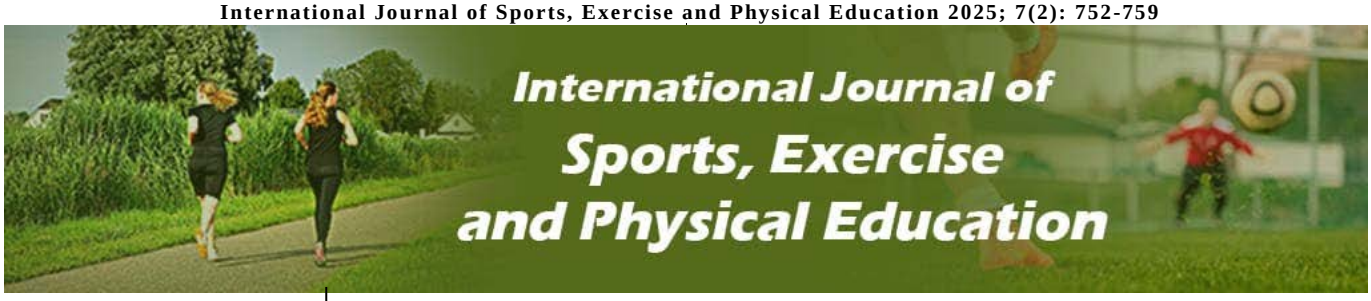

ISSN Print: 2664-7281
ISSN Online: 2664-729X
Impact Factor: RJIF 8.15
IJSEPE 2025; 7(2): 752-759
https://www.sportsjournals.net
Received: 12-10-2025
Accepted: 17-11-2025

Dr. Karrar Talib Muslim
Faculty of Physical Education and Sport Sciences, University of Babylon, Iraq

Corresponding Author:
Dr. Karrar Talib Muslim
Faculty of Physical Education and Sport Sciences, University of Babylon, Iraq

The effect of 3D Training using the (P9) Mat on some Motor Abilities of University fencers in weapon foil

Karrar Talib Muslim

DOI: https://www.doi.org/10.33545/26647281.2025.v7.i2j.299

Abstract
The research aims to identify the effect of three-dimensional training (3D) using a (P9) mat on some of the motor abilities of university fencers in weapon foil , and the experimental method was implemented by designing the two equal groups (control and experimental) with pre- and post-tests, and the research community was represented by the players of the fencing team at the Faculty of Physical Education and Sport Sciences, University of Babylon, who were (15) fencers, of whom (12) were selected for the main experiment. The sample was randomly divided into two equal groups, one of which is a control and the other is an experiment, with (6) fencers for each group, and the researcher used personal interviews and observation, as well as Arab and foreign sources, and the most important results of the research indicated that: The three-dimensional training using the P9 mat contributed to a clear and real development in the motor abilities of university fencers in weapon foil. The experimental group has an advantage over the control group in some of the kinetic abilities of university fencers in weapon foil . The use of the P9 mat contributed to raising the efficiency of integrated motor performance in fencers, by improving muscular-neural coordination and increasing the speed of motor processing during movement, which reflected positively on competitive performance.

Keywords: 3D Training, Nine Figure Mat (P9), motor abilities, fencing sport

Introduction
Modern sports training is one of the most prominent scientific axes that have witnessed rapid development in recent decades, as it no longer relies on traditional methods based on the mechanical repetition of exercises, but has become an integrated science based on the concepts of kinesthetic analysis, biomechanics, neuroscience, and applied physiology, in order to raise the efficiency of sports performance and reach the highest levels of achievement. Technological advances have contributed to providing more realistic and dynamic training environments, which enable the athlete to develop his abilities according to the requirements of the actual competition, especially in games that require speed, balance, and precise motor coordination such as the sport of fencing with the shot weapon, which requires a high integration between physical, motor and mental abilities, as successful performance in them requires a precise time coordination between offensive and defensive movement, and the speed of response to visual and auditory stimuli, as well as the ability to achieve Motor balance and the generation of explosive power at the crucial moments of the fight, hence the need for quality training programs capable of integrating sensory, motor and muscular stimuli in a training environment close to the competitive reality.
In this context, 3D training has emerged as one of the modern trends in sports training sciences, as it aims to stimulate the body, mind, and movement simultaneously through multi-directional and multi-level exercises, which simulate the three-dimensional motor reality in which the human body actually works, and these exercises are characterized by their ability to develop neuromuscular integration, improve motor control, and increase the efficiency of dynamic stability, making them especially suitable for sports that require rapid mobility and changing responses such as fencing.
Ron Jones (2007) [13] points out that athletes, coaches and sports scientists are always looking for talk in the world of sports training to improve physical, motor and skill performance, and that three-dimensional training is one of the most important trends in sports training, where the exercises are designed in accordance with the requirements of the practicing sports

