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The effect of special exercises using the (Blazepod) device to develop defense against shooting among advanced basketball players

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Abstract

The purpose of this paper is to prepare special exercises for the kinetic response using the (Blazepod) device for advanced basketball players and to identify the effect of using the (Blazepod) device in developing defense against shooting among advanced basketball players. The researchers used the experimental method in the manner of two equal groups (experimental and control) with two pre and post-tests for its suitability and the nature of the problem to be solved. The sample was chosen by the intentional method, which consisted of (24) players from (Al-Adhamiya and Al-Tijara clubs) of advanced players, due to the availability of the sample and the ease of controlling it, and being one of the players participating in the Iraqi league for the first degree, since the sample is committed to daily training, as well as the availability of the hall and tools, and the sample was divided into two groups, one experimental, represented in the Al-Adhamiya Sports Club, the number of which is (12) players, and the other is a control group represented by Al-Tijara Sports Club, numbering (12) players. The experimental group applied the exercises of speed of kinetic response and defense movements prepared by the researcher on the device, and the control group applied the trainer's free exercises without a device. The two researchers conducted homogenization of the sample by extracting the torsion coefficient. One of the most important conclusions reached by the researchers is that the effect of the particular exercises prepared by the researcher using the (Blazepod) training device in developing the endurance of defensive performance significantly among the advanced basketball players (experimental group), and this is evident from the difference between the arithmetic mean between the pre and post-tests, and the effect of the exercises prepared by the coach in developing the endurance of the defensive performance was simple among the advanced basketball players (control group), and this is evident from the difference of the arithmetic mean between the pre and post-tests.

Keywords: Training, exercises, device, basketball

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Introduction

Défense against shooting occupies a major role in the outcome of the basketball game, and this requires the use of exercises with auxiliary devices and tools during training that are as similar as possible to what happens during the match, so that the player is able to face the changes that occur during the match, and this is what the researchers will try to find on one of the training devices through special exercises on this device and see what it will do to increase the speed of the player's response to visual stimuli and develop his defense. From here lies the importance of research in developing the movement of the basketball defensive player using visual effects and his ability to stop shooting from In various regions, complex skills are an important factor in preparing players for the game of basketball, as through them the level of technical performance of players is raised, and through the researchers 'follow-up of many Premier League and first-class matches, they noticed that there is a problem represented by the weak speed of motor response among most of the league's players and the inability to face changes in the individual and collective offensive situation and thus reflected negatively on the individual and collective defensive performance of most clubs and then reflected negatively on their effectiveness and the results of their teams, and this generated in the researchers the perception that there is a need for study and research to prepare Special exercises using a modern assistive device that increases players 'effectiveness in performing defensive skills (defending against shooting)

Research objectives:

Preparing special exercises for motor response using a device) Blazepod)For advanced basketball players. Identify the effect of using a device) Blazepod (in developing defense against shooting in advanced basketball players.

Many previous studies have addressed topics similar to the research topic present These studies are :

Muhammad, 2021 (The researcher designed special exercises using a device) Xtra-Man(rate) in a manner similar to the methods of performing offensive skills and investing them to develop the motor response of advanced basketball players. The researcher concluded the effect of the exercises for using the) Xtra-Man (The rate prepared by the researcher in developing the motor response speed of basketball players for the applicants (the experimental group

Al-Taie p., 2015 :(The importance of the research lies in introducing devices and tools for the purpose of testing and measuring the variable motor response time. It was concluded that the modification made to the auditory stimulus device achieved the purpose of the modification, which is measuring motor response time.

(Mohamed A., 2008) The importance of the research lies in using an individual training method to develop the basic visual skills of the basketball player in Iraq for the purpose of achieving a broader purpose in sports training. Visual exercises have proven effective in developing basketball players' field of vision awareness.

