The Effect of Defensive Exercises in the Motor Response to Develop Some Defensive Skills for Young Basketball Players

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Abstract

The importance of physical and skill abilities in basketball has increased in recent times because modern play has increased in difficulty and complexity compared to previous playing styles, and the motor abilities and the kinetic response are of fundamental importance in building and advancing the basketball player and works to improve the player's level of skill and planning, and the speed of timely decision-making and the speed of the movement's reaction to the player, and understanding this relationship is the basis for developing appropriate training curricula that help us reach high sports levels, so it became based on the above, the importance of research is reflected in the necessity of numbers of curricula and training programs. As for the most important conclusions, they were: The success of the training program in developing the defensive skills of the experimental group and that the training program had a noticeable effect on the performance of the players by comparing the results of the post-test of the control and experimental groups and confirming that the special exercises had a positive effect in developing the defensive skills of basketball.

Keywords: *Defensive exercises, response, develop, skills, players*

Introduction

Basketball occupies a distinguished place in the world, like other sports, and is still popular and admired by sports practitioners, perhaps one [1] of the most important foundations and principles that must be followed in building any teaching or training strategy is taking into account the knowledge and information reached by all sciences related to the athletic aspect that deals with the effect of regular training on both the musculoskeletal system, the nervous system and the circulatory system by developing the efficiency of this devices and raising their capabilities in the face of performance conditions, and this is the main goal of any training curriculum [2]. In order to reach the level of players to the degree that enables them to fulfill the requirements of the modern game with its various elements, which requires building the player from a young age according to codified training curricula, physically, physically, skillfully and strategically [3]. The importance of physical and skill abilities in basketball has increased in recent times because modern play has become more difficult and complex compared to previous playing styles, and the movement abilities and the kinetic response are of fundamental importance in building and advancing the basketball player and works to improve the player's level of skill and planning, and the speed of timely decision-making and the speed of the movement's reaction to the player[4], and understanding this relationship is the basis for developing appropriate training curricula that help us reach high sports levels, so it became based on the above, the importance of research is reflected in the necessity of numbers of curricula and training programs[5]. Through the researchers following up on the reality of the matches and the performance of youth basketball players, a problem appeared in the slow implementation of the defensive skills duties and because the researchers interested in the sport of basketball designed a program of special defensive exercises in a serious attempt on them to develop defensive skills in basketball.

Consequently, the researchers set the objectives of the research, namely (preparing a training program that includes defensive exercises for the kinematic response to develop the performance of some defensive skills in basketball and to identify the effect of these

exercises on the performance of some defensive skills with basketball). They also assumed that there were statistically significant differences between the pre and post-tests of the control and experimental groups in the tests of defense skills and also the existence of statistically significant differences between the tests for the control and experimental groups in the tests of defense skills.

As for the fields of research, they were represented by the players of the national center for sports talent care for basketball at ages (under 18 years), and the time of conducting the experiment was from 12/11/2020 until 14/1/2021, or with regard to the place of conducting field exercises and experiments, it was on the national center for sports talent care for basketball.

Key words: Motor response, defensive skills, basketball.

Research methodology and field procedures:

Research Methodology:

The researchers used the experimental approach in the method of equal groups for its convenience with the research problem.

Community and sample research:

The research community was determined by the intentional method, represented by the specialized center for the gifted care for youth basketball for ages under 18 years, and the Center's basketball players were chosen to conduct the research on them by an intentional way due to the availability of all the research requirements of playground, supplies and players, and their number reached (12) young players, and the sample was divided into two groups (control and experimental), and to avoid influences that may affect the desired results of the research, the researchers extracted the homogeneity of the research sample by taking measurements (biological age, mass in kilograms, height in centimeters) for each player within the framework of the research sample and recording it in a special form using the torsion factor, and all values appeared between (± 1) and table (1)) explains that.

Table (1) shows the homogeneity of the sample in the variables (age, training age, body mass, height).

