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The effect of special exercises in developing some physical abilities and basic skills in basketball under 16 years old

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Abstract---Hence the role of sports training in applying its principles, rules and scientific foundations in building the necessary training curricula in every sporting game and activity, including basketball, which has the specificity of special physical requirements and high-level technical performance, in addition to that of its practitioners from age groups compared to other sports. Assistive training is one of the most important factors that achieve this in basketball because it is one of the accelerating factors in the learning and training process if it is used well through the researcher's experience as a basketball player and watching most of the tournaments in Iraq. During the match, as a result of the weak physical abilities of the players and the team represented by individual differences, which does not fit the nature of the basketball game, which depends on rapid performance, and this weakness may be caused by the lack of focus on the use of special exercises that help players in developing abilities and skills. The study aimed to prepare special exercises in the development of some physical abilities and basic skills, and the research hypothesized that there are significant differences between the results of the tribal and remote tests in the physical abilities and basic skills of the control and experimental group in favor of the post-tests. The researcher used the experimental method with two equal groups, the experimental and the control, where the research sample was represented by athletes aged (14-16 years) from the regular training center of Nasiriyah (16) players. The exercise took (8) weeks, with three training units per week. As for the conclusions of the research, it was clear that special exercises have an effective role in developing the physical abilities and basic skills of basketball for the experimental group, and that the tools prepared by the researcher had a great role in increasing

enthusiasm and suspense during the application of the exercises, which reflected positively on the members of the experimental group.

Keywords---applying its principles, physical abilities, basketball.

Introduction

Introduction and importance of research

The role of sports training came in the application of its principles, rules and scientific foundations in building the necessary training curricula in every sport and sporting event, including the basketball game, which has the specificity of special physical requirements and high-level technical performance, in addition to that of its practitioners from age groups compared to other sports, and training aids are considered auxiliary. One of the most important factors that achieve this in the sport of basketball is that it is one of the accelerating factors in the learning and training process if used well, as well as it simplifies the process of learning and training and facilitates the performance of movements in addition to having an important and essential role in the process of learning and training for the purpose of improving the aspect Physical, kinetic, and skill approach, as approaching the form and method of optimal performance is an essential duty of the learning and training process. Which requires special physical preparation for the purpose of raising efficiency and ability to play this game. The player must acquire high speed in moving from one place to another, as well as kinetic speed and reaction speed in jumping, accuracy in handling, shooting and fluidity in dribbling. It requires players to perform various physical and skill movements with high speed and accuracy as they play in a small space with defenders trying to obstruct the players' performance according to the law. Therefore, players must speed performance and master the various skills. This is clearly evident during the matches. Cases of scoring and defense. The importance of the research lies in the development of special exercises that help players improve their physical and skill capabilities in a way that makes their performance more perfect and difficult to monitor or defend by players of competing teams, and thus contribute to improving the training process by relying on physical variables.

Research Problem

Through the experience of the researcher being a basketball player and watching most of the tournaments in Iraq, he noticed a weakness in the level of offensive and defensive skills, and many mistakes committed during the match as a result of the weak physical abilities of the players and the team represented by individual differences, which does not fit the nature of the basketball game that depends on fast performance, and this may be Weakness is caused by not focusing on the use of special exercises that help players develop abilities and skills, or not giving enough time to improve these skills, which makes it difficult to score points that depend on the speed of movement and moving with or without the ball or the defender of the competing teams through the speed of defensive movement and cutting the ball. Therefore, the researcher decided to study this problem and develop solutions to it by developing exercises

commensurate with the performance that occurs during matches and with auxiliary tools in order to raise the level of physical abilities and basic skills in basketball.

Research Objectives

1. Preparing special exercises to develop some physical abilities and basic skills for the experimental and control groups.
2. Recognizing the effect of special exercises to develop some physical abilities and basic skills of the experimental and control groups.

Research hypotheses

1. There are significant differences between the results of the pre and post tests in the physical abilities and basic skills of the control and experimental group in favor of the post tests.
2. There are significant differences between the results of the post tests for the experimental and control groups in the physical abilities and basic skills in favor of the experimental group.

