

## The effect of special exercises using the (Blazepod) device to develop the defensive player's movement for advanced basketball players

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### Abstract

The purpose of this paper is to preparing exercises for using the (Blazepod) device for advanced basketball players, and then identifying the effect of using the (Blazepod) device in developing some of the player's defensive movement for advanced basketball players. 12 players from the Adhamiya Sports Club, the category of applicants for the 2022/2023 sports year, where they were chosen in a deliberate manner from the community of origin represented by clubs, and the researchers used the defender player's movement test, and the results of the study showed that the special exercises prepared by the researcher using the (Blazepod) device affected the development Defensive skills (the movement of the defending player) greatly increased among advanced basketball players, and there is a clear preference for the special exercises prepared by the researcher using the (Blazepod) over the exercises prepared by the coach in developing the kinetic response speed of the advanced basketball players.

### Introduction

There have been many opinions of scholars about physical and skill exercises in terms of their objectives, methods of performance, division and everything related to them, and there are many definitions that define the meaning and concept of exercises, and they are also defined as "those positions and movements that an individual performs alone, with a colleague, or in a group without the use of tools or with the use of tools." small, fixed or mobile equipment, in accordance with the scientific principles and foundations for the development of basic movements and general and specific physical characteristics"( Bolevsky. 2010) special exercises are defined as "exercises that the coach sets for one player or several players within special curricula to develop the player physically, skillfully and tactically, and to develop kinetic speed And the basic skills that affect the game plans and create an atmosphere similar to that of the matches that depend on the training series" (Mahmoud M, Hadi A. 2020). Most international basketball teams and teams have tended towards training by using more auxiliary devices and tools, as these exercises take the form of performance and the nature of muscular work in basketball and thus economy in kinetic performance by developing and developing the general and private physical condition of the muscle groups that participate in that performance This is on the one hand, and on the other hand, these exercises work to develop and develop the speed of kinetic response, and the coach must explain to the player the benefit of the devices and auxiliary tools used and the method of performance by using them in order to be an image of the movement that he uses, and sometimes it is necessary to divide the movement when he is unable to perform it Correctly, the tool is "a set of means and equipment that are used to facilitate the sports training process, as it increases interest and diversity in the training process" (Yahya A, Kareem A, Abdulhadi S. 2021).

The movement of the defensive player occupies a major role in the outcome of the basketball game, and this requires the use of exercises with auxiliary tools during training that are similar to what happens during the match, so that the player is able to face the changes that occur and his work is in a positive direction and for the benefit of the team, and this is what the researchers will try to find On one of the training tools through special exercises on this tool and seeing what it will do to increase the speed of the player's response to visual stimuli and develop his defense, hence the importance of research in developing the movement of the defensive player in basketball using visual effects, that basic skills are an important factor in preparing players In the game of basketball, as through it the

level of technical performance of the players is raised, and through the researchers' follow-up to many Premier League matches and elite and first-class clubs, they noticed that there is a problem represented in the weak speed of the kinetic response for most of the league players and the inability to face changes in the offensive situation. Thus, it was negatively reflected on the individual and collective defensive performance of most clubs, and then it was negatively reflected on their effectiveness and the results of their teams. Defending player) and giving it a bigger role in the training process, the research aims to prepare exercises for using the (Blazepod) device for advanced basketball players and then identifying the effect of using the (Blazepod) device in developing some movement of the defensive player for advanced basketball players, and some studies have dealt with Previous studies in this field, including the study of (The effect of kinetic response speed exercises using the modified Xtra-Man device on some offensive skills ending in shooting for advanced basketball players, 2021) (Muhammad. 2021), The study aimed to modify the (Xtra-MAN) tool by adding light stimuli for advanced basketball players, design a kinetic response speed test device for advanced basketball players, prepare kinetic response speed exercises using the modified (Xtra-MAN) device for advanced basketball players, and learn about The effect of kinetic response speed exercises using the modified (Xtra-MAN) device in some offensive skills ending in shooting for advanced basketball players, the researcher used the experimental approach in the manner of two equal groups (experimental and control) and with two pre and post-tests for its suitability to the nature of the problem to be solved, as the researcher identified a community The research represented by Premier League basketball teams for the sports season (2020-2021) and their number is (12) clubs and the number of players was (144) players. Experimental and controlled by (6 players), and the researcher concluded that the exercises for using the modified (Xtra-Man) device prepared by the researcher in developing the speed of the kinetic response of the basketball players for the applicants (the experimental group), as well as the study of Saqr Ghani Arhim Al-Taie (constructing and rationing two tests to measure The kinetic response time with two devices with an audio and visual stimulus on the students of the Faculty of Physical Education, 2015) (Saqr Ghani Arhim Al Taie . 2015) The study aimed to design a device with a visual stimulus that measures the kinetic response time for students of the College of Physical Education and Sports Sciences - University of Baghdad, and to modify a device with an audio stimulus to measure the time of kinetic response for students of the College of Physical Education and Sports Sciences - University of Baghdad, and to build and standardize two tests using two devices with an audio and visual stimulus to measure the time The kinetic response of the students of the College of Physical Education and Sports Sciences - University of Baghdad, and the researcher used the descriptive approach in the survey method, and the research sample community was chosen by the intentional method, and they are students of the College of Physical Education at the University of Baghdad, whose total number is (100) for the academic year (2014-2015), and the researcher reached The visual stimulus device that was designed has achieved the purpose for which it was set, which is to measure the kinetic response time.

