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Research Article

The Effect of Crossfit Exercises on Developing Explosive Ability, Speed Of Lunge, and Fleche Movement and Accuracy of Touch among Foil Weapon Fencing Players

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Abstract

The importance of the research lies in how to develop explosive ability, the speed of the movement of the stab and arrow, and the accuracy of the touch on the opponent. The problem of the research was evident in the weakness in the explosive ability, muscular strength, and the speed of the movement of the stab and the accuracy of the touch. Therefore, the movement of the stab had a direct impact on the results of the game, as it became the largest percentage of obtaining Touches from the opponent, and from here the researcher noticed that there is a weakness in executing the lunge movement if the players' lunge movement is slow, which requires high speed and is characterized by the explosive ability of the lunge and arrow movement when executed. This leads to a lack and weakness of the ability to accurately touch among the players because accuracy is in the sport of fencing. You must have speed, and if you do not touch the opponent, the other competitor is the one who touches you, and this is what made the researcher delve into solving this problem in implementing ball and soft exercises to develop the explosive capabilities of the players. The researcher used the experimental method in implementing the research process. The number of sample members was (20) players from the fencing team at the University of Babylon for the year 2023 and participants in the university's epee championship. Through the results in the research tables, a noticeable and tangible development was achieved through the values that appeared after the statistical treatments. In favor of the experimental group that practiced performing the crossfit exercises.

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Keyword: Crossfit exercises movement, and foil weapon

1. Introduction:

Fencing is one of the beautiful games in the world, and the ability to continue playing it well depends on a main basis in physical, skill, tactical and psychological preparation, and each of this basis has its own methods and methods in preparation and training. The process depends on an integrated and interconnected understanding of those foundations because they do not separate one from the other. The development taking place in fencing and reaching a good level is important for all

sports teams, and this progress is not the result of coincidence, but rather the result of great interest in the science of sports training, as achieving distinguished sporting achievements and winning world championships has become evidence of the progress and civilization of countries, and this science has developed amazingly. Because of the results of scientific research, it facilitated the training process for coaches using the best means and methods that bring the athlete to the best level and in the shortest possible time to achieve the best achievement. Fencing has special training requirements that must be available to the player, including equipment that must be worn. The other thing is to work on developing general and specific physical abilities, integration of skills, and mastery in executing the playing performance. Each of these aspects leads to a weak point in the training process and then a weakness in the level of performance of the players, as the researcher used the experimental method in carrying out the research. The number of members of the sample was 20 players from the fencing team of the University of Babylon. Crossfit exercises were implemented in developing explosive ability, with 10 exercises and 2 weekly units for 8 weeks. This facilitates training in lunge speed and accuracy of touch.[1]

To integrate training, different and modern means, methods and training methods are used to speed up and facilitate the process of development, whether physical or skill-wise. There are many of these means such as (barriers, barriers, terraces, hanging targets (the bar), medicine balls, ropes, weights, etc.) As for the methods, they are the regular process. In implementing and achieving the goal of training, there are also many methods that are similar in their implementation according to the philosophy and point of view of the coaches in their belief that they are the best, especially in developing physical abilities.[2] The importance of the research lies in how to develop the speed of the lunge movement and the accuracy of the touch on the opponent by implementing crossfit exercises, which are Important exercises in developing physical ability quickly due to the diversity of these exercises and exercises.

Research problem

To reach a good level among players and achieve the desired performance requires the compatibility of very many requirements, including a high level of performance and interconnection and overlap in abilities among them. Physical abilities are the basic foundation upon which the development of the skill, tactical and psychological aspects is built, which are numerous and through the study and follow-up of the researcher to the players. In fencing, it was found that most of the students had a weakness in explosive ability and muscular strength in performing the speed of the lunge movement and the accuracy of the touch. Therefore, the lunge movement had a direct impact on the results of the game, as it became the largest percentage of getting touches from the opponent, and from here the researcher noticed that there was a weakness in executing the lunge movement and not The ability to accurately strike among players, and this made the researcher enter into solving this problem in implementing ball and soft exercises.

2. Research Objectives

1. Identifying cross-fit exercises in developing explosive ability, speed of lunging movement, and accuracy of touch among the research sample studied.
2. Knowing the effect of cross-fit exercises on developing explosive ability, speed of lunging movement, and accuracy of touch on fencing players.

