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## The effect of circular training on the strength characteristic of the speed and accuracy of jumping shooting for basketball players

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### Abstract

The research study aimed to identify the effect of exercises in a circular training style on the strength characteristic of speed and accuracy of jumping shooting for basketball players, The researcher used the experimental method for its suitability and the nature of the study, and identified the research community, who are Iraqi club players, the category of applicants over the age of (20) years, and their number is (12) players, and some procedures were adopted to achieve the objectives of the study. The study came out with the following conclusions The special exercises using the circular training method had a positive effect on the development of strength characterized by the speed of the arm and legs, shooting and jumping among the members of the experimental group; The special exercises using the circuit training method adopted by the experimental group achieved effective positive results compared to the control group.

**Keywords:** Circular training, characteristic, jumping, basketball players

### Introduction

The abundant developments have made a qualitative leap in the science of sports training as a result of scientific studies and research that use various training methods to develop the level of players based on the theories and concepts of sports training science and its practical applications during the development of training programs in terms of comprehensive numbers that include physical, skill, tactical and psychological preparation as the basis for upgrading the sports level In sports, including basketball, which is based on scientific training methods that are consistent with the element to be developed, whether it is physical or skill to achieve the goal for which the training program was set.

The strength distinguished by speed is one of the most important capabilities of the basketball player's physical preparation, as it contributes effectively and decisively to the development of the basketball player's level in terms of skill performance, so this ability began to take the primary role in developing the performance art of the player and improving his level, as the movement of the movement with maximum strength The minimum possible time for the player has the basic role in many of the game skills, which are related to this physical characteristic and are reflected in his offensive and defensive performance.

The foregoing, the importance of the research lies in using the circular training method as it is suitable for developing the speed characteristic of the arms and legs, which is positively reflected on the skill performance represented by the accuracy of jumping shooting, and thus this research contributes scientifically to solving field problems in the game of basketball. research problem.

In order to improve the training programs for basketball, we must try all the various methods and methods of training using modern means. Through the researcher's follow-up to the game and as a result of her review of many training units, she noticed the lack of focus on diversity in training methods and means and its adoption of traditional methods in the physical side exercises, including the distinctive strength with speed, which negatively affects the skillful performance in shooting with jumping, which is a major factor in determining the results of matches and through what The researcher decided to study the problem of this research.

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**Research Objective**

Recognizing the effect of exercises in the circular training style on the strength characterized by speed and accuracy of jumping shooting for basketball players.

**Imposing search**

The exercises in the circular training style affect the strength characteristic of the speed and accuracy of jumping shooting for basketball players.

**Research methodology and field procedures**

**Research Methodology**

According to the nature of the problem, the researcher used the experimental method as the best and easiest method to achieve what the research aims at.

**Research community**

The researcher identified her research community, which are Iraqi basketball club players, the category of applicants and those registered in the Central Basketball Federation’s statements for the 2021-2022 sports season over the age of (20) years, with (10) clubs, and they are (Al-Shurta, Al-Nift, Tigris, Basra Oil, Zakho). Al-Tadamun, Al-Hilla, Al-Samawa, Al-Hashd Al-Shaabi, Al-Shamal Gas), which numbered (120) players, and their percentage was (100%). Randomly, into two groups, control and experimental, with (6) players for each group.

Where the researcher proceeded to conduct homogeneity in the following elements (height - weight - training age) as well as equivalence in the following variables (strength characteristic of speed - scoring by jumping) for the members of the research sample, which would affect the results of the research and it has been proven that the two samples are homogeneous and equivalent.

**Tools, devices and means used in the research**

(Tests and measurements, Arab and foreign references and sources, training ladder, figures, medical scales, basketballs, measuring tape)

**Tests and measurements used in the research**

- Test Power Featured speed for arms: (Mohammed 1987) <sup>[11]</sup>.
- Test Power Featured fast For the two men: (Qasim, 2001) <sup>[13]</sup>.
- The scoring test by jumping from under the basket: (Ali, 2004) <sup>[3]</sup>.

**Tribal tests**

The researcher conducted a speed-distinguishing strength test for the arms and legs, as well as a jump shooting test for the research sample on Wednesday 10/2/2021 at ten in the morning with the help of the assistant work team.