#### **Research objective:**

- Preparing exercises for using the (Blazepod) device for advanced basketball players,.
- Identifying the effect of using the (Blazepod) device in developing some of the player's defensive movement for advanced basketball players

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

##### **Research Methodology:**

The nature of the study variables is what determines the research method used, so the experimental approach is optimal for solving the research problem, as "the experimental approach is distinguished from other scientific approaches by its ability to control, control, and adjust the various factors that can affect the behavior studied, and it also allows detection between causes, results and relationships, and then arrive at theory and law" (Ibrahim Abdel-Khaleq. 2001), so the researchers used the

experimental approach in the manner of two equal groups (experimental and control) and with two pre and post tests for its suitability and the nature of the problem to be solved.

#### Community and sample research:

The sample was chosen by the intentional method, which is represented by (24) players from (Al-Adhamiya and Al-Tijara clubs) from the advanced players, due to the availability of the sample and the ease of controlling it, and because they are among the players participating in the Iraqi League for the first degree, since the sample is committed to daily training, in addition to the availability of the hall and tools. Divide the sample into two groups, one experimental group represented by the Adhamiya Sports Club, numbering (12) players, and the other a control group represented by Al-Tijara Sports Club, numbering (12) players. The free trainer without a device, and the two researchers carried out the homogenization of the sample by extracting the torsion coefficient as shown in Table (1).

**Table (1) shows the variables, the unit of measurement, the arithmetic mean, the median, the standard deviation, and the skew coefficient for the homogeneity of the research sample**

Variables	Measuring unit	Mean	Std. Deviations	Skewness
age	Year	25533.	1.855	0.905
training age	Year	13.815	1.473	0.075
Mass	Kg	88.215	3.783	0.775
Length	Cm	191.115	4.225	0.459

The sample is homogeneous if it does not exceed the value of the Skewness coefficient ( $\pm 1$ ). In order to ensure an increase in the randomness of the distribution and the differences, the researchers extracted the equivalence of the sample in the research variable (under study), as shown in Table (2).

**Table (2) shows the arithmetic mean, standard deviations, (t) value, and the significance of the differences between the experimental and control groups in the pre-tests**

Test	Measuring unit	Experimental		Control		T value calculated	Level Sig	Type Sig
		Mean	Standard deviation	Mean	Standard deviation			
Defending player movement test	Second	14.093	2.121	14.387	2.329	3.223	0.243	Non sig

Significant at the level of significance (0.05) if the error level is less than (0.05).

