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# The Effect of Special Exercises to Develop Agility and the Kinetic Response Speed of Individual Defense in the Free Throw Area for Basketball Players Ages 15-17 Years

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***Abstract---*** *The study objective to identify the effect of special exercises to develop agility and the speed of the kinetic response of individual defense in the free throw area for basketball players ages 15-17 years, and the assumption of the study was the presence of moral differences in favor of the experimental group that carried out special exercises for individual defense within the limits of the free throw area, the researcher used the experimental approach on a sample of 12 players representing Al-Anbar Sports Club for junior basketball for the year 2019-2020, and the study reached results that the special exercises had a positive impact on the agility of the side steps and the speed of the kinetic response selectively for the youth of The basketball, the study recommended to focus on special exercises to develop the capabilities of individual guns.*

***Keywords---*** *Special Exercises, Kinetic Response and Individual Defense.*

## I. INTRODUCTION

One of the priorities of the sports training process is the tendency to special physical preparation in various sports in line with the nature of the game and its physical and motor requirements, as is the case in the most exciting basketball game among team games as its magnitude lies in the way of performing its offensive and defensive skill. Defense in basketball is considered the main pillar of winning the game, as most coaches and game experts confirm that defense is the basis of attack. We may find that competing teams are equal in the level of offensive skill performance, but winning remains for the team that excels defensively, whether in individual or group defense or the difference.

Achieving success in team and team defense depends mainly on possessing the basic elements of individual defense for each player in terms of the technical performance of its various movements, the defensive stance as well as the player's own physical capabilities that qualify him to carry out his duties, so the individual defense is his goal is to thwart the opponent's offensive moves with the ball or without it the defender requires him to exert effort, determination, speed, agility, understand the positions of play, prevent scoring, and try to cut the ball and at the same time be prepared for a quick attack and this is subject to the way the defensive team performs, whether in the man-to-man defense or the area defense or the chosen defense I or defense of the compressor. In addition, the physical requirements and the kinetic style of the defenders differ according to the locations of the players, so the player to focus will have his duties in performing the defensive follow-up skill, which is different from the defenders at the front and side of the free throw area. And what has been mentioned indicates the importance of individual

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defense, as it is "the basic basis for team or group defense where whenever the player is fluent in individual defense skills, the team's defensive play will be effective and effective" .[1]

By informing the researcher of many studies and training programs, he noticed that the training process for offensive and defensive skills in the basketball was not carried out in a parallel way, as the focus was on developing offensive skills without allocating integrated training units that include specific training exercises to develop the capabilities of individual guns, so the researcher raises the following question: Is there an impact of special exercises to develop agility and speed of kinetic response to individual defense in the free throw area of basketball players aged 15-17 years.

The importance of the research in developing the ability and characteristics of the defender player in particular the youngsters and reaching them from an early age to adapt to the performance of defensive movements effectively through their possession of agility, kinetic speed and good balance of the body within the limits of the free throw area, so the researcher's direction for this study was to advance the basketball game in Iraq.[2]

## II. RESEARCH OBJECTIVES

1. Prepare special exercises to develop agility and speed of kinetic response to individual defense in the free throw area of basketball players aged 15-17 years, in a manner consistent with the level of the research sample.
2. Identify the differences between the control group and the experimental group in agility and the speed of the kinetic response of basketball players ages 15-17 years.

***Research hypotheses***

1. There is a significant difference between the results of the pre- and post-test in the fitness test and the kinetic response speed of the two control and experimental groups in favor of the post-test.
2. There is a significant difference in the results of the posttest between the control and the experimental groups in the agility test and the kinetic response speed in favor of the experimental group.

***Research fields***

- The human field: the Anbar junior sports club team, ages 15-17, for the year 2019-2020.
- Time field: The research was conducted for the period from 24/6/2019 to 18/8/2019.
- Spatial field: Basketball court for Al-Anbar Sports Club - Ramadi.

## III. RESEARCH METHODOLOGY AND FIELD PROCEDURES

***Research Methodology***

The experimental approach was used for two control and experimental groups with a tight fit design to suit the research problem.

***The research sample***

The research sample included (12) players representing Al-Anbar Sports Club for juniors for the year 2019 - 2020 in the city of Ramadi - Anbar Governorate, the research sample was chosen intentionally to enable the

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application of research procedures, the research sample was divided by lot into two equal control and experimental groups by (6) Players for each group in order for the researcher to conduct parity between the two groups, as shown intable (1).

Table 1: Shows the equivalence of the two research groups

| Variables | Units | Control group | | Experimental group | | Calculate (t) value* | Type of indication |
|---|---|---|---|---|---|---|---|
| | | Mean | SD | Mean | SD | | |
| Fitness - side steps | Repeat .time | 8.33 | 1.03 | 8.5 | 1.51 | 0.20 | No sig. |
| Kinetic response | Second | 2.32 | 0.12 | 2.35 | 0.15 | 0.42 | No sig. |

*(t) tabular (1.812) at the significance level (05.0), and freedom degrees (10).