Research hypotheses

1. There are significant differences in favor of explosive ability, lunge speed, and touch accuracy between the pre-test and post-test, and in favor of the post-test for the research sample.
2. There is a significant effect of crossfit exercises in developing explosive power, speed of lunge movement, and accuracy of touch among fencing players.

Research fields

Human field: (20) players from the fencing team at the University of Babylon.

Time frame: 1/1/2023 until 4/28/2023.

Spatial area: Fencing Hall of the College of Physical Education/University of Babylon.

3. Research Methodology

The nature of the problem and the two objectives of the study d etermine the appropriate research method, which is why the exp erimental method is chosen.

Research sample

The research sample included players in the fencing team at the University of Babylon, who numbered (20) players. The sample was homogeneous according to the variables of height and weight, as shown in Table (1). As for the variable of age, the sample was considered homogeneous by choosing it. The sample was randomly divided into two equal groups by lottery. The experimental group consisted of ten players who underwent the exercises set within the training curriculum, while the control group, which numbered ten, underwent the training curriculum prepared by the university team coach.

Table 1: Shows the homogeneity of the research sample

Variables	Units	Homogeneity		Type of significance
		(F)Leven value	Significance level Sig.	
Body mass	Kg	2.301	0.135	Non Sig.
Height	Cm	1.017	0.898	Non Sig.
Age	Month	1.520	0.247	Non Sig.
Training age	Month	1.233	0.292	Non Sig.
Accuracy of Lunge	Attempt	0.630	0.448	Non Sig.

Sample size (20) at significance level (0.05)

Table 2: Shows the equivalence of the research sample

Variables	Units	Equivalence			Type of significance
		(F)Leven value	(t) value	Significance level Sig.	
Training age	Month	1.248	0.370	0.719	Non Sig.
Lunge speed	Sec.	0.098	0.458	0.638	Non Sig.
Accuracy of Lunge	Successful attempt	0.630	0.000	1.000	Non Sig.
The size of each sample is (10) at a significance level of (0.05)					

Through table (1) the homogeneity of the research sample and Table (2) the equivalence of the research sample and this mean the two groups are homogeneous and equivalent in the measurement tests.

Tools used in the research

- Electronic watch.
- Signs number (10).
- Weapons (10).
- A medical scale with a ruler to measure height and weight.
- A metal measuring tape with a length of (150 m).
- Medicine ball weighing (2 kg) and (3 kg)
- (2) Jumping platforms.
- Weight discs (3 kg).

Special tests

Form determine the tests, and the form was presented to a group of experts and specialists in the field of training, which numbered (10) experts, to choose the most appropriate test to measure the appropriate test. Tests that obtained an agreement rate of (50%) or more were nominated, as shown in Table (3).

Table 3: Shows the number of frequencies and percentages of tests selected to measure skills

Skill	Repetition	Percentage
The explosive ability of the legs	10	100%
The distinctive strength of speed of the legs	9	90%
Lunge speed	9	90%
Touch accuracy	10	100%

*At a significance level of (0.05) and a degree of freedom (18).

Tests used in research

1. Lunge accuracy test[3]

The purpose of the measurement: - Measuring accuracy by lunge.

Performance specifications: The mark is placed as shown in the following figure on the playing field, and then electricity is connected to it. A line is drawn at a distance Corresponds to the length of a player's trick when the player starts taking that trick. The player stands in front of the mark in a ready position with the weapon in his hand (the shisha), to which electricity is also connected behind. The line mentioned above, the player begins by performing a direct straight lunge in the direction of the target (the circles on the chest) that the coach has set for him.

Used devices and tools: a sign representing the legal target of an eps weapon, an electrical device, an electric weapon, a head mask (mask), adhesive tape, feltcor (hand string wire), and an electric eps weapon vest.

Method of recording: Players record the number of correct attempts to touch the circle within the allotted time within a period of (15) seconds. The player is given (10) attempts within (15) seconds.

2. Lunge speed test[4]

The purpose of the measurement: - measuring the speed of lunge.

Performance specifications: The player stands in a ready position and at an appropriate distance from the sign hanging on the wall, so that the height of the sign is appropriate for the player's height. At the start signal, the player begins performing (10) continuous lunges at the sign, and the arbitrator calculates the time taken to perform the stabs.

Devices and tools used: stab detector, epee weapon, mask, adhesive tape, timing watches.

Registration method: The player is recorded for the time spent in a second and its fractions to perform (10) stabs at the person, without taking into account the accuracy of the stab. The player is given two attempts and the time of the best attempt is recorded.