**The main experience**

The researcher prepared exercises in a circular training style during the special preparation period within the trainer’s curriculum for a period of (8) weeks, with a total of (24) training units, where the first training unit was applied on Saturday, February 13, 2021 (3) training units per week for days (Saturday, Monday, Wednesday), the partial intensity of the special exercises was calculated by the maximum repetition of each exercise x the required intensity /100.

**Post-tests**

The researcher conducted post-tests for the research sample for all study variables on Monday 4/4/2021.

**Statistical Means:** The researcher used the statistical bag system (SPSS) version (23)

**Presentation and discussion of the results**

**Show results**

**Table 1:** Shows the arithmetic means, standard deviations, the calculated (T) value, the level of significance, and the significance of the differences in the speed-distinguishing strength test for the arms and legs and jump shooting (before - after) for the two groups

Statistical processors		Measruing unit	s	±	Calculated T value	Sig	moral difference
<b>Arm speed test</b>							
officer	Tribal	Repetition	10	0.63	3.79	0.013	D 0.05
	after me		11.16	0.75			
experimental	Tribal		9.83	0.75	19	0.000	D 0.01
	after me		13	1.09			
<b>Right leg strength test</b>							
officer	Tribal	poison	11.25	0.29	2.52	0.039	D 0.05
	after me		12.46	0.62			
experimental	Tribal		11.36	0.52	6.04	0.001	D 0.01
	after me		13.45	0.39			
<b>Left leg strength test</b>							
officer	Tribal	poison	12.26	0.47	2.42	0.047	D 0.05
	after me		12.94	0.97			
experimental	Tribal		12.63	0.43	11.95	0.000	D 0.01
	after me		13.86	0.37			
<b>Jump test</b>							
officer	Tribal	number/second	13.5	0.54	2.71	0.042	D 0.05
	after me		14.33	0.81			
experimental	Tribal		13.66	0.81	25	0.000	D 0.01
	after me		17.83	0.98			

**Table 2:** Shows the arithmetic means, standard deviations, the calculated (T) value, the level of significance, and the significance of the differences in the speed-distinctive strength test for arms and legs, and shooting by dimensional jump for the two groups.

Statistical processors		Measruing unit	s	±	Calculated T value	Sig	moral difference
<b>Arm speed test</b>							
officer	Tribal	Repetition	10	0.63	5.8	0.00	D 0.00
	after me		13	1.09			
<b>Right leg strength test</b>							
officer	Tribal	poison	12.46	0.62	7.01	0.00	D 0.01
	after me		13.45	0.39			
<b>Left leg strength test</b>							
officer	Tribal	poison	12.94	0.97	3.81	0.008	D 0.01
	after me		13.86	0.37			
<b>Jump test</b>							
officer	Tribal	number/second	14.33	0.81	6.7	0.000	D 0.01
	after me		17.83	0.98			

## Discussing the results

### Discussing the speed characteristic of the arms and legs

The results showed that there were significant differences between the pre and post tests of the experimental group and in favor of the post test, and the researcher attributed this to the nature of the exercises in the circular training style, which included merging stations between the physical and skill sides, which give the possibility to influence the different muscle groups performance and this was confirmed by (Collins) "When Adopting high-intensity circuit training, the effect is clear in developing the combined capabilities of strength and speed. (Collins, 1995) [5] The loads were formed in them in a way that achieves the development of this ability, and those exercises included great stress and sizes on the arm and legs during their implementation. (Amira, 2008) [4] In addition, exercises were adopted that resembled the skill performance of basketball during implementation in the stations, and this is consistent with what was indicated by (Al-Bishtawi and Al-Khawaja) "Special exercises that are the same or similar to the required skills aim to raise the physical ability and physiological capabilities of the athlete, especially strength and speed." And also what (Abu El-Ala) confirmed, "The development of strength distinguished by speed must take into account the development of the basic factors arranged in the specialized sports activity." (Abu Ela, 2003) The researcher sees the consistency of the exercises during the single training unit in terms of the good division of the exercises, as this trait is a compound of strength and speed. Strength and speed, or the ability of muscular effort to overcome resistance through the speed of muscular contraction. (Ali, 1989) In addition to an increase in the degree of compatibility during performance between contracting muscles, which led to a reduction in performance time and an increase in its speed, and consequently an increase in muscular strength rates and a good correlation between the adaptation of the nervous and muscular systems and a reduction in the duration of contraction. The duration of muscle contraction increases muscle strength and the rate of contraction is higher." (Mufti, 1998) [10] as well as what was confirmed by (Harris *et al.*) "Strength training characterized by speed leads to an increase in the development of the nervous and muscular systems in sports performance." (Harris, 2000) [7].