Method and tools:

The researchers used the experimental method in the style of two equal groups (experimental and control) with pre- and post-tests for its suitability and the nature of the problem to be solved. The sample was chosen intentionally, which is represented by (24) players from the Al-Adhamiya and Al-Tijara clubs, among the advanced players, due to the

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availability of the sample and the ease of controlling it, and their being among the players participating in the Iraqi first-class league, as the sample is committed to daily training, in addition to the availability of the hall and tools, and the sample was divided into two groups. One was experimental, represented by the Adhamiya Sports Club, numbering (12) players, and the other was control, represented by the Al-Tijarah Sports Club, numbering (12) players. The experimental group applied motor response speed exercises and defense movements prepared by the researcher on the device, and the control group applied the trainer's free exercises without the device, and the two researchers homogenized the sample by extracting the contortion coefficient as shown in Table.(1)

Table(1)
It shows the variables, the unit of measurement, the arithmetic means, the median, the standard deviation, and the skewness coefficient for the homogeneity of the research sample

Variables	Unit of measurement	Arithmetic mean	Standard deviation	Torsion coefficient
the age	year	25.533	1.855	0.905
Training age	year	13.815	1.473	0.075

*The sample is homogeneous if the value of the skewness coefficient does not exceed(1±)

In order to ensure increased randomness of distribution and differences, the two researchers extracted the parity of the sample in the research variable (under study), as shown in Table.(2)

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

Tests	Unit of measurement	empiricism		Female officer		Calculated t value	Error level	Meaning of differences
		Q	A	Q	A			
Test defense against shooting	Second	15.752	2.272	15.991	2.306	4.719	0.197	random

*Significant at the significance level (0.05) if the error level is smaller than.(0.05)

Description of the tools and how they work:

Device Utilities) Blazepod :(The device consists of) Six PodsIt contains light signals that the player tries to touch and extinguish the burning light from the pod and return to the starting point or move to the other pod according to the speed of the light's operation. Each pod gives the coach a time from when the light is ignited until the moment of extinguishing, and each one is separated from the other by distances determined by the researcher according to the playing positions, playing situations and defense options. These pods are placed on the ground, on cones, or attached to the poles according to the type of exercise and its purpose. They give

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the player multiple options to face different playing conditions, and are ideal for improving the defensive player's movement and how to Assistance and coverage. They also help improve the physical aspect of speed, agility, and balance. The operation of these light signals is random without the player knowing which pod will light up first, which one will light up next, and when it will ignite. They make it difficult for the player where to go and when once the light in the pod is ignited. It gives the coach a time from when the light ignites until the moment of extinguishing, and there must be a sufficient distance between them, and then the distances are reduced so that the player's reaction is quicker in defense and coverage. The times we obtain give the coach an idea of where the light lies. Weaknesses of the players and which one is better and more responsive to attacking changes. The goal of this device is to develop the speed of motor response and reaction through some special exercises for the speed of the hands and legs without the ball. Then the exercises are made more difficult with the presence of the ball, and exercises are also put in place for tapping from one hand to another and turning off the light. Thus, these exercises and the operation of light signals and sensors will make the player live the atmosphere of the match by having attacking players in each exercise who must defend and cover his teammate, who in turn will perform this device and thus these exercises will facilitate the The player's work during the match makes him able to face changes in the match in terms of the attacker's position and what he does, and Figure (1) shows the shape of the device

Figure (1) device (Blazepod)

The researchers then identified some basic basketball skills Defense test against shooting (Hussein2012) ,

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

-The training period lasted eight weeks.
-Total number of training units (24 training units).
-Number of weekly training units (3 training units).
-Weekly training days (Saturday - Monday - Wednesday).

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-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 exercises.(%100_75)

-Intensity is set based on pulse.

-The undulatory load was 1:3 (three weeks increased intensity and one week decreased for adaptation purpose).

-The intensity of the defensive skill exercises in the training units was graded according to the players' ability, from easy to difficult.

-The exercises began on Saturday, 03/04/2023.

-The exercises were completed on Wednesday, 04/26/2023.

The researchers used the statistical bag) SPSS (which includes the appropriate statistical methods, which are (percentage, median, arithmetic mean, standard deviation, skewness coefficient, simple correlation coefficient (Pearson), T's law for independent samples, T's law for non-independent samples.