3. Test of force characterized by speed (for the armed arm)[5]

Purpose of the test: Measuring the explosive power of the arms.

Tools needed: Signs + ephemera weapons (2).

Procedures: Draw a circle with a diameter of 20 cm on the sign. The player stands behind the starting line carrying a weapon, then extends and stabs with his armed arm only. The purpose of the test is to touch inside the circle for 10 seconds.

4. Lunge explosive capacity test[6]

Purpose of the test: Measuring the explosive power of a stab.

Tools needed: Signs + ephemera weapons (2).

Procedures: The player stands behind the starting line carrying a weapon, then makes a full stab. The purpose of the test is to measure the explosive power of the stab.

Exploratory experience

The researcher conducted the exploratory experiment on 1/5/2023 on a sample of four players outside the studied research sample. Some exercises were conducted on them, and they were later excluded from the main experiment to reveal the most important obstacles, reveal the Check the effectiveness and requirements of the equipment and tools used, understand the time required and overcome difficulties, problems and errors encountered. Researchers may encounter and correct during actual research experience.

Pretests

Pre-tests were conducted on January 14, 2023 on the research sample.

Exercises used in the training unit

1. Throw a medicine ball weighing 2 kg from sitting towards the wall.
2. Throwing a medicine ball weighing 3 kg from lying down towards a colleague.
3. Withdraw his mind for (30 seconds).
4. Abdominal muscle for (30 seconds).
5. Frontal lean for (30 seconds).
6. Throwing a ball at a person 5 meters away.
7. Throwing a ball to a colleague at a distance of (5 m).
8. Throwing a ball to a colleague at a distance of (10 m).
9. Throwing a ball to the opposite teammate and vice versa.
10. Throwing a ball at a target drawn on the ground.

Main experience

The main experiment includes implementing the exercises prepared in the training curriculum and shown in Appendix No. (3). the researcher implemented it on the experimental group, and it included two training units during the week. (20-25) minutes were allocated from the 90-minute training unit time to conduct exercises in the training unit. The exercises included a period of (8) weeks, with two training units per week.

Posttests

After completing the exercises, the post-tests were conducted on Sunday, March 9, 2023. The researcher was keen to create the same conditions for the tests in terms of time and place in the pre- and post-tests.

4. Results and Discussion

Table 3: Shows the differences between the pre- and post-tests in the variables investigated for the control group

Variables	Pretest		Posttest		(t) value*	Sig. value	Type of significance
	mean	STD	mean	STD			
Explosive ability of the legs (lunge)	3.02	0.44	3.99	0.72	3.2	0.01	Sig.
Force characterized by speed (of the armed arm)	48.8	7	59.6	6.8	4.6	0.01	Sig.
Lunge speed	0.55	0.33	0.45	0.23	4.70	0.01	Sig.
Arrow movement speed	0.45	0.44	0.41	0.33	6.19	0.00	Sig.
Touch accuracy	5	0.794	5.33	1.03	6.33	0.00	Sig.

*At the significance level (0.05) and the sample size is 10.

After presenting the results of the pre- and post-tests to the control group, it appeared that there were significant differences with statistical significance between the pre- and post-tests for all tests.

This means that the trainer's method and style is proceeding with a good level of performance.

Presentation and analysis of the differences between the pre- and post-tests of the experimental group

Table 3: Shows the differences between the pre- and post-tests of the variables investigated for the experimental group

Variables	Pretest		Posttest		(t) value*	Sig. value	Type of significance
	mean	STD	mean	STD			
Explosive ability of the legs (lunge)	3.5	0.29	4.9	0.37	7.70	0.00	Sig.
Force characterized by speed (of the armed arm)	47.1	5.7	68.5	7.4	5.49	0.00	Sig.
Lunge speed	5.6	0.84	8	1.49	3.88	0.04	Sig.
Arrow movement speed	0.54	0.37	0.44	0.28	5.37	0.02	Sig.
Touch accuracy	4	1.41	8	1.05	7.38	0.00	Sig.

*At the significance level (0.05) and the sample size is 10.

It was shown in Table (3) after presenting the results of the pre- and post-tests for the experimental group that there were statistically significant differences between the pre- and post-tests for all the variables investigated, as the value of the significance level (sig) is less than the significance level (0.05), which indicates There is a significant difference in favor of the post-tests.