activity, and are also used to maintain balance and stability against the force of gravity, as it is based on the principle of privacy and the principle of muscle function. It works to improve neuromuscular compatibility, and utilize the power produced in achieving performance requirements, and it also improves muscle balance, which leads to a decrease in the rate of injury during actual competitions.

The exercises using the nine-point mat (Platform9) were reached after many years of research, where the functional exercises were previously performed on (9) marks drawn on the ground, which represented the goals of reaching them with the foot and touch with the hand, and did not focus on the kinetic angles of the body and were not easily movable and moving, so the need was to create training programs using a training tool that facilitates movement and mobility automatically and includes all parts of the body. This led to the emergence of the nine-digit mat, where the founders of Proceeds (the creator of the nine-point mat Platform9) in (2015), abbreviated as (P9), explain as a training tool that aims to simplify movements through functional exercises, and enables the trainer to choose the type of movement through different numbers with control in terms of (length, width, and angle), as it presents a three-dimensional training system using (P9).) Training strategies for different parts of the body, and it is considered as one of the most important modern training methods that facilitate the trainer to design precise, varied, and adjustable exercises. Procedos.com))

Hence, the research gap is determined in the scarcity of studies that dealt with the effect of three-dimensional training using the nine-digit mat (P9) specifically directed to develop the motor abilities of university fencers, taking into account the nature of their movement and the requirements of actual performance in competitions, and this research comes to fill this gap through the design and implementation of exercises based on the principles of (3D) training using the (P9) mat with the aim of developing The importance of this research stems from the fact that it provides a modern training approach based on three-dimensional training using the P9 mat, which contributes to providing an advanced training model that can develop the basic motor abilities of fencing fencers in university teams.

Problem

Despite the continuous development in the requirements of motor performance for fencers weapon foil, the training programs applied in university teams still rely mainly on traditional training with limited directions, and do not provide a multidimensional training environment that simulates the nature of rapid competitive situations and sudden motor changes in the sport of fencing. Directions, and precision of movement, despite their adherence to the usual training curriculum.

The recent literature shows that the use of three-dimensional training methods, including the movement-based P9 mat at nine points distributed at different angles and distances, can contribute to enhancing the efficiency of movement, improving instantaneous decision-making, and raising the level of motor performance in the short combat situations that characterize the game of chess. Thus, the main question of this research is the extent to which triathlon training using the nine-digit mat can bring about a tangible development in the motor abilities of the players of the university team with the dice.

Research Objectives

1. Identifying the effect of three-dimensional training (3D) using the P9 mat on some motor abilities of university fencers in weapon foil.
2. Differences in the effect of three-dimensional exercises (3D) using the P9 mat in some of the motor abilities of university fencers in weapon foil.

Research Hypotheses

1. There is an effect of 3D exercises using a mat (P9) in some of the motor abilities of university fencers in weapon foil.
2. There are differences in the effect between the experimental group and the control group using 3D exercises in some of the motor abilities of university fencers in weapon foil.

Research Areas

- **Human Field:** Fencing Team Players at the Faculty of Physical Education and Sport Sciences, University of Babylon.
- **Temporal Range:** 28/9/2025 until 7 /12/2025.
- **Spatial Field:** Fencing Hall at the University of Babylon - Faculty of Physical Education and Sport Sciences.

