

## THE EFFECT OF SPECIAL EXERCISES ON SOME OF THE PERCEPTUAL-KINESTHETIC ABILITIES OF THE PERFORMANCE OF THE COUNTER-ATTACK IN THE FOIL WEAPON FOR FEMALE STUDENTS

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### Abstract

The purpose of this paper is to preparing special exercises to develop some perceptual-kinesthetic abilities to perform the counter-attack in the foil weapon of the research sample, and identifying the effect of special exercises in developing some perceptual-kinesthetic abilities to perform the counter-attack in the foil weapon of the research sample. One of the most important results reached by the researcher is that: The special exercises positively affected the development of some of the perceptual-kinesthetic capabilities of the performance of the counterattack in the foil weapon of the experimental research sample, the traditional exercises positively affected the development of some sensory-kinesthetic abilities to perform the counter-attack in the foil weapon of the control sample, and the special exercises developed some sensory-kinesthetic abilities to perform the counter-attack in the foil weapon of the experimental research sample better than the control one. One of the most important recommendations recommended by the researchers is that: Necessity of paying attention to the special sensory and motor perceptions of female fencing players, especially the novice age groups, need to pay attention to complex exercises between realizing and responding to stimuli and in open environments, because most of the skills of fencing are open skills that need to provide multiple responses, and conducting similar research and studies for different skills and age groups in the sport of fencing.

### Introduction

The kinesthetic perception is an important and necessary factor in the sport of fencing, as it helps to raise the level of the player's performance of fencing skills and a sense of all the variables surrounding her during the technical performance. Make a correct decision for the appropriate kinetic response during attack, defense, response and counter-movements.

Sensory perception is a process that leads the player to become aware of something in her surroundings, which occurs immediately and suddenly (Malih, 2016). Therefore, attention must be paid to developing the player's sense and ability to control parts of her body, especially the arms or legs, during the motor performance of fencing skills. Therefore, the importance of the research lies in investing in special exercises with additional tools characterized by the awareness of time, distance and strength in different parts of the body and in various situations in stability and movement, which gives the player awareness of the sense of movement and an

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estimate of distance, time and strength appropriate to perform any attack, defense or response during the attack and defence in an integrated, more streamlined and timed manner And score points against her opponent.

### Research problem

Through field tests and competition analysis, it became clear that there was a weakness in the abilities of perceptual-motor. Therefore a weakness in the estimation of the jousting distance and the response time or counter-response in counter-attacks during performance and play, as most of the fencing sports coaches do not pay much attention to the abilities of perceptual-motor when building special training curricula. Their attention is focused on training and teaching basic skills, and this weakness led to a decrease in the level of skill performance (counter-attack) as a result of a weak level of kinesthetic perception abilities.

### Research objective

- Preparing special exercises to develop some perceptual-kinesthetic abilities to perform the counter-attack in the foil weapon of the research sample.
- Identifying the effect of special exercises in developing some perceptual-kinesthetic abilities to perform the counter-attack in the foil weapon of the research sample.

### Research Hypothesis

- Special exercises have a positive effect in developing some of the perceptual-kinesthetic abilities to perform the counter-attack in the foil weapon of the research sample.

### Research fields

- Human field: The female fencing team players, College of Physical Education, Sports Sciences for women, University of Baghdad, numbering (14) players.
- Time field: (20/2/2022) to (12/5/2022)

- Spatial field: The fencing hall in the College of Physical Education and Sports Sciences for women, University of Baghdad.

### Research Methodology and Field Procedures

#### Research Methodology

The experimental method was used in a controlled manner (experimental group and control group) with a pre-test and a post-test for its suitability and the nature of solving the research problem

#### Community and sample research

The research community was identified with (the players of the fencing sports team) in the College of Physical Education and Sports Science for Girls for the academic year (2021-2022), which are (14) players, and they represent the research sample by 100%, and after excluding (2) players for the purpose of conducting the exploratory experiment, it became The sample number (12) players, and the sample was divided randomly (even and odd numbers) into:

- (6) female players (experimental group) perform the experimental (independent) variable special exercises
- (6) His player (the control group) performs the usual exercises in training the sport of fencing.
- (2) players to conduct the exploratory experiment, and after the exploratory experiment ended, they were distributed during the implementation of the main experiment between the experimental and control groups and by (1) player in each group, without calculating their results statistically within the two groups, for the purpose of achieving their desire to benefit from training with the two groups and to develop their abilities in the sport of fencing (Table 1).

