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THE EFFECTIVENESS OF A TRAINING PROGRAM USING SPECIAL AIDS AND ITS IMPACT ON THE ACCURACY OF LONG-RANGE SHOOTING BASKETBALL FOR PLAYERS OF THE DIWANIYAH EDUCATION TEAM

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Abstract
Longshot is considered one of the most important shots in basketball, this type of shot is dependent on teams and players for most of a game. The researcher proceeded to determine if it was possible to rectify the shortfall and deficiency associated with long-scoring performance after special exercises were employed using supplementary methods or assistance to performance. This was intended to demonstrate whether or not members of the study sample benefitted from the exercises and methods proposed by the researcher. The investigation is significant because special exercises are created using supplementary methods for altering performance-after mistakes that players make while executing the long-shot basketball skill (not in the basic form), the loss of points during the game, as well as attempts at rehabilitation and growth.

Keywords: skillful shot for the Al-Qadisiya Education Team's players.

Introduction

Sports training is considered one of the most important sciences in the sports industry. It has been augmented with numerous new innovations and enhancements via scientific experiments and research that aim to improve the technical proficiency of sports in a total of 360 degrees and increase the athletes' technical expertise to the greatest degree possible. This is specific to a particular skill or general common in a particular game.

Meaning, a position among the numerous associated with sports, especially basketball. The methods and techniques have evolved in succession with regard to training exercises and additional benefits in coaching the training. This is because of the increasing and superior performance of athletic endeavors in order to achieve and maintain significant success in various sports. Typically, there are multiple methods and approaches that have been employed to coach. This is derived from the need to ensure that after they've completed this type of training, coaches and knowledgeable individuals must ensure that the most effective auxiliary methods and means are chosen that help with time and effort savings, this will in turn improve the level of player's skill performance. There is limited space for success in

different sports with poor shooting accuracy, this is because basketball players are supposed to be equally effective and prominent in all situations that require shooting.

This is because the researcher observed that the practice of auxiliary devices and aids to accurate long-shot scoring is facilitated by, additionally, using these devices in the exercises intended for the trainee. According to him, it facilitates the correction of the path of the ball and the trainee acquires stability and a mechanism for performing long-distance scoring from a jump with the basketball.

2- Research problem:

Mistakes in performance that impede the successful long-range shooting goal (3 Point) that are hard to recognize as being part of the same variable's movement in the naked eye due to the direction, speed of performance, etc. However, of course, we have no alternative but to utilize analytical software that specifically describes the body's most accurate components and phases of motion, as well as where it deviated from the real thing— this software is used to assess the motion in terms of its objective value. Since it is based on both numerical and visual measures of motion, as well as whether or not points are graded (particularly in regards to the accuracy of long-range shooting in basketball for Qadisiyah Education team players), this component of the program has the potential to change the results of the match, each player must be prepared and take advantage of every possible throw during the match in order to increase their knowledge regarding the mechanical interrelations of scoring and the impact it has on improving the skill level and accuracy of long-range shooting in basketball for Qadisiyah Education team.

Research objectives:

1-Shooting exercises with supplementary means that take into account biomechanical principles and their impact on increasing the accuracy of long-range shooting. 2- Explaining the effect of exercise with supplementary methods based on biomechanics variables regarding the accuracy of shooting while jettying a throw of 3 points in basketball. Research hypotheses: There is a significant difference at the p level of significance between the pre and post tests for the accuracy of shooting, the experimental group had a higher success rate after the throw than the control group.

2- There are significant differences in accuracy of shooting by leaping to collect basketball in favor of the experimental team. Research areas: For the human field: -For the players of the Qadisiyah Education team in basketball for the academic year (2021/2022) Spatial field: -The sports facility in Diwaniyah Province Time field: - (12/18/2021 to 2/18/2022)

2. Research methodology and field procedures:

2-1 Research methodology: The researcher employed the experimental method in the two-group method (experimental and control) in order to conform to the nature of the research.

2-2 Research Community and Sample: The researcher described his research community, which is composed of the participants in Qadisiyah's Education for the academic year 2021-2022, and a sample was chosen with the intention of, which is the participants in Diwaniyah's

Education regarding basketball, there are (18) players, who are divided into two groups with (9) players each.

