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# THE EFFECT OF EXERCISES USING TRAINING METHODS IN DEVELOPING RESPONSE SPEED FOR ACCURACY OF SHOOTING FROM JUMPING HIGH IN HANDBALL

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## Abstract

The research aims to prepare exercises using training methods to develop the response speed for the accuracy of shooting from jumping high with the handball, Recognizing the effect of exercises using training methods in developing response speed for accuracy of shooting from jumping high with handball. There are statistically significant differences between the two research groups (experimental and control) for the post tests in developing response speed for accuracy of shooting from high jumping with handball. The researchers used the experimental approach with two experimental and control groups with two tests, before and after, and the research community was represented by the young players of Salah El-Din Sports Club handball for the 2019/2020 sports season, and their number. 20) players n. The exploratory experiment was conducted on (4) players who were then excluded from the research sample. The sample became (16) players and represented (80%) of the total research community, they were divided into two groups (control and experimental) and each The group includes (8) players, as the exercises prepared by the researchers were applied to the experimental group, while the control group used the approach The training that the coach follows. Through the findings of the researchers, they concluded the following researchers: The exercises prepared by the, in which the training aids were used, were applied to the experimental group, which showed their effectiveness in developing the response speed for the accuracy of shooting from jumping higher than the training curriculum used by the trainer. The implementation of the exercises using the correct training methods helped to bring about the development in the speed of response to the accuracy of shooting for handball players.

**Keywords***:* exercises, training aids, response speed, shooting accuracy.

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## Introduction

Scientific development came with a great renaissance in all fields of training science, which helped to achieve rapid and remarkable development in the field of sports, through the achievements in various sports events and activities, as well as because of the reliance on scientific methods and methods In the field of sports training, so countries began to use the different capacities and capabilities, trying to reach the best levels in sports activities, whether individual sports activities or collective sports activities by preparing the players from the physical, skill, kinetic, tactical and psychological aspects. The development in the fields of sports training came through the interest of experts and specialists in using exercises based on various training methods, because these methods are considered one of the important parts of the training process. Brilliant and positive, so there are great trends to wish and develop physical fitness. This is in order to reach the sports performance to the highest levels of sports activity, as this is done by using sound scientific planning and relying on appropriate training methods according to the correct scientific foundations. The handball game is one of the group sports activities in which players need to develop skills, the most important of which is shooting of all kinds in general and shooting with jumping in particular to achieve victory in matches. (Schmidt, A. Richard, 2000) confirms that coaches are supposed to encourage players to perform greater as many attempts as possible to exercise.

Research importance: lies in trying to identify the effect of using exercises by training aids in developing the response speed for the accuracy of shooting by jumping high for handball players. The researchers noted that there is a lack of use of training aids during exercise, which has the greatest impact on the development of the physical and skill abilities of the players, and this is what the researchers considered one of the important problems, as players in The game of handball needs speed of response and accuracy of shooting on the goal. The researchers are looking for an answer to the following question: Does the use of exercises by means of training have an effect on developing the response speed for the accuracy of shooting by jumping high among handball players?

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## Methodology

Method and tools: The researchers used the experimental method by designing the experimental and control groups with two tests, pre and post tests for its relevance and the nature of the problem of the current research. Therefore, the sample "is the model that the researcher conducts as a whole and the focus of his work on it, or it is part of the research community that the researcher deals with research and analysis in order to generalize the results obtained to the community from which the sample was drawn. The athlete 2019 / 2020 numbered (20) players, and (4) players were excluded for their participation in the pilot experiment, so the number of the sample members became (16) players, making up (80%) of the research community, and they were divided into two groups comprising each group (8). The players of the first group (experimental) applied the exercises prepared by the researchers, while the second group (control) applied the exercises followed by the coach, as in Table (1).

Table (1) The distribution of the research sample

| The research sample | Number of Players | percentage |
|---|---|---|
| experimental group | 8 | 40% |
| control group | 8 | 40% |
| Excluded from the pilot experiment | 4 | 20% |
| total summation | 20 | 100% |

And the research test was determined, represented by the skill test, the speed of response to the accuracy of the correction, which was designed by the researchers, and the scientific foundations of the test (honesty, stability and objectivity) were conducted.

