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Strong ability exercises for the upper extremities and their relationship to shooting accuracy from a standstill in basketball

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Abstract

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This study emphasized the preparation of exercises to enhance the explosive capacity of the upper limbs and its effect on scoring precision for females. They are students of the fourth stage of basketball. The study also aims to identify exercises for the explosive ability of the upper limbs with the scoring accuracy from stability the female students in the fourth year.

The researcher employed the descriptive method of correlations to fulfill research objectives. It focuses on elucidating the link between two or more variables. This strategy is employed to ascertain the degree of link between various variables and represent them quantitatively. The research population consisted of twenty-five fourth-stage female students from the College of Physical Education and Sports Sciences/University of Maysan for the academic year 2023/2024. The sample was deliberately selected and represented by these female pupils. The researcher based the aiming accuracy test on consistency. After applying the test and showing the digital results, the SPSS statistical package, version (25), was used. The researcher reached the most important The conclusions are that explosive training ability of the upper limbs has an impact on the accuracy of shooting from a standstill in basketball. The use of medicine balls in training contributed to raising the explosive ability of the upper limbs which helped to increase the accuracy of scoring from a standstill. The use of different sizes squares' had a significant impact in developing Scoring accuracy.

1.3 Research objectives

1- Preparing exercises to develop the explosive ability of the upper limbs and its effect on the scoring accuracy for fourth-year female basketball students.

2- Identifying the explosive ability exercises for the upper limbs with scoring accuracy from a stationary position for fourth-year female basketball students.

1.4 research hypotheses

1.There are significant differences between the pre- and post-tests in the explosive ability of the upper limbs of fourth-year female students at the Faculty of Physical Education and Sports Sciences.

2.There are significant differences between the pre- and post-tests in the accuracy of goal-scoring from a standstill for fourth-year female students at the Faculty of Physical Education and Sports Sciences in basketball.

1.5 Research areas

1.5.1 Human field: Fourth-year female students, College of Physical Education and Sports Sciences, University of Maysan.

1.5.2 Time field: From (2/1/2024) to (1/4/2024).

1.5.3 Spatial field: Basketball court, College of Physical Education and Sports Sciences, University of Maysan.

1.6 Definition of terms

1.6.1 The ability

The ability is the muscular system to perform movements in a certain short time or it is the result of forces that can be imposed at a certain speed by movement. While the explosive ability is the ability to impose the greatest possible forces in a specific and explosive period of time. (Helmy Hussein: 1985, 45)

1.6.2The Motor abilities

Motor abilities mean the readiness of motor skills, their accuracy, speed and strength. In addition, the concept of motor abilities represents the achievement of performance and form. (Adel Turki Hassan Al-Dalawi: 2011, 215)

1.6.3 The explosive motor ability

It is the ability to release maximum muscle forces in the shortest possible time. While MacLoy's definition is (as the ability to explode the power of speed. (Helmy Hussein: 1985, 46)

1.6.4 The basketball shooting skill

It is the actual and serious attempt of the attacking player to put the ball into the opponent's goal, investing in that his psychological and mental abilities within the framework of the law. (Thamer Mohsen Ismail: 1984, 33)

2.1 Research methodology

To achieve its objectives, the researcher used the descriptive method with correlational relationships. The researcher used this method because it is concerned with revealing the relationship between two or more variables to know the extent of the association between these variables and expressing them numerically. The descriptive method determines and estimates the thing as it is, i.e. describes what is existing or occurring.

2.2 Research community and sample

2.2.1Research community

The research community was determined by the fourth-year female students / College of Physical Education and Sports Sciences/University of Maysan, academic year (2023/2024), 25 female students.

2.2 Research sample

One of the most important things that the researcher faces in choosing the sample that the selected sample truly represents the original community. This is one of the basic matters that the researcher should pay attention to. As this sample should be relatively large in size and sufficient to represent

the original community to give more reliable results "as the researcher collects his data and information either from the entire original community or from a sample representing this community. (Kazem Karim Al-Jaberi: 2012, 33). Based on that, the sample was chosen intentionally which was represented by fourth-year female students/ College of Physical Education and Sports Sciences/University of Maysan,academic year (2023/2024).

2.3 Instruments,apparatus,and methods for information acquisition

2.3.1 Means of collecting information

((Personal interviews, testing and measurement, observation, sources and references, the international information network, the Internet)).

2.3.2 Devices and tools

((Personal calculator, CDs, markers, legal balls, tape, cones, chalk, pens and papers, registration form)) .

2.4 Determine the test used

Test name: Standing shooting accuracy test.

Purpose of the test: Measure the standing shooting accuracy.

Devices and tools: Basketball court, basketball goal, basketball.

Number of attempts: The player attempts to score by shooting the ball at the hoop in three sets, each consisting of five consecutive shots taken from the center and the sides of the free throw area. Each participant is allotted a suitable interval between each group and the subsequent one.