***Means of gathering information and research tools***

- Arab and foreign sources.
- The International Information Network (Internet).
- Measurement and testing.
- Assistant Work Team
- Legal basketball court.
- Legal Basket Balls.
- Medical balls weighing (1) kilo, number (4).
- Persons of a height of (60) cm, number (4).
- Round rings with a diameter of (60) cm, number (6).
- Elastic tape, metric tape measure.
- Casio stopwatch, number (2).

***Research tests***

***First: Fitness test***

***Test name: "Side step test in 10 seconds***

Purpose of the test: To measure the speed of the individual to move sideways and change the direction of the move in the opposite direction.

Tools and procedures: A tape measure, stopwatch, a space area to be covered with wood or smooth tiles, with a width of not less than 4 x 2 m. The place is fixed with fixed colors on the ground with four lines parallel to the distance between each line and the other 90 cm.

Performance description: The laboratory stands open on the middle line so that the line is between the feet, and when it is given the starting signal it takes the side steps to the right until it touches the right foot the side line, then returns to the left until it touches with the left foot the line of the other side. The laboratory gives one try.

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Score calculation: The laboratory is awarded one grade each time cutting or touching one of the side lines in ten seconds. A score is not calculated when the feet intersect while moving to the side, and the side line is not touched or cut off by the foot".[3]

***Second: the motor response test***

Test name: "Nelson Test for Selective Kinetic Response.

Test purpose: To measure the ability to respond and move quickly and accurately according to the exciter selection.

Tools and procedures: Tape measure, stopwatch, level barrier-free flat space of 20m length and 2m width. The test area plans three lines, the distance between each line to 6.40 and the length of the line 1 m.

Performance description: The laboratory stands at one end of the midline line in a ready position so that the midline between the feet is facing the arbitrator standing at the end of the other end, and the arbitrator holds the stopwatch with one hand and raises it to the top, then quickly moves his arm either to the left or right and in the same Time turns on the clock, the laboratory responds to the hand signal and tries to run as fast as possible in the specified direction to reach the side line which is 6.50 meters away from the middle line and when the laboratory cuts the right side line the arbitrator stops the clock, and the laboratory gives ten consecutive attempts between each attempt and another 20 second, by five attempts at each side.

Test instructions: The laboratory must not know that he is required to perform ten attempts spread over five attempts in each direction, and the laboratory must be warned that the number of attempts that he will perform is not distributed equally in both directions, and that the arrangement of attempts is done in a random manner.

Calculating the degree: the sum of the time of the ten attempts left and right / 10 = time per second.[4]

***Pilot study***

After determining the appropriate research tests for agility and motor response, the researcher conducted the exploratory experiment for the tests to find the negatives and positives on Saturday 15/6/2019 4:00 pm on the individuals of the research sample and its purpose was to understand the members of the research sample for the method of applying the test, and know the time it takes The test. The exploratory experiment also included determining the time of the exercises and the way to perform them,the researcher has benefited from his experience in making some adjustments, through guiding the Pilot study.

***Field research procedures***

***Pre-test***

The pre-test was conducted on Monday 17/6/2019 four o'clock in the basketball training center in the city of Ramadi, and the researcher took into consideration the conditions related to the test in terms of time, place and the tools used.

***The main experience of special exercises***

The researcher prepared a set of special exercises for individual defense within the limits of the free throw area. It was put in a training curriculum (Table 2). The researcher took into account the level of individuals in the

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experimental sample from the physical side. The unit time is 60 minutes. Attention was paid to the general and special warm-up in a way that suits the effort and effort. If the defensive exercises are performed by the experimental group while the control group applies the trainer exercises followed. The implementation of the training curriculum took two months (8 weeks) in the special preparation period and by two training units per week from Monday and Wednesday The researcher relied on determining the intensity of the training loads according to the maximum time test for each exercise according to the following equation: the maximum performance time for repetition x 100 / the required intensity (80-90%), taking into account the ripple and graduation in the training loads, and the maximum re-test for the exercises is done each week.

Table 2: Show the training program outlines special exercises for individual defense to develop agility and motor response

| Exercises | Weeks | Units | Intensity | Repeat | Rest between repetition | Groups | Rest between groups |
|---|---|---|---|---|---|---|---|
| Perform side defensive steps between 4 characters | 1 | 1 | 80% | 8 | 1Min. | 3 | 2 Min. |
| | | 2 | 85% | | | | |
| Run to the 3-point line of rubber band | 2 | 3 | 90% | 6 | | 2 | |
| | | 4 | 85% | | | | |
| Perform the two men's defensive moves between two people | 3 | 5 | 80% | 8 | | 3 | |
| | | 6 | 85% | | | | |
| Running between the trails in the form of 8 | 4 | 7 | 90% | 6 | | 2 | |
| | | 8 | 85% | | | | |
| Perform the two men's defensive moves in a reverse direction to the coach's signal | 5 | 9 | 80% | 8 | | 3 | |
| | | 10 | 85% | | | | |
| Perform the two men's defensive movements and touch the fixed rounds. | 6 | 11 | 90% | 6 | | 2 | |
| | | 12 | 90% | | | | |
| Jump up and run at full speed for the 3-point throw line and return with the two men's defensive moves. | 7 | 13 | 85% | 8 | | 3 | |
| | | 14 | 80% | | | | |
| Perform side defensive steps and move the medical ball between circular collar. | 8 | 15 | 85% | 6 | | 2 | |
| | | 16 | 90% | | | | |

Three exercises are performed in each training unit, with exercises changing in the next unit.

