

A proposed training program to improve counterattacks among handball players

Ghanem mohamed el amine¹ ; harizi abdelhadi²

^{1,2} University Mohamed Boudiaf –M’sila , Algeria .

¹ghanemhmd@outlook.fr ; ² abdelhadi.harizi@univ-msila.dz

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Corresponding author: **Ghanem mohamed el amine**,
e-mail: ghanemhmd@outlook.fr

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Abstract

The study aimed to identify the effect of proposed training units using a repetitive training method to improve the counterattack based on the length of the pass and the guidance accuracy from a distance of 30 meters. The researcher used the experimental method to suit the nature of the study, by adopting a sample consisting of 18 players active in the first national division, “Class B”, where they were chosen intentionally, and the researcher used a set of tools, including theory, such as previous studies and scientific observation; As well as applied tools such as skill tests. The researcher reached a set of results stating that the training units have a positive effect in improving the counterattack by relying on the length of the pass and the guidance accuracy from a distance of 30 meters.

1. Introduction

Since the connection between physical fitness and the various motor skills of handball has been recognized by field studies and modern scientific research, and after the great development that handball has witnessed, it has become necessary for practitioners to be familiar with its plans and methods, whether in defense or attack. Among these plans adopted in attack, we chose the counterattack due to the effectiveness of this type of attack in terms of scoring goals during high-level matches, as its percentage reached 20-30% of the total goals scored during international championships, and this is supported by modern scientific research that emphasizes that the success of its performance requires various physical components such as speed, strength, flexibility, and compatibility between the goalkeeper and the winger, as they are responsible for starting the counterattack in normal cases (after taking the ball from the opposing team) (Ahmed Aribi Aouda, 2014, p. 181). Through watching many local sports matches for various associations, we noticed a deficiency in the performance of the counterattack. This deficiency reduces its effectiveness in performing various sports skills and plans, which negatively affects the team's performance.

Most of these problems led us to ask the following questions:

2. General question:

- Do the training modules proposed through repetitive training effectively affect the development of the counterattack, based on the length of the pass and the guidance accuracy from a distance of 30 meters?

3.1.Secondary questions:

- Are there statistically significant differences between the pre-test and the post-test, regarding the pass length test and the guidance accuracy from a distance of 30 meters for the control group?
- Are there statistically significant differences between the pre-test and the post-test, regarding the pass length test and the guidance accuracy from a distance of 30 meters for the experimental group?

3. Objectives of the study:

Through our treatment of the subject of the study and our perception of the nature of the problem, we decided to define the objectives of the study as follows:

Knowing the effect of the proposed training units using the repetitive training method to improve the counterattack, based on the length of the pass and the guidance accuracy from a distance of 30 meters.

Identify whether there are statistically significant differences between

the pre-test and the post-test, concerning the pass length test and the guidance accuracy from a distance of 30 meters for the control group.

Determine whether there are statistically significant differences between the pre-test and the post-test, about the pass length test and the guidance accuracy from a distance of 30 meters for the experimental group.

4. The importance of the study:

The subject of the study addresses a problem raised in the field of sports training in handball in our country, the Arab world, and the African continent as a whole, and it gives us a picture - albeit a small one - of the training process for this technique. In addition, we can present the importance of the study as follows:

- Highlighting the importance of the proposed training units using the repetitive training method in developing the counterattack for senior handball players, based on the length of the pass and the guidance accuracy from a distance of 30 meters.

This study helps in applying a set of exercises for use by coaches in developing the physical and skill qualities of hand players.

This study contributes to the development of handball and also aims to advance scientific research in Algerian handball.

5. Study hypotheses:

5.1. General hypothesis:

Knowing the effect of the proposed training units using the repetitive training method to improve the counterattack, based on the length of the pass and the guidance accuracy from a distance of 30 meters.

5.2. Partial hypotheses:

There are no statistically significant differences between the pre-test and the post-test concerning the pass length test and guidance accuracy from a distance of 30 meters for the control group.