N	Variables	Mean	Median	Std. Deviation	Skew ness
1	Age	21.05	21.5	4.084	0.095 -
2	Length	166.3	166	3.840	1.059
3	Mass	52	52.5	4.052	0.121 -

By looking at table (1), it becomes clear to us that all the values of the variables of the skew coefficient were confined between (±3), and thus it becomes clear that the sample is homogeneous.

Devices, tools and means used in the research:

Means of data collection:

- Arab and foreign sources and the internet.
- Personal interviews.
- Tests and measurements.
- Special forms for recording test results.
- Internet.

Tools and devices used:

- Digital electronic stopwatches 1/100 of a second manual.
- A device for measuring height and weight.
- Basketball court.

- Legal basketball count (3).

- Leather tape measure (20m).

- Colorful adhesive tapes, and whistle.

- (4) signs, height (75 cm) and width (35 cm).

- (3) columns with a height (2 m) and a base width (50 cm), and figure (1) illustrates this.

- Papers and pens for the purpose of recording data.

Field research procedures:

Determine the tests for the skills studied:

Skill defense against pass test: [1]

Test name: Defense against passing.

Purpose of the test: To measure the velocity of defense performance against passing.

The tools used: adhesive tape, a leather tape measure (20 meters), 4 signs of an electronic stopwatch, a whistle, papers and recording pens.

Test procedures :

Four marks are distributed as follows: the first and third marks at the end of the free throw line on both sides depart from the final line (5.80 m), and the two marks (2, 4) are the extension of the top of the far crossbow from the two sides outside the arc and each of them is 1.50 m away from the side lines, as shown in the figure (1).

Performance description:

The defending player stands facing the first mark (sign 1), and upon hearing the start signal via the whistle, the player runs towards the second mark (sign 2) to defend against handling for the purpose of touching and returning with the movement of a defending player behind (character 1), Then perform the movement of a defensive player towards the back of the third mark (sign 3), and then run towards the fourth mark (sign 4) to defend against handling for the purpose of touching and returning with the movement of a defensive player behind (sign 3), And then performing the movement of a defending player towards behind the first mark (sign 1), as shown in figure (1) in the six steps.

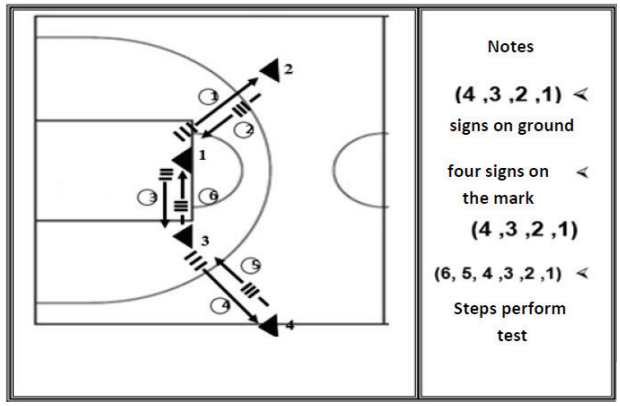

Figure (1)

Test conditions:

- Perform test steps quickly.

- Bending the knees when performing the movement of the defending player with the arms raised by not less than 90 degrees between the upper arm and the trunk.

- When the player arrives before the second mark, the left arm is removed and extended to cut off passing.

- When the player arrives before the second mark, the right arm is removed and extended to cut off passing.

- Repeat the performance twice and actually defend against handling four times.

- Just one try.

Test administration:

- **Timer:** Gives the start and end signal via the beeper with timing**.**

- **Register :** Make a roll call and note the performance while recording the test time.

- **Score calculation**: The time taken for the player to take the test with his steps (6 × 2) is recorded by adopting the start and end whistles.

Defense against shooting skill test:

Test name: Defense against shooting.

The purpose of the test: To measure the velocity of the defense against a shot.

The tools used: tape, leather tape measure (20 meters), (3) columns, an electronic stopwatch, a whistle, three basketballs, papers and pens for recording.