The homogeneity of the research sample was conducted in the variables (Chronological age, length, mass) using the skew coefficient, after the arithmetic mean, median and standard deviations were extracted, and then the skew coefficient for each variable as shown in Table 1.

**Table 1:** Shows the homogeneity of the research sample by the skew coefficient in the variables of Chronological age, length, and mass.

Variables	Measuring unit	Mean	Median	Std. Deviations	Skewness
Chronological age	Year	22,4	22	2,04	0,17
Length	Cm	167,3	165	5,12	0,49
Mass	Kg	65,8	64	4,23	0,89

**Means, tools and devices used in the research:**

- Arab and foreign sources and references.
- International Electronic Information Network (Internet).
- Observation and experimentation.
- Personal interviews.
- Special exercises used
- Auxiliary staff.
- Skill performance appraisal form in fencing.
- Foil 14 weapons.
- A duel stadium.
- Metric tape measure.
- -chalk.
- -Modern for training, hanging on the wall, with supports and colored poles
- Colored balls + colored papers.
- Colorful and sticky tapes.
- Wooden decks.
- Electronic stopwatch.
- Personal mobile device (HP laptop calculator).
- Video + photo camera (sonny type)

**The Tests Used In the Research**

**1. Perception test of horizontal arm distance**

The metric tape is placed on the wall and is approximate at eye level while the tester is in a sitting position. The tester sits on the bench, is facing the metric tape, and is prepared to determine its location. Then he takes a sample without training by trying to touch the thumb with the right hand of the mark on the metric tape determined by the test taker.

**Recording:** The distance from the given point measured to the approach of a centimeter and the final recording is the sum of the distance in three trials as the lower the distance indicates the perception and vice versa.

**The purpose of this test:** is to measure mobility to set the standard position during which the horizontal line and the test is valid for both sexes from the age of (10) up to the age of college. (Bariqa', 1995:)

**2. Perception test of vertical arm distance**

The metric tape is placed so that it is (75 cm) at the level of the tester's eyesight while he is sitting on the bench facing the flat tape and trying to locate it while he is blindfolded and without any previous training attempts to determine the location using the thumb finger of the hand on the point classified by the test taker.

**Recording:** The distance from the given point measured to centimeters and the final recording is the sum of the distance in three trials. The choice is valid for both sexes from the age of (10) up to the age of university. (Bariqa', 1995).

**3. Perceptual-kinesthetic test for the front jump distance**

Draw two lines on the ground at a distance of 30 cm. The tester stands on the starting line and examines the place without closing his eyes. After that, a cover is placed over the eyes and prepares for 5 seconds and is fixed from the starting line trying to judge the jumping distance until the butt of the foot lands on the target line.

**Recording:** The number of centimeters that the laboratory bounces between the target line and the heel of the foot is measured away from the measured line to the nearest quarter of a centimeter to the laboratory. Two recording attempts are the sum of a centimeter measured for the two attempts.

**The purpose of the test is:** to measure the laboratory's ability to improve the front jump distance without using the sense of sight, by focusing on the sense of the front jump distance. The test is valid for acceptance and is valid for (10) years until university age. (Bariqa', 1995).

**4. Counterattack performance tests**

The performance of the counter-attack was evaluated according to a standardized form in the sport of fencing and approved in previous studies (Amjad Hazem. (2017). The evaluation of the performance in it is based on the parts of the movement and its manifestations, by photographing the skill and presenting it to three experts, and a score of (1-10) is given.

**Exploratory Experience**

The exploratory experiment was conducted on 20-2-2022 on the exploratory research sample (2) players to identify the obstacles that may appear during the application of the experiment and the conduct of tests.

**Main Experiment Procedures**

**Pre-tests**

The pre-tests were conducted on the experimental and control samples after a warm-up was conducted for the two research samples, on February 27, 2022 and all the temporal and spatial conditions were fixed for the purpose of unifying them with the post-tests. After distributing the research sample randomly, parity was established between the experimental and control groups in the pre- tests, and the (t) test was used for the independent samples, to show the differences between the two groups. It means that the experimental and control groups have no significant differences between them in the pre-tests, as shown in Table 2 (Table 2).

**Special Exercises**

After the special exercises were prepared, they included movements (expectation - perception - response speed - discrimination - visual tracking + skill performance) in the same exercise. Which aims to develop kinesthetic perception as well as counterattacks in a foil weapon.

