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TRX and battle rope exercises and their effect on developing some physical abilities and stabbing skills for young fencing players

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Abstract

The purpose of this paper is to preparing a training program using dangling ropes (TRX, Battle Robe) for Karbala Club youth fencing players, identifying the effect of (TRX and Battle Robe) training in developing some of the physical abilities of Karbala Club youth fencing players, and identifying the effect of TRX and Battle Robe training on developing some of the physical abilities of Karbala Club youth fencing players. Researchers used the experimental method with one group and pre- and post-tests to suit the objectives of the research and its sample. The research community was deliberately chosen by the researcher, namely the Karbala Youth Club players in the fencing game, whose total number was (7) players, and they fully represented the community by 100%. One of the most important results reached by the researcher is that: The training program prepared by the researcher using (TRX, Battle Rope) has a clear effect on some special physical characteristics selected for the purpose of the current research, and there are statistically significant differences between the pre- and post-tests for physical characteristics (Force, speed, and flexibility) in favor of the post-tests. One of the most important recommendations recommended by the researchers is that: Using the training program prepared by him in this study for the purpose of preparing young players and other groups in fencing to develop their physical and skill abilities, and benefiting from this training program in developing and raising the level of special physical abilities and technical skills for other sports.

Keywords: TRX training, battle rope, physical abilities, stabbing skill

Introduction

The game of fencing is one of the games that has recently been characterized by progress and development in all its pillars, especially the development of its players and their technical and skill levels, and the aspects of the physical, tactical, skillful and psychological training process, as there have been many different modern training methods and methods in proportion to the physical and skill characteristics of this game and the target. In order to achieve progress over the competitor and win. The concept of modern tools and means that are used in the training process has become broad and includes modern methods and means that are different from what is known in form and performance. The presence of these means has become one of the reasons for success in achieving training programs' goals because of their positive effects, and through the results that appear in the forums. In multiple tournaments, we find that one of the most prominent reasons for the rise and development of the level of players is the coaches' use of modern training tools and means and the knowledge of how to employ these means and methods in developing the game and the players, as "many scholars are interested in developing methods and foundations to achieve training goals, because it is the basis and origin of all kinetic skills." In the sports activities that are practiced." (Hussein: 1998: 102) ^[9].

The aim that training programs seek to achieve is to select the best methods that work to develop the player's level to achieve achievements during competitive matches. Leger points out that "TRX exercises" are a type of exercise that uses weight against gravity to build strength, balance, coordination, flexibility, and develop muscle abilities and agility. And endurance, and its performance depends on the abdominal and back muscles using different exercises, and it can be used by everyone in different ways without distinction of age or gender, depending on the individual differences between the practitioners." (Muhammad: 2015: 32) ^[7].

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One of the basic rules in sports training is that the player cannot only be trained in the basic skills of the game, but must go beyond that by training him to develop and develop these skills and maintain the achievement of the highest level of skill performance throughout the player's presence practicing the game in order to ensure that he possesses the highest amount of skills. points out "the utmost importance of the elements of strength, speed, and agility in the sport of fencing, as the kinetic performance of the skills of throwing lunges cannot be accomplished well unless the muscles involved in the muscular work have a strong foundation of muscular strength necessary for strong and rapid contraction to occur to accomplish the kinetic duty, and from here." (Mahdi, 2017) ^[6] The importance of the research lies in the fact that the researcher believes it is necessary to identify the impact of some modern methods in training, including training (TRX, Battie Rope) by developing some of the physical abilities of fencing players.

Research problem

Progress and achievement in the sporting field have become of a purely scientific nature, relying on studies, research, and exploiting the intersection between sciences, using more theories and information that ultimately aim to develop athletic levels and achievements in various sports. Through the work of the researchers as teachers and coaches of fencing, they found that There is a slowdown in the process of training and the use of modern methods to develop general and game-specific physical abilities, so we decided to research the effect of one of the modern methods of training on some physical abilities that play an important role in developing the fencing player and his performance of the skills specific to the game.