Test procedures (see figure 2):

Four signs distributed as follows: The first mark is at the bottom of the basket, the center of the ring on the ground, and the two marks are (2,4) the extension of the first mark from both sides and at a distance of (5 m), and the third mark is on the free throw line at the middle and away from the final line (5.80 m), and as shown in the figure.

Performance description:

The defending player stands on the first mark, and upon hearing the start signal via the whistle, the player runs towards the second mark to prevent correction and returns with the movement of a defending player to the first mark, and then runs toward the third mark to prevent correction and returns behind the first mark, and then the player runs towards the fourth mark to prevent correction and return with the movement of a defending player to the first mark, and as shown in figure (2) in the eight steps.

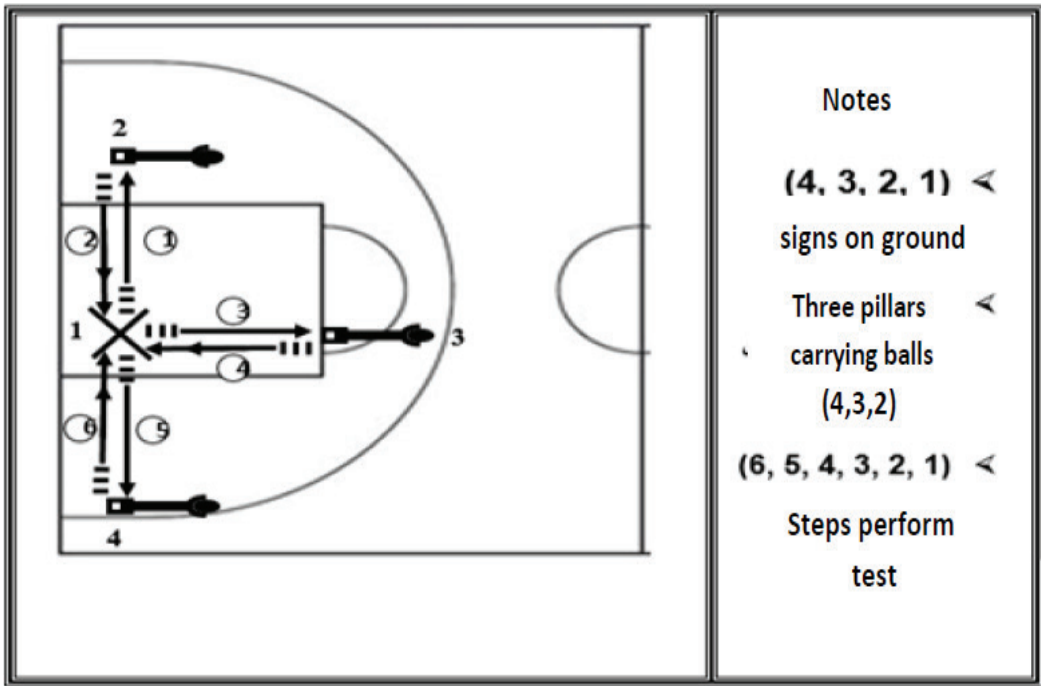

Figure (2)

Test conditions:

- Perform test steps quickly.
- Ball bearing columns.
- Touch the ball by extending the left arm and pausing with two feet before the mark (2), bearing in mind the left foot exiting forward.
- Touch the ball by extending the right arm and stopping with the frequency of the feet before the two marks (3, 4), bearing in mind that the right foot goes forward
- Just one try.

Test administration:

- **Timer:** Gives the start and end signal via the beeper with timing.
- **Register:** It performs a roll call and performance note with recording the test time.
- **Score calculation**: Records for the player the time he takes to take the test with its eight steps by adopting the start and end whistles.

Defense against dribbling test :

Test name: Defense against the dribbling.

The purpose of the test: To measure the speed of defense performance against the dribbling.

The tools used: adhesive tape, a leather tape measure (20 meters), (3) signs, an electronic stopwatch, a whistle, papers and recording pens.