Research Areas

1. The human field for the players of Al-Nasiriya Basketball Club for juniors, season 2022
2. Time Range: 1/1/2022-1/8/2022
3. Spatial domain: Hall of the martyr Haider Kamel

Research methodology and field procedures

Research Methodology

The researcher chose the experimental method (by designing the two equal groups, the control and the experimental) and the pre and post tests because it is the most appropriate method to solve the research problem.

The research community and its sample

The research community included the basketball players of the Specialized Center (14-16) years, with 24 players. (16) players were selected from among them representing the research sample at a rate of (100%) after excluding (8) of the players (the exploratory experiment / non-commitment to training), and the sample was divided into two groups, one experimental and the other controlled by a simple random method (the lottery) and each group contains (8) players In order to achieve homogeneity among the members of the research sample and to avoid the influence of factors that may affect the results of the experiment in terms of individual differences in the sample within the group, the researcher conducted

the process of homogeneity of the sample in some specifications that may have an impact on the experimental variable (length, mass , chronological age), and using the law of the skew coefficient, as the skew value if it was ± 3 , which indicates the homogeneity of the sample members, and table (1) shows this.

Table (1) It shows the specifications, mean, standard deviation, and coefficient of variation for the individuals of the research sample

skew modulus	standard deviation	Arithmetic mean	measruing unit	Specifications	No
0.95	6,57	174,68	cm	height	1
0.08	6,54	60,57	kg	Bloc	2
0.14	1,01	14,68	Year	Chronological age	3

The researcher also conducted an equivalence between the control and experimental groups in the research variables (sample measurements, basic abilities and skills in basketball) through table (2).

Table (2)It shows the equivalence of the control and experimental groups in the sample measurements and the research variables

Statistical significance	Sig	valueT calculated	experimental group		control group		measruing unit	Variables	No
			p	s	p	s			
insignificant	0.74	0.33	7,07	147,12	6,47	175,25	cm	height	1
insignificant	0.53	0.63	5,97	62	7,31	59,87	kg	Bloc	2
insignificant	0.81	0.23	0.91	14,62	1,16	14,75	Year	Chronological age	3
insignificant	0.87	0.16	1,84	10,37	1,06	10,50	Number	Distinguished strength in speed for the arms	4
insignificant	0.92	0.33	2.16	19.00	2.08	18.50	Number	Strength with speed for the legs	5
insignificant	0.61	0.51	0.39	3,55	0,42	3,65	Tha	Transition speed	6

insignificant	0.47	0.72	0.92	13,50	1,21	13,87	Point	Shooting from jump	7
insignificant	0,41	0.83	1,06	12,62	0,70	12,25	Tha	Defense	8

The value of (sig) is greater than the value of (0.05), which indicates that the sample is equivalent

The means, tools and devices used in the research

Data collection methods:

1. Note.
2. 2Arab and foreign sources and references.
3. The International Information Network (the Internet)
4. Personal Interview Appendix (1)
5. Resolution Annex (2)
6. Tests and measurements.

Devices and tools:

- Chinese-made stopwatch.
- Medical scale.
- Japanese-made CASIO video camera.
- No laptop type (HP- E BOOK)
- Basketball (20) molten type.
- Two (5) cm width adhesive tapes.
- Basketball court (closed hall)
- Medical balls (different weights) number (4)
- Ground stair extension (10)
- Two (2) flax ropes, each length (14) m, and (5 cm) thick.
- Cone-shaped pillars (8) and a height of (30 cm)
- Eight (8) obstacles, with a height of (30 cm), (10)

- Resistance ropes (different colors)
- Chinese-made dolphen whistle.

Four (4) basketball goals

Field Research Procedures

Speed test of the two arms

Test name: Forward leaning, bending and extending the arms continuously for (10) seconds.

The purpose of the test: To measure the speed characteristic of the muscles of the arms.