Research Terms and Concepts

A. 3D training: It is a training method based on performing integrated and diverse movements across the three levels of the body: sagittal (front-back), frontal (right-left), and transverse (This training aims to develop motor abilities, balance, speed, and agility, while enhancing muscular and neurological efficiency by mimicking natural movement patterns in daily life and various sports. (Procedural definition)

B. Nine Numbers Mat (Platform9): It is a mat made of a flexible rubber material with a good ability to absorb shocks and prevent slipping, the size of the rug is approximately (130 cm long × 110 cm wide), and contains nine numbers arranged within circles of about (15) cm diameter each, these numbers are organized in a grid of three rows and three columns, starting from the top left and down to the bottom right within an approved training arrangement. The mat also includes dashed lines around its surroundings that indicate eight basic directions of movement, enabling multi-axis movement-based exercises in a three-dimensional kinetic environment. Haff, Triplett (2015) [16].

Method and Research Tools

1. **Research Methodology:** The researcher used the experimental method by designing the two equal groups (experimental and control) as a method to carry out his research in order to suit the nature of the problem to be studied, the experimental method is "the method that includes an attempt to control the factors affecting the change of the dependent variables in the experiment except for one factor that the researcher controls and changes in a certain way in order to determine its effect on the dependent and standard variables or variables". (Wajih Mahjoub, 2002, p. 297) [10]
2. **Research Population and Sample: The** research population was identified by the (15) fencers of the fencing team at the Faculty of Physical Education and Sport Sciences, University of Babylon, and (12) fencers were selected from those wishing to participate in the

training for the purpose of scientific research, and (3) fencers were excluded from them for the purpose of the exploratory experiment, and they were randomly divided into two equal groups (control and experimental), with (6) fencers for each group.

3. Means, devices and instruments used in the research.

- **Means of Information Collection**
  Local and foreign sources and references, personal interviews, observations, internet.
- **Tools and Device**
  Printing (P9) mat (6), (12) shing weapon foil, numbered dueling indicator (2), medical scale (1), manual stopwatch (2), dumbbells weighing (1-2) kg, medical balls of different weights (2-4) kg, resistance rubber bands, variable direction resistance cables, and visual and audio signals for field simulation.

Research Tests

First: Response speed test.

- **Purpose of the test:** To know the speed of the motor response of the fencing players with the three weapons.
- **Tools used:** Dual court, stopwatch, scoring paper, two colored cards (red, yellow).
- **Performance Description:** The player stands in standby position in front of the standby line drawn in the fencing court, and the tester stands in front of him, or next to the side line of the court, holding two colored cards (red, yellow) with each hand behind the body, and when hearing the start signal, he raises one of the cards and shows the red card. For example, the player performs the forward motion three times, the stab once, and the standby position, while when the yellow card is shown, the player performs the backward motion three times, the stab once, and the standby position.

- **Registration**

a) The recorder activates the stopwatch from giving the start signal until the end of the stabbing, and calculates the time to (0.01) seconds.

b) The swordsman is given five attempts at random, and the best time is calculated for the best attempt. (Zafer Namous Khalaf (*et al*.), p. 260).

Second: Moving balance test

- **Test objective**: Measuring moving balance
- **Test** instruments: stopwatch, measuring tape, (11) markers fixed on the ground, distance between one mark and another is 75 cm.
- **Test Performance Description**: The tester stands on his right foot on the starting point, then begins to jump to the first mark with his left foot, trying to stay steady on the left metatarsal for a maximum of (5) seconds, then jumps to the second mark with his right foot, and so on the landing foot changes from one mark to another and rests on the metatarsal each time, noting that his foot is above the mark.

The test is supposed to be within 50 seconds, but when there is an error in instability or descending above the mark, its time is reduced by five seconds, so the longer the time, the better the balance.