Test procedures (see Figure / 3):

Four signs distributed as follows: The first mark is on the top of the far aiming arc moving away from the center of the throat (6.75 m), and the second mark is on the center line of the center of the circle, and the two marks (3, 4) are on either side of the stadium and are away from the two lines (90 cm) and from the center line (3.5 m) inward, and as shown in the figure.

Performance description:

The defending player stands with the first mark behind him (sign 1), and when the start signal is heard through the whistle, the player quickly runs forward towards the second mark with a stop in one set, and then performs the defending player's movement against the dribbling towards the third mark, and from making a quarter turn inward with the left leg and continuing with the movement of the defending player against the dribbling towards the first mark, and then the same action from the left side, as shown in figure (3) in the six steps.

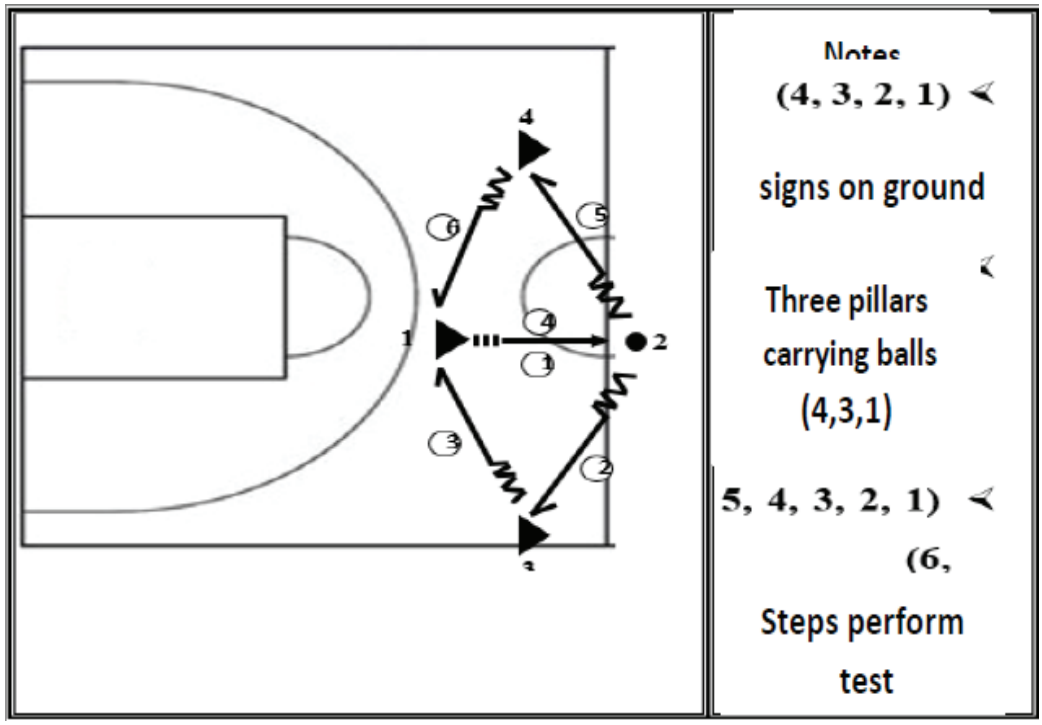

Figure (3)

Test conditions:

- Perform test steps quickly.
- The knees are bent when performing the movement of the defending player against the puck, with arms extended side down.
- Just one try.

Test administration:

- **Timer:** Gives the start and end signal via the beeper with timing.
- **Register:** It performs a roll call and performance note with recording the test time.
- **Score calculation**: The player records the time spent on the test with his six steps, using the start and end whistles.

Main experience:

Pre- tests:

The pre-tests for the control and experimental groups were conducted on Sunday 8/11/2020, as the previously mentioned tests were applied.

