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Dr. Nuha Yousef Hashem Abbass
Lecturer, Faculty of Basic
Education, University of Kufa,
Iraq

The effect of educational exercises accompanied by aids to develop the speed of motor response in the skills of defending the court and blocking the wall in volleyball for students

Dr. Nuha Yousef Hashem Abbass

Abstract

Exercises and means to aid in the development of students are among the matters of great importance so that the student can develop his abilities and skills in team and individual games so that he acquires all the concepts of skills for the various games. In the game of volleyball, the learner needs to respond quickly so that he can retrieve the ball to the opponent's court to score a point. Therefore, the problem is revealed by the research: There are some weak points among students in the speed of the motor response to the ball that reaches the field. The ability of these students to be developed must be given additional educational exercises accompanied by the aids so that the speed of the motor response is activated and to overcome the opposing team.

The importance of the study is the expansion of the lecture in the main aspect section of the educational part to give the student the greatest opportunity to learn the method of learning, speed of motor response, and how to move on the field correctly.

As for the methodology research, used the researcher the experimental method, the pre- and post-tests for the two groups, which were divided into an experimental group and another control group, where each group contained (30) students, and the research population was the third stage students, numbering (68) students for the academic year 2022-2023, divided into two sections. (B-C) (3) students were excluded due to their lack of commitment to working hours, and (5) students were chosen from them to conduct the exploratory experiment. As for the remainder, they were divided into two groups. The researcher conducted homogeneity and equivalence among them. Then the work began, and the curriculum continued for (8) developmental educational lectures, with two lectures. During the week, the researcher targeted the main section of the lecture, and after completing the specified period, the post-tests were conducted under the same conditions as after that the pre-tests, the statistical results were extracted, as it appeared to us that the experimental group that used the special educational exercises with the aids had overcome the other group. Which is taught according to the teacher's method, and this is a positive indicator of the use of educational exercises with aids in developing the student's response speed. Therefore, the researcher recommends using such exercises with aids in developing motor response speed in other volleyball skills and in various sports and other skills.

Keywords: Educational exercises, volleyball, sports

1. Introduction

Scientific development has achieved a great renaissance in all fields, and this development has had a great impact, especially in the field of learning, motor and training learning. This can be seen in the great achievements in various games and sporting events thanks to the sciences related to learning and sports training, which has led to the emergence of new horizons in learning. It has its limits, and this development has contributed to solving many of the problems faced by students, players, and school coaches during the period of development, learning, and training.

These skills are among the quick skills in the game of volleyball, which require quick motor response, as well as quick action to block strikes or defend the court. Therefore, this ability is considered one of the important abilities in this event, which must be developed to improve performance in the skills,

Corresponding Author:

Dr. Nuha Yousef Hashem Abbass
Lecturer, Faculty of Basic
Education, University of Kufa,
Iraq

Hence the importance of research. In developing the motor response using assistive devices, which will effectively contribute to improving the skills of blocking the wall and defending the court for students in volleyball, became clear.

1.2 Research problem

Through the researcher’s experience as a volleyball player and volleyball teacher, she noticed that the game of volleyball requires special interaction with students in developing the speed of response and changing behavior in the main section of the lesson plan. This requires experience and expertise in dealing with them, and they need the ability to speed motor response. Mainly because the method of playing requires fast movements, attention, and high concentration, and at the same time they need additional exercises in order to reach the required level, so the researcher decided to prepare specialized exercises with various means of assistance in developing the speed of motor response that would raise the level of the player and develop the skills under study to the best of their ability. Results.

1.3 Research objectives

1. Preparing educational exercises with aids in developing the speed of response motor in the skills of defending the court and blocking the wall in volleyball for students.
2. Identify the effect of educational exercises with aids in developing the speed of response motor in the skills- of

defending the court and blocking the wall in volleyball for students.

1.4 Research Hypotheses

1. Educational exercises with auxiliary means have a positive effect on developing the speed of motor response in volleyball for students
2. Educational exercises with aids have a positive impact on developing the skills of defending the court and blocking the field with volleyball for students.

