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The effect of special exercises to develop the compatibility between eyes and legs to adjust the jousting distance for the players of the Arab sword weapon

Lect. Dr. Atheer Qasim Mohammed Ibrahim[1]
[2]Dr. AbdulRazzaq Waheeb Yassin; [3]Naseer Qassem Khalaf

Abstract
The study aimed to identify On the effect of compatibility between the eye and the legs on improving the sense of distance for the movements of the two legs and the sense of the distance of jousting for players of the Arab sword weapon in the sport of fencing, as the player needs these skills during the match because the defense is considered a prelude to the process of response and attack in various competitions, as well as accelerating the pace of play, and deliberately The study was based on the experimental method, as the researcher chose the method of the control and experimental groups, and the study was conducted on a sample of (6) players from Diyala club teams (youth category) The results were statistically used in that statistical bag (spss), it was concluded that the exercises using the device had a positive impact on the development of some offensive and defensive skills of the study sample, and the study recommended Focusing on equipment and aids when developing training programs because of their positive impact on fencing players and their great importance during the match, and moving away from the traditional methods used in training.
Keywords*: special exercises, compatibility, jousting distance, sword weapon*

Introduction:

The science of sports training is one of the sciences that raise the level of the athlete to reach the highest levels to keep pace with developments with the rest of the sciences and the important part in developing the skills and abilities of all athletes by following the best appropriate methods for their development and the variables under consideration because of their impact on raising the ability of the athlete to the course Competition and maintaining its result during the match, hence the importance of the study under consideration in the effect of special exercises to develop compatibility between the eyes and the legs on controlling the jousting distance of the Arab sword weapon players.

Research problem: The sport of fencing is a sport of speed, accuracy and choosing the right moment to get a touch. Also, the distance of jousting is one of the important things, which because of its miscalculation benefits the player many points, causing him to lose the result of the match in favor of the opponent, and adjusting the distance

[1 ,2,3] Diyala University/College of Physical Education and Sports Sciences
atheer.qasim@uodiyala.edu.iq/abdulrazzaq.wahib@uodiyala.edu.iq; dr-nasir@sport.uodiyala.edu.iq

depends on the location of the opponent and the speed of his movements and this comes through Following it through the eye and then estimating the distance and making the appropriate decision to advance or retreat and take the appropriate decision to defend or attack, that is, the link between looking and the movements of the legs to keep pace with the progress of the match in a proper manner on adjusting the jousting distance for Arab sword weapon players.

Importance of the study: The importance of the research lies in raising the skill level of the players, by preparing exercises for compatibility between the eyes and the legs to adjust the jousting distance of the Arab sword weapon players for youth using the automated trainer assistant device.

Research objectives: Preparing special exercises with the automated trainer assistant device to develop the compatibility between the eyes and the legs . Recognizing the effect of special exercises in developing the compatibility between the eyes and the legs to adjust the jousting distance of the Arab sword weapon players

Dimensions of research: The human dimension: Diyala club players in fencing with the Arab sword weapon, which are (10) players. Time range: from 8-20-2019 to 5-1-2020. Spatial dimension: Diyala Sports Club Fencing Hall.

Methodology

The researcher used the experimental method, and designed the two equal groups with a pre- and post-test (experimental design with tight control) to suit it and achieve the objectives of the study.

Community and sample: The research community was represented by the Diyala Youth Club players with a shisha weapon, which numbered (20) players, and (10) players were randomly selected by lottery, and they were distributed into two groups (control and experimental), with (5) players for the control group and (5) players for the experimental group. .

The table (1) Statistical characterization of the data of the total research sample in the primary variables before the experiment (n = 6)

Variables	measruing unit	Arithmetic mean	standard error	Mediator	standard deviation	skew modulus
height	cm	170.00	.989	169.50	3.127	.354 0
Bloc	kg	69.30	1.116	69.00	3.529	.353 0
the age	year	18.10	.277 0	18.00	.876 0	-0.223
training age	year	2.650	.1302	2.750	.4116 0	-0.687

It was found from Table (1) that all the members of the sample are homogeneous in anthropometric measurements, because all the values of the skew coefficient are confined between (+3) This confirms the homogeneity of the members of the basic research group in the primary variables before the experiment, and that the sample belongs to one community and has close growth characteristics.

Sample equivalent: To extract equivalence between the control and experimental groups, the researcher relied on the tribal tests of the two groups in extracting equivalence, as the law (T) was used for independent groups between the pre-test

scores for the two groups. There are significant differences between the two tests, and this indicates the equality of the two groups in the research variables.