There are statistically significant differences between the pre-test and the post-test about the pass length test and guidance accuracy from a distance of 30 meters for the experimental group.

6. Study keywords:

6.1. Defining concepts and terminology:

6.1.2. Repetitive training:

Linguistic definition: He repeated something, meaning he did it several times Terminological definition: This method is characterized by double repetition of part of the work for a short period, with relative rest periods, where the athlete rests before the second repetition, to regain work

capabilities. This method is used above all during individual training to improve athletic performance (Aissam Abd Elkhalek, 1988, p. 23)

Procedural definition: It is a method in which the intensity of exercising increases compared to the method of high-intensity training, as it may reach maximum intensity, during which volume decreases, and long positive rest also increases, and aims to develop both maximum muscular strength, speed, and strength characterized by speed, and contributes to Increasing the efficiency of energy production in the anaerobic system, it also affects the nervous system because the performance is at maximum intensity, causing fatigue.

6.2. Counterattack

6.2.1. Definition of counterattack:

Attack in language: attack, attack, attack the person, attack one another.

Counter, linguistically: oppose it, or make both of them opposite to the other.

Terminological: It is an attack characterized by lightning speed at the moment the team moves from defense to attack towards the opposing team's goal, by many attackers, as it exceeds the number of defenders in an attempt to hit the goal before the defending team organizes its defensive lines. It is divided into counterattacks: (individual, group, and team) (Hugue Monod, Henry Vandewall, Rolland Flaudroi, 2007, p16)

Procedural definition: It means that the team moves from a state of defense to a state of sudden and lightning attack, at maximum speed, before the opposing team takes the positions of the defense lines.

3.6 Handball:

Linguistically: the plural of hands, palm, or from fingertips to shoulder.

Terminological definition: It is defined as a game consisting of two teams, each with 7 players, one of whom is the goalkeeper so that the players pass the ball among themselves inside the opponent's area to score goals. The match consists of two halves, each lasting 30 minutes. The team that can score the largest number of goals against the opponent at the end of the two halves of the match is the winning team. (Ali Hassan Abou Jamous: 2011, p. 503)

Procedural definition: It is a modern game compared to some other group games, and it is considered one of the most important sporting activities in terms of the number of followers around the world.

7. Previous studies:

7.1. First study:

A study conducted by M. Ismail Zaid Ashour 2003, titled “The Effect of a Proposed Training Program on Developing Speed,” a field study conducted on second-year students in the physical education branch of the Physical Education Faculty - Al-Mustansiriya University -

7.2. Second study:

A study conducted by Dr. Ahmed Youssef Mataab Al-Shamkhi and Dr. Samer Youssef Mataab Al-Shamkhi 2005, entitled “The Effect of Anaerobic Exercises on the Development of Strength and Speed Endurance among Young Handball Players.”- A field study conducted on the players of the Babylon Governorate youth handball team for the 2005 season, who numbered 12 Players aged (18-19) years.

7.3. The third study:

A master’s study conducted by researcher Hossam El-Din Sharaiti, entitled “Proposing a sports program based on repetitive training to develop maximum speed and response speed in football players under the age of 20 - an experimental study of the Batna youth team belonging to the team of the first national division, sports season (2012-2013).

8. Second: The basic study

8.1. Research methodology:

In our study, we relied on the experimental method, in line with the nature of the research topic to solve the problem of our topic, meaning that the experimental method is the best scientific research method because it relies primarily on scientific experience, which provides a practical opportunity to know the facts and enact laws through these experiments.

Mohamed Hassan Allawi and Osama Kamel Rateb defined it as: “The only research method that can truly test the hypotheses of relationships related to cause or effect, and this approach represents the closest approach (Mohamed Hassan Allawi and Osama Kamel Rateb, 1999, p. 196)

8.2. Training units:

The researcher designed proposed training units according to the characteristics and abilities of senior handball players, after reviewing the scientific references related to the subject of the study and reviewing studies related to the topic, then formulating the units after presenting them to a group of professors and experts in the field of training.