1.5 Research Areas

1. **Human field:** third-year students from the College- of Physical, Education and Sports, Sciences, University of Kufa- for the academic year 2022-2023.
2. **Temporal scope:** Period from 1/28/2023 - 3/4/2023.

2. Research, Methodology and Field Procedures

2.1 Research Methodology

The nature of the phenomenon that the researcher addresses is what determines the nature of the method used. Therefore, the researcher used the experimental- method in the style of two equal groups (control and experimental) with pre- and post-tests to suit the nature of the problem. The experimental method is considered the most accurate type of method and the most efficient in arriving at accurate results, and the table shows Experimental design for the research sample.

Table 1: Show the experimental design of the research sample

The details / Groups	Pretests	Experimental treatment	Posttests
Control group	Special tests for motor response speed and the skills of defending the field and blocking the wall	Applying the trainer’s educational exercises method according to the curriculum prepared by the trainer	Special tests for motor response speed and the skills of defending the field and blocking the wall
Experimental group	Special tests for motor response speed and the skills of defending the field and blocking the wall	Applying the method prepared by the researcher	Special tests for motor response speed and the skills of defending the field and blocking the wall

2.2 Research community

The research population was determined by the students of the third stage for the academic year 2022-2023, which numbered (68) students. The research- sample was. Chosen by the comprehensive enumeration method, and- the sample was divided into two groups by a simple random method (lottery), with (30) students for the control group and (30) students. For the experimental group, (3) students were excluded because they did not adhere to the official working hours, and (5) students were chosen for the exploratory

experiment who were not among the pre- and post-tests.

2.2.1 Sample homogeneity

In order to reach a single level for the research sample and to avoid indicators that might affect the results of the research in terms of individual differences existing among the students, the researcher conducted homogeneity before starting the exercises in the variables related to the variables (weight, height, age) as shown in the table (2).

Table 2: Shows the arithmetic means, standard deviations, and skewness coefficient for the purpose of sample homogeneity in the variables (mass, length, age)

Statistical coefficients / Variables	Measuring unit	The middle	Mediator	Standard deviation	Torsion lab
Bloc	kg	72,5	22,5	0.597	0.051
height	poison	184,07	180	0.607	0.153
the age	year	22,2	22	0,6	0.21

From the previous table we see that all values of the skewness coefficient came within (± 1), which means that all sample members are homogeneous in terms of variables.

2.3 Means, devices and tools used

2.3.1 Research methods

2.3.1.1 The researcher used the following research methods

1. Arab and foreign sources
2. Observation and experimentation

3. The interview

2.3.2 Devices and tools used

2.3.2.1 The researcher used the following devices and tools

- Chinese HP laptop calculator
- Chinese stopwatch.
- Canon camera, of Chinese origin.
- Electric keyboard with colorful lights.
- Electronic scale of Chinese origin.
- Leather measuring tape.

- Volleyball court legal from a seated position.
- 10 Mikasa volleyballs.
- Yellow and blue rubber ropes, number 14.
- Weights.
- Wooden planks
- Signs 30 cm high.
- Whistle.
- Colored tape.
- Sponge rug
- Arm weight bracelets.

2.4 Khutuat Albahth Almaydani

2.4.1 Determine the research variables

Through the researcher's review of sources, references, and previous studies, the variables were determined appropriate to the research problem according to the following (speed of response - defending the field - blocking wall).

2.4.2 Determine the tests for the research variables:

After identifying the variables related to the research topic and presenting them to specialists for the purpose of determining the most important special tests, a group of tests was arrived at to be conducted on the research sample.