Table (2) shows the equivalence of the two research groups in the research variables

Variables		sample number	Arithmetic mean	standard deviation	(value (t	mistake percentage	ndicatioi n
a test Compatibility (legs and eyes)	experimental group	5	2.278	0.051	761	.464	insignific ant
	control group	5	2.302	0.055			
A test of measuring the sense of distance during progress	experimental group	5	20.777	1.014	.673	.516	insignific ant
	control group	5	20.392	0.968			
A test of measuring the sense of distance while retreating	experimental group	5	6.158	0.163	1.027	.328	insignific ant
	control group	5	6.258	0.174			

Tests used in the research:

The researcher conducted the following tests on the research sample so that we can apply the test with the correct motor paths and evaluate the tests by experts (Appendix 1) and with (10) degrees for each type of offensive and defensive skills: (numbered circuits test for compatibility, distance sense test, distance sense test, distance sense test)

1. **Numbered circuit test**:

- *Objective of the test*: To find out the compatibility (legs and eyes)
- *Necessary tools*: A stopwatch. (8) Circles are drawn on the ground, each with a diameter of 60 cm. The circles are numbered from (1-8) and the numbering is not sequential.
- *Performance specifications*: The tester stands inside the circle (1) and when he hears the start signal, he jumps to the circle (2) and then to (3)..... Until the circle (8)
- *Recording method*: The time taken by the laboratory to move on the eight circles is recorded, and each player is given two attempts and calculating the best one.

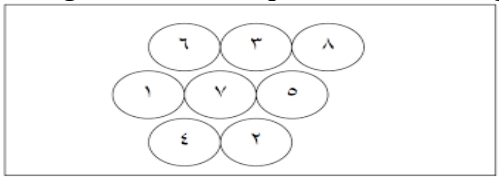

Figure (1) Demonstrates test (compatibility eye and man)

2. **Distance sense test**:

- *Devices and tools*: An approved measuring tape - a straight line (7 m long) drawn on the ground with a width of 5 cm - an eye blind
- *Executing the test*: The fencer stands and puts the stimulus on the straight line so that the front foot is on the front line completely and the back foot is on the line also, with the blindfold over the eyes when the signal to start the fencer advances
- *Test Instructions*: The swordsman maintains the trigger position
- *Recording*: At the end of the 7pm, the referee calculates the difference between the front and back feet in centimeters.

3. Measurement of the sense of distance during retreat:

- *Devices and tools*: An approved measuring tape - a straight line (7 m long) drawn on the ground with a width of 5 cm - an eye blind
- *Execution of the test*: the fencer stands and puts the stimulus on the straight line so that the front foot is on the front line completely and the back foot is on the line as well - with the blindfold over the eyes when the signal
- *Test instructions*: the swordsman maintains the stimulation position
- *Register*: At the end of the 7 m, the referee calculates the difference between the front and rear feet in centimeters

Validity of the tests: The researcher found the validity of the content after the tests were presented to a group of experienced and specialized people . They emphasized that these tests are honest in their content and the purpose for which they were set. In addition, the researcher used the subjective validity coefficient of the tests by extracting the square root of the reliability coefficient (Reliability coefficient) means the validity of the test.

Test stability : The stability of the tests was verified by the test and re-test method on (3) young players , who are outside the main research sample, then the researcher found the test reliability coefficient as shown in Table (3)

Table (3) Validity and reliability coefficients for tests

the exams	honesty	constancy
(Compatibility (legs and eyes a test	0,935	0,949
A test of measuring the sense of distance during progress	0,910	0,814
retreating A test of measuring the sense of distance while	0,910	0,906

Table (4) it shows the values of the arithmetic means and standard deviations of the experimental group for the research variables in the pre and post tests.

Variables	measruing unit	groups the exams	Arithmetic mean	standard deviation	standard error
compatibility knowledge test (legs and eyes)	Degree	pretest	1.608	0.030	0.014
		post test	1.646	0.037	0.017
A test of measuring the sense of distance during progress	Degree	pretest	10.800	1.304	0.583
		post test	7.800	1.304	0.583

A test of measuring the sense of distance while retreating	Degree	pretest	17,562	0.818	0.366
		post test	18,554	0.733	0.328

Table (5) it shows the mean difference and the standard error of the differences and (t) values between the pre and post tests for the research variables of the experimental group.