### Discussing the accuracy of shooting by jumping

As for the development in the accuracy of performing the skill of shooting by jumping The researcher attributed him to the use of strength exercises for the legs, as their correct use led to a development in the muscular ability of the two legs and

thus improved the process of jumping and reaching the goal board well. And to the highest possible height in order to reach the scoring board, and this is consistent with (Ishraq Ali) "there is a significant correlation between the skill level of shooting in basketball and the muscular ability of the arms and legs." (Eshraq, 2002) In addition to the variety of exercises similar to the offensive skill performance during the circular training method, which led to an increase in the player's ability to control and control the ball and the ease of transferring it from receiving to scoring by jumping, and this was confirmed by (Mona Abdel Sattar) "The development of skills must be It is accompanied by the process of developing the elements of physical fitness, as well as the development of motor skills as two parts of one process." (Mona, 1989) [9] In addition, the gradation in the intensity of training led to an increase in the player's ability to maintain speed and strength of performance, and this is consistent with what (Hanafi Mahmoud) indicated: "Proper planning, choosing the appropriate intensity, and taking into account the principle of gradation in it are more effective for developing the level of speed and strength. skillful performance." (Hanafi, 1998) [6].

## Conclusions

1. Special exercises using the circular training method had a positive effect on the development of strength characterized by the speed of the arms and legs among the experimental group members.
2. The special exercises using the circular training method had a positive effect on the development of jumping shooting among the members of the experimental group.
3. The special exercises using the circular training method adopted by the experimental group achieved effective positive results compared to the control group.

## Recommendations

1. Adopting exercises using the circular training method because of the positive results it has achieved.
2. The necessity of adopting physical and skill tests in determining the training status of the players.
3. Conducting similar studies on different age groups and sporting activities.
4. The necessity of using modern and innovative training methods in developing the training situation for the game of basketball and other sports.

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**Stage:** Special numbers. Intensity of stations: (75%)  
**Stations time:** (25) minutes Rest time: (1:1) Station objective: To develop strength characterized by speed

**Equipment used:** (training ladder, basketball, whistle, signs) And scoring by jumping

**Appendix 1:** Shows an example of a circuit training unit

Unit Sections	exercise type	station number	exercise number	exercise intensity	performance time for the station	Rest between stations	number of courses	Rest between sessions
	arm	1.	The drill (5 m) and jump shooting: the player stands in front of the starting line and runs forward for the specified distance towards the goal, and the shooting leads by jumping and returning with a movement path similar to the back defense movement to the starting point.					
main section	two legs	2.	Partridge exercise for the right and left man, alternately on a training ladder: The player stands in front of the training ladder at the beginning, and the partridge is on the ladder squares with both legs.					
	arm and legs	3.	The starting exercise (5 m) on three balls: The player stands in front of the goal and runs forward for the specified distance towards the first ball, carries it and shoots by jumping on the board and returning with a kinetic path similar to the defense movement to the starting point and repeating the performance for the other balls.	75%	25 sec	25 sec	5	Return pulse 120-130 beats per minute
	two legs	4.	The starting exercise (5 m) on three pillars: The player stands in front of the starting line and runs forward for the specified distance in the direction of the center post, then moves to the right – middle – left – middle character with a movement path similar to the side defense movement and return to the starting point.					
	arm	5.	The jump shooting exercise: The player stands in front of the target and receives the ball from the teammate and shoots by jumping on the board.					
	two legs	6.	The starting exercise (5 m) towards the person and receiving the ball: The player stands in front of the target and runs forward for the specified distance towards the person, receives the ball from the colleague and performs camouflage for shooting by jumping on the board, then moving in the opposite direction by jumping on the board and returning with a kinetic path similar to the defense movement to a point kick off.					