First: Motor response speed test

- **Gharad alaikhtibari:** Measuring the ability to respond quickly and accurately hasab aikhtiar alhafizi.
- **Tools:** Volleyball court legal, four-color shooting device, masking tape. Measuring tape.
- **Procedures:** The test area was planned in four points such that each point represented one of a specific color from these four colours. The distance from the side between one point and another was 2 metres, and the distance between the starting point and the four points was 3 metres. The starting point is determined from the middle of the finish line of the volleyball court, so that the four points form an arc. To ensure that the distances are equal at all points to the starting point line, the color detector is placed from the starting point as shown in Figure No. (1).

Description of tests

- The laboratory stands at the starting point line.
- The tester takes a ready starting position so that the starting line point is under the player's legs and bends his body forward, looking towards the four designated colors.
- The tester heads to one of the four specific colors that the device releases and runs as quickly as possible in the direction of the specific point he wants to reach, which is 3 meters from the starting line.
- When the tester reaches the desired color or the specified point, the player touches the sensor above the mark to stop the attempt.
- If the tester starts in the wrong direction, it will remain continuous for time in the device until the tester changes direction as instructed, reaches the correct direction and then touches the sensor.
- Each of the testers is given (8) consecutive attempts, 10 seconds separating one attempt from another, so that there are two attempts in each specific color from these four colors.
- Colors are determined for attempts from the four specified colors in a sequential and random manner.

Conditions

- Testers are given attempts outside the main test, so that they can become familiar with the testing procedures.
- Lack of knowledge of the testers. There are 8 attempts, each color is divided into two attempts. Testers not knowing the expectations of the attempts.
- Warning the testers that the attempts are not evenly distributed from one color to another, but rather there are more attempts in one color than the other, and the order of the attempts is random but sequential and differs between the testers.
- The process of starting the test is by giving a signal from the referee (be prepared to try).

Register

- The time of each attempt is calculated, and the result is taken as the average of the eight attempts of the experimenter during the performance.

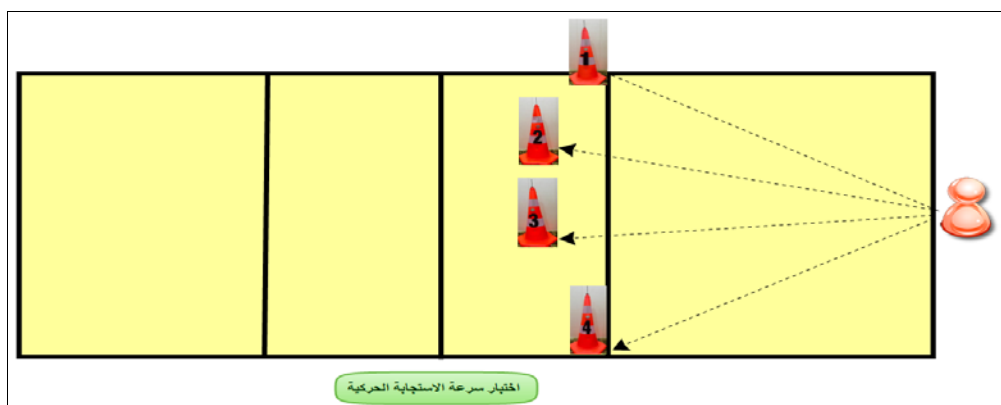


Fig 1: Shows the motor response speed test

Second: Testing (blocking wall skill) for volleyball:

- Test name: Measuring the accuracy of the performance of the retaining wall
- Purpose of test: To measure the accuracy of the retaining wall.
- Tools: playground (volleyball), (5) balls, net
- Performance description: The attacking player's court

and the preparer are divided into (a) the offensive zone and (b) the defensive zone. As for the tested player's court, it is divided into (c) the offensive zone and (d) the defensive zone. As shown in Figure (2), the coach or preparer By preparing for the attacking player to crush the tester in position No. (3), as shown in Figure (2).

