

The effect of Maxex exercises in developing the explosive ability and some offensive skills of youth in football

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Abstract. The Maxex training is considered to be the most important training methods that contribute effectively to the development of the (explosive ability) of the players because of its direct impact on the nervous and muscular systems. Since the explosive ability is the mainstay of some skills that the player performs during the competition (scoring and headshot), the researchers develop this ability using a new training method that has a positive impact on this ability. The more the team players possess these physical skills abilities, the more positively reflection on improving the team's level, so the coaches need to pay attention to the physical and skill capabilities of football players. Thus, the research aims to prepare the Maxex training and to identify the effect of the these training in developing the explosive ability and some offensive skills for youth in football. The researchers used the experimental method, designing one group with two tests, pre and post, for its suitability to the nature of the problem. where the study concluded that maxex training helped to develop explosive ability and some offensive skills in football players. The study recommended that coaches should pay attention to use maxex training according to scientific training methods when exercising football players.

Keywords: maxex training, explosive ability, offensive skills

1. Introduction to the research and its importance

Football is one of the sport games that has received increasing global attention as it is one of the most popular sport games in the world. The development in the international levels of football teams, which is seen greatly in the recent major European leagues, came as a result of harmony, physical ability, skills and mental integration. This harmony and integration did not appear spontaneously and randomly, but it is a result of the trainers' reliance on the sport training science that based on other sciences, which achieve the best levels and results. It has been scientifically proven that the response of the body's organs to sports training is of particular importance in knowing the extent of physical and skill improvement for players.

The importance of using offensive skills in football increases, as they are decisive in achieving the goals, that require that the performance must be determined by accuracy, strength and speed because of these skills require players who have high physical abilities to be the main determinant of the success of the skill. Therefore, the importance of the research in preparing maxex-style exercises and knowing the impact of these exercises on explosive ability and achieving the highest level of skillful performance in football.

The researchers believe that the research problem is concentrated in the lack of trainers' use of modern exercises. They found that trainers use commonly applied exercises that do not

directly affect some of the physical abilities and skills in football. Among the modern exercises that directly influence the explosive ability and the skill performance of scoring in football are the maxex exercises which increase the muscular strength of the players, this reflected directly in improving some skills that require direct touching with the opposing team players. In addition to the skills that require long passing and scoring from different distances. Therefore, the researchers decided to prepare the maxex training, which would affect the explosive ability and some offensive skills of the youth football players.

The aim of the search is:

- 1- Preparing maxex training in developing the explosive ability and some offensive skills for youth in football.
 - 2- Knowing the effect of these training on developing explosive ability and some offensive skills for youth in football.
2. The Research methodology and field procedures
- 2.1. The Research methodology:

The researchers used the experimental method to solve the research problem in a one-group style with two pre and post-tests.

2.2. The research community and its sample

The research community was determined by the intentional method of the youth players of Naft Al-Wasat Football Club for the season 2020-2021, whose number was (18) players. The researchers excluded the (3) goalkeepers and chose (5) player as an experimental sample, so the proportion of the experimental sample was (33.33%). Ten players were selected for the main experiment with a percentage of (66.67%).

Table (1): The experimental design of the research

The group	Pre-tests	Independent variable	Post-tests
Experimental	Explosive ability Offensive skills	Maxex exercises	Explosive ability Offensive skills

2.3. The field procedures:

2.3.1. Description of the physical tests used in the research:

Test name: The horizontal jump from stability (Mohammed Sobhi Hassanein and Hamdi Abdel Moneim, 1996, p.116-119)

The aim of the test: To measure the explosive ability of the legs.

- **Tools used:** The test requires a metric measuring tape and a drawing starting line.
- **Description of the test:**

The player takes the standby position on the edge of the starting line so that the feet are joined. Then he bends his legs down and opens the arms to the side from this position. After

the whistle signal is given, the player starts horizontal jumping with a maximum force to cover the largest possible distance.

- **Registration:**

The degree of the player who complete the test is the maximum distance reached by jumping forward in meters and its procedures. The player was given three attempts and the best one was calculated.



Figure (1) shows the explosive capacity test

2.3.2. Description of the skill tests used in the research:

First: Testing the accuracy of passing the ball towards a target drawn on the ground (Farhat Ramadan Al-Ghali, 2001, 63)

Objective of the test: To measure the accuracy of handling.

Tools used: a drawing circles and footballs.