8.3. Research sample:

We selected the research sample for the club olympique Aïn El Hadjel males, which consists of 18 players (the experimental sample and the control sample); We conducted our test on this group due to the compatibility of this age period with the tests mentioned in the research.

We chose the research sample intentionally, because it allows the experiment to be conducted under appropriate conditions, and it consists of two groups:

a-The experimental group: includes 9 players from the olympique Aïn El Hadjel team.

b- The control group: includes 9 players from the olympique Aïn El Hadjel team.

9. Study tools:

In our study, we relied on using appropriate and appropriate methods to achieve the hypotheses that we formulated, including the method of testing that was conducted on both the experimental and control groups in the form of a pre-and post-test. In addition, proposed training modules were used in the form of training sessions that contributed to developing the length of the pass and the accuracy of direction.

- Testing the length of the pass and the guidance accuracy from a distance of (30) meters (Ahmed Aribi Aouda, previous reference, 238)

- Test objective: Measure the degree and accuracy of passing.

- Tools: Handball court (20*40) meters.

A square (4*4) meters is drawn inside the handball court, and the side of the square farthest from the goal line and parallel to it is (10) meters from the center line, and the distance of each of the other two sides parallel to the sideline is (08) meters.

- Five (5) legal handballs are placed inside the square.

- Method of performance: While inside the square, the handball player takes possession of the five balls, directing them one after the other to the opposite goal, using three steps of walking or running, and he likes to be in contact with the ground the moment the ball leaves his hand.

- Scoring: The number of throws in which the ball enters the goal is counted as a projectile and not rolled on the ground, whether directly or by bouncing it once from inside the field in the area in front of the goal.

- The number of shots that enter the goal is converted into scores (degrees) based on the table prepared for this.

Table No.1: Pass length rates and guidance accuracy of 30 meters

Number of successful goals	score
0	0
1	6
2	8
3	10
4	15
5	20

10. Scientific conditions for the tool:

10.1. Stability coefficient:

10.1.1. Test stability:

The reliability coefficient is defined as If the test is conducted on a group of individuals, and the scores of each individual in this test are monitored for this same group, and the scores of each individual are also monitored, and the results indicate that the scores that the player obtained the first time applying the test are the same scores that he obtained. These players the second time around, and it is the stability of a certain phenomenon from various causes (Delaude van Dalen.....)

The researcher found the reliability coefficient for the physical and skill tests, using the method of applying and re-administering the test, as the test was applied to 9 players from the research community and from outside the basic research sample (the exploratory sample), and after 5 days the test was re-administered under the same conditions as the first procedure, and when we obtained the results using the Spearman correlation coefficient, to determine the stability of the test, the results obtained were as follows:

- Pass length test, and guidance accuracy from a distance of 30 meters = 0.82.

This indicates high stability in the tests:

q²: The square of the differences between the first and second results.

n: sample number.

R: Spearman's correlation coefficient.

$$R = 1 - \frac{6^2 q}{n(n^2 - 1)}$$

Table 2. Represents the calculation of the reliability coefficient for physical and skill tests

No	Tests	Validity Coefficient	Correlation Coefficient
01	Pass length test, guidance accuracy from a distance of 30 meters	0.90	0.82

It is clear from Table (02) that all values of the correlation coefficients calculated for the research variables are close to 01, and therefore the correlation coefficient is strong. Thus, we can say that the proposed test to measure the counterattack based on the length of the pass and the guidance accuracy from a distance of 30 meters is stable.

10.1.1. Validity coefficient:

Validity is one of the most important conditions that must be met in study tools, and Lindquist (1995) defines it as “the accuracy with which the test measures what it was designed for.” (Mohamed Nasr Eddine, 2006, p. 17)

To obtain the validity of the test, we calculated the validity coefficient.

$$\text{Test validity} = \sqrt{\text{test reliability coefficient}}$$

The results obtained were as follows:

- Test validity results for pass length and guidance accuracy from a distance of 30 meters = 0.90

From this, we conclude that the tests have a high degree of validity.