Research objective

- Preparing a training program using dangling ropes (TRX, Battle Robe) for Karbala Club youth fencing players.
- Identifying the effect of (TRX and Battle Robe) training in developing some of the physical abilities of Karbala Club youth fencing players.
- Identifying the effect of TRX and Battle Robe training on developing some of the physical abilities of Karbala Club youth fencing players.

Research hypotheses

- There are statistically significant differences between the pre- and post-tests in the level of some physical abilities among young fencing players, in favor of the post-tests.

Research fields

- **Human field:** Karbala club youth fencing players
- **Time field:** (2/8/2023) to (17/10/2023)
- **Spatial field:** The closed hall in the Karbala Club

Definition of terms

(TRX, Battle Rope) exercises: It is a group of exercises that use the body's weight against gravity to build strength, balance, coordination, and flexibility. Its tools are divided into suspension exercises (TRX) and power ropes (Battle Rope). These exercises are among the latest tools that it helps develop special physical abilities and then raise the

level of skill performance among players. (Abdul Moati: 2016: 45) ^[1].

Physical abilities

A set of physical characteristics and abilities of the functional systems in adapting to the incentives that appear in the presence of permanent motivations and determining them according to the level after maintaining the balance of the functional systems, that is, fully preparing the body and soul to achieve the best results. (Fattah: 1997: 89) ^[5]

Stabbing skill

It is one of the basic skills in playing fencing. The stabbing movement is one of the most important movements in fencing and one of the offensive movements carried out on the opponent. It has a forward direction and is performed with the front foot from a ready stance (Stimulation), as well as when moving forward or retreating backward. The back foot contributes to the propulsion, and it is considered a basic movement for the attack, with the aim of reaching the legal opponent's goal with the fly of the player's weapon blade (Yacoub: 1989:57) ^[8].

Research methodology and field procedures

Research Methodology

Choosing the correct approach is usually an accurate and objective way to reach a solution to the problem, as the subject of the study was the effect of the training program on developing the physical aspect, "as the approach is defined as the method used by the researcher in studying the problem to discover the facts and find solutions" (Badr: 1988: 86) ^[4]. Therefore, in their current research, the two researchers used the experimental method with one group and pre- and post-tests to suit the objectives of the research and its sample.

Community and sample research

Due to the limited number of young players in this game, the research community was deliberately chosen by the researcher, namely the Karbala Youth Club players in the fencing game, whose total number was (7) players, and they fully represented the community by 100%.

Field research procedures

Prepared training program: The training program for attachment to ropes (TRX, Battle Rope) included a set of standardized exercises with the aim of developing some of the physical abilities of young fencing players, namely (Force characteristic by speed for the arms, kinetic speed and flexibility), which have a direct impact on their skill performance, and there is no doubt that it has Developing this program, which is one of the most important basic methods followed by the researcher to achieve the desired research goals. The period for implementing the proposed training program was determined by the researcher, in cooperation with a group of experts and specialists. The period was set at (6) weeks for every three training units, meaning that the total number of training units is (18) units.

Physical tests

First/flexibility test

1. **Purpose of the test:** Measuring the extent of flexibility of the arm and thigh in forward bending movements from a standing position

Tools

- Wooden graduated scale (graded ruler), height 30 cm
- A bench or chair that can bear the weight of the laboratory, the ruler is mounted on it so that the zero of the scale is at the top level of the edge of the chair

Performance description: The tester takes a standing position on the edge of the bench so that the feet are touching both sides of the scale. The tester bends the torso forward and down so that the fingers are in front of the scale. From this position, the tester tries to bend the torso as far as possible forcefully and slowly, noting that the fingers of both hands are at one level and move down parallel. For scale

Second: Testing force characteristic by speed for the arms

- Purpose of the test: to measure the strength and speed of the arms
- **Tools:** Swedish bench, weights (10 kg)
- **Performance description:** When you start, your arms are in full support, lifting a weight of (10 kg). The player is asked to lower the bar and raise it up along the length of the arms in this way.
- **Recording:** The number of times a performance is counted within (20 seconds).