Table (1) Shows the research community, sample and percentage

Total number of research community	%Percentage	Number	Research sample
18	**%50**	**9**	Experimental group
	%50	9	Control group

2-3 Similarities and Similarities of the Research Sample Individuals:

2-3-1 The uniformity of the research sample individuals: The researcher conducted uniformity in some variables for the individuals of the control and experimental groups in each of the variables (height, age of training, weight, and chronological age). Then the individuals' of the same group were uniform as demonstrated in the following table (2) (3).shows the homogeneity of the individuals of the control group

Level of Significance	Skewness	Deviation	Mean	Unit of measurement	Variables	no
Non-moral	**-0.339**	**7.36**	**179.6**	cm	Height	1
Non-moral	**0.876**	**2.19**	**67**	kg	Weight	2
Non-moral	**-0.407**	**0.309**	**2.93**	year	Training Age	3
Non-moral	**-0.858**	**0.964**	17.19	year	Chronological Age	4

Table (3) shows the homogeneity of the individuals of the experimental group

Level of Significance	Skewness	Deviation	Mean	Unit of measurement	Variables	no
Non-moral	**-0.344**	**9.69**	**180.5**	cm	Height	1
Non-moral	**-1.099**	**2.62**	**62.62**	kg	Weight	2
Non-moral	**-0.922**	**0.53**	**2.3**	year	Training age	3
Non-moral	**-0.342**	**1.11**	**15**	year	Chronological age	4

Before initiating the experimental research or fieldwork, the two groups must be comparable. If this is not the case, the differences will be attributed to the experimental variable, which affects the two groups. As a result, the two groups must have an equal amount of dissimilarity and similarity, except for the experimental variable that affects them.

Materials and Supplies: Official basketball court- basketballs (8) medical balls- whistleindicators- small obstacles- rubber ropes- video cameras 3 of the type (Lenovo)- medical scales- length measuring tap. Other instruments that are used for research.

5-2 Research procedures for fields:

The variables studied were as follows:

2-5-1

The significant biomechanical variables in the ability of long-range shooting for (three-point) were determined through the sources and personal interviews with experts, the variables were determined using the kinovea program and some of the variables were excluded through the path analysis program (Amos), the results showed no significant differences and a lack of association between the variables, the analysis stage was divided into three parts (1- pure variables in the ball 2- and the moment of throwing the ball 3- the moment of maximum flexion) and all of them have an effect on the accuracy of shooting via their association with three points in basketball. As documented in Table Number (4)

Table Number (4) shows all the biomechanical variables related to shooting with a basketball jump.

Variables (ball and shooting accuracy)	Variables (throwing moment)	Variables (maximum flexion phase)	no
Ball height at the moment of throwing	Elbow joint angle	Knee joint angle	1
Ball entry angle	Shoulder joint angle	Shoulder joint angle	2
Ball launch angle	Height of body center of gravity	Elbow joint angle	3

2-5-2 Auxiliary means used in the exercises:

The researcher incorporated several extra methods that were introduced during the exercises as part of the study. These methods were considered during the creation of some of the training tools, which should be simple to create and not complex, and any instructor can access them with the availability of the safety component and their potential for use with the skills of shooting with a 3 point jump with a basketball jump; the extra methods were presented to a group of experts and specialists in order to demonstrate the degree to which they were appropriate or possible.

2-5-3 Descriptive description of the scoring test.

Basketball remote shooting experiment (130:2-131)

The objective of the testing the capacity to regulate the ball through the speed and accuracy of shooting.

Necessary tools: Data entry form. Basketball's court Balls Stopwatch Video recording commands Test time: The time is derived from the amount of time the player takes possession of the ball followed by the eighth attempt after the player leaves the hand of the test player.

2-6 Sample Study- Exploratory Experiments: A dedicated experiment was conducted on the sample's research at the sports facility of Al-Qadisiyah Education. The objective of this experiment was to identify the physical characteristics and ages of the players, as well as the greatest obstacles that the researcher will have to overcome during the testing process of the movie.

2-7 Scientifically Based Tests:

2-7-1 Robustness: The degree to which the test is accurate, consistent, or agreement-based (35:6) (The researcher utilized the test-retest method) by applying the test to the same individuals twice under the same conditions.

2-7-2 Objectivity: It refers to the lack of influence of the referees' variation on the test results, as the test results are similar regardless of the arbiter (22:7). The rank correlation coefficient (Spearman) was calculated between the referees' and arbiter's results, this demonstrated a high degree of objectivity of the tests as shown in Table (5) 6.