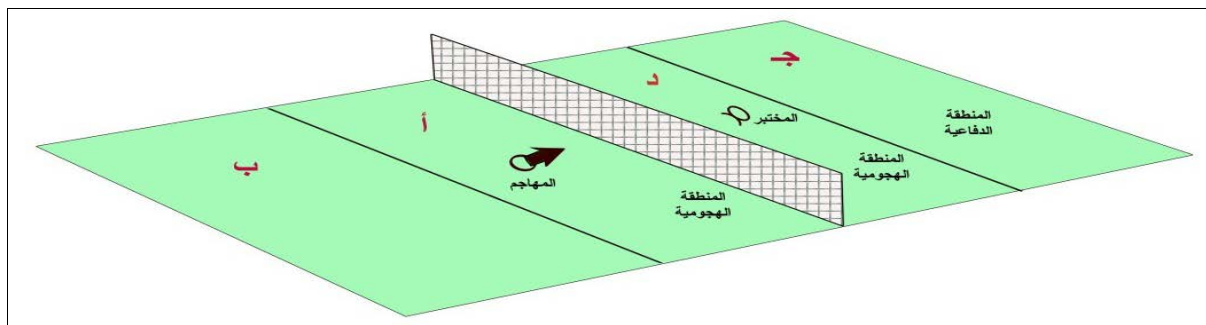


Fig 2: Shows the retaining wall test

- **Registration:** The laboratory has (5) attempts.
 - (4) Marks if the tester repels the ball and it falls in area (A).
 - (3) Marks if the tester repels the ball and it falls in area (B).
 - (2) Two marks if the tester repels the ball and it falls in area (C).
 - One point if the tester repels the ball and it falls in area (D).
 - (Zero) if you violate the above points or the rules of the game.
 - If the ball falls on the border of the area, the highest score is calculated.
 - Maximum score (20).

- **Test name:** Defending the field.
- **The purpose of the test:** to measure the skill of defending the field.
- **Performance specifications:** A line is drawn parallel to the side line of the front area to the right from a distance of (1) m. It is called area (B). Another line is also drawn parallel to the side line from a distance of (3) m to form an area of (2×2) and It is called (A) and a line is also drawn parallel to the last line and at a distance of (1) m. It is called (B) to form three areas for accuracy in the front area. Then the preparer prepares for the attacking player so that the other performs a crushing attack on the area designated for the tester, and after that the tester performs the defense. On the court and directing the ball to the indicated areas, as shown in Figure (3).

Third: Test (defending the field)