- **Registration: The time taken** by the laboratory from the beginning of the test to the finish line is calculated, as shown in Figure 1. (Davis. B. et. al 2000) P129)

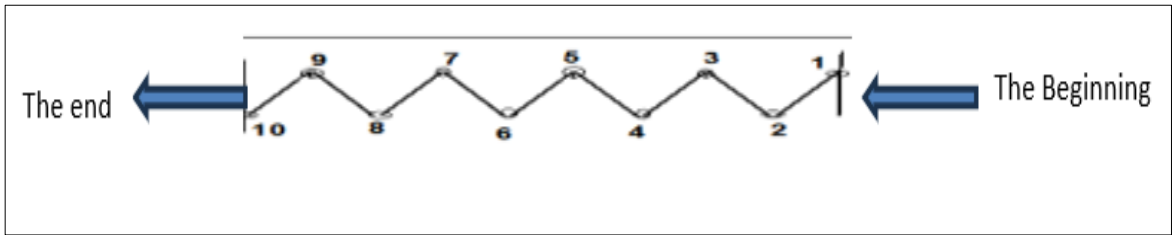

Fig 1: The modified bass test method for moving balance.

Third: Agility Test

- **Objective of the test:** to measure agility in sports fencing.
- **Exam Application Requirements:** The exam requires the presence of three people, one (the exam director), the other (temporary), and the third (registered).
- **Devices and tools:** legal fencing court, legal fencing weapon, electronic stopwatch.
- **Performance Specifications:** The tester stands on point (A) by placing the front foot behind the standby line, and when the tester hears the start signal by the test manager, which is (the sound of a whistle), he performs the normal progress towards point (C), and when he touches this line, he performs the normal retreat towards point (B), and when he touches this point, he performs the normal progress towards point (E). Then it returns with the usual retreat towards point (C), and when it comes into contact with this line, it then performs its normal progress towards point (G), then returns with the usual regression to the starting point (A), and this is shown in Figure (2).
- **Recording:** Records the time it takes for the laboratory to cross the starting line from the moment the whistle is heard, to the moment his front foot crosses the starting line, B (Tha) (Abdulhadi Hamid, pp. 121-122**)**

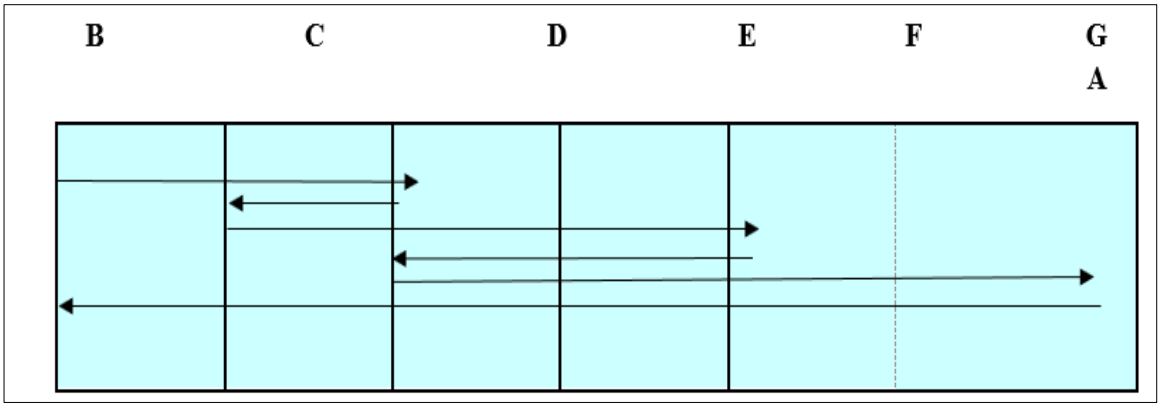

Fig 2: Shows the agility test

Fourth: Testing the motor accuracy of the stabbing.

- **Test objective**: to measure the accuracy of the stab.
- **Test instruments**: A dueling indicator drawn on (6) circles with a diameter of (5) cm from (1-6), irregularly, and at a height suitable to the length of the laboratory, a rifle weapon.
- **Description of the test performance**: The tester stands in standby position (oncard) of the weapon holder, and at an appropriate distance from the indicator, and after hearing the start signal from the arbitrator, the tester performs the motion of appealing in the circuits drawn in the indicator after the arbitrator mentions the circuit number, giving the tester (10) attempts to appeal.
- **Registration**: The exact number of times the target is hit by the ten attempts to stab the laboratory, the test is repeated twice and the best attempt is recorded. (Diaa Zaki Al-Hasso, 2003, p. 96) [3]

Exploratory Experiment

Prior to conducting the pre-test, a reconnaissance experiment was carried out on (Monday) 29/9/2025 on (3) university fencers representing the target community to ensure the suitability of tools and exercises.