***Post-test***

The post test of the research sample was conducted on Monday 19/8/2019, and the researcher was committed to the same conditions and procedures followed in the pre-test.

## IV. RESULTS AND DISCUSSIONS

Table 3: Showing the results of the pre- and post-test of the control group in agility and motor response

| Tests | Units | Pretest | | Posttest | | Mean diff. | SD diff. | Calculate (t) value* | Type of indication |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | SD | Mean | SD | | | | |
| Fitness - side steps | Repeat .time | 8.33 | 1.03 | 10.33 | 0.68 | 2 | 0.89 | 5.55 | Sig. |
| Kinetic response | Second | 2.32 | 0.12 | 2.01 | 0.07 | 0.30 | 0.11 | 7.5 | Sig |

*(t) tabular (2.015) at the significance level (0.05) and freedom degree (5).

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Table (3) shows a significant difference between the pre and post test results of the control group in the agility and motor response test, and in favor of the post test. The calculated value (t) for both tests was greater than the tabular value (t).

Table 4: Showing the results of the pre and posttest of the experimental group in agility and motor response

| Tests | Units | Pretest | | Posttest | | Mean diff. | SD diff. | Calculate (t) value* | Type of indication |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | SD | Mean | SD | | | | |
| Fitness - side steps | Repeat .time | 8.5 | 1.51 | 12.33 | 1.03 | 3.83 | 1.16 | 8.14 | Sig. |
| Kinetic response | Second | 2.35 | 0.15 | 1.77 | 0.07 | 0.58 | 0.18 | 7.94 | Sig |

*(t) tabular (2.015) at the significance level (0.05) and freedom degree (5).

Table (4) shows a significant difference between the pre and post test results of the experimental group in the agility and kinetic response test, and in favor of the post test. The calculated value (t) for both tests was greater than the tabular value (t).

Table 5: Show the results of the post between the control and experimental groups test in fitness and motor response

| Variables | Units | Control group | | Experimental group | | Calculate (t) value* | Type of indication |
|---|---|---|---|---|---|---|---|
| | | Mean | SD | Mean | SD | | |
| Fitness - side steps | Repeat .time | 10.33 | 0.68 | 12.33 | 1.03 | 6.66 | Sig. |
| Kinetic response | Second | 2.01 | 0.07 | 1.77 | 0.07 | 6 | Sig. |

*(t) tabular (1.812) at the significance level (05.0), and freedom degrees (10).

From Table (5), there is a significant difference in favor of the experimental group from the control group in the agility and kinetic response test, if the calculated value (t) for both tests is greater than the tabular value (t).

Through what was presented from the statistical results, the results showed in Table (3, 4) that there is an evolution for both groups in the variables of agility and motor response, and this indicates the positive effect of both approaches followed by the control group and special exercises for the individual defense of the experimental group,[5] if that The sample is from the junior category where different capabilities are gained as a result of the training that it receives, it is not at the summit stage for the physical, skill and career level, and in this regard states that "the training brings the player to a high level of performance in team games as it is characterized by complex and different situations, receipt And it was done Rear,[6] stop and timing the ball, and that the movements are characterized by change, and that the main goals of physical training are to increase the athlete's abilities and develop his qualities to the highest level ".[7]

Table (5) showed that the experimental group was better than the control group in agility represented in the performance of the side steps movements of the two men and the selective kinetic response as a result of their use of special exercises for the individual defense and his movements that he performs when competing,[8] especially when defending within the limits of the free throw area, this has contributed Exercises in improving the motor capabilities and the increase in the ability to adapt muscles to these movements as well as the improvement in the movement

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technique that the defender undertakes individually, which is reflected in the development of agility and motor response.[9]States that Riyadh activity The level of physical training represents the athlete's ability to perform kinetic in various systems of speed, strength, skill and resistance in order to achieve individual and group performance that are part of the athletic tactic,[10]the results of this study are consistent with what Mustafa (Muhammad) states. Basketball singles mean speed and agility ".[12]

## V. CONCLUSIONS

1. Special exercises for individual defense within the limits of the free throw area of the experimental group have a positive effect in developing agility and motor response more than the approach followed.

2. The special exercises applied by the experimental group are similar to the way they are performed in competitive situations.

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