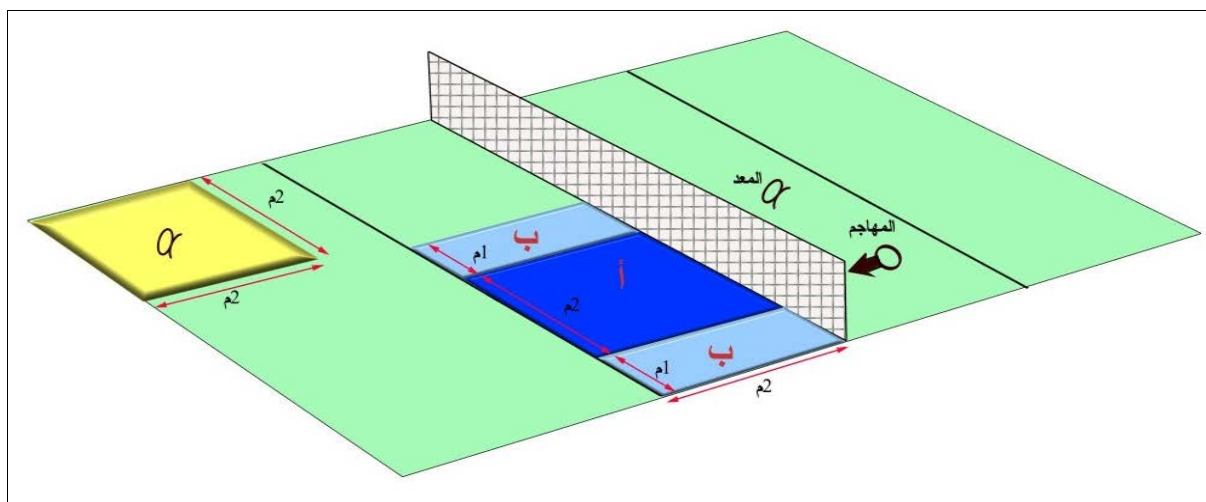


Fig 3: Shows the field defense test

- **To register:** the laboratory has (5) attempts.
 - (3) Degrees if he defends the ball and it falls in area (A).
 - (2) Two points if he defends the ball and it falls in area (B).
 - (1) One score if he defends the ball and it falls across the court.
 - (Zero) for a failed attempt or violation of the rules of the game.
 - The maximum score is (15) degrees

2.4.3 Exploratory experience

The exploratory experiment is one of the most important necessary procedures before the researcher undertakes her final experiment with the aim of testing research methods and tools and indicating the requirements for accurate, correct, and difficulty-free work. The exploratory experiment is

“practical training for the researcher to identify for herself the negatives and positives that she encounters while conducting the tests in order to avoid them in the future.” The exploratory experiment was carried out on a sample of (5) students. The experiment was conducted at 10 am on Sunday, January 15, 2023, in the college’s sports hall to test Speed of motor response, blocking wall skills, and defending the field.

2.4.3.1 The aim was to

1. Ensure the efficiency of devices and tools.
2. Know the time each test takes, as well as the total test time
3. Adequacy of the supporting work team
4. The level of difficulty of the tests for members of the research sample
5. Knowing the difficulties facing the researcher in order to avoid them in the future

2.4.4 Pretests

The researcher conducted the pre-tests on Wednesday and Thursday, corresponding to (1/27-28/2023) on members of the research sample, which numbered (30) students, divided into two equal groups, the first group was control and the second was experimental. On the first day, the researcher conducted a motor response test in On the second day, two tests were conducted on the skills of defending the field and the blocking wall, and all data was recorded in special forms to be processed statistically, and all conditions of the experiment were recorded for application in the post-test after applying the research methodology.

2.4.4.1 The equality of the two research groups

In order for the starting point to be the same for both the control and experimental groups in an equal manner in the research variables that were identified and not to be biased by the researcher towards his experimental group, the process of equivalence between the two groups in the dependent variables was carried out using the (t) test for independent samples equal in number after comparing the calculated (t) value with the results. The value of (sig) was greater than (0.05) for all tests, which confirms the The equality of the two research groups in the dependent variables, as in Table (2).

Table 2: It shows the arithmetic mean, standard deviations, and (t) value calculated for the two research groups in the research variables studied.

Statistical coefficients Variables	Loneliness Measurement	Pretest Control group		Pretest Experimental group		value (t)	value (sig)	Statistical significance
		SMA	SD	SMA	SD			
Speed of motor response	second	2,19	0,24	2,16	0,16	0,263	0,797	random
The blocking wall	degree	8,86	0,69	9,00	0,82	0,354	0,730	Random
Defending the field	degree	6,57	0,79	6,86	1,21	0,522	0,611	Random
At degrees of freedom (14), significance level (0.05), and standard error (sig) ≤(0.05)								

2.4.5 Suggested exercises: The researcher designed a proposed educational training curriculum to develop motor response speed, blocking skills, and court defense among volleyball students, drawing on some previous scientific studies and references to benefit from after scientific consultation from specialists in this field. In the fields of motor learning and sports training, in addition to the results reached by the researcher through the exploratory experiment and her review of relevant scientific sources and studies, the researcher prepared a set of educational, development and development units for the experimental group, using sports exercises with assistive means. The prescribed curriculum was applied to the experimental group during lecture time. Implementing the exercises and the customized curriculum took eight lectures, two lectures per week.

members of the research sample on two days, Sunday and Monday, dated (1/25-26/2023) in the Great Hall of College. of Physical Education Sports Sciences - University of Kufa same variables related to the research and in the same manner and sequence. The researcher was keen to apply conditions similar to the pre-test, and also all notes were recorded. Data in special forms for statistical processing.

