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The effect of special exercises according to the reciprocal method in developing explosive force in long shot in football

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Abstract

The purpose of this paper is to preparing special exercises according to the reciprocal method to develop explosive force when performing long goals in football and identify the effect of special exercises based on the reciprocal method in developing explosive force in long shot in football. The researcher used the experimental method, as the experimental method. The community of Diyala Governorate club players was determined, and the research sample included Diyala Sports Club players for the 2022-2023 season. The number of players is (55) divided into two groups. The sample is from Diyala Sports Club youth players for the 2022-2023 season, which consists of (40) players in a random manner. One of the most important results reached by the investigator is that: There are significant differences between the pre- and post-tests in all the tests investigated for both groups (control and experimental) and in favor of the post-tests, and there are significant differences in the post-test between the two groups (experimental and control) in favor of the experimental group. One of the most important recommended by the researchers is that: Use special exercises to develop explosive force, and necessity of paying great attention to explosive force and developing long shot in colleges of physical education.

Keywords: Special exercises, explosive force, football, players

Introduction

The efforts made by scholars, experts, and trainers specialized in the field of training and learning continue to develop new training methods, the purpose of which is to strive to achieve the finest attainment and utilize the time of the training units in an effective and positive manner.

The science of training, like other sciences in the field of physical education, has received greatly increased attention through scientific research and studies, including the International Information Network (the Internet), which has made it take an organizational form and quickly communicate all developments in the training units used and contribute to finding methods. New training, so the science of training became an independent applied science with its own methods, philosophy, foundations and programs, which began to form a major axis of improving the reality of sports teams, clubs and institutions. The training process is an organized, purposeful, and scientifically oriented educational process towards preparing players appropriately physically, skillfully, technically, and psychologically to reach the highest possible levels. Proper training planning is the one that relies on scientific foundations in organizing the training process, especially training age groups, following correct scientific curricula. This means studying all the factors affecting the training processes and developing them to reach the best possible level through studying the development of players' physical fitness elements, which can contribute In the process of integrating performance, including explosive force.

Achieving high levels in football begins with the practice of young people and youth. Therefore, most of the civilized and scientifically advanced countries of the world began to pay attention to this age group and worked to establish specialized schools in football.

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They developed precise scientific training curricula that include classes and hours of training in addition to what is theoretical and specializes in the nature of the game. Its history, laws, rules and foundations for learning. The importance of research is evident in developing the explosive force of Diyala Sports Club players, to better develop optimal performance by developing special exercises to the reciprocal method in developing the explosive force in performing long shot in football, in an economical manner in terms of time, effort, creativity and Knowing its impact on creating the required training and improving the level of football in a better way.

Research problem

Through the researcher's observation and his modest experience and football follower, he noticed the lack of agreement among some of the teachers in implementing and scheduling their training programs. We hardly find them interested in the explosive force of the players in the training units, forgetting the weight and benefit it has in long- shot. Therefore, through this research, the researcher decided to identify the effect of special exercises according to the reciprocal method in developing explosive force in long goal performance.

Research objective

- Preparing special exercises according to the reciprocal

method to develop explosive force when performing long goals in football.

- Identify the effect of special exercises based on the reciprocal method in developing explosive force in long shot in football.

Research hypotheses

Exercises using the reciprocal method have a positive effect in developing explosive ability and long shot in football.

Research fields

- **Human field:** Diyala Sports Club players for the 2022-2023 season.
- **Time field:** (1/12/2022) to (18/4/2023).
- **Spatial field:** Diyala Sports Club Stadium.

Research Methodology

In solving its problems, all scientific research resorts to choosing an approach that is compatible with the nature of the problem. Accordingly, the researcher used the experimental method (and by designing two equal groups) as appropriate to the nature of the problem to be solved, as the experimental method "represents the most truthful attitude to solving many scientific problems in a practical and theoretical manner" (Allawi and Ratib, 1999: 215) [6] and Table (1) shows the experimental design of the research.