Equipment used: stopwatch, basketball whistle

Method of performance: The tester takes the position of the front support on the ground so that the body is in a straight position, at the start signal, the tester bends the arms and then extends them fully, provided that he continues to repeat the performance as many repetitions as possible without stopping for ten seconds.

The conditions

- It is not allowed to stop during the performance.
- The integrity of the laboratory body is observed during the performance.
- The need for the chest to touch the ground when performing.
- Note the flexion and extension of the arms in full.
- Recording: The laboratory score is: the number of correct repetitions within a period of (10) seconds.

The speed characteristic of the legs

- Purpose of the test: This test aims to measure the speed characteristic of the legs
- Age and gender level: from 10 years old to university level for both sexes.
- Tools used: stopwatch and playground.
- Performance specifications: From the normal standing position, bend and extend the knees completely in a time of 20 seconds.
- Recording: Counts the correct number of times during 20 seconds.

Transitional velocity test

- Running test for a distance of (20) m from standing.
- The purpose of the test: - To measure the transitional velocity.
- Tools used: stopwatch, whistle, flat ground, straight line, start and end line of a tape measure.
- Method of performance: The tester stands behind the starting line and when he hears the signal, he starts running at full speed from the standing position until the end of the specified distance.
- Recording: - It records the time it took for the laboratory to travel the distance in seconds.

Shooting by jumping

- The objective of the test: To measure the player's special skill in forward shooting on the basket.
- Equipment and tools: basketball court, basketball, timer, data collection form
- Method of performing the test: The tester shoots at the basket from a place outside the free-throw area, and at its intersection with the circle, a signal must be installed in the designated area for shooting.

Test conditions

1. The shot must be direct to the basket without touching the basket board.
2. The laboratory has (15) attempts to be performed in three groups, each group consisting of (5) throws
3. Shooting must be done from the designated place for the players.
4. The laboratory is allowed to perform some throws as an experiment.

Register

1. One point is awarded for each shot in which the ring is touched and the ball does not enter the basket.
2. Two points are calculated for each successful shot in which the ball enters the basket.
3. Scores are not counted when the ball touches the board.
4. Highest score (30)

The defensive move test: (1)

- The objective of the test: aims to measure the speed of defensive movement.
- Tools used: basketball court, medicine balls, chalk, stopwatch, whistle, timer
- Or the tester and tape measure.
- Gender and age: Basketball players for the advanced category.

Performance method: points are determined from (1-6), provided that the distances are equal between the starting point and the other points, which is 6.25 m, where the starting point (starting point) is measured from the vertical point located directly from the point of the basket on the ground. The player takes a defensive stance, and when the beep is heard, the stopwatch is activated and the player moves from point (1) to (4,3,2) face forward and back to point (1) with a defensive movement backwards, meaning that the back is in front of the basket board and when the point is completed (4) The return to point (1) is the movement to the points (5,6) and without stopping, and the movement in this case is a lateral defensive movement, and returning to point (1) the starting point at which the stopwatch is stopped and the time taken for the movement is calculated.

Recording: 1- The player is given two attempts and the time of the best attempt is taken.

The rest period between the two attempts (3) minutes. 3- Calculating the time taken in ten seconds

Experimental Experiment

One of the important recommendations recommended by scientific research experts for the purpose of obtaining accurate and reliable results is to conduct the exploratory experiment. For this reason, the researcher conducted his first exploratory experiment on a sample of (4) players from the Specialized Sports Center for Basketball and with the help of the assistant work team Annex (4) after explaining Exams for them and how to register. The experiment took place on February 17-18, 2022, at 7 am and lasted for two days, divided between physical tests and basic skills, so it was:

- The first day (Thursday) physical tests and basic skills.
- The second day (Friday) tests for exercises.
- Through the first exploratory experiment, the researcher wanted to know:
- Knowing the validity of the tools and devices used.

- Identify the difficulties and negatives that may appear in the lung experience Yes.
- Introducing the assistant work team to the method of measuring and recording results
- Executing the exercises on time.
- Determining the times for the exercises suggested by the researcher when performing the exercises.
- Determining the maximum intensity of the exercises used to legalize the intensity and their suitability to the players' capabilities.