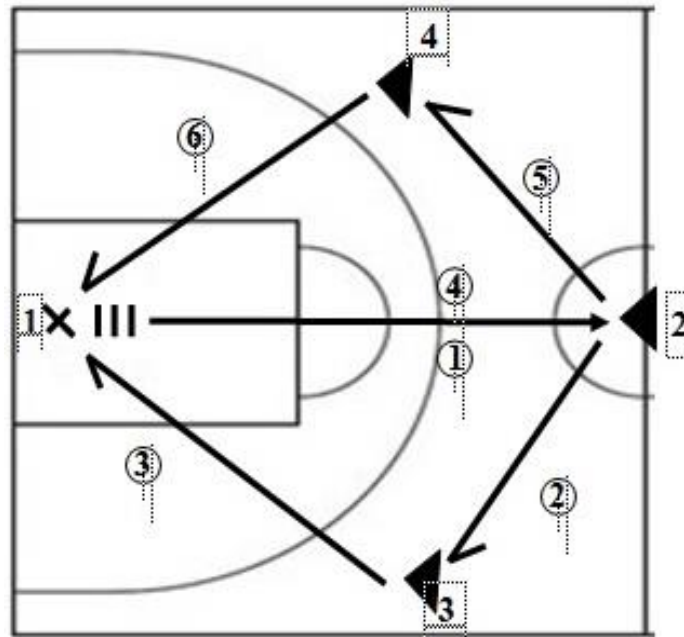
The researchers used the following tools:

- A legal basketball court.
- (12) legal basketballs (Molten).
- Two (2) Chinese-made stopwatches.
- (1) HP laptop.
- 2 whistles (Fox) type.
- A tape measure (20 m) long.
- (4) colored sticky tape.
- Number (12) indicators.
- Blazepod.

#### Tests used in the research:

##### 1. Defending player movement test (Ali Kamal Hussein. 2012):

- The aim of the test: to measure the speed of the defending player's movement performance.
- Tools used: adhesive tape, leather measuring tape (20 m), 3 indicators, an electronic stopwatch, a whistle, papers and pens for recording.
- Test procedures: four marks distributed as follows, the first mark is the center of the throat on the ground, and the two marks (3 and 4) are 90 cm away from the lateral line on both sides and from the base line (8.325 m), and mark (2) is on the midline of the central circle, as shown. Figure (1).



**Figure (1) Defending player movement test**

- Performance description: The defending player stands on the first mark, and when the start signal is heard through the whistle, the player quickly runs forward towards the second mark (signpost 1) and touches the sign with the right arm, and then performs the movement of the defending player towards the third mark (signpost 2) and touches the sign with the right arm, and from Then a quarter turn inside with the movement of a defensive player towards the first mark, and then do the same work from the left side.
- Test conditions:
  - Execute test steps quickly.
  - Bend the knees when performing the movement of the defending player, with the arms raised at least 90 degrees between the humerus and the torso.
  - Just one try.
- Test administration:
  - Timer: Giving the start and end signal through the whistle with the timing.
  - Recorder: Calling rolls and noting performance while recording test time.
- Score Calculation: The player records the time it takes to perform the test with his six steps using the start and end whistle.

The two researchers conducted the exploratory experiment on (5) players from the Trade

Club, as it is necessary for scientific research to know the validity of the devices and tools used, the auxiliary work team, the appropriate time to conduct the tests, and the suitability of the tests for the sample, as the exploratory experiment is known "It is a mini-experiment of the main experiment, the

purpose of which is either to reveal scientific facts or test work to reveal the obstacles and negatives that face the application of the main experiment, or for the purpose of training some of the cadres who help to work." (Kazem. 2015)

The researchers put special exercises on the (Blazepod) device for the purpose of developing the movement of the defensive player in defensive basketball, and the researcher took into account all the scientific foundations and principles during this period, as follows:

- The training period lasted eight weeks.
- Number of total training units (24 training units).
- Number of weekly training units (3 training units).
- Weekly training days (Saturday - Monday - Wednesday).
- The duration of the special exercises training in one training unit is (35\_60) minutes within the main section.
- The low and high intensity interval training method was used.
- The intensity used for the exercises (75\_100%).
- Intensity set based on pulse.
- The rippling load was 1:3 (three weeks of increase in intensity and one week of decrease for the purpose of adaptation).
- The defensive skill exercises in the training modules were strongly graded according to the ability of the players, from easy to difficult.
- The exercises started on Saturday 04/03/2023.
- The exercises were completed on Wednesday, 04/26/2023.