Table 1: Shows the design of the two equal groups with pre-test and post-test

Groups	Pre-test	Experimental treatment	Post-test
Experimental	1-Performance (long shot) 2-Long jump from stability position	Use exercises specific to the reciprocal method	1-Performance (long shot) 2-Long jump from stability position
Control	Same procedures	The method used	Same procedures

Community and sample research

The community of Diyala Governorate club players was determined, and the research sample included Diyala Sports Club players for the 2022-2023 season. The number of players is (55) divided into two groups. "The objectives that the investigator sets for his study and the events he uses will determine the nature of the sample chooses" (Majeed, 1988: 167) [2].

Research sample: The sample is one of the necessities of experimental scientific research. It is "the model that is examined or monitored and on which the experiment is carried out, and it may consist of one person or two or more people" (Mahjoub, 1987: 261) [7], as it was chosen The sample is from Diyala Sports Club youth players for the 2022-2023 season, which consists of (40) players in a random manner, as shown in Table (2).

Table 2: Shows the research community

Vocabulary	Number	Percentage
Original research sample	40	72.72
Sample exploratory experiment	10	18.18
Those excluded due to absence from training	1	1.81
Those excluded due to injuries	4	7.27
research community	55	100

Thus, the final total number of the research sample is (40) players representing a percentage of (72.72) of the original population, divided into two groups at random, with the following division:

1. **The first group: (A)** and includes (20) players - the experimental group. (Special exercises in the reciprocal method)
2. **The second group: (B)** includes (20) control group players.

(The method followed by the teacher). Note that the two

sections (C and D) are female students.

Homogeneity of the sample: The researcher found homogeneity between the two research groups and the individuals of the two research samples in the variables (height, weight, age, Performance (long shot), Long jump from stability position) using the F-test, as values (F) appeared for all The variables are less than the tabulated value at two degrees of freedom (19-19) and a level of significance (0.05) of (2.156), which indicates the homogeneity of the members of the two samples, as we observe in Table (3).

Table 3: Shows the homogeneity of the research sample members in the research variables

Variables	Control group		Experimental group		F value calculated	Type sig
	Mean	Std. Deviations	Mean	Std. Deviations		
Length	168.95	5.17	169.45	3.938	1.723	Non sig
Mass	61.60	7.214	64.15	8.302	1.324	Non sig
Age	19.50	1.323	20.60	1.578	1.423	Non sig

The tabular value of the test (f) is (2.156) at two degrees of freedom (19-19) and below the significance level (0.05).

Equivalence of the two research samples

The researcher conducted equivalence on the two research samples in the variables Performance (long shot), Long jump from stability position, jumping, the maximum distance

within (10) seconds for both men (right and left), running a distance of (30) meters from the flying position) using the (t) test. As shown, the values of (t) for all variables are less than the tabulated value at a degree of freedom (38) and a significance level (0.05) of (2.021), which indicates the equality of the sample, as shown in Table (4).

Table 4: Shows the equality of the two groups in the research variables

Variables	Control group		Experimental group		T value calculated	Type sig
	Mean	Std. Deviations	Mean	Std. Deviations		
Performance (long shot)	1.15	0.654	1.05	0.519	0.540	Non sig
Long jump from stability position	2.18	0.160	2.23	0.136	1.020	Non sig

The tabular value of the t-test at the degree of freedom (38) and below the significance level (0.05): is (2.021).

Tools and devices used in the research

- Leather measuring tape, length (20 m)
- 1 electronic balance to measure mass.
- Whistle number (2).
- Stopwatch (2).

Field research procedures

Proposed approach

The researcher scheduled the exercise curriculum, which included eight units in addition to two elementary units, with two units per week. The time of the unit was (90) minutes, while the preparatory section normally included 23 minutes divided into three parts. The introduction was 3 minutes during the unit. The general warm-up was 8 minutes long to prepare the body's organs, and the special warm-up time was 12 minutes, as it comprised various exercises connected to the main section, which was 60 minutes long because of its grand reputation as a single unit. It was divided into two main aspects; the educational aspect was 15 minutes long. One minute, the functional part was 45 minutes long, and the final section took 7 minutes, interspersed with recreational pieces of training, a general calming down of the body, as well as a departure salutation, Appendix (1).