- **Objective**: To verify the ability of players to perform exercises for the training module (3D) accurately and safely, to adjust optimal rest periods between sets and exercises, to test the tools used such as a digital stopwatch and strength platform, and to adjust stabbing distances.
- **Procedures:** Perform all exercises with low effort to observe technique and respond, monitor breaks between groups (90-120 seconds), correct movements when needed and ensure equipment safety.

Results

Players and tools are confirmed to be ready for pre-testing, with some minor details modified to ensure the accuracy and effectiveness of the measurements.

Main Research Procedures: Preliminary Tests: Preliminary tests were conducted on the research sample in its two groups (control and experimental) at (9 a.m.) on Tuesday (30/9/2025), in the fencing hall at the Faculty of Physical Education and Sport Sciences - University of Babylon. Equivalence of the research sample: The researcher conducted the equivalence between the two research groups (control and experimental) in the kinetic variables of the fencers (response speed, mobile balance, agility, and motor accuracy) using the T-test for the independent samples, where the values appeared and for all variables were less than the tabular value at the degree of freedom (10) and below the significance level of (0.05), and this indicates the parity of the sample members for the control and experimental groups, as shown Table (1).

Table 1: Shows the equivalence of the sample in the research variables

Search variables	Unit of measurement	Control group (Mean)	Control group (SD)	Experimental group (Mean)	Experimental group (SD)	Calculated *t* value	Sig.	Statistical significance
Motor response speed	Second	1.161	0.019	1.158	0.014	0.050	0.336	Non Sig.
Moving balance	Second	34.40	1.046	34.70	1.742	0.532	0.542	Non Sig.
Fast arm performance	Second	43.00	2.10	43.83	1.94	0.69	0.512	Non Sig.
Kinesthetic accuracy	Number	3.55	0.716	3.73	0.653	0.357	0.722	Non Sig.

Significant at the error level (0.05) if the error level is less than or equal to (0.05).

Main Experience: Performing 3D Exercises Using a Mat (P9) : The main experiment was carried out using three-dimensional exercises on a (P9) mat over a period of eight weeks, with three training units per week on (Sunday, Tuesday, and Thursday), in the hall of the university national team's training, the implementation of the exercises started on Sunday on 5/10-2025, until Thursday 4/12/2024) immediately after conducting the pre-measurements.

In building the content of the trainings, the researcher relied on reviewing the relevant literature procedos.com), in addition to his modest practical experience in training the sport of fencing, and the exercises were gradually designed to cover the following aspects

First: Components of the Training Content

The researcher divided the exercises into (4) main groups on the (P9) mat, see Figure (3), taking into account the development from the easy to the most complex, which are as follows:

1. Rapid Response Trainings: Aimed at reducing decision-making time and transition time between mat points, they included:

- Respond to an audio or light call by instantly moving to a specific number on the mat. Moving from the midpoint number (5) to a point that appears randomly on a screen or through the coach's signal.
- Attack reaction exercises, a quick transition to a specific point followed by a short rush.
- **Gradient used:** from a unidirectional response ← to a multi-directional response ← to a rapid response with a load (weapon).

2. Agility training: Focuses on speed change of direction and speed control in short tracks:

- Implementation of predefined digital paths such as: (3 ← 5 ← 8 ← 2 ← 9).
- Random Pattern training by the instructor.
- Applying sudden changes in the feet, with the addition of short lunges or sharp pauses.
- Short races between players on different tracks on the P9.
- **Gradient used:** fixed paths ← medium-complexity paths ← integration of instantaneous decision-making.