Two points are awarded for each ball that enters the basket. One point for each ball that touches the ring and does not enter. The tester's points are equal to the total points obtained in the fifteen attempts noting that the maximum number of points is 30 points.



2.5 Exploratory experiment

The exploratory experiment is a mini-experiment for the main experiment must have the same conditions and circumstances as the main experiment. Therefore, the researcher conducted the exploratory experiment on Sunday (2/4/2024) on a sample of 4 female students who were randomly selected in basketball at afternoon two o'clock in the Physical Education Hall at Maysan University. The purpose is to identify the obstacles and difficulties that the researcher may face during the implementation of the main experiment. Some organizational aspects also are identified and the extent. These tests are suitable for the sample, the efficiency of the work team and ensuring the validity of the devices and tools used in performing the tests. In addition to the suitability of the tests for the basic skills in basketball and the visual vision skills that the researcher addressed.

2.6 Main experiment

2.6.1 Pre-tests

The pre-tests were conducted on Wednesday (2/14/2024) on fourth-year female students at the College of Physical Education and Sports Sciences, University of Maysan, in the college's basketball court. These tests conducted in the presence of a team and assistant staff through the application of the research tests.

2.7 Statistical methods

The statistical package SPSS was used to extract the results, version (25).

3.Presentation, analysis and discussion of the results

3.1 Presentation, analysis and discussion of the Shooting skill's results from a stability with a basketball: -

3.1.1 Presentation, analysis and discussion of the accuracy test results of the shooting skill from a stability with a basketball for the experimental group that (used the specific trainings to explosive power):-

shows the arithmetic means, standard deviations, and the calculated and tabular (t) values between the pre- and post-tests for the accuracy test of the shooting skill from a stability with a basketball for the experimental group (used the specific trainings to explosive power)

Type of significance	Calculated t-value	Post-test		Pre-test		Statistical parameters / Variables
Incorporeal	3,63 ، 6	A+	$\bar{S}$	A+	$\bar{S}$	Accuracy test for shooting skill from stability
		6 ، 3 3,6	2,36	12,4	7	
Tabular value (t) = (2,26) at significance level (0.05) and degree (9)						

Table (1) shows the arithmetic means, standard deviations, and the calculated and tabular (t) values for the pre- and post-tests of the accuracy test for the shooting skill from a stability with a basketball for the experimental group (explosive power training was used). The results showed that the arithmetic mean in the accuracy test for the experimental

group itself in the pre-test is the post-test, which is (12.4), with a standard deviation of (2.36), while the calculated (T) value is (36), which is greater than the tabular (T) value of (2.26), under a degree of freedom (9) at a significance level (0.05), indicates the existence of a significant difference between the two tests in favor of the post-test.

3.1.2 Displaying, analyzing and discussing the results of the accuracy test for the shooting skill from a stability with a basketball for the control group (the curriculum prepared by the teacher).

Table (2)

presents the arithmetic means, standard deviations, and the computed and recorded values (1) between the pre- and post-tests for the accuracy assessment of shooting skills from a stable position with a basketball for the control group., the curriculum prepared by the teacher.

Type of indication	The calculated value of (t)	Post-test		Pre-test		Statistical landmark / Variable
		3,12	**9,7**	**2,36**	**12,4**	

Table (2)shows the arithmetic means, standard deviations, and calculated and tabular (T) values between the pre- and post-tests of the accuracy test for the shooting skill from a stability with a basketball for the control group (the curriculum prepared by the teacher). The results showed that the arithmetic mean for the control group, the curriculum prepared by the teacher, in the pre-test is (5.7), with a standard deviation (3.33), the arithmetic mean in the post-test is (97), with a standard deviation (312). The calculated (T) value is (2.63), which is greater than the tabular (1) value (2.26) with a degree of freedom (9). At a significance level (0.05), this indicates the existence of a significant difference between the two tests in favor of the post-test.

3.1.3 Displaying the results in the post-tests differences to test the accuracy of the shooting skill from a stability with a basketball between the experimental group (the explosive power exercises and the control group used the curriculum prepared by the teacher) and analyzing and discussing them.

Table (3)

Displays the arithmetic means, standard deviations, and the computed and tabulated (t) values in the post-tests between the experimental group (engaging in explosive power exercises) and the control group (utilizing the curriculum devised by the instructor) to assess the precision of shooting skills from a stable position with a basketball.

Type of indication	The calculated value of (t)	Post-test		Pre-test		Statistical landmark / Variable
		3,12	**9,7**	**2,36**	**12,4**	

Table (3) shows the arithmetic means, standard deviations, and the calculated and tabular (T) value in the post-test between the experimental group that (used explosive power training and the control group, the curriculum prepared by the teacher) to examine the accuracy of the shooting skill from a stability with a basketball. The results showed that the arithmetic mean for the experimental group that used explosive power training is (12.4), with a standard deviation (2.36), while the arithmetic mean in the same test for the control group, the curriculum prepared by the teacher, is (97), with a standard deviation (3.12), while the calculated (T) value is (3.03), which is greater than the tabular (T) value (2.10) with a degree of freedom (18) at a significance level (0.05). This indicates the existence of a significant difference between the experimental and control groups in favor of the experimental group that used the special training which develops explosive power. For the upper limbs).