Exploratory experience

The exploratory experiment is considered a mini-experiment of the basic experiment, and the terms and conditions that constitute the basic experiment must be met as much as possible so that it can be taken into account. (Naji and Ahmed, 1987: 95). The experiment was conducted on 18/12/2022 on a sample consisting of (10) Players from the research community who were selected in an organized random manner. The main goal of the exploratory experiment was to identify the difficulties that the researcher may face. In

light of the above, it was learned to know the extent of the research sample's readiness to perform the tests, the time it takes to conduct the tests, the suitability of the tests for the research sample, and to ensure knowledge of the devices and the tools used.

Pre-test

The researcher conducted the pre-test on Sunday, January 24, 2023, at ten in the morning at the stadium in Al-Mustansiriya University.

Main experiment

After prepared the training curriculum for the skill of long shot, which includes various exercises in a reciprocal manner that helps in developing the special force and speed, which specializes in learning effectiveness and achieving the optimal level among the students, relying on their experience and field training expertise and with the help of scientific sources, the duration of implementing the educational curriculum took four weeks and two units. Each week, the time of the training unit (50-60 minutes) was limited to the main section only.

Post-tests

After completing eight units from the training, the post-test was conducted on the research sample on 8/3/2022 at the Diyala Sports Club stadium.

Statistical methods: The researchers use the (SPSS).

Results and Discussion

Presenting, analyzing and discussing the results of the pre- and post-tests for the two research groups and for the performance variable.

Table 5: Shows the results for the pre- and post-test for the performance variable, long shot.

Groups	Pre-test		post-test		T value calculated	Type Sig
	Mean	Std. Deviations	Mean	Std. Deviations		
Experimental (degree)	2.05	0.519	6.15	1.327	7.592	Sig
control (degree)	2.15	0.654	4.00	0.894	7.032	Sig

The tabular t value is (1.729) at the degree of freedom (19) and below the significance level (0.05)

It is noted from the table (5) that in both the control and experimental groups, statistically differences were created between the results of the pre- and post-tests and in favor of the post-test. The investigator qualities the reason for procurement this result to the use of singular exercises to learn the effectiveness of the long jump within the educational curriculum in a reciprocal manner, as well as the control group that included the academic course that Prepared by the teacher of the subject, which showed a positive and tangible effect in developing explosive force, which led to an

advantage in the level of long shot performance in the post-measurement for the two research groups (experimental and control), This was confirmed by Wajih "Through repetition, practice, explanation, and clarification, the skill develops, is refined, and results in the ability to link movements and movements groups together and to lead, direct, and act upon the movement" (Mahjoub, 1987: 134) [7].

Presenting, analyzing and discussing the results of the two research groups' post-test for the performance variable

Table 6: Shows the results for the post-test and for the two research groups for the performance variable, long shot.

Variable	Experimental group		Control group		T value calculated	Type Sig
	Mean	Std. Deviations	Mean	Std. Deviations		
Performance long shot (degree)	6.15	1.327	4.00	0.894	6.256	Sig
Tabular t value (2.021) at degree of freedom (38) and below significance level (0.05)						

Through the above table (6), the researcher notes that the development and improvement in explosive force has a direct relationship, which is evidence of the development of performance, which was confirmed through the use of exercises. The special and reciprocal method and the correction of errors associated with performance have helped to develop the ability of the members of the experimental group in performing long shot: "the use of educational with a

direct influence that are chosen chiefly to the type of faintness and defect occurring in performance, so that the development is specific to the type of defect." It improves performance" (Al-Sukari, 1996: 24).

Presenting the results of the pre- and post-test for the two research groups and for the long jump variable of stability, analyzing and discussing them:

Table 7: Shows the results for the pre- and post-test of the Long jump from stability position.

Groups	Pre-test		post-test		T value calculated	Type Sig
	Mean	Std. Deviations	Mean	Std. Deviations		
Experimental	2.23	0.136	2.39	0.16	2.853	Sig
Control	2.18	0.160	2.29	0.13	2.645	Sig
The tabular t value is (1.729) at the degree of freedom (19) and below the significance level (0.05)						

It is noted from the above Table (7) that there were statistically differences between of the pre- and post-tests in both the experimental and control groups, in favor of the post-test. The investigator qualities this growth to the completion of the long jump test from stability (the explosive force of the legs), As a result of using various exercises (Run jumping, standing long jump, squat jump, steeplechase jump, and side steeplechase jump), as these exercises lead to developing the explosive ability of the legs, they were influential in obtaining this result "Plyometric training contributes to developing

speed and muscular force, by combining the elements of speed and muscular force with what is called explosive force, and ability is a necessary and important element in the performance of most sports skills, especially football." (Al-Yasiri and Ibrahim, 2004: 113) [5].