Third: Testing the kinetic speed of the stabbing movement for fencing players (suggested)

- **Purpose of the test:** Measure the kinetic speed of the stabbing movement.
- **Conditions for applying the test:** Applying the test requires the presence of four people, one of them (The test director), the other (The temporary one), the other (The recorder of the number of correct touches), and the last one is the evaluator, to perform the correct stabbing movement.

Preparation line and stabbing line

- These lines are drawn with a piece of chalk after the experimenter takes the ready (motivated) position in

front of the wall target and extends his used arm so that his thumb touches the target. Then the experimenter extends his back leg until he reaches the stabbing position.

- Here, the test director determines the stabbing line by drawing a line 20 cm long. After that, the tester stabilizes the back foot and moves the front leg back until it reaches the ready position. Here, the test director determines the readiness line for the front foot by drawing a line 20 cm long.

Description of the test

- The tester stands in the ready position in front of the wall target, and a mark is placed on the floor to determine the position of the feet in the ready position so that the tester can touch the target with the thumb after performing the stabbing movement that was determined by the test director, in addition to the stabbing line for this tester who is ready to perform the test.
- The fingers are clasped in a position similar to the grip of an epee weapon, and the thumb is touching the wall target.
- When the tester hears the start signal, the tester performs the largest possible number of consecutive correct touches within ten seconds and at the fastest possible speed, noting that the thumb touches the target, as the touch is considered invalid if the thumb does not reach the wall target.
- The tester must keep his back foot steady during the performance.
- The tester must move his front foot from the readiness line to the stabbing line when performing each stab and then return to the readiness line.
- The tester must return the used arm to the bent position.
- The player is given two attempts and the best attempt is taken.

Recording: The number of correct touches to the target within (10) seconds.

Table 1: Represents the normal distribution using the Pearson skewness coefficient for the research sample at the physical and skill levels

No.	Tests	Mean	Std. Deviations	Mode	Skewness
1	Flexibility	52.075	2.006	48	0.522
2	Force characteristic by speed for the arms	12.378	1.468	11	0.269
3	Stabbing skill	5.438	0.8	6	0.354

The skewness coefficient ranged between (± 1) for the tests, which indicates the homogeneity of the sample

Means of collecting information and devices used in the research**Means of collecting information**

- Arab and foreign sources
- World Information Network (Internet)
- Personal interviews.

Devices and tools

- A wall target with a single circle drawn on it with a diameter of (20) cm.
- Registration form.
- Stopwatch.
- Tags

Exploratory experience

The researcher conducted the exploratory experiment on two players from the Karbala fencing club team on Sunday, 8/20/2023, and after ten days, the researcher repeated the tests on the same players. The aim of this was to ensure the validity of the physical and skill tests used, as well as to identify the time taken to perform these tests.

Table 2: Shows the validity and reliability coefficient of the tests

No.	Tests	Validity	Reliability
1	Flexibility	0,87	0.85
2	Force characteristic by speed for the arms	0.83	0.80
3	Stabbing skill	0.77	0.82

Pre-tests: The researcher conducted pre-tests on the research sample on Tuesday, August 22, 2023, and ended on Thursday, August 24, 2023.

Implementing the prepared training program

The researcher began implementing the previously mentioned training program for the attachment ropes (TRX, Battle Rope) on Saturday, 26/8/2023. The duration of the program extended for six weeks from the above date until Tuesday, 10/10/2023. The researcher took into account and prepared all appropriate conditions. To apply it for the purpose of obtaining positive results from it.

Post-tests: On Wednesday, October 11, 2023, the researcher

conducted post-tests on the research sample and obtained data on the levels of players with the variables under the current study.

Statistical methods

- Arithmetic mean.
- Standard deviation.
- Skewness coefficient.
- Pearson simple correlation coefficient.
- T-test for correlated samples.

Results and Discussion

Presentation, analyze and discuss the results of physical tests

Table 3: Shows the arithmetic means, standard deviations, and calculated and tabulated T-values for the physical tests.