3. Balance exercises aim to strengthen the stability of the body's central axis during movement and sudden transitions

- Standing on one point and executing a simple defensive move (paré).
- Short transitions on a diagonal line while maintaining the stability of the torso.
- Balance on one leg at a specific point followed by a short attacking move.
- Perform the skill of attacking from different points while maintaining the alignment of the shoulders and feet.
- **Gradient used:** A fixed balance ← balance during movement ← balance with the performance of an offensive or defensive skill.

4. Accuracy training: Focuses on improving the targeting of the target with precision after a move on the mat:

- Move to a point and then execute a stab on a fixed goal in front of the player.
- Moving through two diagonal tracks before the appeal is made.
- Perform a quick attack after a digital signal on the mat.
- "Tolerance" exercises to correct the steering error in the shortest possible time.
- **Gradient used:** Accuracy from constant ← accuracy after short motion ← accuracy after multi-directional paths.

Second: Training Load Planning: The high-intensity interval training (HIIT) method was applied to the nine-point mat to develop the four motor abilities: response speed (70-90%), agility (60-80%), balance (60-75%), and motor accuracy (60-80%). The size of the exercise and the number of repetitions were determined so that each session included 3-4 sets per capacity, with 10-15 repetitions per set, and short breaks of 20-40 seconds between groups depending on the required intensity.

Third: The content of the training module (70 minutes)

1. Warm-up (15 minutes), light running and general conditioning + fencing foot exercises.
2. The main part (45 minutes) is divided according to the four abilities: Response Speed: 10 minutes, Agility: 12-15 minutes, Balance: 8-10 minutes, Accuracy: 10 minutes
3. Calm-down (5 minutes) stretches, breathing exercises, and recovery

Fig 3: The nine-digit mat (P9) used in the application of the three-dimensional training protocol

Post-tests: After the end of the eight-point sale, the researcher conducted the post-test with the same tools and criteria to compare the level of improvement resulting from the exercises performed, where the tests were conducted for the control and experimental groups at (9 a.m.) on Sunday (7/12/2025) in the fencing hall at the Faculty of Physical Education, University of Babylon. 2-6 Statistical Methods: 1. The arithmetic mean. 2. Standard deviation. 3. T-test for interconnected and independent samples. 3- Presentation and discussion of the results. 3-1 Presentation and analysis of the results of the physical and motor abilities tests of university fencers in weapon foil for the control and experimental groups:

Table 2: Shows the values of the arithmetic media, standard deviations, and the value of (t) calculated for the two tests (pre- and post-test) in some of the kinetic abilities of the fencers in weapon foil and for both groups (control and experimental)

Group	Test name	Unit of measurement	Pre-test (Mean)	Pre-test (SD)	Post-test (Mean)	Post-test (SD)	Calculated *t* value	Sig.	Statistical significance
Control	Motor response speed	Second	1.161	0.019	1.103	0.016	8.92	0.001	Sig.
Experimental	Motor response speed	Second	1.158	0.014	1.018	0.026	16.13	0.000	Sig.
Control	Moving balance	Second	34.40	1.046	38.41	1.046	14.39	0.000	Sig.
Experimental	Moving balance	Second	34.70	0.742	43.50	1.046	13.88	0.000	Sig.
Control	Special fitness	Second	19.50	1.047	16.73	0.652	8.12	0.000	Sig.
Experimental	Special fitness	Second	19.20	1.424	12.73	0.742	12.83	0.000	Sig.
Control	Kinesthetic accuracy	Number	3.55	0.716	5.40	0.546	5.94	0.000	Sig.
Experimental	Kinesthetic accuracy	Number	3.73	0.653	7.22	0.752	12.16	0.000	Sig.

Significant at the error level (0.05) if the error level is less than or equal to (0.05).

Discussion of the results of the motor abilities tests of the fencers for the two groups (control and experimental).

The results of Table (2) show that three-dimensional training on the P9 mat had a significant effect on the development of motor abilities in the fencers in weapon foil, compared to the traditional program applied to the control group, considering the differences between the averages and the values of (t), it was found that the improvement in the experimental group was clearly higher compared to the control group.