Preparation and implementation of special defense exercises:

According to the results of the pre-tests of the research sample, the researchers, making use of modern scientific sources and opinions of experts in the field of sports training and basketball, to build a training program within the main section of the training unit aimed at developing the performance of some defensive skills among young basketball players with basketball, it was presented to the experts, and their sound observations in building the program were taken and amended according to the scientific opinions presented. The implementation of the training program started on Thursday (12/11/2020) and ended on (14/1/2021), to introduce the training program, it included the following:

1- The training program was built for a period of (8) weeks with (3) training units per week for days (Sunday, Tuesday and Wednesday), so that the total number of training units would be (24) training units.

2- The duration of the training unit within the main section ranged from (20) minutes to (30) minutes, with the principle of gradual pregnancy.

3- The individual difference principle was introduced as a basic factor in training to place the components of the training load.

4- The iterative training method was used in the application of the program within the main department.

5- A work-to-rest ratio (1: 3) used.

6- The training methods used in the training program varied, including tennis balls, a response belt, and basketball.

Post-test:

Post- tests were conducted for the control and experimental groups on Thursday (14/1/2021), and the same tests that were applied to the research sample in the pre-tests were applied in the same sequence for the tests.

Statistical methods used:

- Mean.
- Median.
- Std. Deviation.
- Skew ness.
- (T) test for cross-linked samples.
- (T) test for independent samples.

Presentation, analysis and discussion of results:

Presenting and discussing the results of the pre and post tests for the control and experimental groups:

Displaying the results of the pre and post tests for the control group:

Table (2) show the means, standard deviations, the value (t) calculated for the correlated samples, the level of test significance, and the morale of the teams for the pre and post- tests of the control group for the defense skills tests

Variables	Measuring unit	Pre-test		Post-test		Value (T) Calculated	Level sig	Type sig
		Mean	Std. Deviation	Mean	Std. Deviation			
Defense against pass	Second	19.69	1.44	18.88	1.21	3.94	0.00	Sig
Defense against shooting	Second	13.22	1.98	10.89	0.96	2.33	0.02	Sig
Defense against dribbling	Second	12.44	1.99	11.33	0.83	5.76	0.09	Non sig

Presenting the results of the pre and post tests for the experimental group:

Table (3) shows the arithmetic means, standard deviations, the calculated value (t) for the correlated samples, the level of test significance, and the team's morale for the pre and post- tests of the experimental group for defense skills tests

Variables	Measuring unit	Pre-test		Post-test		Value (T) Calculated	Level sig	Type sig
		Mean	Std. Deviation	Mean	Std. Deviation			
Defense against pass	Second	19.76	1.36	11.60	0.87	2.19	0.00	Sig
Defense against shooting	Second	11.61	0.56	9.97	0.37	9.83	0.00	Sig
Defense against dribbling	Second	13.31	0.94	9.98	0.91	5.51	0.03	Sig

Presentation of the results of tests (post. post) for the control and experimental groups:

Table (4) shows the value of (t) calculated for independent samples, the level of test significance, and the significance of the differences between the results of the (post-post) test for the control and experimental groups for defense skills tests.

Variables	Measuring unit	control		experimental		Value (T) Calculated	Level sig	Type sig
		Mean	Std. Deviation	Mean	Std. Deviation			
Defense against pass	Second	18.88	1.21	11.60	0.87	3.16	0.00	Sig
Defense against shooting	Second	10.89	0.96	9.97	0.37	8.45	0.00	Sig
Defense against dribbling	Second	11.33	0.83	9.98	0.91	4.32	0.00	Sig

Discuss the Results

Through table (2), we notice that there are significant differences between the pre- and post-tests of the control group, in tests of defensive skills, and the researchers attribute these differences to the control group's benefit from the approach followed by the trainer, in which he focused on the aspect of rapid movement during moves, and the application of some aspects Other skill with quick move, the development of the control group in some tests is the continuity and regularity of the players in the training units, as well as the repetition of defensive

skills, which had a clear role in this development, as the two researchers agreed with (Hanafi Mahmoud), as he mentioned: Technical performance of skill, accuracy, integrity and fixation of the mechanism of high technical performance "[2] . However, these differences or development that occurred to the control group was not at the level of development or improvement that occurred to the experimental group.

