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## The effect of weight training on developing the accuracy of peaceful shooting for Al-Samawa youth basketball players

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### Abstract

Sports education has received a large share of the development witnessed by life in all fields, so sports achievements at the level of world and Olympic championships are limited to countries that are able to harness the technology of various sciences and benefit from them in the service of the sports field, and as a result of this development, sports have become a means of progress of nations and the advancement of societies, which prompted those in charge of it and those interested in it to search for ways to develop it, which confirms the importance of sciences related to the training process, and conducting more scientific research, especially in sciences that have not received sufficient attention in the field of practical application of the training process to try to influence the greatest possible aspects of the sports personality in order to help coaches build training programs characterized by comprehensiveness, balance and integration between the various aspects of preparation to reach the development of sports achievements. Basketball is one of the most popular games in many parts of the world, and many developed countries make continuous efforts to prepare their players on clear scientific foundations. It has become clear that the technical performance of teams that achieve victory and play well is linked to many factors, including offensive skills, as basketball is characterized by uniqueness and privacy in its skills. The performance of these skills depends on learning and special training in each skill.

**Keywords:** Sports education, sports achievements, world championships, Olympic championships, sports science, technology in sports

### Introduction

The skill of shooting a basketball depends essentially on special physical and motor preparation, and since it differs in terms of its requirements for the level of physical and motor abilities, and since the amount of need for these abilities differs in performing the skill according to the body parts when performing that skill, which means that there are special exercises to develop the shooting skill, but in proportions to the need for it. Therefore, determining the extent of the need for exercises with added weights when performing the skill of shooting a basketball is of utmost importance. Therefore, reaching high levels in performing the skill of shooting a basketball requires the availability of a certain level of exercises with added weights, as determining these exercises and these basic weights is a main axis for directing training processes, and these requirements can be used in selection processes. Although the correlation constitutes a very useful research tool, it can tell us about the percentages of availability of exercises and weights in performing the skill of shooting a basketball, and the researcher's belief in the importance of using exercises with added weights required this matter to conduct a study on young basketball players, and movement, as research in this field represents an urgent necessity, and therefore the importance of the current research is highlighted through:

### Attempting to reach the best ways to achieve high achievements in the game of basketball

Opening new horizons for research on exercises with added weights to develop different spelling skills It will be an incentive and motivation for other researchers to venture into this field, which contributes to the development of the field of developing the skill of peaceful shooting in basketball Theoretical importance, by establishing a cognitive framework for basketball coaches to know the effect of exercises with added weights on the accuracy of peaceful shooting in basketball.

**Research problem**

The research problem lies in answering the following question

1. Does the application of each of (exercises with added weights, regular exercises) have an effect on developing the accuracy of peaceful shooting for Al-Samawa Club youth basketball players?
2. Is there a difference as a result of applying (exercises with added weights, regular exercises) in the effect on developing the accuracy of peaceful shooting for Al-Samawa Club youth basketball players?
3. If there is a difference between the results of applying (added weight exercises, regular exercises) in influencing the development of the accuracy of the peaceful shooting of the young players of Al-Samawa Club in basketball, which of them is better?

**Research objective**

1. Identify the effect of applying each of (added weight exercises, and regular exercises) in developing the accuracy of the peaceful shooting of the young players of Al-Samawa Club in basketball.
2. Identify the advantage in the effect between applying each of (added weight exercises, and regular exercises) in developing the accuracy of the peaceful shooting of the young players of Al-Samawa Club in basketball.

**Research hypotheses**

1. Each of (added weight exercises, and regular exercises)

has a positive effect in developing the accuracy of the peaceful shooting of the young players of Al-Samawa Club in basketball.

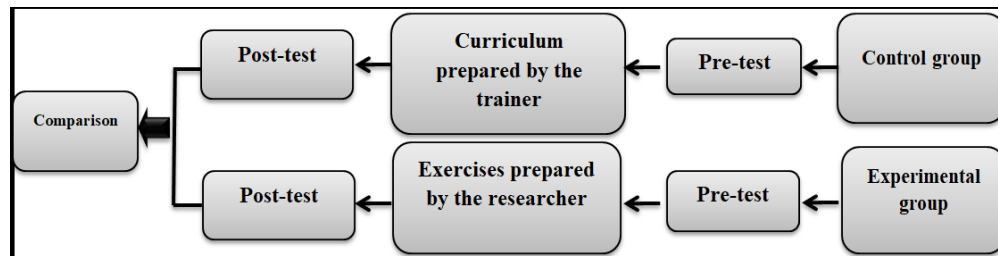
2. There is a difference in the effect between the application of each of (added weight exercises and regular exercises) in developing the accuracy of peaceful shooting for Al-Samawa Club youth basketball players.