The researchers used the statistical bag (SPSS), which includes the appropriate statistical means (percentage, median, arithmetic mean, standard deviation, coefficient of skew, simple correlation coefficient (Pearson), law (T) for independent samples, law (T) for non-independent samples.

### Results and discussion

**Presenting and discussing the results of the defensive player movement test for the experimental group between the pre and post-tests:**

**Table (3) shows the results of the arithmetic mean and standard deviations of the experimental group between the pre and post-tests in the defensive player movement test**

Test	Measuring unit	Pre-test		Post-test	
		Mean	Standard deviation	Mean	Standard deviation
Defending player movement test	Second	14.093	2.121	12.388	0.791

**Table (4) shows the difference of the arithmetic mean, its standard deviation, the value of (t) calculated and the significance of the differences between the results of the pre and post-tests in the test of the movement of the defending player of the experimental group**

Test	Measuring unit	arithmetic mean of difference	standard deviation of differences	T value calculated	Level Sig	Type Sig
Defending player movement test	Second	1.705	0.223	7.542	0.000	Sig

Degree of freedom (12 - 1 = 11).

\* Significant at the level of significance (0.05) if the error level is less than (0.05).

It appears from Table (4) that there are significant differences between the pre and post tests in the test of the movement of the defending player of the experimental group, and the researchers attribute this to the effectiveness of the defensive exercises prepared by them, which were chosen in a manner similar to the offensive playing situations of the competing teams, as well as the development of the speed of the kinetic response and the link between them and the movements of the defending player and the different playing situations in terms of assistance, coverage, and stopping shooting from various areas in order to serve the required kinetic performance.

The speed of the defensive player's kinetic performance, which is represented by the speed of the kinetic response, is an important element in basketball as it is related to the result and time of the performance, as it indicates the player's ability to perform the movement or a specific group of movements in the shortest possible time without prejudice to the skill, and this confirms the strong relationship and the great correlation between The speed of the kinetic response and the defense based on the change in the positions of the player and the attacking team and the speed of the defender's response to this change in order to reach the best performance and result. Individual, this requires "The player should be able to perform these skills with perfection and integration, so that he performs them properly under any circumstances of the match." (Abass M, Mehves R. 2023),

And that the selection of exercises should be according to the movement path of the skills and the diversification of the exercises and that they are similar to the different playing situations. Different signals for the player to perform different and varied defensive movements according to the type of lighting and its location to suit the nature of the variables of play, as the goal of training in basic defensive skills is the diversity of its options and positions. The player has a high degree of performance mechanism and effectiveness, so that the inevitable result is the implementation of the desired goal (Abdulla RH, Saeed VA. 2021), as well as the type of exercises prepared by the researcher. It worked on developing all the muscles working on skillful performance through continuous repetition on defensive skills in terms of movement of the legs, assistance, coverage, and stopping Aiming from different areas, and this requires continuous movement and vigilance from the player, and thus improves the speed of response, the physical side, and the compatibility between vision and foot movements.

**Presenting and discussing the results of the defensive player movement test for the control group between the pre and post-tests:**

**Table (5) shows the results of the arithmetic mean and standard deviations of the control group between the pre and post-tests in the defensive player movement test**

Test	Measuring unit	Pre-test		Post-test	
		Mean	Standard deviation	Mean	Standard deviation
Defending player movement test	Second	14.387	2.329	13.472	1.213

**Table (6) shows the difference of the arithmetic mean, its standard deviation, the value of (t) calculated, and the significance of the differences between the results of the pre and post-tests in the test of the movement of the defending player of the control group**

Test	Measuring unit	arithmetic mean of difference	standard deviation of differences	T value calculated	Level Sig	Type Sig
Defending player movement test	Second	0.915	0.523	5.341	0.002	Sig

\* Degree of freedom (12 - 1 = 11).

\* Significant at the level of significance (0.05) if the error level is less than (0.05).