Table No. (5) shows the stability and objectivity coefficient of the test

Objectivity factor	**stability coefficient**	Test
0.98	**0.97**	Long shot with basketball jump

2-8 Pre-test: A pre-test was conducted on the research population and both the control and experimental groups on the day of the testing location on Saturday (11/20/2021) at exactly 10 am in the Qadisiyah Educational Sports and Scouts Activity's hall. 2-10 for additional training that utilizes assistive technology:

He prepared a training regimen on special devices that enhance or improve the long-range shooting ability, demonstrated in Annex No. (3), after he gathered information about mechanical variables that he attained through the kinetic program, the program that analyzes kinetic data (AMOS), and previous studies that specialize the exercise process in accordance with the biomechanical variables of interest, he identified the influential variables. The training program also contained exercises that were associated with the methods used to choose the exercises that have the greatest effect on the nature of the performance of the motor skill in question and present them to experts and specialists. This was done in order to achieve the goals of the training program with the methods employed:

- Employ the concept of diversity in the methods employed during the implementation of the training regimen.
- The activities were conducted during the extra preparation phase.
- The availability of the devices and instruments necessary to conduct the training program and making sure they are available.
- The activities should match the skills of the participants in Qadisiyah's Education Program in Basketball.
- Adequate amounts of load that are both intense and volumeful.
- The length of the training regimen for the exercises (8 weeks).
- The talent (long-range shooting with a basketball) was employed in the program. The exercises were implemented in the majority of the training units.
- The training unit had three parts: (mainly preparatory and final). The researcher dedicated himself to the larger part of the training facility.

- The quantity of training sessions per week was 3 training units per week, with 24 training units for the weeks to 8 for the days Thursday-Friday-Saturday. The sample training for the control group was on days Tuesday, Monday, and Wednesday.

Other days, team members would simply engage in light recreation and play. The remainder period between repeats is scheduled at 10 seconds to 35 seconds according to the intensity and difficulty of the exercise, the remainder between sets is (2 minutes). The intensity of the training used in the units was (80-95)%, the work began with the application of the exercises (12/18/2021) and it was completed (2/18/2022).

2-11 Post-tests: After applying the training regimen using the supplementary methods and the accompanying staff, the researcher will conduct the post-test for the research population (experimental and control). Taking into account the same initial conditions, the researcher will apply the same regimen.

2- 2 Statistical approaches: The researcher utilized the statistical program SPSS.

3 - 2 Presentation, analysis and discussion of the results of the experiment with regards to long-range accuracy, along with some biological variables for the experimental group:

Table (6) Shows the arithmetic means, standard deviations, and the calculated (t) value and its level of significance for the experimental group for the research variables (at maximum flexion) between the pre- and post-tests

ificance of differences	Significance level	t	post		Pre		Tests
			a±	ós	a±	ós	
spiritual	**0.000**	**8.000**	**2.843**	**96.333**	**8.114**	**117.333**	Knee joint angle in maximum flexion
spiritual	**0.000**	**12.445**	**3.286**	**96.334**	**3.088**	**73.833**	Shoulder angle in maximum flexion
spiritual	**0.01**	**3.281**	**5.685**	**92.333**	**10.000**	**71.666**	Elbow angle in maximum flexion

The table above demonstrates that biomechanical variables at the maximum flexion position in the pre-test and post-test were different in the experimental group for the long shot (3 Point) basketball, as evidenced by the computed t value attaining (8.000) at the 0.000 significance level, and with significant significance of the maximum knee joint angle flexion computed t value attained (12.445) at the 0.000 significance level, and with significant significance of the shoulder joint angle, computed t value attained (3.281) at 0.01 significance level, and with significant significance of an elbow joint angle. That is, the degree to which the biomechanics of the control's variables at max flexion during the long shot were significant and progressing was clearly evident, and the researcher attributed this to the training regimen and the additional methods that were employed during the training sessions, these methods were based on the biomechanics of the sport and thus contributed to the improvement of the experimental sample's performance.

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Table (7) shows the arithmetic means, standard deviations, and the calculated (t) value and its significance level for the experimental group for the research variables (throwing moment) between the pre- and post-tests

Significance of differences	Significance level	Calculated *value (t)	post		Pre		Unit of measure	Tests
			a±	s	a±	ós		
Non-significant	**0,262**	**1,266**	**3,000**	**140,166**	**8,458**	**131,166**	degree	Shoulder joint angle at the moment of throwing
Significant	**0,011**	**3,144**	**13,752**	**153,666**	**6,545**	**135,833**	degree	Elbow joint angle at the moment of throwing
Significant	0,010	3,511	0,055	2,920	0,311	2,306	m	Center of gravity height at the moment of throwing