**Tribal test :**The two researchers conducted the tribal test on the two research groups (experimental and control) on Wednesday 10/6/2020 in the hall of the College of Physical Education and Sports Sciences / Tikrit University and in the presence of the assistant work team, and the conditions for conducting the tribal test were fixed in terms of time and place. And the method of implementing the test, and the researchers used video cameras to photograph the tested player from the back and from the side to make sure that the shooting entered the specified box, in addition to calculating the response time, and the results of the

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players were recorded in the data collection form prepared previously for this purpose to be processed statistically later.

The mechanism of the device: The device consists of four squares made of iron measuring (50 cm x 50 cm), and each box contains lamps in four colors (red, green, yellow and blue), as they are installed on the four corners of the upper and lower goals by means of plastic belts, then The electrical wires are connected to each box separately, and the electrical power is connected by a battery (power supply) (12 VAfter completing the installation of the device, a brief idea of how to perform the test and the conditions necessary for the application is explained and given to the testers, then each player performs a number of experimental attempts to identify the time required for performance, as well as knowing the steps for performing the test by the players, as well as the proper timing by Operator the device via the control panel.

picture (1) Shows handball goal and shooting accuracy boxes

picture (2) Demonstrates power supply

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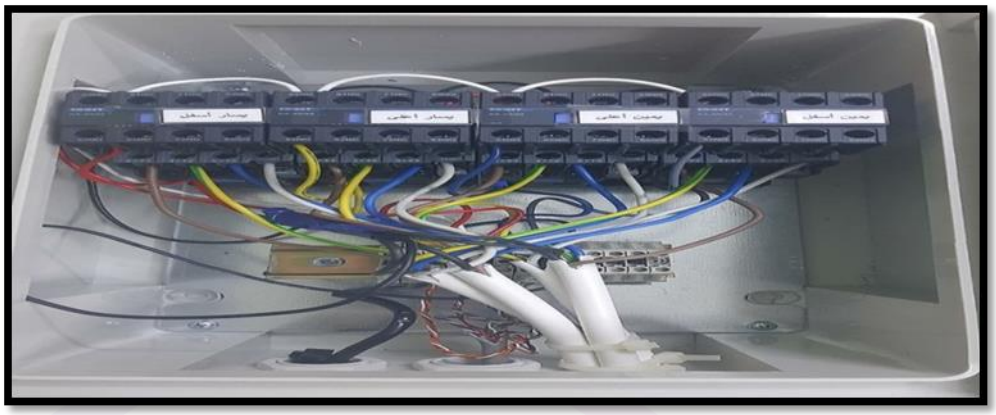

picture (3) electrical control panel


picture (4) On and off buttons

The exercises used: The researchers prepared a set of exercises for developing the speed of the motor response and the accuracy of shooting high in handball. The exercises were divided into two medium courses of (8) small units, as each small unit includes (3) training units, and the total number of training units became (24).), it was used was Rinat designed by Albagesa n by (3) exercises in the training unit except on Tuesday was (4) exercises have been applied in the days of (Sunday, Tuesday and Thursday) every week for two months, this exercise applied in the main part From the training unit and with a load ripple (3:1), starting from Sunday, 14/6/2020, as shown in Table (2).

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Table (2) A model showing the components of the training load for the exercises used

| Today | the exercise | average workout time | number of repetitio | Rest between repetitio ns | number of totals | Rest between groups | Total total rest time | Total total working time | The sum total of work and rest | total summati on | Objectiv e of the training unit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sunday | 10 | 8 th | 5 | 24 sec | 2 | 120 sec | 312 sec | 80 sec | 392 sec | 1680 sec | Explosive power + speed + shooting power |
| | 14 | 16 sec | 4 | 48 sec | 2 | 120 sec | 408 sec | 128 sec | 536 sec | | |
| | 18 | 8 th | 5 | 24 sec | 2 | 120 sec | 312 sec | 80 sec | 392 sec | | |
| Tuesday | 3 | 8 th | 5 | 32 sec | 2 | 120 sec | 376 sec | 80 sec | 456 sec | 2268 sec | Explosive ability + speed special power |
| | 7 | 14 sec | 4 | 42 sec | 2 | 120 sec | 372 sec | 112 sec | 484 sec | | |
| | 11 | 8 th | 5 | 32 sec | 2 | 120 sec | 376 sec | 80 sec | 456 sec | | |
| | 10 | 8 th | 5 | 24 sec | 2 | 120 sec | 312 sec | 80 sec | 392 sec | | |
| Thursda y | 15th | 16 sec | 4 | 48 sec | 2 | 120 sec | 408 sec | 128 sec | 536 sec | 1734 th | Explosive power + speed + shooting power |
| | 19 | 5 sec | 6 | 20 sec | 2 | 120 sec | 320 sec | 60 sec | 380 sec | | |
| | 4 | 6,5 sec | 6 | 26 sec | 2 | 120 sec | 380 sec | 78 sec | 458 sec | | |