It can be seen from Table (6) that there are significant differences between the pre and post tests of the control group, although the time that was shortened is less than that of the experimental group. And the mechanism at the beginning of his coaching career as a result of the coaches' focus and their keenness for their players to master the movement of the two-legged player first, and then move to complex defensive skills such as assistance, coverage, and defense against shooting, and this requires high physical effort during training by allocating a relatively large amount of time to train on this skill in training units This indicates the effectiveness of the training curriculum prepared by the trainer in developing this skill, but with a lower rate of development than training on the (Blazepod) device, as the device exercises for the experimental group included various forms of performance, from easy to difficult, and included more options, individually and in combination, which is what It reflected positively on the development of defensive skills, which indicates that the entire training process was moving in the right direction. "As reaching the exemplary performance with a small percentage of errors comes through effective and appropriate exercise, to bring the player to a quick and accurate performance, and this is one of the signs of mastering the skill and reaching the stage of mechanism in performance, as well as previous experiences that increase the predictability of the athlete and thus speed up If he was previously trained to respond to a stimulus, his response would be quick" (Mohamed MM, Zwaen JN. 2021).

**Presenting and discussing the results of the defensive player movement test between the experimental and control groups in the post-test:**

**Table (7) shows the arithmetic mean, standard deviation, calculated (t) value, error percentage, and the significance of the differences between the experimental and control groups, the defensive player movement test in the post-test**

Offensive skills	Experimental		Control		T value calculated	Level Sig	Type Sig
	Mean	Standard deviation	Mean	Standard deviation			
Defending player movement test	12.388	0.791	13.472	1.213	7.352	0.00	Sig

Degree of freedom (24 - 2 = 22).

\* Significant at the level of significance (0.05) if the error level is less than (0.05).

Table (7) shows that there are significant differences between the experimental and control groups in defensive skills and in favor of the experimental group, and this is clear from the difference in the arithmetic circles, and the researcher attributes the reason for this to the effectiveness of the special and various exercises using the (Blazepod) device, as the development of the kinetic response speed worked on developing skills defensive, as "the kinetic abilities are very important because they

contribute to the development of skill and kinetic requirements for the type and requirements of performance" (Singer, N, Robert. 1990),

In addition, following the method of diversity in exercises, gradation from easy to difficult, and giving feedback to correct errors had an effective effect on increasing motivation and positively enhancing the player's performance, and the adequacy of the necessary training requirements for exercise with a variety of exercises using the (Blazepod) device, which are appropriate to the players' level and capabilities. It had an effective impact, in addition to the comprehensiveness of the training curriculum, the sufficiency of the time of the training units, and following the correct steps in the exercises, which lead to increased learning, concentration, and accuracy, which led to the superiority of the experimental group over the control group, as these exercises were emphasized using the (Blazepod) device while maintaining The factor of speed in performance and the use of various and variable defensive forms during the exercise, so that it resembles the work of the defending player during the match (Suleiman. 1981), this is what the researcher worked on when preparing the exercises using the Blazepod device, because the random instructions issued by the device are similar to the defensive reactions that the defender makes during the match, which provides a similar environment for playing, and this is what worked on the development of the movement of the two legs of the defending player and the speed of his response to stimuli due to the regularity Physiological and nervous processes, as the lack of vulnerability to internal stimuli made the locomotor system play an effective role through the speed of movement of the legs and arms of the defending player and his ability to confront the offensive position of the opposing player at the same level throughout the match period without dropping the level and feeling tired and his ability to cover and correct the defensive position of the team in case His colleague failed to defend and cover, which reflects positively on the defensive formation of the team.

## **Conclusions and Recommendations**

### **Conclusions:**

- The special exercises prepared by the researcher using the (Blazepod) device affected the development of defensive skills (the movement of the defending player), and this is clear from the difference between the arithmetic mean between the pre and post-tests.
- There is a clear preference for the special exercises prepared by the researcher using the (Blazepod) device over the exercises prepared by the coach in developing the defensive (defending player's movement) kinetic skills of the advanced basketball players, and this is evident from the arithmetic mean difference between the post-tests.

### **Recommendations:**

- Using the Blazepod exercises to develop the kinetic response speed of advanced basketball players.
- Using Blazepod exercises to develop defensive skills (defending player movement, assistance and coverage, defense against shooting) for advanced basketball players.
- Preparing more exercises with a variety of formations and more complexities, individually and collectively, using the (Blazepod) to develop kinetic response speed and defensive skills.
- Exercises related to using the Blazepod can be applied to other samples and groups after rationing them and making them appropriate for age and gender.

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