Implementation of the work with the two groups started from February 28, 2022 until 5/11/2022. Two units per week on Mondays and Wednesdays of each week, for (10) weeks and for two and a half months. The total number of training units amounted to (20) training units.

The special exercises are carried out at the beginning of the main part of the training unit immediately after the warm-up and at a time of 10-15 minutes, and by adopting the principle of gradation and undulation between exercises, between units and between training weeks, and the exchange in the work of muscle groups between one exercise and another.

Auxiliary tools were used to carry out the exercises, and these tools were characterized by light and sound stimuli, which are low in cost, easy to apply, accessible to any trainer to use, and free from complications, and they are lights of different colors distributed to the different training tools.

The warm-up and the closing section of the training unit were carried out together for the experimental and control groups.

The special exercises were carried out at the beginning of the main section, and here the experimental group is separated from the control group, as the experimental group carries out the special exercises.

As for the control group, it performs its traditional exercises in general, and after the time ends, the two groups are combined to complete the remaining components of the training units.

**Table 2:** Shows the statistical parameters between the two research groups in the pre- tests for the purpose of equivalence.

Tests	Mean	Standard deviation	T value calculated	Level Sig	Type Sig	
Perception test of horizontal arm distance	Experimental	13.16	1.16	0.859	0.411	Non sig
	Control	13.66	0.81			
Perception test of vertical arm distance	Experimental	15.5	1.04	0.808	0.438	Non sig
	Control	16	1.09			
Perception of the forward jump distance	Experimental	17	0.89	0.591	0.568	Non sig
	Control	17.5	1.87			
Time attack	Experimental	5.66	0.29	0.33	0.747	Non sig
	Control	5.71	0.22			
Dive stop attack	Experimental	6.08	1.26	0.35	0.728	Non sig
	Control	5.81	1.31			

Significant at the level of significance  $\leq$  (0.05)

**Table 3:** Shows the arithmetic means, standard deviations, and (T-Test) value between the pre-test and the post-test for the experimental group.

Tests	Mean	Standard deviation	arithmetic mean of difference	standard deviation of differences	T value calculated	Level Sig	Type Sig
Perception test of horizontal arm distance	Pre-test	13.16	6	1.67	8.78	0.000	Sig
	Post-test	7.16					
Perception test of vertical arm distance	Pre-test	15.5	9.33	2.16	10.58	0.000	Sig
	Post-test	6.16					
Perception of the forward jump distance	Pre-test	17	8.16	1.47	13.59	0.000	Sig
	Post-test	8.83					
Time attack	Pre-test	5.66	2.65	0.86	7.51	0.001	Sig
	Post-test	8.31					
Dive stop attack	Pre-test	6.08	2.36	1.33	4.35	0.007	Sig
	Post-test	8.45					

Significant at the level of significance  $\leq$  (0.05)

The exercises were carried out in a high-intensity interval training method, with a time ranging from 10-15 seconds for each repetition and with repetitions of (4-5) for one group and the number of groups (2-3) groups according to the level of the research sample members and their training status, and that the rest period between iterations Return of the pulse to approximately (120) beats per minute before starting the next repetition, i.e. the period of work to rest (3:1).

The members of the two research groups implement two training units per week, and the training unit time is between (90-120) minutes, including warm-up and cool-down.

#### Post-tests

After completing the main experiment, the researcher conducted post-tests on the experimental and control samples on 5-12-2022 for the individuals of the two research samples, and all the temporal and spatial conditions were fixed for the purpose of unifying them with the pre-tests.

**Statistical methods:** The search data was processed through the Statistical Package for the Social Sciences (SPSS).

#### Results and Discussion

Tables 3 and 4 shows that there are differences between the values of the arithmetic means and the values of standard deviations for the pre, post-tests for the experimental, and control groups, and for all tests. Significantly, in favor of the dimensional tests, that is, the experimental and control sample has developed in the abilities of perceptual kinesthetic and counter-attack. Being aware of the jousting distance is one of the important abilities that the fencing player must realize during the fight, so that she can estimate the distance between the fly of her weapon and the opponent's target, and at the same time realize the distance that the stabbing man advances towards the opponent, so that she gets a touch at the right time and with one movement Without resorting to making additional complementary movements, recovering her attack again, as well as her ability to keep her target away from the opponent's fly in order to avoid the opponent's touches. (maleh, 2008) (Tables 3 & 4).