10.2. Test objectivity:

Since we relied in our study on standard tools to measure the physical test in addition to the skill tests, these tests do not need arbitrators to record the results, and therefore the objectivity of the test is equal to 1.

11. Field application procedures for the tool:

After conducting pre-tests, then incorporating the proposed training units into the repetitive training method for handball players, and all of this after agreeing with the coach to grant a training session, we applied the exercises; Each exercise varies in duration according to (intensity, density, and suggested load), with necessary rest periods given between each exercise and another, and 10 minutes at the end of the training session to return to a natural “calm” state. The process was conducted throughout the training periods, which were at a rate of (2) training sessions per week,

while the tests began with the experimental group starting in March, at a rate of two (2) training sessions per week.

12. Statistical methods:

It is considered one of the most important methods leading to understanding the basic factors that affect the phenomenon studied, and it helps in arriving at results, analyzing them, applying them, and criticizing them, noting that each research has its statistical methods that are appropriate to the type of problem, its characteristics, and the goal of the research. We will calculate the results obtained using the statistical program S.P.S.S version 21, and based on this coding the data will be entered into the computer after we transcribe it manually on paper, we enter it using the Microsoft Office Excel program into the computer and then transfer it to the SPSS program. It is an abbreviation for (statistical package for social science), where we processed the test data and calculated the following:

Arithmetic Mean (average) /Standard Deviation/Student (Saad Zaghloul Bachir, 2003, p. 08)

10.3. Third: Presentation and discussion of the results

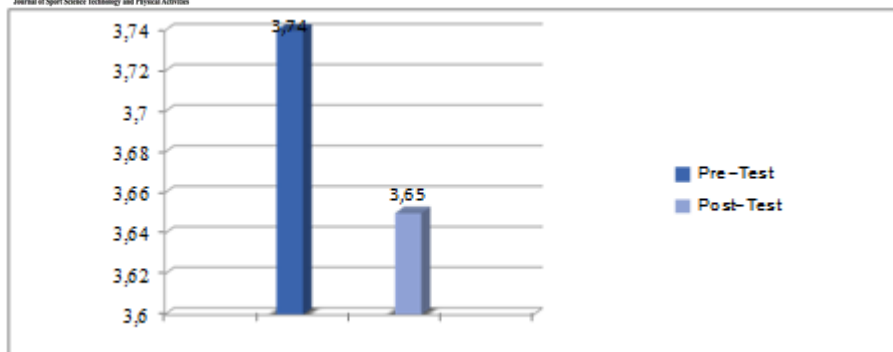
Scroll length test, guidance accuracy from a distance of 30 meters:

Table No.3: Statistical differences and significance level of the results of the first test (pass length and guidance accuracy from a distance of 30 meters) for the control group between the pre-test and post-test.

Test quality	Sample number	Arithmetic Mean	standard deviation	T calculated	T tabular	The significance level 0.05
Pr-etest	09	9.44	2.50	0.10	2.16	Not statistically significant
Post-test	09	9.33	3.57			

Source: spss, version 21

Figure No. 1: Shows the results of the pre-and post-test in the pass length test and guidance accuracy from a distance of 30 meters for the control group.



From the results of Table No. 03, we note that: the arithmetic mean of the pre-test is equal to 9.44, and the arithmetic mean of the post-test is equal to 9.33. Hence, the calculated T is equal to 0.10, and through this, we conclude that there are no statistically significant differences, given that the calculated T is smaller than the tabulated T at the significance level of 0.05.