3.2 The results and Discussion

When reviewing the post-tests results for the experimental and control groups in the shooting skill accuracy from a stability position, it was found that there were significant differences between the two groups in favor of the experimental group. The training method used by the researcher had a clear impact in achieving this, as the researcher used medical balls and squares drawn on the wall with other exercises that helped to increase the arms explosive ability and increase the shooting accuracy from a stability position. As a result of continuous practice in a scientific manner, this percentage of development occurred.

The researcher attributes this improvement in the results of the upper limbs' explosive authority to the specific exercises employed. They

incorporated several workouts targeting muscular power, primarily focusing on the upper body's musculature, with specific emphasis on the upper limbs. Consequently, it will enhance the muscular strength of the upper body, in addition to incorporating these exercises at the proper moment during the primary segment of the training session, resulting in a favorable effect on the development of explosive power. Muscles are the origin of movement in humans, providing the force necessary for motion, and the execution of most athletic activity relies on them. Individuals possessing muscular strength can achieve a high level of overall physical capability. (Kamal Abdel Hamid and Muhammad Subhi Hassanein: 1997, 57) Basketball players depend entirely on the arms' strength in their movements to perform all basic skills. Therefore, the development in explosive power as a result of special exercises contributed greatly for developing the scoring performance accuracy from a stability position among the research sample members. This is what many studies have confirmed on (the importance of the arms' explosive power and its positive impact on the performance of motor skills in various sports activities) (Shahinaz Ezzat Al-Barouni, 1994, 34)

4. Conclusions and recommendations

The researcher reached the following conclusions:-

4.1 Conclusions

1- The explosive power training of the upper limbs has an effect on the shooting accuracy from a standing position in basketball.

2- The use of medical balls in training contributed to raising the explosive power of upper limbs which helped increase the shooting accuracy from a standing position.

3- The use of squares of different sizes had a great effect in developing the shooting accuracy from a standing position.

4.2 Recommendations

1- Emphasizing the training of the upper limbs' explosive power to increase the ability in addition to complete the shooting process effectively.

2- A similar lesson can be conducted on the explosive power training of the upper limbs for other activities and other age groups.

3- Emphasizing on teachers to use various ways to develop the accuracy of scoring.

4- The requirement for specialized exercises to enhance the explosive strength of the upper limbs, owing to their beneficial impact on scoring from a stable posture in basketball.

5- Conducting study on various physical skills is crucial for enhancing the skill accuracy performance of basketball players specifically, and athletes in other sports generally.

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Appendix (1)

Training Program Model

(First week)

Rest Between Groupss	Groups	Rest Between Repetitions	Performance Time	Intensity	Exercise Type	Training Unit
3 د	2	3 : 1	4 × 10 ثا	% 60	1-Bend press (from a lying position, bend your arms at a 90-degree angle and hold the position). 2-Front press (from a standing position, Flex your arms at a 90-degree angle and maintain the position. 3- Throwing a medicine ball (3 kg) on squares of different sizes	1
3 د	2	3 : 1	4 × 10 ثا	% 60	1.Bench press (from a lying position, Flex your arms at a 90-degree angle and maintain the position. 2. Front press (from a standing position, bend your arms at a 90-degree angle and hold the position) 3. Throwing a medicine ball (3 kg) on squares of different sizes	2
					1.Bench press (from a lying	

3	position, bend your arms at a 90-degree angle and hold the position) 2. Front press (from a standing position, bend your arms at a 90-degree angle and hold the position). 3. Throwing a medicine ball (3 kg) on squares of different sizes.	% 60	4 × 10 ثا	3 : 1	2	3 د

(second week)-:

Training Unit	Exercise Type	Intensity	Performance Time	Rest Between Repetitions	Groups	Rest Between Groupss
1	1.Bench press (from a lying position, bend your arms at a 90-degree angle and hold the position) 2. Front press (from a standing position, bend your arms at a 90-degree angle and hold the position) 3. Throwing a medicine ball (3 kg) on squares of different sizes	% 65	4 × 9 ثا	4 : 1	2	3 د
2	1.Bench press (from a lying position, bend your arms at a 90-degree angle and hold the position)	% 65	4 × 9 ثا	4 : 1	2	3 د

					2. Front press (from a standing position, bend your arms at a 90-degree angle and hold the position) 3. Throwing a medicine ball (3 kg) on squares of different sizes	
3 د	**2**	**4 : 1**	**4 × 9 ثا**	**% 65**	1.Bench press (from a lying position, bend your arms at a 90-degree angle and hold the position) 2. Front press (from a standing position, bend your arms at a 90-degree angle and hold the position) 3. Throwing a medicine ball (3 kg) on squares of different sizes	**3**