2.5 Statistical techniques

The researcher used statistical software (SPSS) to find the following statistical methods.

3. Presentation, analysis and discussion of the results:

3.1.1 Presentation and analysis of the results in the pre- and post-tests of the control group for speed of response to the blocking wall and defending the stadium

3.4.6 Post-tests: The researcher conducted post-tests on

Table 3: Shows the arithmetic means, standard deviations, the (t) value calculated for the correlated samples, the (Sig) value, and the significance of the differences for the pre- and post-tests for the control group for the research variables.

Statistical coefficients Variables	Loneliness Measurement	Pretest Control group		Pretest Experimental group		value (t)	value (sig)	Statistical significance
		SMA	SD	SMA	SD			
Speed of motor response	second	2,19	0,24	1,74	0,22	4,652	0,003	moral
The blocking wall	degree	6,57	0,79	8,57	1,72	3,318	0,016	moral
Defending the field	degree	8,86	0,69	10,36	0,69	5,467	0,022	moral
At degrees of freedom (14), significance level (0.05), and standard error (sig) ≤(0.05)								

3.1.2 Presentation and analysis of the results in the post- and pre-tests of the experimental group regarding speed of response to the blocking wall and defending the stadium

Table 4: Shows the arithmetic means, standard deviations, the (t) value calculated for the correlated samples, the (Sig) value of the test, and the significance of the difference for the pre- and post-tests of the experimental group for the research variables.

Statistical coefficients Variables	Loneliness Measurement	Pretest Control group		Pretest Experimental group		Value (t)	Value (sig)	Statistical significance
		SMA	SD	SMA	SD			
Speed of motor response	Second	2,16	0,16	1,53	0,13	17,12	0,000	moral
The blocking wall	Degree	6,86	1,21	10,86	1,21	10,31	0,000	moral
Defending the field	Degree	9,00	0,82	12,43	1,40	8,85	0,000	moral
At degrees of freedom (14), significance level (0.05), and standard error (sig) ≤(0.05)								

3.1.3 Presentation and analysis of the results of the tests (post-post) for the control and experimental group for response speed, blocking wall, and defending the field

Table 5: Shows the arithmetic means, standard deviations, the (t) value calculated for the independent samples, the test (Sig) values, and the significance of the difference for the post-tests of the control and experimental groups for the research variables.

Statistical coefficients Variables	Loneliness Measurement	Empirical - post hoc		Officer- after me		Value (t)	Value (sig)	Statistical significance
		SMA	SD	SMA	SD			
Speed of motor response	Second	1,53	0,13	1,74	0,22	0,046	2, 22	moral
The blocking wall	Degree	10,86	1,21	8,57	1,72	0,014	2,87	moral
Defending the field	Degree	12,43	1,40	10,36	0,69	0,004	3,52	moral

At degrees of freedom (28), significance level (0.05), and standard error (sig) $\leq(0.05)$

3.2 Discussion of the results

Through the results obtained by the researcher from the tests on the research variables, she arrived at data for the control and experimental groups that will be discussed as follows:

Through the tables above, in which the results of the control group in the pre- and post-tests were presented and analyzed and analyzed for the research variables, we notice that the positive results on the motor response improved relatively, and the researcher attributes this to the nature of the lectures and duties of the control group, which imposes on them continuous and rapid movement on the field due to their offensive and defensive responsibility. In countering incoming balls from the opponent by serving or hitting, they are therefore required to perform the correct and appropriate response to the situation with maximum speed, as any slowdown in the response may lead to the loss of a point. The opponent and tracks fast balls on the field according to different and consecutive situations. Regarding the skills of blocking the wall and defending the field and the reason for the improvement of these two skills in the control group, the researcher attributes this relative improvement to their improved response, especially since these two skills are opened skills that require focused and rapid response skills and appropriate movement. Depending on the opponent's movement, it cannot develop without a quick response. The control group's training also included playing style, which contributes to improving fast movement similar to actual performance in matches. Continuing the exercise and continuing the training according to the trainer's approach also contributed to improving the variables of the study throughout the period of applying the exercises. They have.