Results and discussion

.1Presenting and discussing the results of the defense against shooting test for the experimental group between the pre- and post-tests:

Table(3)

It shows the results of the arithmetic means and standard deviations for the experimental group between the pre- and post-tests in the defense against shooting test.

The test	lonliness Measurement	Pre-test		Posttest	
		Q	A	Q	A
Test defense against shooting	Second	15.752	2.272	13.923	0.894

Table(4)

It shows the difference of the arithmetic means, its standard deviation, the calculated (t) value, and the significance of the differences between the results of the pre- and post-tests in the defense against shooting test for the experimental group.

The test	Unit of measurement	F	A F	value (t) Calculated	Error level	Meaning of differences
Test defense against shooting	Second	1.829	0.465	7.967	0.000	spiritual

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

*Significant at the significance level (0.05) if the error level is smaller than.(0.05)

.2Presenting and discussing the results of the defense against shooting test for the control group between the pre- and post-tests:

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Table(5)
Results of the arithmetic means and standard deviations for the control group between the pre- and post-tests in the defense against shooting test.

The test	lonliness Measurement	Pre-test		Posttest	
		Q	A	Q	A
Test defense against shooting	Second	15.991	2.306	14.996	1.314

Table(6)
It shows the difference of the arithmetic means, its standard deviation, the calculated (t) value, and the significance of the differences between the results of the pre- and post-tests in the defense against shooting test for the control group.

The test	Unit of measurement	F	A F	value (t) Calculated	Error level	Meaning of differences
Test defense against shooting	Second	0.995	0.765	5.451	0.001	spiritual

*Degree of freedom.(11=1-12)
*Significant at the significance level (0.05) if the error level is smaller than.(0.05)
.3Presenting and discussing the results of defense against shooting between the experimental and control groups in the post-test:
Table(7)
It shows the arithmetic mean, the standard deviation, the calculated (t) value, the percentage of error, and the significance of the differences between the experimental and control groups. The test of fear against correction in the post-test .

Offensive skills	Experimental group		Control group		value (t) Calculated	Error level	Meaning of differences
	Q	A	Q	A			
Test defense against shooting	13.923	0.894	14.996	1.314	8.103	0.00	spiritual

*Degree of freedom.(22=2-24)
*Significant at the significance level (0.05) if the error level is smaller than.(0.05)

Discussion:

It is clear from Tables (3 and 4) that there are significant differences between the pre- and post-tests, the defensive performance endurance test for the experimental group. The researcher attributes this to the effectiveness of the defensive exercises prepared by him, which were chosen in a way that anticipates the movements of the attacking playing situations of the competing teams, as well as the development of the speed of the motor response and the link between it and the movements of the defensive player and the different playing situations in terms of assistance, coverage, and stopping shooting from various areas in service of the team's required motor performance.

The speed of the defensive player's motor performance, which is represented by the speed of the motor response, is an important element in basketball as it is linked to the result

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and time of performance, as it indicates the player's ability to perform a movement or a specific set of movements in the shortest possible time without compromising the skill, and this confirms the strong relationship and high correlation between the speed of the motor response and defense based on changing the positions of the player and the attacking team and the speed of the defender's response to this change to reach the best performance and result. In addition to that, the diversity of exercises and their progression from easy to difficult and the way to increase the intensity and volume. The appropriateness, as well as the appropriate rest given to the players, whether after each repetition or between sets, all of this brought about development in defensive skills and was reflected in the endurance of defensive performance, as the importance of developing the speed of motor response of the arms and legs of basketball players appears through the movement of the arms and legs to the defending player's movement, assistance, coverage and defense against shooting on an ongoing basis.(Issa et al., 2024)