**Research areas**

- First - Human field: Al-Samawa Club basketball players for the sports season 2023 – 2024.
- Second - Temporal field: For the period from 2/14/2024 to 5/5/2024.
- Third - Spatial field: Al-Gharbi Youth Forum in Al-Muthanna Governorate.

**Research methodology and field procedures****Research method**

“The experimental method is the closest research method to solving problems in a scientific way. It is an attempt to control all basic variables and factors except for one or more variables that the researcher changes in order to determine and measure its scientific effect because the nature of the research requires knowing the effect (specific), so the researcher used the experimental method and the design (two equivalent groups) and Figure (1) shows this.



**Fig 1:** Explains the experimental design of the research groups

**Research community and sample**

The researcher defined his research community represented by the players of Al-Samawah Basketball Club for advanced students, numbering (15) players. As for the research sample, "which is part of the original community that contains some elements that are selected from it in order to study the characteristics of the original community" the researcher defined (12) players to represent the research sample, as they were divided into two groups, a control and an experimental group, with (6) players for each group.

**Research tools and devices used**

This means the means or method by which the researcher can solve his problem, whatever it may be, such as tools, data, samples, or devices, and therefore he used many of them in order to reach that:

**Data collection methods**

- Arab and foreign sources
- Questionnaire

**Tools and devices used in the research**

- Pens
- Paper
- Hand calculator

- Electronic calculator (LENOVO)

**Ladder shooting accuracy test**

The researcher conducted a survey study on a number of scientific sources and previous studies, and accordingly the following variables were identified

**Ladder shooting test in basketball**

The researcher conducted a survey study on many sources, and accordingly the test prepared by (Karrar Watban)\* was adopted, which measures the same goal that the researcher seeks to achieve

- Objective of the test: Evaluating the level of accuracy of ladder shooting (three-pointer)
- Tools used: Basketball court, 1 basketbal.
- Description of performance: The performance is done by the player tapping the ball from a distance of (5) meters from the basket. Upon hearing the start signal, the player takes off, then takes the ladder steps and performs the correct ladder shooting process and attempts to put the ball in the basket
- Number of attempts: The test subject is given (5) attempts to ladder shooting.
- Scoring:

- (One point) when the ball hits the wooden board in the place of number (1) and goes out.
- (Two points) when the ball hits the wooden board in the place of number (2) and goes out.
- (Three points) when the ball touches the ring and goes out.
- (Four points) when the ball touches the ring or the small square and enters the ring.
- (Five points) when the ball enters the ring directly without touching anything.

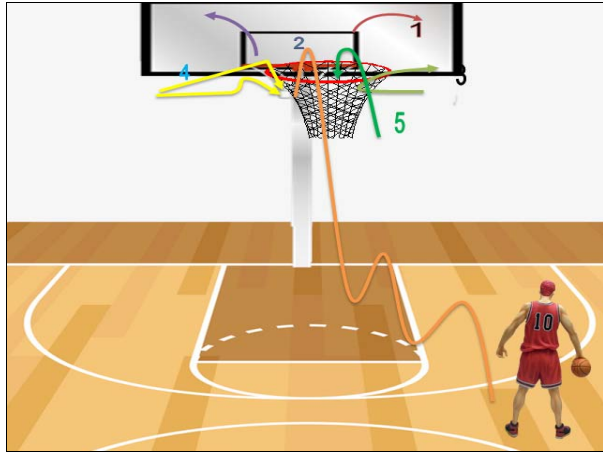


Fig 2: Shows the basketball shooting accuracy test.

**Exploratory experiment**

The researcher conducted an exploratory study on (3) players, as this experiment was applied on Wednesday, February 14, 2024 AD, at the Western Youth Forum in Muthanna Governorate.

The aim of conducting the exploratory experiment is on several points, including:

- Verifying the validity of the test and the possibility of applying it to the selected sample and the extent of its response to implementing the test.
- Pointing out errors and obstacles in order to overcome them.
- Training members of the assistant work team to carry out the implementation of the test, and their mastery of the validity of the test and recording the results in a way that ensures the success of the educational process.