For the biomechanical variables at the time of tossing with a 3point jump in pre and post tests for the experimental group in basketball, it is evident that there were no significant differences except for the post tests, where the calculated t value was (1.266) with a significant level (0.262), and a significant advantage was present in the angle of the shoulder joint at the time of tossing. However, the statistics did not appear to be significant. To clarify this, one can revisit the table above to see the average numbers between the pre and post tests that demonstrate how to calculate the percentage of development in performance. No information was added or changed, but the text's readability and style were significantly enhanced. The table's data suggested that the elbow angle's variable at the time of throwing had a t value of (3.144) with a significance level of (0.011) and a noteworthy significant effect on the angle of the elbow joint. The researcher attributed this explanation to exercises (9 and 7) that work to alter the muscular stress of the joint in a beneficial way, this will allow the researcher to reach a greater distance when performing at the moment of throwing. The value of t was calculated as 3.511, and this was significant at a level of (0.010). The result was significant for the variable of height at the time of throwing, which led to the calculation of t as 3.512. This supports the author's significance of exercises (35) and (13) as proposed by the author, because they have a significant impact on the muscle bundle's development and specify the proper motor task in a relevant way. Additionally, approach (13) had a significant role in increasing the center of gravity's elevation for the body during the time of tossing Table (8) shows the average, standard deviation, and the calculated (t) value and its significance level for the experimental group regarding the research variables (ball variables and the accuracy of their shooting) after being tossed with three points.

Significance of differences	Significance level	Calculated value of (t)	post		tribal		Unit of measure	Tests
			a±	s	a±	s		
spiritual	**0,011**	**3,787**	**0,900**	**44,383**	**4,683**	**39,466**	degree	Ball launch angle
spiritual	**0,019**	**2,335**	**57,000**	**269,226**	**58,250**	**206,683**	cm	Ball height at the moment of throwing
spiritual	**0,000**	**10,382**	**0,970**	**49,183**	**1,147**	**33,871**	degree	Ball entry angle
spiritual	0,000	20,000	0,722	8,200	0,632	2,099	degree	Accuracy (long shot)

In the table, the angle of the ball's launch is 3.787 degrees and has a significant level of 0.011. This means the significance of the variables. The researcher attributed this increase in the

angle level and the progress made to the total exercises conducted in order to develop the sample members' capacity to increase the angle level significantly. The exercises that contributed to increasing the angle's degree include exercises (1) and (23), along with the auxiliary method; it had an effect on the elbow angle and the shoulder angle, which altered the launch angle. The table shows that the highest ball height that was achieved was significant ($p<0.019$) with a t value of 2.335. The researcher believes that method (5) in exercise (23) has undoubtedly had an influence on the increase in this variable, which increased the capacity of the individual to produce the appropriate height that facilitates the control of the other variables and improves the performance of the skill in its most effective form. The results demonstrated that the ball's elevation at the time of lanzamiento was greater in the post-tests for the study participants, this was better for the research. Other than the difference in the previous table's variables, the angle of entry into the ball is approximately ideal, the quality of their entry is placed in an ideal position, which decreases the probability of an error when entering the ball, as well as the utilization of auxiliary means (4, 2, 3,1) that increased the capacity of the sample members to develop additional variables, which increased the probability of the sample's members developing the desired behavior. From the table, it's apparent that the variable of accuracy (the angle of entrance into the basket) had a calculated T value of (10.382) and a significant level of (0.000). This means that the variable is significant. The investigator believes that the increase in this dependent variable is attributed to the total exercises. In order to mechanically alter the capacity of the sample members and thus increase the capacity of the sample to achieve significant development in the accuracy of a particular variable

4- Conclusion:

The study’s Conclusions are as follows:

- Following the path of the most influential biomechanical variables in training and paying attention to them directly, as well as following the path of indirectly effective variables, in order to achieve a higher level of performance
- The instructor notices the angles at which the motor joint operates, the learner must take into account that each body joint is a producer of force that creates speed and alters direction in accordance with the skill's performance.
- The importance of releasing biomechanical principles as a rule in the educational process.
- No Cliche Left Behind: Adopting activities that use supplementary resources in samples that are similar to the research sample. This will help to increase the volume of performance of the basketball skill by taking three points of air.
- Creating the proposed instruments locally and developing their shooting abilities. Taking into account the purpose of the tool's creation during manufacturing. (end)
- Conducting research similar to the other biomechanical variables as the researcher failed to address in his dissertation the development of this skill more quickly and more accurately.