Table 5 showed that there were differences between the values of the

arithmetic means and the values of standard deviations between the experimental and control group in the post-tests, as the calculated (T) values achieved error levels for all tests, less than the significance level (0.05), which means that there are significant differences in favor of the research sample (Table 5). Experimental perceptual kinesthetic and counterattack capabilities.

As the special exercises are a set of physical and kinetic situations and movements that aim to develop various physical abilities and kinetic senses to reach the individual to the highest possible level of skillful, kinesthetic and functional performance in the field of fencing sport, based on the educational and scientific foundations and the correct kinetic paths of the art of movement. (Malih & Kadhim, 2016).

The comprehension and awareness of the complex compatibility of the motor duty, the more the motor experience is rich, the greater the individual's ability to determine the fine motor pathways within the central nervous system, which is positively reflected on the perceptual sensory ability to perform and implement new motor duties in the best way and in the least time (Malih, and Sadeq. 2015) As the application and implementation of exercises for the training process has recently become dependent on the use of various training tools and according to modern technology and techniques, as they give incentive and motivation during training and define the desired goal in an easy and simplified way for the coach and player, (Mohsen & Maleh 2020) The tools and devices that are used to perform special exercises that take multiple forms and different sizes and serve different goals and enter into the parts of motor skills, their speed, accuracy and details in form and content, as well as information given to the coach about the capabilities and capabilities of the player, analysis and diagnosis of errors in skillful and physical performance, and the ability of the coach to correct those errors. (Maleh and Abbas, 2021), training with the help of modern technological tools and devices contributes to increasing the athlete's response as a result of the direct impact of sensory and moral stimuli, (Iman & Fatima. 2019) and has an effective and impact on all muscles of the body in a variety of ways, (Wajdan, Fatimah. 2019).

#### Conclusions and Recommendations

##### Conclusions:

- The special exercises positively affected the development of some

**Table 4:** Shows the statistical parameters between the pre and post-test for the control group.

Tests	Mean		Standard deviation	arithmetic mean of difference	standard deviation of differences	T value calculated	Level Sig	Type Sig
	Pre-test	Post-test						
Perception test of horizontal arm distance	Pre-test	13.6	0.81	3.5	1.04	8.17	0.000	Sig
	Post-test	10.16	0.75					
Perception test of vertical arm distance	Pre-test	16	1.09	6.66	1.75	9.32	0.000	Sig
	Post-test	9.3	1.03					
Perception of the forward jump distance	Pre-test	17.5	1.87	4.5	1.37	7.99	0.000	Sig
	Post-test	13	1.09					
Time attack	Pre-test	5.71	0.22	1.18	0.4	7.2	0.001	Sig
	Post-test	6.9	0.34					
Dive stop attack	Pre-test	5.81	1.31	1.06	0.75	3.4	0.018	Sig
	Post-test	6.88	0.7					

Significant at the level of significance  $\leq$  (0.05)

**Table 5:** Shows the tests Arithmetic mean, standard deviation, calculated t value, error level, significance of differences.

Tests	Mean		Standard deviation	T value calculated	Level Sig	Type Sig
	Experimental	Control				
Perception test of horizontal arm distance	Experimental	7.16	0.75	6.9	0.000	Sig
	Control	10.16	0.75			
Perception test of vertical arm distance	Experimental	6.16	1.16	4.97	0.001	Sig
	Control	9.33	1.03			
Perception of the forward jump distance	Experimental	8.83	1.47	5.56	0.000	Sig
	Control	13	1.09			
Time attack	Experimental	8.31	0.71	4.37	0.001	Sig
	Control	6.9	0.34			
Dive stop attack	Experimental	8.45	0.5	4.42	0.001	Sig
	Control	6.88	0.7			

Significant at the level of significance  $\leq$  (0.05)

of the perceptual-kinesthetic capabilities of the performance of the counterattack in the foil weapon of the experimental research sample.

- The traditional exercises positively affected the development of some sensory-kinesthetic abilities to perform the counter-attack in the foil weapon of the control sample.
- The special exercises developed some sensory-kinesthetic abilities to perform the counter-attack in the foil weapon of the experimental research sample better than the control one.

**Recommendations**

- Necessity of paying attention to the special sensory and motor perceptions of female fencing players, especially the novice age groups.
- The need to pay attention to complex exercises between realizing and responding to stimuli and in open environments, because most of the skills of fencing are open skills that need to provide multiple responses.
- Conducting similar research and studies for different skills and age groups in the sport of fencing.

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