In the response speed variable, both groups achieved an improvement, but the experimental group outperformed by a relatively higher rate of improvement, suggesting that the multi-directionality of movement and instantaneous change loads in the 3D program directly contributed to the acceleration of the kinetic response, as confirmed by Dave Schmitz (2003) [11] "Diversification of play from one skill to another, whether offensive or defensive, requires the fencer to have a high degree of speed of response and movement."

In terms of motor balance, the improvement was present in both groups, but the experimental group recorded a greater increase in the dimensional averages, which reflects the effect of the sensory-muscular stimulation exercises provided by the nine-digit (P9) mat through an unstable distribution of focus and rapid change of directions, "as the balance quality gives the player the ability to concentrate because stability gives the player all the abilities represented in precision, balance, reflexes, etc." 2019)

As for the agility variable, the experimental group showed a clear improvement after applying three-dimensional exercises using the nine-digit mat (P9), an improvement that reflects the high ability of players to change direction quickly and under short time pressure, due to the nature of these exercises that rely on continuous movement between multi-directional points, which enhances the efficiency of motor control. This improvement is in line with the requirements of fencing, as the effectiveness of the fencer depends on his ability to quickly switch between attack and defense modes, execute rush and return moves quickly, and deal with changing lines of movement imposed by the opponent.

In the variable of motor precision, it was the most distinctive ability in the results of the experimental group, as it achieved the largest improvement rate among the four abilities compared to the control group, which confirms the effectiveness of three-dimensional training in improving the connection of movement to the goal and increasing the quality of performance under time conditions and skill pressure, as Bassam Abbas (1983) [1] confirms that "accuracy requires complete control of the body parts to collect the player's forces in order to reach the goal and achieve the touch" (Bassam Abbas, (1983, p. 73) [11]

These results can be explained by the fact that three-dimensional training stimulates the muscles at multiple levels and in different paths of movement, which contributes to improving neuromuscular coordination and increasing the efficiency of physical performance, as Dalilbor Pastucha (2012) [12] emphasizes that "3D training is usually used in motor rehabilitation and physical therapy programs in the light of the results of muscle functional tests, where 3D functional rehabilitation includes two main components, the first is three-dimensional movements of the body and the second is restoration. The natural function of muscles, and that the goal of these exercises is not only to improve physical fitness and neuromuscular compatibility, it is also a useful and enjoyable technique for all age groups regardless of health status, in addition to being an effective way to enhance the strength of the muscles of the human body, and increase joint stability.

Returning to Table (2), the results of the control group showed relative stability in motor performance during the study period, as there was no significant change in the scores (speed of response, mobile balance, agility, and motor accuracy) compared to the pre-tests, as this indicates that the routine exercises followed by the control group did not have a tangible effect on the motor abilities under study, and this indicates that the experimental exercises contributed to enhancing the studied motor abilities, which reflects the benefit of exercises directed towards improving Physical stability during athletic performance.

Presentation, analysis and discussion of the results of the post-tests of motor abilities and for both groups (control and experimental).

Table 3: It shows the values of the arithmetic media, the standard deviations, and the value of (t) calculated for the post-test of physical and motor abilities and for the two research groups for fencer in weapon foil.

Variables	Unit of measurement	Control group (Mean)	Control group (SD)	Experimental group (Mean)	Experimental group (SD)	Calculated *t* value	Sig.	Type of indication
Motor response speed	Second	1.103	0.016	1.018	0.026	6.71	0.001	Sig.
Moving balance	Second	38.40	1.046	43.50	1.046	8.26	0.000	Sig.
Special fitness	Second	16.73	0.65	12.73	0.74	12.83	0.000	Sig.
Kinesthetic accuracy	Number	5.40	0.54	7.22	0.75	6.13	0.000	Sig.

* Significant at the error level (0.05) if the error level is less than or equal to (0.05).

Discussion of the results of the post-tests of the control and experimental research groups.

The data of Table (3) reveals that there are statistically significant differences at the level of (0.05) between the experimental and control groups in all the measured motor abilities, all of which came in favor of the experimental group, and this indicates the clear superiority achieved by the three-dimensional exercises using the (P9) mat over the traditional program applied by the control group.

