line and it is zero except for this. Moreover, when handling, (2) a score is given to the player when the ball enters the goal with the same-lit lamp and (1) a score when the post touches the goals and it is zero except for this. The performance time is calculated from the moment the optical sensor is cut off until the ball reaches the target after handling also by a sensor that will cut the signal and in turn, the time will appear on the electronic control screen. The total degrees of accuracy are calculated by summing the degrees of reception and handling skills and calculating the total time of the test by summing up the times of the four attempts, and then extracting the degree of skill performance using the modified (FITT) law, which states:

Skill performance = sum of accuracy degrees/sum of time.

Where the unit of measurement is: (degrees/second) (Figure 6).



**Figure 5:** Shown the time and accuracy of receiving and passing an hearing stimulus.



**Figure 6:** Shown Testing the time and accuracy of reception and passing with an optical.

**Exploratory experiment:** The researcher, along with his assistant team, conducted two exploratory experiments. The first was for the research tests on Saturday, 7/31/2021, on a group consisting of (15) players from the Al-Zawra Club youth who are outside the research sample, but within the research community. The aim is to know the extent of the players' readiness to carry out the tests and determine the time needed for them and the efficiency of the assistant work team for how to implement and sequence them and the validity of the devices used.

A second exploratory experiment, which was specific to the exercises prepared by the researcher through the device and auxiliary tools, was conducted on Monday 9/8/2021 on the same sample above, in order to find out where the obstacles lie and work to avoid them and determine the level of intensity, comfort and size for the players and to identify the required time To carry out the exercises, the validity of the equipment and tools used in the exercises.

#### Scientific foundations:-

**Test honesty:** Honesty is one of the most important criteria for good test quality. (Abu Zina. 1998).

Self-honesty, which is sometimes called the reliability index, was used, as the researcher sought to obtain it statistically by calculating the square root of the test reliability coefficient.

**Test stability:** Stability is one of the basic concepts that must be available in the test in order for it to be usable and stability means "if a test is conducted on a sample and then the test is repeated on the same sample, the results that appear the first time are consistent with the results that appear the second time." ". (Bahri. 1999.)

The researcher was keen to ensure the stability of the measurement, so he adopted the method of testing and re-testing (with a time difference of (7) days between the first test and the second test, and he was keen to stabilize the test conditions) for the purpose of finding the stability coefficient for the test. The researcher adopted the results of the exploratory experiment related to the tests since no errors appeared in them that were conducted on Saturday, 7/31/2021, and the test was repeated again on Saturday, 7/8/2021, and on the same sample consisting of (15) players from Al-Zawra Club youth who are within The research community, but outside the main sample, and in the same conditions in which the first test was conducted, and the results were statistically processed using the simple correlation coefficient (Pearson), and the results showed that there is a high coefficient of stability for the tests as shown in the table 2.

**Objectivity of the test:** One of the important factors that must be provided in a good test is objectivity, as the test can be considered objective "if it gives the same results, no matter what the scorers leave, i.e. the results are not affected by the subjectivity or personality of the debugger." (Allawi and Radwan. 1988). Since the tests used in this research are clear, unambiguous, and far from biased, as they have numerical results, as they depend on devices in calculating time, as well as evaluating accuracy depending on grades, so they are not subject to personal intervention by the arbitrators.

**Pre-tests:** pre-tests were conducted on the research sample (control and experimental) on Wednesday, 11/8/2021 at four in the afternoon at Al-Zawra Club stadium in the chalet with the help of the work team. The researcher was keen to establish the conditions related to the tests in terms of time, place and method of implementation the test, devices and auxiliary tools were used for the purpose of achieving them in the post-tests.

The researcher deliberately prepared complex exercises (hearing and optical) through the optical sensor designed with auxiliary tools for the purpose of developing the speed and accuracy of reception and handling, as well as the speed of the motor response of the players. On the experimental group on Saturday, 14/8/2021, until Wednesday, 20/10/2021.