Pre-tests

The tribal tests were conducted on February 20 2022, at 7 am on Saturday, for the physical tests and the basic skills of the research, and all conditions related to the tests were taken into account in terms of time, place, tools and method of implementation as much as possible.

Exercises

1. The researcher prepared training exercises after taking the opinion of the experts, the same experts in the basic abilities and skills of basketball.
2. Through these exercises, the researcher aims to develop the strength and speed characteristic of the legs and arms, the transitional speed and the basic skills of basketball.
3. The first training unit was conducted on Monday (21/2/2022) after the tribal exams.
4. The application of the exercises took eight weeks, at a rate of three training units per week, which are (Sunday, Tuesday, and Thursday)
5. The total time of the exercises was (20-30 minutes), taking into account the gender, age, training age and physical abilities of the research sample.
6. The number of training units (24) units.
7. Determine the goal to be reached through each training unit.
8. Ratio of ripple 1-2.
9. Rest was calculated according to working time from 1-6.
10. The researcher supervised the special exercises and the training units were applied to the experimental group by the trainer.*

11. The researcher used the exercises in the main section.
12. The researcher used the method of periodic and repetitive training.
13. The researcher started applying the training exercises during the special preparation period.

Post-tests

After implementing the exercises, the researcher conducted the tests of the physical abilities and basic skills of the research sample on Saturday 16/4/2022 after the end of the exercise period and in the same method as the pre-test.

Statistical means

The researcher used the spss statistical bag.

Presentation, analysis and discussion of the research results:

Presenting the results of the pre and post tests of the basic abilities and skills of basketball for the control group:

Table (3) It shows the arithmetic means, standard deviations, the calculated (Sig) (T) value and the level of significance for the pre and post tests of the control group.

indication	Sig	No	post test		the test nickname me		measruing unit	physical abilities The	No
			p	s	p	s			
insignificant	0,12	1,65	0.53	11,50	1,84	10,37	Number	The speed characteristic of the arms	1
moral	0.00	5.38	1.70	25.75	2.08	18.50	Number	The Distinguished Force _ Fast for the legs	2
insignificant	0.71	0.36	0.27	3,61	0.39	3,55	Tha	Transition speed	3
moral	0,00	14,6 9	1,30	22,00	0.92	13,50	Point	Shooting from jump	4
insignificant	0.07	1,89	0.91	11,68	1,06	12,62	Tha	Defense	5

Presenting the results of the pre and post tests of the basic abilities and skills of basketball for the experimental group:

Table (4) It shows the arithmetic means, standard deviations, the calculated (Sig) (T) value and the level of significance for the pre and post tests of the experimental group.

indication	Sig	No	post test		the test nickname me		measruing unit	physical abilities The	No
			p	s	p	s			
moral	0,00	5,40	0.75	13,00	1,06	10,50	Number	The speed characteristic of the arms	1
moral	0.00	7.80	1.70	29.75	2.16	19.00	Number	The Distinguished Force _ Fast for the legs	2
moral	0,00	3,65	0.29	2,98	0,42	3,65	Tha	Transition speed	3
moral	0,00	15,6	1,30	23,37	1,12	13,87	Point	Shooting from jump	4
moral	0,00	6,57	0.61	10,03	0,70	12,25	Tha	Defense	5

Presenting the results and analysis of the post-tests of basic abilities and skills in basketball for the experimental and control groups:

Table (5)It shows the arithmetic means, standard deviations, and (t) and (sig) values calculated for the post-tests of the control and experimental groups.

indication	sig	T	Post-test for the experimental group		Post-test for the control group		measruing unit	physical abilities	No
			p	s	p	s			
moral	0,00	4,58	0.75	13,00	0.53	11,50	Number	The speed characteristic of the arms	1
moral	0.01	3.31	1.70	29.75	1.70	25.75	Number	The speed characteristic of the legs	2
moral	0,00	4,38	0.29	2,98	0.27	3,61	Tha	Transition speed	3
moral	0.05	2,10	1,30	23,37	1,30	22,00	Point	Shooting from jump	4
moral	0,00	4,23	0.61	10,03	0.91	11,68	Tha	Defense	5