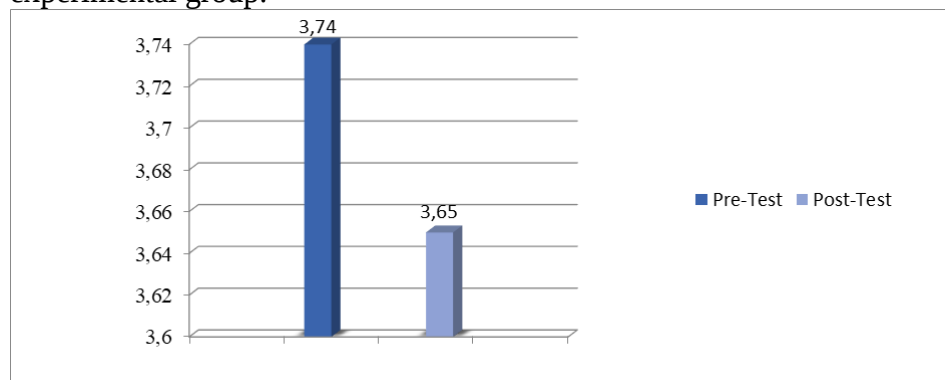
Scroll length test, guidance accuracy from a distance of 30 meters

Table No. 4: Statistical differences and significance level of the results of the fifth test (pass length and guidance accuracy from a distance of 30 meters) for the experimental group between the pre-test and the post-test.

Test quality	Sample number	Arithmetic Mean	standard deviation	T calculated	T tabular	The significance level 0.05
Pr-etest	09	5.44	4.92	6.04	2.16	statistically significant
Post-test	09	13.11	3.82			

Source: Spss, version 21

Figure No. 2: shows the results of the pre- and post-test in the test of pass length and guidance accuracy from a distance of 30 meters for the experimental group.



Through the results of Table No. 05, we note that the arithmetic mean of the pre-test is equal to 5.44 seconds, the arithmetic mean of the post-test is equal to 13.11 seconds, and the calculated T is equal to 6.04. Through this, we conclude that there are statistically significant differences, given that the calculated T is greater than the tabulated T at the significance level of 0.05.

13. Presentation and discussion of the results:

After processing the results obtained, by presenting and analyzing them in this chapter, we come to discuss the hypotheses by arriving at the most important conclusions that we reached in this research, by projecting theoretical concepts onto the applied study and comparing them. Also, by discussing the results in the table above and by comparing the results between the control and experimental samples, we note that:

13.1. Control group:

By discussing the results obtained in Table No. 03, we find that the arithmetic means for the pre-test was 9.44, and the arithmetic mean for the post-test was 9.33, and by comparing the tabular T with the calculated T, we find that it is not statistically significant, considering that the calculated T is smaller than the tabular T. Also, by comparing the recent differences, we conclude that there is no noticeable improvement in the control sample, which followed its normal program, which explains the lack of any improvement in the performance of the counterattack based on the length of the pass and guidance accuracy.

13.2. Experimental group.

From the results of Table No. 05, we note that the arithmetic mean of the pre-test is equal to 5.44, and the arithmetic mean of the post-test is equal to 13.11, and by comparing the tabular T with the calculated T, we find that it is statistically significant, considering that the calculated T is greater than the tabular T, and by comparing the recent differences, we conclude that there is a noticeable improvement in the experimental sample, considering that the calculated T, which reached a value of 6.04, by comparing it with the tabular T, we find that it is statistically significant, and has a clear meaning that there is a noticeable improvement in the counterattack performance of handball players based on the length of the pass, and the accuracy of direction from a distance of 30 meters, and the main reason is due to the proposed training program.

From what was mentioned above, we find that the statistical analyses have shown the validity of the partial hypotheses, which means the validity

of the general hypothesis, which is “that the training units proposed through the repetitive training method have an effective impact on improving the counterattack of senior handball players, relying on the length of the pass and the accuracy guidance from a distance of 30 meters.

14. Suggestions and recommendations:

14.1. Recommendations:

Based on the results and conclusions of the research, the researcher makes the following recommendations:

- Using the proposed training units under discussion to train senior players, as well as juniors, to improve the counterattack, especially among players from first-division clubs, as they are the basic building block for the formation of the Algerian national team.
- Determine the foundations and principles for applying and implementing physical and skill preparation programs, especially plans and controls before starting to implement the program contents.
- Emphasizing the importance of the general and specific physical preparation stage, and their role in developing the performance level of the counterattack, to achieve positive results in handball.

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