Week: Fourth The way of training: Interval, high intensity
Training unit: tenth + eleventh + twelfth Intensity: 80%
Time of the applied exercises: (28.min., 37.8.min., 28.9.min.) Training unit time: 80-90 minutes
Main part time: 40-50 minutes

- **The exercise time has been reduced in proportion to the intensity used by reducing the maximum time fixed in the exercises.**

**The intensity used in training is within the high intensity interval training method and the repetitive training method, i.e. between the intensity of 80-95%. For all training units**

Figure (2)Shows a sample of the exercises used in the research

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The researchers used the two methods of high intensity interval training and repetitive training, as the first week started with intensity (80%) of the athlete's maximum ability, reaching intensity (80%) in the eighth week, as shown in Figure (3).

| Second Intermediate Course | | | | Intermediate first course | | | | pregnancy intensity |
|---|---|---|---|---|---|---|---|---|
| fourth week | the third week | second week | first week | fourth week | the third week | second week | first week | |
| | | | | | | | | 95 |
| | | | | | | | | 90 |
| | | | | | | | | 85 |
| | | | | | | | | 80 |
| 72.06 d. | 83.83 d. | 82.86 d. | 76.2 d. | 74.7 d. | 73.71 d. | 75.28 d. | 71.3 d. | Pregnancy time in minutes |
| 4324 sec | 5030 sec | 4972 sec | 4572 sec | 4482 sec | 4423 sec | 4517 sec | 4278 sec | Gestation time in seconds |

Figure (3) Training load ripples for weekly cycles

## Results

Table (3) Arithmetic means, standard deviations, the calculated (t) value, and the value of (sig) And the level of significance for the pre and post tests of the experimental group

| the exams | measuring unit | pretest | | post test | | (C) calculated | Values sig | indication |
|---|---|---|---|---|---|---|---|---|
| | | s | p | s | p | | | |
| The response speed of the shooting accuracy from jumping high | Accuracy/time | 2,82 | 0,627 | 5,48 | 0,583 | -12,686 | 0.000 | moral |

(*) Significant if the significance level is (0.05).

Table (4) Arithmetic means, standard deviations, the calculated (t) value, and the value of (sig) And the level of significance for the pre and post tests of the control group

| the exams | measuring unit | pretest | | post test | | (C) calculated | Values sig | indication |
|---|---|---|---|---|---|---|---|---|
| | | s | p | s | p | | | |
| The response speed for the accuracy of shooting from the high shot | Accuracy/time | 3,00 | 0,529 | 3,63 | 0,524 | -3,557 | 0,009 | moral |

(*) Significant if the significance level is (0.05).

The table (5) Arithmetic means, standard deviations, the calculated (t) value, and the value of (sig) And the level of significance of the post-test for the experimental and control groups

| the exams | measuring unit | control group | | experimental group | | (C) calculated | Values sig | indication |
|---|---|---|---|---|---|---|---|---|
| | | s | p | s | p | | | |
| The response speed of the shooting accuracy from jumping high | Accuracy/time | 3,63 | 0,524 | 5,48 | 0,583 | 6,230 | 0.000 | moral |

(*) Significant if the significance level is (0.05).

## Discussion

By noting Table (3), it is clear that there is a significant difference in the response speed for the accuracy of shooting between the pre and post tests in the experimental group and in favor of the post test .