Special exercises are the coach's means of applying and mastering defensive skill performance. This requires the coach to invent and form various formations of exercises that include the factor of suspense and excitement, in addition to the high physical aspect that serves the skill and performance so as not to get bored in the souls of the players. (Mahmood & Kadhim, 2023) This requires a progression of exercises from easy to difficult, and this requires "that the player be proficient in performing these skills with perfection and perfection so that he performs them properly under any circumstances of the match "(Hassan, 2000, p. 25), and that The choice of exercises must be based on the movement path of the skills, the diversification of the exercises, and their similarity to different playing situations. All of this gives the player the opportunity to face the changing playing situations that occur in competition, and this is what the researcher did through his exercises using a device) Blazepod (training, which works to give different signals to the player to perform different and varied defensive movements depending on the type and location of the lighting to suit the nature of the variables of play and for a long period, as the goal of training in basic defensive skills is the diversity of their options and positions" .The success of the player's skill performance depends on the degree of mastery of the motor skills, no matter how the circumstances change, (Kadhim & Mahmood, 2023) which leads to the player reaching a high degree of performance mechanism and effectiveness so that the inevitable result is the implementation of the desired goal ".(Muhammad, 2002, p. 37), in addition to the quality of the exercises prepared by the researcher, worked to develop all the muscles working on skill performance through continuous repetition of the defensive skills in terms of movement of the legs, assisting, covering, and stopping shooting from different areas for long periods. It worked to improve performance endurance, and this requires continuous movement and alertness from the player, and thus improved speed of response, physical aspect, and coordination between sight and foot movements. High-intensity exercises inevitably lead to improved neuromuscular compatibility and the adequacy of working muscles. in developing their performance capabilities) "Al-Harhouri, 2008, p. 101).

It is clear from Tables (5 and 6) that there are significant differences between the pre- and post-tests for the control group, even though the time that was shortened was much less than that of the experimental group. The researcher attributes the reason for this to not giving enough time for performance endurance exercises, both defensive and offensive. This negatively affected the movement of the defensive player because this skill is one of the skills in which the player reaches the stage of mastery and mechanism at the beginning of his training career as a result of the coaches 'focus and their keenness for their players to master the

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movement of the legs first and then the transition. To the complex defensive skills such as assisting, covering, and defending against shooting, as this requires a high physical effort during training by allocating a relatively large amount of time to training this skill in the training units, and this indicates the effectiveness of the training curriculum prepared by the coach in developing this skill, but with a lower rate of development than training on a device (Blazepod) training, which forces the player to complete the time allocated for the exercise, with more options and multi-tasking, as the experimental group's device exercises included various forms of performance, from easy to difficult, and included more options, individually and in combination, which reflected positively on the development of this defensive skill, which indicates that the overall training process was moving in the right direction" ,as reaching exemplary performance with a small percentage of errors comes through effective and appropriate training, so that the player reaches quick and accurate performance, and this is one of the signs of skill mastery ".Reaching the automatic stage in performance, in addition to previous experiences, increases the athlete's predictability and thus accelerates the possibility of his response. If training is done in advance to respond to a stimulus, his response will be rapid) ".Hassanin, 1997, p. 267)

The researchers reached the following conclusions:

1- The special exercises prepared by the researcher using a device) BlazepodThe training program significantly developed the endurance of defensive performance among advanced basketball players (experimental group), and this is clear from the difference in the arithmetic means between the pre- and post-tests.

2- The effect of the exercises prepared by the coach in developing endurance in defensive performance was slight among advanced basketball players (the control group), and this is clear from the difference in the arithmetic means between the pre- and post-tests.

3- There is a clear advantage for special exercises prepared by the researcher using a device)Blazepod (Training on exercises prepared by the coach in developing the endurance of defensive performance among advanced basketball players, and this is clear from the difference in the arithmetic means between the post-tests.

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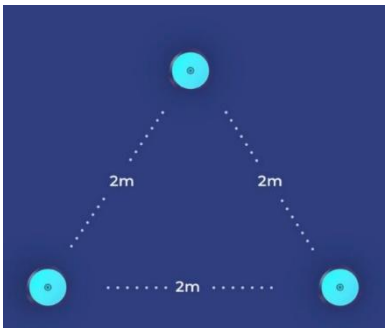
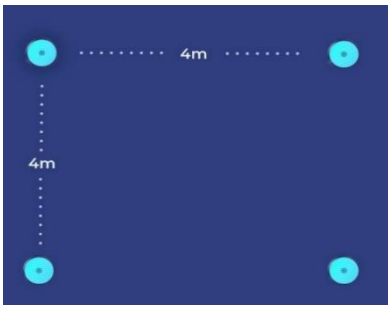
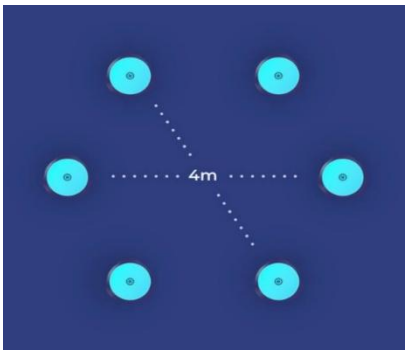
Appendices