Discussing the results of the post-tests for two groups

By noting the results of the tests in the dimensional table (4,5), we find that the value of (sig) is less than the significance level (0.05) for all tests in the research variables, and this indicates the significant differences between the post tests of physical abilities and basic skills in basketball in favor of the experimental group. As the use of special exercises by the experimental group only in the main section of the training unit had a clear impact on the development of physical abilities and basic skills, as the main section contained special exercises prepared by the researcher, which was a new method that removed the boredom that dominated the players as a result of using exercises Using the aids, as well as using the body weight training method and with the tools that had a significant impact on the development of physical abilities and basic skills, as it led the players to rush to perform their exercises seriously and with great interaction as a result of the pleasure in performing their own exercises. The link between abilities and skills is a necessary and important factor in Creating a comprehensive, full-featured player, training explosive abilities and speed-characterized strength is a special training because it aims to enhance them and improve the development of Relationship. The researcher attributes the reason for the development of the speed characteristic of the muscles of the arms by the research sample to the exercises using the rubber ropes that were used in the exercises, and these exercises are similar to the performance, so the researcher believes that this matter helped to perfect the motor performance of this test as a result of repetition, that the strength training of the arms It is a special training because it aims to enhance the explosive ability of the arms and improve the development of the relationship between the maximum strength and the explosive ability, so (Zaki Muhammad, 1998) sees that "this type of training, which is the training of resistance with ropes and balls of different weights, which the experimental group benefited from, as it quickly emerged and became One of the most famous training methods for all ages and levels of ability, and it has also become accepted as a general method of training appropriate for a wide range of sports activities in which ability is useful "(1) and this is confirmed by (Mohammed Sobhi Hassanein and Hamdi Abdel Moneim). Lacks the strength of the arms. The skill performance cannot be obtained well (1), and the results of the research support the findings of previous research in the field of developing the speed characteristic of the arms. Study (Rad cliff 1995 Rad cliff) (2). The researcher attributes this to the training of speed-distinguished force and linking it to other elements, and this is also consistent with what was indicated by (Qasim Hassan 1998) "The speed-distinguished force is trained according to the required motor path and other elements such as motor speed and various motor frequency phenomena", and that these exercises helped to achieve the goal. Which it was prepared for, which was represented by the front-facing exercises and their fast performance, the resistance of the colleague's arm, pushing the wall to develop the strength of the muscles of the arms, as Barrow stresses that "the link between muscle strength and kinetic speed in developing muscles is one of the requirements of sports performance for strong, fast movement events The researcher attributes the reason for the development of the speed characteristic of the legs by the experimental research sample to the effectiveness of the approved qualitative exercises and the effectiveness of the push car and the rubber ropes, which depends mainly on resistance exercises, which are similar to the type of

performance, which made the muscles of the legs the ability to respond quickly to high elongation by directing the exercise with the same Performance method, as well as developing skills at the same time through ropes exercises, and this is consistent with what was mentioned by (Phil Page & Todd Ellenbecker) "The rubber ropes have a positive effect on muscle strength because they add resistance in all directions, which is positively reflected in improving muscular performance" (3) , and (Ed McNeely and David Sandler) add that the rubber ropes develop the level of muscle strength and improve the level of muscle balance (4), and in a study conducted by the researchers (Baker, Webrighta & D.H. Pperrin - 2008) it is mentioned that "six weeks of rubber rope exercises increase strength It also increases the size of the muscle, and also contributes to improving the balance and fluidity of the muscles of the legs" (5)

As for the muscular strength of the legs, various exercises contributed, whether without tools or with them, which were: jumping, partridge, pulling a colleague, jogging. In creating activity, as well as the reaction capacity of the muscles of the legs and trunk, as (Ilham Abdel Rahman) stresses that "the strength of the muscles of the legs is one of the most important main physical abilities that must be present in activities that require vertical jumping "