The researchers attribute the development to the effectiveness of the exercises that were applied to the young players and the use of training methods that are characterized by diversity in the forms of exercises to develop the speed of the motor response of handball players, in addition to the gradation in the training load in a manner that suits the youth category, as well as the use of appropriate repetitions with them. This was confirmed by (Mohammed Hassan Allawi and Abul-Ela Ahmed Abdel-Fattah, 2000) that "the basic principle in developing the

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speed of motor response is the repetition of performance, that is, the repetition of the appearance of the stimulus and the response to that stimulus." And the search exercises used varied from jumping at different heights to the maximum height and according to the players' capabilities, as they were applied strongly and at high speed in order to affect the speed of transmission of the neuromuscular induction that contributes to the speed of movement of the player. Biain,1986) that the results of some research confirm that different jumping exercises work to develop the adequacy of the nervous-muscular system for the purpose of performing fast and strong jumps in opposite directions while reducing the performance time for these opposite variables, which gives them an advantage in jumping. And by noting Table (4), it was found that there were significant differences in the response speed test for the accuracy of correction designed by the two researchers, between the two tests, the pre and post tests in the control group, and in favor of the posttest. The coaches are keen that the player has a high kinetic response and that he can take the appropriate decision at the right moment, and this was confirmed by (Mcclement And, Sanderson, 1998) that the kinetic response and kinetic sensation affect decision-making, i.e. taking the correct kinetic performance from the athlete. The use of appropriate training methods by the coach and the correlation between the exercises and the applied vocabulary, in addition to the overlap of these exercises that contain speed of response with skillful playing situations, have led to this development in the players of the control group. This was confirmed by (Issam Abdel-Khaleq, 1999) that the development of the athlete's condition is by gradually increasing the training load in linking the requirements of compatibility with the speed of the motor response, such as linking different motor elements and training the players on compound movements and changing the timing of the movements. The use of aids as well as the use of their own exercises is an aspect of the development of the exercise, as training programs with appropriate repetitions according to the appropriate intensity and appropriate comfort for each exercise are one of the solutions that coaches resort to in order to bring their players to the best level, and this was confirmed by Krzysztofik, Wilk, Wojdała, & Gołaś, 2019)The training programs include the selection of exercises, groups, repetition, intensity, duration of repetition and appropriate rest. The more advanced programs provide details and can include advanced techniques that develop the training process. By noting Table (5), a significant difference appeared in the response speed test for the accuracy of shooting for the post-test for the two experimental groups. The

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control group was in favor of the experimental group. The difference is attributed to the special exercises that the researcher used, which the players benefited from in developing the speed of response to the accuracy of the shooting. Therefore, handball coaches must be proficient in designing the exercises to be used in the training units. This is what Thaer Rashid indicated that it is normal for there to be progress and development of skills through the trainer's reliance on scientific foundations in determining the exercises used to develop and develop the speed of response to the skills to be further developed through practice and repetition. Increasing the motor speed of the two men depends on the development of the strength characteristic of speed, considering that the movements of the two men are one of the basic offensive and defensive skills in handball, which enables the player in the case of defense to pursue and control the attacker and prevent him from performing offensive skills with the ball if he possesses it and vice versa if the player If he is in control of the ball, he must move quickly to get rid of the defending player. P aya, 1996 and Dell harris, 1993"Defensive and offensive movements must be characterized by kinetic speed and explosive steps. The decisive and predominant physical component in the performance of the movements of the two legs is the kinetic speed of the two legs. The very important thing is that the trainers should choose exercises, whether physical or skillful, that serves the privacy of the activity or the practiced sports activity. And the use of tools and means that he finds to develop from the level of the athlete, and this is confirmed by him Hussein, 2001),Teplice, S, 2002) that the exercises serve the game in question, and therefore the training principle that is known as privacy must be taken into account.

## Conclusions

1. The exercises prepared by the researchers, in which the training aids were used, were applied to the experimental group, which showed their effectiveness in developing the response speed for the accuracy of shooting from jumping high more than the training curriculum used by the trainer.
2. The implementation of the exercises using the correct training methods helped to bring about the development in the speed of response to the accuracy of shooting for handball players.

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