Appendix No(1) .

Exercise models used in research

(1) One player does the exercise, and 3 pods are placed in a triangle The distance between the pods is (2 metres). The player performs the exercise by doing a side slide movement and turning off the light coming from the pod without knowing which pod will light up and according to the time allotted for the exercise.	
(2) Two players are exercising, and 4 pods are placed in the shape of a square (the first player's pod lights up blue and the second player's pod lights up red(The distance between the pods is (4m). The two players perform the exercise by running forward and backward continuously, as well as assisting and covering in defense, and turning off the light coming from the pod without knowing which pod will light up, according to the time allotted for the exercise.	
(3) 3players perform the exercise, and 6 pods are placed in a circular shape. (The first player's pod lights up in blue, the second player's pod lights up in red, and the third player's pod lights up in green.) The distance between the pods is (4m). The players perform the exercise by running forward to touch the pod and returning to the center to touch the chair continuously, as in assisting and covering in defense, and extinguishing the light coming from the pod without knowing which pod will light up, and according to the time allotted for the exercise.allocated for the exercise.	

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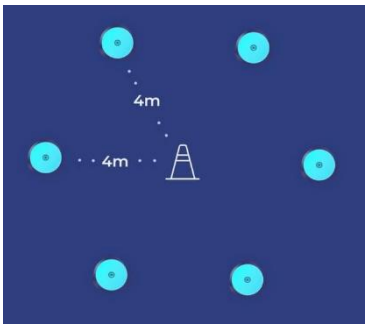
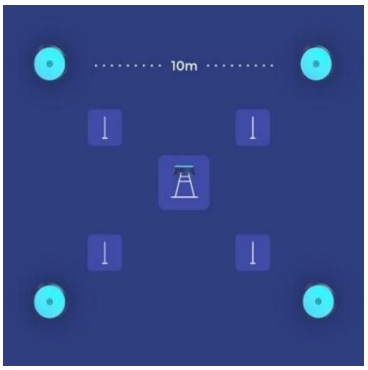
(4) 3players are exercising, and 6 pods are placed in a circular shape with a funnel in the middle. (The first player's pod lights up in blue, the second player's pod lights up in red, and the third player's pod lights up in green(The distance between the pods is (4m). The players perform the exercise by running forward to touch the pod and returning to touch the funnel continuously, as in assisting and covering in defense, and extinguishing the light coming from the pod without knowing which pod will light up, according to the time allotted for the exercise.	
(5) 4players perform the exercise. 4 pods are placed in the shape of a square, a chair in the middle, and 4 poles at each pod. (The first player's pod lights up in blue, the second player's pod lights up in red, the third player's pod lights up in green, and the fourth player's pod lights up in pink). The distance between the pods is (10 m). The players perform the exercise by running forward and getting rid of the pole to touch the pod and returning to touch the chair continuously, as in helping and covering in defense and turning off the light coming from the pod without knowing which pod will It shines.	

Appendix No(2) . Shows a sample of exercises used in the training units
Week and month: first and second_first. Training unit number.(6,5,4,3,2,1) :
Exercise time: 35 minutes.
Location: The closed hall of the Adhamiya Sports Club

Section	Allotted time	Exercise number	Exercise time	Totals	Distress	Comfort between groups	Rest between exercises	Total performance time
Main	35d	1	30s	3	%75	2_1d	3_2d	7d
		2	30s	3				7d
		3	30s	3				7d
		4	30s	3				7d
		5	30s	3				7d

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