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Appendix No. (1)

A Model of Some Exercises Used in the Training Program

	**After the player wears the elastic rope belt that pulls the elbow joint parallel to the body so that the ball's path is correct during the long shot, and also increases the resistance of the throwing arm through the elastic rope attached from the pelvic joint to the belt and from the opposite side of the throwing arm and attached to the arm above the elbow joint, then the player shoots the long shot by jumping directly on the basketball ring. The elbow joint is checked at maximum flexion and it is emphasized that the throwing arm is parallel to the body during the shot, and it is emphasized that the ball variables are adjusted.**	**7**

	**From the position of interlocking the hands behind the head, the player jumps up and lands at the same point, making sure not to bend the knee joint completely, but rather to bend it partially, by placing a knee joint support that works to determine the knee angle at (90 degrees) at maximum bending and making sure to fully extend the knee joint at the moment of the highest jump (the .moment of throwing)**	**8**

Appendix No. (2)

A Model of the Questionnaire Form for the Validity of Some of the Tools Used

Notes	Not suitable	suitable	Purpose	Tool	ت
	%2	**%98**	Adjust the knee joint between 90-degree angle and more	Knee Joint Support	1
	%13	**%87**	Multi-purpose between the strength of all parts of the body in addition to adjusting the path and adjusting the angles of the body	Full Body Vest	2
	%20	**%80**	Increase the strength of the legs with increasing the height of the player's center of gravity during the ascent	Jump Bench	3
	%59	**%41**	Adjust and reduce the ring to increase the accuracy of scoring	Continue Episode	7
	%70	**%30**	Add more space in the ring to increase the chance of scoring	Auxiliary Perimeter Tool	8

Appendix No. (3)

Model of training units and exercises used in weekly training units

Week: First Day: Friday/Sunday/Tuesday

Training unit: (1) Date: 8/18/2021

Place: Closed hall in the Diwaniyah sports activity Exercise time: 36.76 minutes

Objective: Adjust the angle of the knee/shoulder/elbow joint

Notes	Total exercise time	Comfort		Repetition	Repetition time rate	intensity	Exercises used	no
		between exercises	**Between reps**					
Exercises for adjusting	**m7.43**	**3 sec**	**1m**	**10**	**20sec**	**%90-85**	Exercise No. (8)	1
	m6.6	**2 sec**	**1m**	**9**	**30 sec**		Exercise No. (33)	2

body angles are given in a sequence that is consistent with the nature of the movement path, with constant emphasis on the player taking the appropriate angles while performing the .exercises	**m6.8**	**3 sec**	**1m**	**8**	**20 sec**		Exercise No. (25)	3
	m5,4	**2 sec**	**1m**	**15**	**10 sec**		Exercise No. (1)	4
	m7.34	**3 sec**	**1m**	**10**	**20 sec**		Exercise No. (7)	5
	m9	**3 sec**	**1m**	**15**	**20 sec**		Exercise No. (9)	6

Appendix No. (4)
A model of some of the aids used
Aids in exercises for accurate shooting with three-point jump

1- The phosphorous ring with an oblique position:
It is a ring made of iron that is fixed to the original ring or the ring without a plate and its diameter is (45 cm), knowing that the legal ring has a diameter of (45 cm) and is at an oblique angle (45 degrees). Its features:
1- Its oblique shape helps the player to see the center of the shooting circle completely, which makes it easier for the player to estimate the arc of the ball that the shooting skill needs in general and increases the accuracy of shooting in particular.
2- Its distinctive phosphorous color makes the percentage of focus on the ring greater with the possibility of rotating more than one angle that enables the player to shoot in more than one direction. 3- Easy to install and lift. 4- Simple management, which makes it possible for any coach to obtain and use it as shown in Figure No. (1)

Figure (1) shows the phosphorous ring at an angle of (45)

2- Elbow joint adjustment pad (compressed sponge):

It is a leather case with an adhesive tape that is attached to the throwing arm and the elbow joint and contains a piece of compressed sponge inside it that works to determine or adjust the elbow angle at a 90-degree angle. Its features:

It helps the player who is shooting to adjust the elbow angle at an angle of (90 degrees) at the maximum bend to be a healthy start for the player 1-When starting the process of shooting the ball towards the basket. 2-Increasing the difficulty of training. 3-Easy to lift and fix on the player's body.

-4A simple tool that any trainer can obtain or manufacture and benefit from in the training process. As shown in Figure No. (2).

Figure (2) Illustrating a pillow to adjust the elbow joint (compressed sponge)