The duration of the application took (10) weeks with (3) units per week, as the total number of training units was (30) units, and the time of the training unit ranged between (25-45) minutes from the first part of the main section of the training unit, the researcher used the high periodic training method Intensity (80%-90%) and repetitive training method (90%-100%) of the maximum intensity of the players, as they are suitable for the development of players with the variables investigated, and the method of undulation with loads (2-1) was used as well as the gradual giving of training intensity to the players and giving appropriate rest periods For the purpose of obtaining the required adaptation, the training was under direct supervision by the researcher.

**Post-tests:** After completing the application of the exercises prepared by the researcher to the experimental group, the researcher and his assistant team implemented the post-tests on the research sample (control and experimental) taking into account maintaining the same conditions in which the tribal tests were conducted, which were conducted on Saturday 23/ 10/2021, at 4:00 pm, at the Al-Zawra Club Stadium.

**Table 2:** Shows the stability of the test results.

Variables	honesty		stability		Objectivity	
	correlation	Level sig	correlation	Level sig	correlation	Level sig
Speed of kinetic response / hearing stimulus	.903	0.00	.815	0.00	.907	0.00
Speed of kinetic response / optical stimulus	.960	0.00	.921	0.00	.943	0.00
Speed of kinetic	.912	0.00	.831	0.00	.932	0.00
Time and accuracy of reception and passing/ hearing stimulus	.941	0.00	.885	0.00	.920	0.00
Time and accuracy of reception and passing/ / optical stimulus	.907	0.00	.822	0.00	.915	0.00

Significant &lt; (0.05) at degree of freedom (14)

**Table 3:** Shows the arithmetic mean, standard deviation, calculated and true (T) value, significance level, difference of arithmetic mean, and deviation of differences in the pre and post-tests of the control group.

Variables	Measuring unit	Pre-test		Post-test		difference of arithmetic mean	difference of deviation	standard error of the mean difference	T value	Level sig	Type sig
		Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation						
Speed of kinetic response / hearing stimulus	Time	1.2390	.07680	1.2320	.07815	.00700	.00483	.00153	4.583	.001	<b>sig</b>
Speed of kinetic response / optical stimulus	Time	1.2430	.04165	1.2350	.03951	.00800	.00422	.00133	6.000	.000	<b>sig</b>
Speed of kinetic	Degree	26.4000	1.50555	27.5000	1.50923	-1.10000	.31623	.10000	-11.000	.000	<b>sig</b>
Time and accuracy of reception and passing/ hearing stimulus	Degree/ sec	.4134	.10381	.4141	.09270	-.00070	.04714	.01491	-.047	.964	<b>sig</b>
Time and accuracy of reception and passing/ / optical stimulus	Degree/ sec	.4424	.05872	.4417	.05834	.00070	.00048	.00015	4.583	.001	<b>sig</b>

Significant &lt; (0.05) at the degree of freedom (9) and below the level of significance (0.05)

**Statistical methods:** The search data was processed through the Statistical Package for the Social Sciences (SPSS).

#### Presentation, analysis and discussion of the results:

After presenting the results of the tests for the study variables in the previous tables of the two research samples, it becomes clear to us that the results of the post-tests are superior to the results of the pre-tests, but when looking at the results of the post-tests, it appears that there is a clear superiority and a moral effect in favor of the experimental group, as the researcher attributes the emergence of these positive results to the method which was adopted by the researcher in training, which was represented in choosing the best and most exercises that would raise the players' abilities and develop their skills, "The lack of care in choosing exercises that achieve the goal of training delays the players' arrival to the required performance during the specified time period for training." (Mokhtar. 1978) (Table 3,4,5).

In preparing the research exercises, the researcher relied on the two senses (hearing and optical) and integrating them between them during training, due to the players' need for them during the matches, and this had a role in raising and developing the players' capabilities since training through more than one sense is beneficial to improving their level through developing work Neuromuscular system. Mahmoud Dawoud points out that "the more senses a person uses to learn information, the more he has control over them and his ability to do so." (Al-Rubaie and Hamad. 2010).