Description of the test: Three circles are drawn for the same center with diameters of (3) meters, (5) meters and (7) meters. The starting line is determined at a distance of (25) meters from the center and a length of (5) meters from the side. The player stand behind the starting line and then handling the five balls in a row in the air, trying to drop them in the small circle. The player makes two attempts in a row. After the ball touches any common line, the highest score is counted. Each attempt consists of (5) balls.

Scoring: (3 marks) will be given to the smallest circle, (2 marks) for the middle one, (1 mark) for the third circle, and (zero) will be given if the ball scored outside the circle.

Unit of measure: the mark 0.

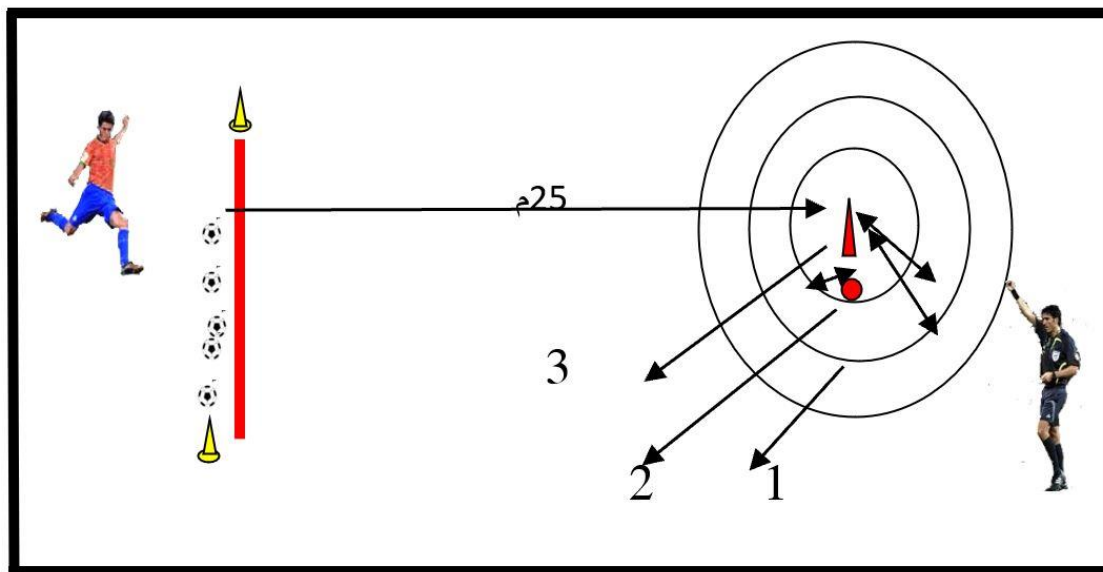


Figure (2) Demonstrates handling accuracy test

Second: The Scoring Test:

The objective of the test: To measuring the scoring accuracy (Diaa Jaber Muhammad, 2006, p. 95)

The test requirements: a football field, (10) balls, tape to designate the shooting area for the test, and measuring tape.

Description of the test:

The (10) balls placed in different places on a line inside the penalty area, as shown in the figure below. The player shoots in the marked areas of the test according to their importance and difficulty, in a sequence one after the other. The test should be performed in terms of running. The test starts from ball number (1) and ends by shouting ball number (10). The attempt is not valid in the case that none of the four targets where hit in each side.

Scoring: The number of balls that enter or touch the four specified goals on each side of the goal and on any of the feet, so that the scores for each of the ten balls are calculated as follows:-

(3 Marks) are giving if the player score in the field number (3), (2 Marks) in the field number (2), (1 Mark) for the field number (1), and (0 Mark) for the rest the goal. The player is given only one attempt.