The development of the speed characteristic of the muscles of the legs also helped in the development of the transitional speed, because "speed depends entirely on the force as it is a movement resulting from its connection with time" on the one hand, and on the other hand, the muscles cannot contract quickly if they do not have sufficient strength commensurate with the nature of performance There is a "significant correlation between muscle strength and speed

With regard to the transitional speed, the researcher attributes this difference to the effectiveness of the exercises that the researcher developed within his training curriculum and in proportion to the players' ability on the one hand and the development of the transitional speed on the other hand, which was represented in: A sufficient warm-up before conducting speed training to prepare the muscles, ligaments and tendons, the use of different distances Short and long jogging with repetition, emphasizing the rest period, using the method of intensity below the maximum to reach the maximum intensity, with an emphasis on relaxation, correct timing and fluidity of movement. maximum and that the motor performance is fluid and relaxed

Also, the training units usedThe exercises included exercises to develop speed, whether transitional speed or speed in performance, where the researcher gave importance to the exercises of speed of performance, and according to the exercises used in the research appendix for shooting exercises and defensive movement exercises, where basketball is one of the fast sports, so speed is a necessary and important characteristic. It must be owned by the player." He also emphasized the performance of speed exercises at the beginning of each exercise of the curriculum used because speed must be trained at the beginning of the training unit, that is, the researcher relied on putting speed exercises at the beginning of the training unit immediately after the warm-up period.The researcher believes that the element of speed is one of the elements that works to develop the speed of the players and increases the ability to perform the basic

skills quickly and with high accuracy on the field through the speed of fulfillment in the performance of movements, superiority over the opponent and performing duties effectively. The researcher attributes the reason for the development of the control group to the continuation and commitment to the training curriculum prepared for them by the coach and the application of his exercises, which led to the development of the level of the players in terms of skill and functionality. That the exercises are related in form and type to exercises that are similar in the way of performing the required skills.

The researcher also attributes the reason for the development of the defensive move to the exercises used in the curriculum to develop this skill, as well as the application and repetition of these exercises in each training unit throughout the duration of the curriculum, taking into account the performance of this skill with paired exercises, because these exercises that two or more players participate in help raise the level of training activity. It works on the speed and accuracy of motor performance and eliminates the boredom that affects the players because the defensive foot movements are among the important factors in the defensive move, stopping the opponent's movement and preventing the player from reaching the basket.

The movements of the feet are among the basic skills in defense and attack. In defense, they must be trained and mastered so that the attacker cannot pass to the goal, score or take the appropriate place. Either in the attack, the player can use the movements of the feet to escape from the defender's observation and reach the goal and take the appropriate position for scoring or receiving. From the researcher's point of view, the development and progress in training these basic skills is a basic condition of performance, which gives a clear indication to the coaches that the training of players must be according to this basis.

Conclusions and recommendations

Conclusions

The researcher reached a set of conclusions, which are

1. Special exercises have an effective role in developing the physical abilities and basic skills of basketball for the experimental group.
2. The use of training aids to assist in the process of developing the performance of some abilities and skills contributes to saving time and effort for the coach and the player.
3. Elaborate training using assistive devices effectively contributes to the development of physical abilities and basic skills, and this is what happened with the experimental group.
4. The tools prepared by the researcher had a great role in increasing enthusiasm and suspense during the application of the exercises, which was positively reflected on the members of the experimental group.

Recommendations

Within the framework of the conclusions reached by the researcher, a set of recommendations were developed:

1. Emphasis on the use of aids during training units for their active role in developing some of the physical and motor abilities and skills under discussion.
2. Basketball coaches should pay attention to physical abilities and develop them through the use of training methods, especially the intermittent and repetitive method.
3. Generalizing the exercises that the researcher applied by using the training aids in their active role and their direct contribution to the development of some of the physical and motor abilities and the skills under study.
4. The necessity of emphasizing the serious thinking of finding other aids and their use in training programs by coaches and those concerned in the sports field.
5. The necessity of conducting similar studies on the possibility of using other training aids and their use in order to develop basic skills.

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