No.	Physical tests	Pre		Post		T-values		Type sig
		Mean	Standard deviation	Mean	Standard deviation	Calculated	Tabular	
1	Flexibility	52.075	2.06	60.34	1.22	5.503	3.111	Sig
2	Force characteristic by speed for the arms	12.378	1.46	15.23	1.17	7.214		Sig

Table 3 shows that the arithmetic mean value of flexibility in the pre-test has reached (52.075) while in the post-test it was (60.34), with a standard deviation in the pre-test of (2.006), and in the post-test its value was (1.22). The table also indicated that the values of the arithmetic mean for the test of strength characterized by speed for the arms reached (in the pre-test) (12.378), and in the post-test its value reached (15.23). As for the standard deviation, its value in the pre-test reached (1.46) and in the post-test its value reached (1.17). From these data, the table showed that the value of (t) calculated for flexibility It was (5.503), while the force characterized by speed for the arms reached (7.214), which is greater than the tabular (t) value of (3.111), which indicates that the level of significance is significant and in favor of the post-tests.

The researchers attribute this development to the suitability of the exercises prepared by them and their clear impact on general physical performance, especially on the level of flexibility and strength, which is characterized by speed. Because the force characteristics characterized by speed do

not develop automatically. This can also be done spontaneously by training systematically and regularly according to scientific formulas and choosing appropriate exercises. In addition, developing the muscular strength characteristics of quick hands requires regular, repetitive exercise. Because developing this physical characteristic requires regular increases and repetitions. This is what we found in the training program prepared by the researchers in which suspension ropes were used, and the flexibility properties were greatly developed, and this fact is that the exercises with the ropes that the researchers prepared correctly helped to stretch the muscles and ligaments to the required degree, and Mr. Hara describes how this happened. "Flexibility exercises must be combined with strength exercises, and athletes often fail to achieve wide ranges of motion due to a lack of muscle strength responsible for movement." (Al-Bayati: 1983: 88) ^[2]

Presentation, analysis and discussion of the results of the stabbing skill test

Table 4: Shows the arithmetic means, standard deviations, and calculated and tabulated T-values for the stabbing skill test.

No.	Test	Pre		Post		T-values		Type sig
		Mean	Standard deviation	Mean	Standard deviation	Calculated	Tabular	
1	Stabbing skill	5.438	0.8	6.222	1.18	4.402	3.111	Sig

Table (4) shows that the arithmetic mean values for the appeal skills in the pre-test reached (5.438), while in the post-test its value reached (6.222), or the standard deviation reached its value in the pre-test (0.8), and in the post-test its value reached (1.18). Thus, the value of (t) was calculated, which amounted to (4.402), which is greater than the value of the tabular (t) of (3.111), which indicates that the level of significance is significant and in favor of the post-tests. The researchers attribute this to the fact that the training program prepared by him has produced good positive results and there is a change in the level of performance of the players' stabbing skill. This is consistent with the opinions of many experts and trainers in "Training improves both physical qualities and the level of skill performance" (Allawi: 1986:12) ^[3].

Conclusions and Recommendations

Conclusions

Through the data obtained after conducting the tests and after processing them statistically, the researcher reached the following conclusions.

- The training program prepared by the researcher using (TRX, Battle Rope) has a clear effect on some special physical characteristics selected for the purpose of the current research.
- There are statistically significant differences between the pre- and post-tests for physical characteristics (Force, speed, and flexibility) in favor of the post-tests.
- The training program prepared by the researcher using (TRX, Battle Rope) has a clear effect in raising the level of performance of the stabbing skill in fencing.
- There are statistically significant differences between the pre-test of appeal skill and in favor of the post-test.

Recommendations

According to the conclusions that the researcher came out of his current research, he recommended the following

- Using the training program prepared by him in this study for the purpose of preparing young players and other groups in fencing to develop their physical and skill abilities.
- Benefiting from this training program in developing and raising the level of special physical abilities and technical skills for other sports

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