Either table (3) shows us the pre and post-tests of the experimental group, as it shows us significant differences in all the pre and post-tests in favor of the post test, which indicates the development of defense skills and the researchers attribute this to the success of the training program in achieving the goal for which it was set in developing some defensive skills of players, and also the diversity in these exercises, as this opinion coincides with Reid's opinion, which emphasizes diversity in exercises, especially "assistive exercises with a competitor, which helps to increase speed and accuracy after performing different duties and in different and difficult situations" [3] ,and this is what the control group curriculum lacks. Taking into account the formation of the repetitive training load that suits the sample of young players and giving appropriate rest times to restore the stimulation of the nervous system.

After presenting and analyzing the results of the dimensional tests of the control and experimental groups table (4), it becomes clear to us that there are significant differences in all tests and in favor of the experimental group, the researchers attribute this to the development in the speed of the motor response of the experimental group to the quality of the approved exercises and their effective impact in improving the level of the motor response, as the association of skill exercises with the speed of performance in unexpected situations helped stimulate the central nervous system, this is consistent with what (Muhammad Salih) said, "as the nervous system plays a big role in finding the required compatibility between nerves and muscles so that contraction occurs at the required moment and at the speed possible for performance" [4], (Qasim Hassan and Abd Ali Nassif) said, "The basis of speed training is the appropriate state of stimulation of the central nervous system, and this is done through the athlete's previous activity free from fatigue." [5], the conditions facing the player in the basketball game are varied during the competition, and these circumstances require several things on the part of the player, especially the need for speed in anticipation, speed in decision-making, reaction speed and transition speed and this is called the speed of the kinetic response to what the opposing player will do, the researchers agree with (Ali Sobhan), stating that "the extent of the effect of using devices for the purpose of developing the speed of the motor response through the performance and repetitions of exercises in a manner that amounts to being close to the conditions of play, taking into account the change in the exercise, giving the player the opportunity to perform exercises at a slow speed during the first repetitions allows clear vision, allowing him to correct the tracks and then reduce the response time of movement" [6], the two researchers agree with (Yusef Qatami) that "assistive devices and tools make the player more focused on the skills to be learned and developed, and help diversity and stimulate players to improve performance for the better" [7] .

The speed of the motor response is an important ability in the results of the basketball game, as the physical, skill and linear performance in modern basketball has become indispensable in one of its parts on this ability, so the player is required to focus the correct performance of the skill and the other the speed of achieving the required skill, good knowledge of kinetic speed and mastery of the ball is one of the factors of confidence in the defending player and the speed of performance of defensive skills, as well as the attacking player while performing scoring or dribbling in different situations. The speed of the kinematic response of the feet, for example, is of great importance in this game , "A good defensive player is one who is fluent in using his feet. Foot movements have become a necessity for the success of various skills, whether in defense or attack, as well as the main and important role of the speed of the motor response of the arms" [8], what distinguishes a high-level basketball player is camouflage and scoring during the attack by changing the direction of movement or performing skills in a deceptive manner and making the decision to handle the ball to a colleague and other skills that no basketball team can do without.

Conclusions and Recommendations

Conclusions:

Based on the research results reached within

the limits of the research community, the following conclusions were reached:

- The success of the training program in developing the defensive skills of the experimental group.

- The training program has a noticeable effect on the performance of the players by comparing the results of the post-test for the control and experimental groups.

- The special exercises had a positive effect in developing defensive skills in basketball.

Recommendations:

In light of the conclusions reached by the researcher that proved the effectiveness of using functional exercises, the researcher recommends several recommendations: -

- Adopting special exercises for the experimental group to develop some defensive skills in basketball for youth.

- Reliance on learning and training using devices that save effort and time for the coach and the player and give positive results.

- Diversification in the use of movement response exercises and in different positions contribute to improving defensive skills in basketball.

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Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved and all experiments were carried out accordance with approved guidelines.

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