The speed of motor response is an important ability in the results of the game of volleyball, as physical, skill and tactical performance in modern volleyball has become indispensable in one of its parts on this ability. The player is required to focus performance in two directions, one of which is the correct performance of the skill and the other is the speed of completing the required skill, and good knowledge. The style of movement and mastery of the ball is one of the factors of confidence for the defensive player and the speed of performing the blocking wall and defending the court in different situations. The speed of response is of great importance in this game, and many specialists agree that a good player in volleyball is the one who is good at moving quickly to achieve success in various skills, whether in defense. Or attack, which characterizes a high-level volleyball player.

The researcher He also attributes this development to in motor response ability to the training curriculum that was developed to obtain this result by allocating time for this ability in the curriculum from its beginning to its end, as performing any skill requires a certain amount of speed, on the one hand, and since most skills Volleyball is an open skill,

so there is a close connection between the speed of response and the development in the performance of the skills, which is what the researcher did in developing exercises in harmony with the different playing situations, which contributed to the improvement of these skills, and this development occurred in the performance of the blocking wall skill, although it is considered a little progress. Due to the short period of application, the researcher believes that the development in the performance of these two skills is due to the ease of implementing them and the speed of moving freely between positions. Also, the player who is well prepared physically and skillfully is in good condition to perform and implement the skills, so the players who perform these skills must possess explosive ability and speed. Reaction, agility and flexibility in performing movement to avoid touching the net. This is in addition to monitoring the opponent to create the appropriate wall, as it is the first line of defense against the attacks of the opposing team, and its success helps to obtain points. It also distracts the opposing team's attention and leads to a lack of concentration and confusion.

Also, the nature of the exercises prepared by the researcher, which included some strength exercises by exercising on the sponge mat and moving quickly towards the random glowing light bulbs, which were complex exercises to improve some of the strength levels by overcoming the resistance of the sponge mat, which made moving difficult, and therefore all resistance exercises contribute to improvement. Strength and speed. Therefore, muscular strength is one of the most important physical abilities necessary for motor performance. It has a direct impact on the speed of movement and is considered the basis for the rest of the elements of physical fitness because it plays a major role when linked to other physical attributes to produce complex physical attributes, which has increased its importance in improving and developing the achievement of sporting events. This is consistent with Ali Saleh Al-Harhour's definition of strength: "the individual's ability to overcome external or opposing resistance by exerting muscular effort and random light bulbs contributed to improving the speed of visual response because they were within the open environment that resembles actual playing situations and thus improved the variables of the study that The researcher sought to achieve this, which is the same as the research hypotheses that pertained to the experimental group.

4. Conclusions and Recommendations

4.1 Conclusions

In light of the statistical treatments of the results of the motor and skill ability tests that were presented, analyzed and discussed, the researcher reached the following conclusions:

1. Exercise helped develop motor response, which led to improved skill performance.
2. Organizing the exercises with the aids in a sequential

manner (basic exercises, exercises similar to play situations, play exercises) led to the development of the experimental group's skill performance better than the method used to develop the skills under research.

3. The use of the exercises in the main section and their timings directly contributed effectively to improving the motor response ability, which requires rapid performance to improve the nerve signals and rapid twitches of the muscle groups.
4. Some exercises that resemble the actual performance in the match contributed to improving the monitoring of the stimulus and reducing the motor response time, thus reaching the balls at a high speed, which contributed to better performance of the skills.

4.2 Recommendations

4.2.1 Through the above conclusions, the researcher recommends the following

1. Approval of exercises with assistive devices by physical education teachers in volleyball in a scientific manner, due to the development achieved in the motor response ability, the skills of defending the court and the blocking wall, and increasing suspense and arousing the spirit of competition.
2. Conduct similar studies on the use of Exercises with auxiliary means for other volleyball skills, motor abilities, and other physical characteristics, and for all other games.

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