Variables	q-Q	p	h	value (t)	Error rate	Evoluti % on	indicati on
compatibility knowledge test (legs and eyes)	3.000	1.414	0.632	4.743	0.009	38.46	D
sense measurement test distance while advancing	-0.992	0.249	0.112	8.896	0.001	5.64	D
sense measurement test distance while retreating	-0.038	0.008	0.004	10.156	0.001	2.36	D

The researcher attributes the difference in development to the experimental group 's use of the exercises used with the automated trainer assistant device to develop the compatibility between the eyes and the legs. And to adjust the jousting distance, during the sense of distance when (advancing or retreating) the user as well as the training curriculum and its positive impact on the specifications of the performance stages, since the use of the training device was its goal "is to develop the technical conditions performance, especially the coordination between the legs and eyes, the sense of distance while advancing, and the sense of distance during regression , which affects the achievement of good achievement" (Barret, 1999: 46-51)

Results

1) ***Presentation of the values of the arithmetic means and the standard deviations of the pre and post measurements in the research tests of the control group***

Table (6) shows the values of Arithmetic means and standard deviations of the control group for the variables in the pre and post tests

Variables	the exams	Arithmetic mean	standard deviation	standard error
Compatibility knowledge test (legs and eyes)	pretest	9.800	1.304	0.583
	post test	9.600	1.673	0.748
A test of measuring the sense of distance	pretest	17,368	0.439	0.196
	post test	17,802	0.397	0.178

during progress				
A test of measuring the sense of distance retreat during	**pretest**	**1.604**	**0.040**	**0.018**
	post test	**1.622**	**0.048**	**0.022**

Table (7) it shows the mean difference and standard error of the differences and (t) values between the pre and posttests of the research variables for the control group.

Variables	-Q q	p	h	valu (e (t	Error rate	Evolution %	indication
compatibility knowledge test (legs and eyes)	**0.200**	**2.168**	**0.970**	**0.206**	**0.847**	**2.08**	**not significant**
A test of measuring the sense of distance during progress	**-0.434**	**0.195**	**0.087**	**4.967**	**0.008**	**2.49**	**D**
Measurement of the sense of distance during retreat	**-0.018**	**0.008**	**0.004**	**4.811**	**0.009**	**1.12**	**D**

Degree of freedom (4) at the significance level (0.05)

The results in the above table showed that some values of the variables (compatibility knowledge test (legs and eyes), a test to measure the sense of distance during progress, test to measure the sense of distance during the retreat) have developed in the members of the control group in very simple proportions, unlike the experimental group that used exercises on the automated trainer assistant device, as a clear and significant development appeared in the same variables under research. The researcher attributes these results to the fact that the exercises used and prepared by the trainer had a slight impact on the development of research variables (compatibility (legs and eyes) , sense of distance during progress , sense of distance during retreat) related to adjusting the jousting distance of the Arab sword weapon players, the reason for this is due to the coach's confirmation during the training on these variables through the feedback given to the members of the control group when training to control jousting distance, and attention to skill performance more than direct jousting distance. As the cases of training "depend on the degree of its components, the higher the level of the components, the higher the level of achievement, taking into account the consistency between the degree of development and development of these components according to the level of competition" (Amr Allah, 1998, 18)

2) Presentation of the results of the posttests between the two research groups (experimental and control) for the variables related to adjusting the jousting distance, analysis and discussion:

Table (8) the values of arithmetic means, standard deviations, (t) value and the level of error for the two experimental and control groups in the research variables for the post -tests

Variables	the group	N	Arithmetic mean	standard deviation	value (t	mistake percentage	indication
Compatibility knowledge test legs and) (eyes	Experimental	5	7.800	1.304	-1.897	0.094	not significant
	control	5	9.600	1.673			
A test of measuring the sense of distance during progress	Experimental	5	18,554	0.733	2.018	0.078	not significant
	control	5	17,802	0.397			
Measurement of the sense of distance during retreat	Experimental	5	1.646	0.037	.882	0.403	not significant
	control	5	1.622	0.048			

The degree of freedom was (4) at the significance level (0.05)