The researcher has deliberately performed the exercises in a variety of ways during the training units and not at a single pace, as this diversity has an important role in developing the players' ability by increasing their motivation to work. This is agreed with him, "The ability of trainers to be creative and to work with a wide imagination is one of the important things for the success of the process of diversity in training, and trainers should plan training curricula in a way that allows athletes to carry out many diverse exercises in each of the training units." (Ibrahim, 2008).

Where one of the basics of the work was to give exercises on a regular basis and without interruption, and these exercises used in the research were prepared in a scientific and thoughtful manner according to the considerations of the players' abilities and their suitability, as this had an important role in developing their abilities and skills. This is consistent with what sees: "The

principle of continuity in training is considered one of the important principles of the sports training process. Because failure to adhere to continuity in training will not guarantee the success of the process of adaptation of the athletes' body organs and organs for the game or the sporting activity that is practised, which (i.e. the process of adaptation) In turn, it leads to the athlete's success in achieving the desired achievement." (Ibrahim, 2008).

The researcher has taken into consideration the principle of gradation from easy to more difficult when setting exercises, as this is one of the principles of the science of sports training, where the level of players is gradually upgraded, and this, in turn, occurs adaptation and thus benefits the players and this is through regular repetition of the performance of exercises as it has a role in stabilizing and maintaining the performance of the players, therefore, "the principle of gradation used in the process of building and developing physical abilities and motor skills of the athlete is closely related to the principle of repetition." (Abdul-Mahdi. 2006).

The skill of passing is one of the most important basic skills in the game of football, and it represents a distinguishing mark for the team that is able to perform it accurately and quickly. And for the purpose of reaching the goal, and this is what the exercises prepared in this research contained, as Sabah Rida indicates that it is "an important means in the continuity of play, and the implementation of his plans, being the most frequent compared to other skills, and that accurate passing in the right place among the players of the team winning the ball is a key attacking play and accuracy in passing is one of the most important ingredients for the success of this skill" (Jabri et al., 1991).

The receiving skill is the skill that makes the ball at the disposal of the player and the team, and then the handling skill is performed. In addition, good behavior in taking precedence over the competitor, and this was the researcher's goal when preparing the exercises for the research, as his goal was to develop this skill among the players. Stresses that the reception skill is "one of the basic and important skills that every player must possess, as it cannot be dispensed with or neglected through daily training units as a preparatory step for the performance of an upcoming skill that the player will implement. Good behavior with the ball, but if it is clumsy and bad, this will lead to the failure of the subsequent skills associated with it, and then the opportunity to score and the efforts of the players as a group will be lost". (Ali.2004).

The researcher chose the two methods of high-intensity interval training as well

**Table 4:** Shows the arithmetic mean, standard deviation, calculated and true (T) value, significance level, arithmetic mean difference, and deviation of differences in the pre and post-tests of the experimental group.

Variables	Measuring unit	Pre-test		Post-test		difference of arithmetic mean	difference of deviation	standard error of the mean difference	T value	Level sig	Type sig
		Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation						
Speed of kinetic response / hearing stimulus	Time	1.2630	.04498	1.1590	.04122	.10400	.05777	.01827	5.693	.000	sig
Speed of kinetic response / optical stimulus	Time	1.2440	.05168	1.1560	.04624	.08800	.04211	.01332	6.608	.000	sig
Speed of kinetic	Degree	26.8000	1.31656	29.0000	1.05409	2.20000-	.63246	.20000	11.000-	.000	sig
Time and accuracy of reception and passing/ hearing stimulus	Degree/ sec	.4519	.03411	.3333	.02154	.11860	.03453	.01092	10.863	.000	sig
Time and accuracy of reception and passing/ / optical stimulus	Degree/ sec	.4647	.07450	.3982	.02788	.06650	.06820	.02157	3.083	.013	sig

Significant &lt; (0.05) at the degree of freedom (9) and below the level of significance (0.05)

**Table 5:** Shows the arithmetic mean, standard deviation, the calculated and true (T) value, and the level of significance in the post-tests of the experimental and control groups.