Presentation and analysis of the differences between the post-tests of the control and experimental groups

Table 4: Shows the differences between the post-tests of the investigated variables for the experimental and control groups

Variables	Post-experimental		Post-control		(t) value*	Sig. value	Type of significance
	mean	STD	mean	STD			
Explosive ability of the legs (lunge)	4.90	0.37	3.99	0.72	2.42	0.02	Sig.
Force characterized by speed (of the armed arm)	68.5	7.4	59.6	6.8	2.74	0.04	Sig.
Lunge speed	8	1.49	0.45	0.23	0.72	0.04	Sig.
Arrow movement speed	0.44	0.28	0.41	0.23	2.28	0.03	Sig.
Touch accuracy	8	1.05	5.33	1.03	5.28	0.00	Sig.

*At the significance level (0.05) and the sample size is 20.

It was shown from Table (4) that the value of the significance level (sig) for the post-test between the control and experimental groups is less than the significance level (0.05) for all research variables, and this indicates that the experimental group achieved better progress in the level of the studied variables than the control group, and this indicates that CrossFit exercises developed physical abilities, especially explosive ability and lunge movement in terms of speed and accuracy of touch, and these abilities have a major role in developing the speed of performance of fencing players because fencing requires high capabilities, speed, and strength in performance, and these exercises or exercises have achieved changes and adaptations that have contributed significantly. It is noticeable in the development of the variables investigated through training and implementing various exercises and different types of exercise, as crossfit exercises require a variety of high-intensity exercises and different exercises, such as throwing a medicine ball, with a difference in the exercise, as the researcher performed and applied 10 exercises with weights and without weights in order to develop The explosive ability and strength characterized by speed of the legs and the motor speed of the arm carrying the weapon. In addition, the exercises contributed greatly to developing the explosive ability of the legs because they have a major role in developing the speed of lunge and the accuracy of touch, and accuracy requires an appropriate speed for them in carrying out the attack in the sport of fencing.[7]

The data obtained as a result of the research results are the result of implementing the training modules and conducting pre- and post-tests for the sample studied in the research, in order to achieve the research objectives and prove the validity of the hypotheses, extracting the arithmetic means and standard deviations, and using the t-test to determine the significance of the differences between the pre- and post-measurements, and to verify the effect of the crossfit exercises and through their application. On players fencing with epee weapons, which necessitated analysis and discussion of the research results.[8]

What was presented and analyzed in the previous tables, and what became clear about the importance of each of the research variables, such as the explosive power of the legs and the speed characteristic of the arm carrying the weapon (epee weapon) in the sport of fencing, the speed of lunge, the accuracy of touch in the epee weapon, and the speed of movement of the flash arrow, and in addition to what the researcher reached from Results and fulfillment of the first hypothesis of the research Based on these clarifications, the researcher chose some offensive skills such as lunge and arrow movement, which include and are implemented in all types of attack in the sport of fencing, including the simple attack, the attack by changing direction (with the attack), the combined attack of both types (the numerical attack - the circular attack), and the response and response. All of the counters are implemented in which the lunge movement, the arrow movement, and the speed of the lunge are implemented, and all of this contributes to the accuracy of the touch in order to achieve victory by winning in the difference of touches, skills are important from a technical and tactical standpoint. Their importance is explained in competitions and the percentage of their application individually and in combination with other skills. In the duel.[9] Through the clear results in the tables and after the processor statistics, it was proven that there is a clear effect in favor of the experimental group that carried out the crossfit exercises in the training units, and this indicates something, which is the use of these exercises, which are identical to those variables such as explosive capabilities, strength characterized by speed, speed of the lunge movement, speed of the arrow movement, as well as accuracy. Touching by lunge, and this development results from the type of exercises and training method that are consistent with the level of the players, that is, the research sample studied.[10]

5. Conclusions

1. Crossfit exercises have a significant positive effect on developing explosive ability.
2. Using the established exercises has a positive effect in developing explosive ability, lunge speed, and touch accuracy.
3. Diversifying the exercises and using the easy to the more difficult exercise helps in developing working muscular strength, developing physical abilities, speed of thrusting, and accuracy of touch.

Recommendations

1. The necessity of using crossfit exercises to develop muscle strength, speed and accuracy of touch in the training curricula developed by coaches to develop strength and accuracy when executing the challenge in fencing.
2. Emphasis on other exercises similar to motor performance to implement the strength and accuracy of the side throw.
3. Conduct similar research and studies on other samples in the field of sports, especially fencing.

4. Providing all training means to achieve great results and paying more attention to this noble game in order to spread it in the country.

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