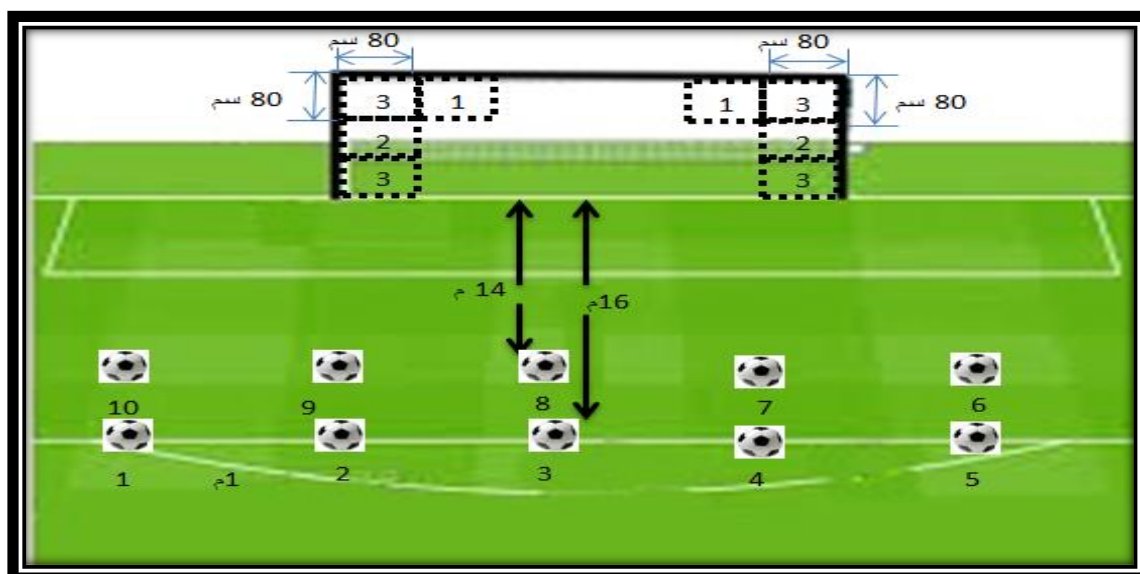


Figure (3) explains football scoring

2.3.3. The exploratory experiment:

The researchers conducted an exploratory experiment to test the explosive ability and some offensive skills in football on a sample of the original research community and from the same research sample with a number of (5) youth players on Tuesday August 24th, 2021. The exploratory experiment aims to:

- 1- Determining the maximum time for each exercise used in the training units (intensity) and extracting the appropriate intensity for each exercise.
- 2- Knowing the field difficulties that the researcher may face on applying the exercises in the training units.
- 3- Knowing the time required to apply the training curriculum of the exercises prepared by the researchers, so the researchers and their assistant work team find out the negatives and positives that accompany the application of the tests in terms of requirements and method of work.
- 4- Knowing the extent of the research sample's readiness to perform the tests and determine their duties.

2.3.4. Pre-tests:

The researchers conducted pre-tests on the research sample of the study variables on Monday September 6th, 2021. They tried to write down the conditions associated with the tests, such as place, time, and results.

2.3.5. Applying the MAXEX exercises:

The researchers prepared and organized the maxex exercises based on their personal experience. The appropriate exercises began to be applied within the skill requirements on the experimental group from September 10th, 2021 until November 11th, 2021. The variables

(intensity, repetitions, appropriate rest periods) were considered, and the researchers were codified these exercises by using a scientific basis.

2.3.6. Post-tests:

The researchers, with the help of the assistant working staff, conducted the post-tests of the research sample after completing the maxex exercises. On Sunday November 11th, 2021 the post-test were started with the same sequence of the pre-test, as the researcher took into account the same conditions in which the pre-tests were conducted.

2.3.7. The statistical methods used in the research:

The researchers used the statistical software (SPSS) to analyze the results of the research, including:

- Arithmetic mean.
- Standard deviation.
- Mediator.
- Pearson correlation coefficient.
- T-Test for connected samples.
- T-Test for independent samples.
- The vein.
- Coefficient of skewness.

3. Presentation and discussion of the results:

3.1. Presenting the results of the pre and post-tests of the experimental group for the explosive ability and some offensive skills for youth in football

Table (2) shows the arithmetic means, standard deviations, the calculated (T-value) of the connected samples, the level of test significance, and the significance of the difference for the pre and post-tests of the experimental group for the explosive ability and some offensive skills for youth in football.

Statistical tools variables	Measure unit	Control group		Experimental group		T-value	Sig level	Sig type
		A. means	S. aviation	A. means	S. aviation			
Explosive ability	Meter	1.635	0.034	1.905	0.031	29.577	0.00	significant
Passing skill	Degree	10.07	2.96	14.33	3.27	10.17	2.145	Significant
Scoring skill	Degree	11.75	1.258	19.5	2.081	16.189	0.001	significant

3.2. Discussing the results of the pre and post-tests of the experimental group for the explosive ability and some offensive skills for youth in football