The development of the experimental group in some research variables and its simple development to the members of the control group to the experimental group's use of the exercises prepared by the researcher, in addition to the automated assistant coach device, which focused on the conditions for adjusting the jousting distance during performance. To give corrective information about the appropriate distance for performance , it led to a clear development in this distance for the experimental group, which was reflected in the level of performance. And that the use of assistive technologies in the training and educational process played a key and effective role in the success of the training process and how to transfer knowledge and information to the participants in the training programs, which is supposed to be reflected in the development of the variables under research and related to performance . Training and working to rebuild it in line with modern technological development helps improve the quality and effectiveness of the training process. The researcher believes that the reason for obtaining this result is that the use of exercises with the device helped in the correct application of performance by taking the appropriate distances for the joints of the body in a way that achieves a good jousting distance, and in line with the ability of the research sample members to achieve the appropriate distance to advance

or retreat. The distance variable has helped to improve and develop jousting distance (Paish, 1994: 82-83) The researcher believes that the exercises used with the proposed device for the experimental group have greatly contributed to the development of compatibility between (eyes and legs), which expresses the player's ability to integrate types of movements into one mold that is characterized by smoothness and good performance, which is the ability of the fencing player to control the The work of the different parts of the body that are involved in the performance of a specific motor duty and linking these parts to a single smooth movement with an effective effort to accomplish that motor duty (Ibrahim, 2016: 37). This result was consistent with the results of some studies that confirmed that "obtaining the appropriate distance during performance and exploiting physical abilities and physical advantages helps in obtaining an advance (attack) or retreat (defense) distance." It is compatible with these abilities and features, which in turn increase the ability to achieve victory" (Botgstion, 1995:20-21), Compatibility is necessary in the sport of fencing, through the player's ability to match what Between the armed arm and controlling the distance at the same time, then coordinating with the work of the nervous system to implement the required movements as well as compatibility with the movement of the feet (Mounir, 2011: 28), and this is confirmed by (Qasim Hassan Hussein) the importance of compatibility, a motor ability to reach higher levels and achieve better Achievement in many games (Osama, 2014: 45) The researcher believes that fencing is a sport that depends on the compatibility and perceptual abilities and determining the relationships between those abilities and the position of the player's body from his opponent, because the fencer who is able to integrate compatibility and perception within one frame with one movement through eye compatibility The man, the arm and the opponent's goal can reach the desired goal as quickly as possible and score a touch on the opponent (Muhammad, 2014: 37) Nour Hatem (2011) mentions that the swordsman has the ability to adjust the distance of jousting while mastering the technical movements related to With fencing, these movements are included in the accurate implementation of the fencing sentences, so it requires great coordination between the eyes, legs and arms from long distances, and between the eye and the armed hand in the short distance, which leads to an activation of mental processes. It differs from one skill to another according to the motor specificity of the athlete, and that the sport of fencing requires good use of the compatibility of the eyes with the movements of the legs and arms in attack and defense (Noor, 2011: 20) and this is consistent with what Hussein and Ramzi (2017) mentioned that the sport of fencing is one of the sports that It requires the availability of reaction speed from its practitioners, and that the fencer is exposed during matches to many reactions, the harmonic abilities (between The eyes, legs and arms) are of great importance in the sport of fencing, because it is characterized by continuous movement and lightning performance, and this is clearly shown in the offensive or defensive movements (advance and retreat) between both duelists inside the fencing court, which is characterized by its small area and the fencing has to attack his opponent very quickly, taking advantage of his ability to perceive The exposed places in the opponent's swordsman's goal trying to score a touch on the legal goal of this opponent, who in turn tries to respond to the kinetic speed of his opponent's attacks through the speed of his defensive movements (Hussain and Ramzi, 2017: 79) Yasser Hajar (2018) states that the harmonic capabilities (between The eyes, legs and arms) are necessary in the sport of fencing through the ability of the fencer to match between the armed arm and the leg and to control the distance of fencing at the same time through the use of compound exercises (both physical and skill) that enable us to

link between physical attribute and motor skill in a manner consistent with the movements The different fencing (Yasser, 2018: 27) From here, it becomes clear the importance of compatibility between the eyes and the legs in general and in the field of fencing in particular, and its importance in all the skills of fencing sport with its various weapons in general and in controlling the distance of fencing in particular, as The process of compatibility between the eyes and the legs is complex and requires the fencer to have many harmonic abilities to reach performance. Optimization is one of the most important factors in Adjusting the jousting distance confined between the fencers during jousting, so every fencer must realize this distance, as it is one of the basics of reaching the opponent and thus achieving touches in a timely manner. The researcher believes that the compatibility between the eye and the legs is one of the skills that depend on various factors such as the speed of performing the movements of the two legs, while adjusting the jousting distance between the fencing and choosing the appropriate timing in ending the attack in identifying the effect of special exercises to develop compatibility between the eyes and the legs to adjust the jousting distance of the Arab sword weapon players.

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