- The availability of the required capabilities in terms of the suitability of the specified places to conduct the test, as well as the availability of appropriate tools for the test.
- And identifying the time taken to conduct the test.
- Finding the scientific weight of the nominated tests in terms of stability, honesty and objectivity.

**Scientific foundations for test results**

**Validity of test results**

It means that the test actually measures the ability, trait, direction, or readiness that the test was designed to measure. That is, it actually measures what it is intended to measure. To calculate the validity coefficients of the tests, the researcher used experimental validity, and this type of validity is calculated by finding the test correlation coefficient with an external or internal criterion, as the correlation of the test score with an internal or external criterion is an indicator of the validity of that test, and since the researcher did not have a suitable external criterion, he resorted to the total score of the test as it is the best criterion for calculating this relationship, and accordingly the researcher relied on the correlation coefficient (Pearson) between the subtest scores and the total score of the test in calculating the validity coefficient, and Table (1) shows this.

**Stability of test results**

Stability means "that the test gives the same results or similar results if it is repeated more than once on the same group and under the same conditions" The stability of the test was calculated using the (test and re-test) method, and for this reason the researcher repeated the tests on Tuesday, February 20, 2024 AD, on the same sample of the exploratory experiment and under the same conditions and context. The stability coefficient between the two tests was extracted using the (Pearson) correlation coefficient law, as shown in Tables (1)

**Objectivity of the test results**

Objectivity means "the independence of the results from subjective judgment" and the lack of influence of the test results by changing the arbitrators (1). "The objectivity of the tests was taken into account in the presence of two arbitrators\*, as the Pearson correlation coefficient was extracted for their results, and the results came out with high objectivity for the arbitrators, as shown in Table (1)

Table 1: Scientific foundations for the test results

Objectivity factor		Stability coefficient		Honesty coefficient		Variables
Connotation	R value		R value	Connotation	R value	
0.000	0.999	0.000	0.982	0.000	0.951	Basketball shooting accuracy

**Exploratory experiment**

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- Verifying the validity of the test and the possibility of applying it to the selected sample and the extent of its response to implementing the test.
- Pointing out errors and obstacles in order to overcome them.

- Training members of the assistant work team (□) to carry out the implementation of the test, and their mastery of the validity of the test and recording the results in a way that ensures the success of the educational process.
- The availability of the required capabilities in terms of the suitability of the specified places to conduct the test, as well as the availability of appropriate tools for the test.
- And identifying the time taken to conduct the test.
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## Scientific foundations for test results

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### Stability of test Results

Stability means "that the test gives the same results or similar

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**Table 2:** Scientific foundations for the test results

Stability coefficient	Honesty coefficient	Variables	Objectivity factor		Stability coefficient		Honesty coefficient	Variables
			A	S	A	S		
homogeneous	0.158	0.426	1.692	13.489	1.269	13.287	degree	Basketball shooting accuracy

The results of the table above show that the significance level values for the (LEVENE) test and for all variables were greater than the error rate (0.05), which indicates that there

are no significant differences between the control and experimental groups, which indicates homogeneity.

**Table 3:** Equivalence between the two research groups

Statistical significance	Significance level	Levene Value	Experimental group		Control group		Unit of measurement	Variables
			A	S	A	S		
Equivalent	0.563	1.097	1.692	13.489	1.269	13.287	degree	Basketball shooting accuracy

The results of the table above show that the significance level values for the (t) test for independent samples and for all variables were greater than the error rate (0.05), which indicates that there are no significant differences between the control and experimental groups, which indicates equivalence.

### Plan for implementing the exercises prepared by the researcher

- The researcher began implementing the curriculum prepared by him and under his direct supervision on the sample of the experimental group, which numbered (6) players, from Saturday 2/24/2024 until Wednesday 4/17/2024.
- The trainer's curriculum was applied to the sample of the control group.