Presentation, analysis and discussion of the results of the post-test for the two research groups and for the Long jump from stability variable:

Table 8: Shows the results for the posttest and for the two research groups for the Long jump from stability.

Variable	Experimental group		Control group		T value calculated	Type Sig
	Mean	Std. Deviations	Mean	Std. Deviations		
Long jump from stability	2.39	0.16	2.29	0.13	3.095	Sig
Tabular t value (2.021) at degree of freedom (38) and below significance level (0.05)						

Excluding the above table(8) this indicates that there are significant differences between the two groups (control and experimental) and in favor of the experimental group, that is, there is a preference for the educational program using the reciprocal method in developing the level of achievement in the long jump test from stability (explosive strength of the legs). The investigator qualities the reason for obtaining this result to the fact that the various jumping and jumping exercises, which were performed with a high degree of accuracy and organization in a reciprocal manner, had a positive effect on the work of the muscles of the legs (and explosive power is the athlete's ability to combine strength and speed, "as this strength tends to speed and strength." Together, but in varying proportions, and this depends on the size of the external resistance as well as on the external

composition of the movement" (Majid Musleh, 2002: 59) [3].

Conclusions and Recommendations

Conclusions

Through discussing the results, the investigator touched the succeeding

1. There are significant differences between the pre- and post-tests in all the tests investigated for both groups (control and experimental) and in favor of the post-tests.
2. There are significant differences in the post-test between the two groups (experimental and control) in favor of the experimental group.
3. Reciprocal exercises have a positive effect on the development of explosive force among members of the research sample (the experimental group).

4. The reciprocal method exercises have a positive effect in developing the level of long shot among members of the research sample.

Recommendations

1. Use special exercises to develop explosive force.
2. Necessity of paying great attention to explosive force and developing long shot in colleges of physical education.
3. Conduct parallel research and educations on other age groups and sporting events.

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Appendix (1)

Shows the training curriculum

Week: First

First unit:

Unit time: 50-60 minutes

Section	Time (minutes)	Physical exercises	Repetition	Rest between repetitions	Sets	Rest between sets	Time of one repetition
main	60minutes						
	11 minutes	Jumping in place by raising the knees high towards the chest (3 x 20 seconds)	3	45 second	2	3 minutes	20 second
	15minutes	Jumping to the sides over a barrier with a height of (30 cm), (6 x 25 seconds)	6	30 second	2	3 minutes	25 second
	16minutes	From the lying position on the back, raise and lower the legs together (8 x 40 seconds)	8	15 second	2	2 minutes	40 second
	18minutes	Jump with both feet on (10) hurdles with a graduated height (20-70 cm), repetitions (3 x 60 seconds)	3	30 second	3	3 minutes	60 second

Week: First

Unit: Second:

Unit time: 50-60 minutes

Section	Time (minutes)	Physical exercises	Repetition	Rest between repetitions	Sets	Rest between sets	Time of one repetition
main	60 minutes						
	26 minutes	Jump run (8 x 25 seconds)	8	30 second	3	4 minutes	25 second
	22 minutes	Jump over several obstacles (10 obstacles) (6 x 35 seconds)	6	25 second	3	3 minutes	35 second
	12 minutes	From the prone position, raise and lower the torso (20 seconds x 4)	4	10 second	3	3 minutes	20 second

Second week

First unit:

Unit time: 50-60 minutes

Section	Time (minutes)	Physical exercises	Repetition	Rest between repetitions	Sets	Rest between sets	Time of one repetition
main	60 minutes						
	30 minutes	A Jumping on the right leg and then a partridge on the left leg (6 x 40 seconds)	6	30 second	3	4 minutes	40 second
	20 minutes	Jumping over (10 obstacles) at different heights (20 cm, 80 cm), (6 x 25 seconds)	6	20 second	3	3 minutes	25 second
	10 minutes	Jump running (5 x 24 seconds)	5	15 second	2	3 minutes	24 second