The results in Table (2) for the explosive ability test showed that there were significant differences between the pre and the post-tests, and in favor of the post-tests. The researchers attribute the reason for these differences in the experimental group to the use of the maxex exercises prepared by them. It was codified according to a scientific basis, which are suitable to the principles of energy expenditure and appropriate for this muscular work that takes only a few seconds. In training the explosive ability of the legs muscles, the researchers mainly used various exercises using body weight, deep jumping, as well as the use of obstacles and boxes due to their impact in developing this ability. This is what was indicated by (Qasim Hassan Hussein and Mansour Jamil Al-Anbaki, 1988, 113) who states that “The exercises that use great resistance are one of the appropriate tools for developing the components of explosive power”. The researchers also attribute the reason for these differences of the research sample to the quality of the maxex exercises that used in the training program which applied by the research sample members because it focused on producing the maximum strength in the least possible time. The opinions of experts, no matter how different the sources of their scientific and practical cultures are, confirm that “the training program leads to develop the achievement, provided that the curriculum should be prepared on a solid and organized scientific basis (Dick. W. Frank, 1979). The maxex exercises were also used in the plyometric method, as it helped largely to develop the explosive ability of the two legs muscles by regulating the muscular work between contraction and relaxation of the working muscles, which helps in performing the movement easily and in an orderly manner.

Table (2) results showed that there were significant differences between the pre and post-tests and in favor of the post tests for the arithmetic mean values, standard deviations, and (T-values) calculated of offensive skills (passing, scoring) in football. The researchers attribute the reason for this development of the research sample that applied the maxex exercises to the quality of the exercises that focused on the skill performance with similar conditions of playing such as competition in matches. This created an equivalence between the training load and the development of the physical and skill abilities of the player, which was reflected in the level of technical performance. As well as the case of repetition and focusing on correcting the errors accompanying the performance, so the player acquired the quality of accuracy in the performance skill of long passing and scoring from different distances through the accuracy of estimating the distance, which led to the development of this skill. The speed and high accuracy of scoring will surprise the opposing team and pose a direct threat to their goal. Moreover, accurate passing behind the opposing team’s defenders facilitates the process of reaching the goal in least time and effort to obtain clear and easy opportunities for scoring. A large percentage of the exercises are performed with tools that make the player fall under the influence of the competition, such as (artificial wall, specific marks, circles, small moving targets). Achieving the greatest possible degree of accuracy in scoring and good passing in training and competition requires the football player to have a high level of physical and motor performance, as well as mastering the skill that contains three parts (preparatory, basic, and final) to be able to reach the goal and achieve the required level in competitions. In addition to the number of the appropriate repetitions that accompanied the training units and the careful selection of exercises, considering their suitability to the research sample and their capabilities to repeat the exercises and to graduate

the level of difficulty that ensures performance by everyone. This is what was stated by (Mufti Ibrahim Hamadeh, 1988, p. 119), as he believes that “the coach's choice of difficult exercises will increase the experiences of some players”.

4. Conclusions and Recommendations

4.1. Conclusions

Based on the research results that were reached within the limits of the research community, the following conclusions were reached:

- 1- Maxex exercises contributed to develop the explosive ability of youth in football.
- 2- The diversification and planning followed in the preparation of the maxex training led to a noticeable improvement in the accuracy of scoring and passing for youth in football.
- 3- The development of explosive ability contributed directly to the development of the accuracy of the skill of scoring and passing for youth in football.

4.2. Recommendations:

Considering the conclusions reached by the researcher, which proved the effectiveness of the use of maxex exercises, the researchers recommend the following:

- 1) Using maxex exercises according to scientific training bases to raise the physical and skill efficiency of young football players.
- 2) Adopting the maxex exercises in the study within the components of the training load (intensity, size, comfort) when training explosive ability for its contribution to develop the skillful performance of the players.
- 3) The necessity of benefiting from the results of this study in similar research in the case of training.
- 4) Conducting researches and studies which are similar to other football skills.

References

1. Diao Jaber Muhammad: The effect of exercise during the two phases of the physical biorhythm cycle in developing and teaching some physical traits and basic skills among junior footballers, PhD thesis, University of Babylon, College of Physical Education
2. Dick. W. Frank. Sport Training principles. 3rd Ed. London. A-C Black, 1997.
3. Farhat Ramadan Al-Ghali: The Biological Characteristics of Football Players to Rationalize the Selection of Juniors, Ph.D. Thesis, Faculty of Physical Education, Helwan University, 2001.
4. Mufti Ibrahim Hamadeh: Modern Sports Training, Planning, Application, Leadership, 1st Edition, Cairo, Arab Thought House, 1988.
5. Muhammad Sobhi Hassanein, Hamdi Abdel Moneim: The Scientific Foundations of Volleyball and Measurement Methods, 1st Edition, Dar Al Fikr Al Arabi, Cairo, 1996.

6. Qassem Hassan Hussein and Mansour Jamil Al-Anbaki: Physical fitness and ways to achieve it, Higher Education Press, Baghdad, 1988.
7. Tudor Bomba & Michael Carrera; Periodization Training for Sports: (USA, Human Kinetics, 2005).