### The researcher intended the following when developing his exercises:

- The prepared curriculum took (8) weeks, at a rate of (3) training units per week, and thus the total number of training units is (24) training units.
- The researcher used the high-intensity interval training method calculated by time, where the intensity ranged from (80-95 %)
- The duration of the main section of the training unit is between (45-50) minutes, depending on the intensity, divided as follows:

- The number of training exercises in each training unit was (6) exercises.
- The researcher only dealt with the main section of the prepared training units and immediately after the warm-up to enable the players to be at the peak of mental, physical and psychological readiness.
- The researcher took into account the principle of undulation and gradual training intensity when applying his exercises, using undulation (2: 1)

### Post-test

After completing the application of the exercises, the researcher proceeded to conduct the post-test on the research sample, which numbered (12) players. The researcher was keen to prepare the same conditions, tools and time that were used in the pre-test, and accordingly, the post-test was applied in (Al-Gharbi Youth Forum) on Thursday, corresponding to 4/18/2024.

### Statistical methods

The researcher used the statistical system (SPSS) for statistical information and the program (EXCEL)

1. Arithmetic mean
2. Standard deviation
3. Value (t) for correlated samples
4. Value (t) for independent samples
5. Displaying the results of the control and experimental groups in the post-test, analyzing and discussing them

## Displaying and analyzing the results

**Table 4:** Differences between the pre- and post-tests in the variable of the accuracy of the peaceful shooting of the basketball for the control and experimental groups

Statistical significance	Significance level	Calculated t value	Experimental group		Control group		Unit of measurement	Variables
			A	S	A	S		
moral	0.000	4.367	1.115	16.126	1.269	13.287	degree	Control group
moral	0.000	7.621	1.014	19.412	1.692	13.489	degree	Experimental group

The results of the table above show that the significance level values for the (t) test for the correlated samples were smaller than the error rate (0.05) for both groups, which means that there are significant differences between the pre- and post-tests in favor of the post-test results.

To know the preference of either group, the researcher resorted to making a comparison between the two groups in the post-test, and Table (5) shows that.

**Table 5:** Differences between the control and experimental groups in the accuracy of the basketball shooting in the post-test

Statistical significance	Significance level	Value t Calculated	Experimental group		Control group		Unit of measurement	Groups
			A	S	A	S		
moral	0.000	3.648	1.014	19.412	1.115	16.126	degree	Basketball shooting accuracy

The results of the table above show that the significance level values for the (t) test for independent samples were smaller than the error rate (0.05), which means that there were significant differences between the control and experimental groups in favor of the results of the experimental group in the post-tests.

### Discussion of the results of the control and experimental groups in the post-tests

According to the prepared method and the extracted results, the researcher attributes the superiority of one group over another to nothing but the researcher adopting different methods between the research groups, as the control group was left with the trainer without any intervention by the researcher. The scientific method was also used in choosing the components of the training and skill load used in the exercises with the added weights in the experimental group by the researcher, which resulted in the superiority of the experimental group over the control group. The researcher also did

The exercises prepared by the researcher were based on a scientific basis, in addition to setting the training times regularly, which gave the experimental group superiority over the control group. \* As the experimental group used exercises with added weights that included a large amount of skill and motor performance, which the control group lacked, in addition to the above, the skill exercises that were given at the beginning of the main section, which varied in implementing various types of skills, were the basic foundation for developing the physical attribute during the performance of skill exercises, through which the researcher sought to create physical and skill development, and this is what the development rate for this group showed. \* The role of added weights came, which enhances the clear superiority of the experimental group over the control group, and gave a positive and effective impact on skill performance in peaceful shooting, through what the achieved results reached. The researcher believes that the athlete's ability to maintain his activity rate increases as his performance tolerance improves, and accordingly his ability to resist fatigue resulting from continuing to perform exercises with added weights increases, maintaining balanced motor performance during shooting to obtain the best accuracy for peaceful shooting.

## Conclusions and Recommendations

### Conclusions

1. Exercises with added weights have an effect on causing a difference in the accuracy of the peaceful shooting in the experimental group sample.
2. The experimental group, which was subjected to the exercises prepared by the researcher, outperformed the control group sample, which was subjected to the exercise curriculum by the trainer in the research variable.
3. The increase in muscle endurance due to the added weights was positively reflected in the player's resistance to fatigue in the legs as a result of the push. The speed of the players improved during the peaceful shooting.

### Recommendations and suggestions

1. It is important to use the added weights prepared scientifically, thoughtfully and methodically according to the science of training because of their importance in developing the accuracy of the peaceful shooting in basketball.
2. Emphasizing on basketball coaches to search for appropriate exercises and weights in addition to training to fill the gap in physical and skill performance necessary to continue and develop towards the better and not decline in level.
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