Variables	Measuring unit	control group		experimental		T value	Level sig	Type sig
		Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation			
Speed of kinetic response / hearing stimulus	Time	1.2320	.07815	1.1590	.04122	-2.613-	.018	sig
Speed of kinetic response / optical stimulus	Time	1.2350	.03951	1.1560	.04624	-4.108-	.001	sig
Speed of kinetic	Degree	27.4000	1.50555	29.0000	1.05409	2.753	.013	sig
Time and accuracy of reception and passing/ hearing stimulus	Degree/ sec	.4141	.09270	.3333	.02154	-2.685-	.015	sig
Time and accuracy of reception and passing/ / optical stimulus	Degree/ sec	.4417	.05834	.3982	.02788	-2.127-	.047	Sig

Significant &lt; (0.05) at the degree of freedom (18) and below the level of significance (0.05)

as the repetitive training method, and they had an active role in developing the abilities and skills investigated, as they have a direct impact on the variables and suit the capabilities of the research sample members in terms of the training load followed. so "Interval training is one of the training methods of wide interest, which works to develop performance and achievement for many sports activities, whether individual or team". (Al-Ali and Shaghati. 2010).

As for repetitive training, (Raysan Khreibet) points out that "this method helps to improve and develop coordination (neuromuscular) as well as stimulates and activates the fast fibres of the muscle." (Kreibet, 1997).

Through the training units, the researcher worked on developing the skillful performance of the players by using exercises that target speed and accuracy together, because modern play needs them together because slowness and lack of accuracy in performance are not in line with the current football game, and this is what the researcher worked on and the results showed their development together Cashmore refers to "the belief that when attention is paid to the element of speed, there is decay and deterioration of accuracy, and he believed that the human capacity is limited in processing information with the brain and that there will be a kind of trade-off either accuracy for speed or vice versa, and recently it was discovered that it is Accuracy and speed can be developed, and reaction time can be developed by skill training for players of all levels". (Cashmore,2002)

The researcher relied on modern technology through his use of devices and tools, which were intended to raise the level of the players, as it is an exciting means in training and works to increase the motivation of the players in training. With effort and time for the player and the coach, Khalil Ibrahim refers to it "all the devices, tools and materials that the trainee uses to facilitate the training procedures and make it more exciting and exciting and transform the movements that the trainee goes through into meaningful experiences with an economy of effort and time, leading to a better training level." (Suleiman. 2013).

This was confirmed by (Qassem Lazam), "The trainer must know the level of benefit from the tools and equipment he uses and that are required for the exercise, as they are an important aid in the success of his exercises." (Sabr, 2013).

## Conclusion

- The compound kinetic (hearing- optical) exercises used in the research had an effective effect in developing the research variables.
- The rate of development of the experimental group sample on which the exercises prepared by the researcher were applied is higher than the rate of development of the control group sample in all tests.
- The devices and tools that were used in the research greatly help in developing the players' abilities and skills. The devices and tools that were used increased the suspense of performing exercises for the players.
- Devices and tools save time and effort, and provide players with real-time feedback.

## Recommendations

- The importance of using compound exercises that sense kinesthetic (hearing- optical) under study by the trainers and those in charge of the game for developing the players' performance in the variables investigated.
- The importance of designing and manufacturing new training devices and using them to develop the players' capabilities during training units because of their positive role in the training process, as well as tools and aids.
- Emphasis on coaches and those in charge of the football game by giving importance when training basic skills on the two elements (speed and accuracy).
- Diversity in giving compound exercises to players.
- Conducting similar studies on different age groups, as well as different physical and skill abilities.

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