Significant increases in the motor abilities under study were observed, as in the response velocity variable , the calculated value of (t) was (6).71) At the significance level of (0.001) and a dimensional mean of (1.018) compared to the control group with an average of (1.103), in the variable of moving equilibrium, the calculated value of (t) was (8).26) At the significance level of (0.000), with a dimensional arithmetic average of (43.5) compared to the control group with a dimensional average of (38.40), which indicates the superiority of the experimental group over the control group, and the results showed a clear superiority of the experimental group in the agility variable, where the calculated value of (t) was (12).83) at the significance level of 0.000), with a dimensional average of (12.73) vs. (16.73) for the control group, as for the variable of motor accuracy, where the calculated t-value was (6.13) at the significance level of (0.000), and a dimensional mean (7. 22) vs. (5.40) for the control group, and this excellence in performance confirms that the three-dimensional training was not just a formal addition, but was a decisive factor in the development of the levels of motor performance of the experimental group, and in line with modern trends in training that emphasize the importance of multi-level motor stimulation in improving job and athletic performance, as Mahmoud Abdel Mohsen points out that "3D training) represents an ideal model for training to change direction quickly and lightly, which positively affects the development of physical and motor abilities, as it works to raise the skill level through the development of mental abilities and the ability to anticipate reactions." (Mahmoud Abdel Mohsen)

The results also indicate that the integration of three-dimensional training with the use of a (P9) mat represents an effective strategy for developing the motor abilities of fencers, as it gives reliable and reliable results in improving athletic performance, which opens horizons for wider applications in the fields of sports training and motor rehabilitation, as well as an improvement in mobile balance and speed of performance, and this is consistent with the results of the study of Waleed Mohammed.

"The occurrence of these positive differences is due to the effect of three-dimensional exercises using the 9-point mat , where the gradation and diversity in the use of exercises for different body areas, whether for the arms, legs, abdominal bones and back, were taken into account, as well as stimulating motor units and involving a large number of them as a result of their reliance on the three axes of the body, as previous studies confirmed that multidimensional exercises provide balanced activation of both major and stable muscles, and contribute to improving neuromuscular coordination."

The researcher believes that the use of three-dimensional exercises using the nine-digit mat (P9) represents an effective way to develop the motor abilities of fencers, because of the motor diversity and comprehensive neuromuscular stimulation provided by these exercises, and he believes that the positive results in (response speed, balance, agility, and motor accuracy) emphasize the importance of integrating this type of training within modern training programs, as it enhances motor adaptations and prepares players to face complex sports situations more efficiently.

Conclusion

- The three-dimensional training using the (P9) mat contributed to a clear and real development in the motor abilities of university fencers in weapon foil.
- There is an advantage for the experimental group over the control group in some of the motor abilities of university fencers in the weapon foil.
- The use of the P9 mat contributed to raising the efficiency of integrated motor performance among fencers, by improving muscular-neural coordination, and increasing the speed of motor processing during movement, which reflected positively on competitive performance.

Recommendations

- The necessity of adopting three-dimensional exercises using a (P9) mat as an essential part of the training programs for university fencers in order to develop critical motor abilities such as agility, balance, and speed of response.
- Expanding the use of the (P9) mat in training for different age stages, while adjusting the intensity and gradation to suit each category, due to its effectiveness in improving motor abilities related to skill performance.
- Conducting future studies aimed at integrating (P9) training with technical skills training for fencing, to investigate the impact of integration between the two

dimensions of motor and skill on improving the level of competitive performance.

References

1. Abbas B. A proposed program for developing the speed and accuracy of stabbing among fencing players in the fencing weapon [master's thesis]. Baghdad: Faculty of Physical Education, University of Baghdad; 1983. p. 73.
2. Mohammed DF. The effect of special exercises using rebound pitch on the most important biomotor capabilities and kinematic variables of simple and compound attack with shotgun [master's thesis]. Kufa: University of Kufa; 2019.
3. Al-Hasso DZ. The effect of motor speed and flexibility of some joints on the speed and accuracy of stabbing with a shot weapon [master's thesis]. Mosul: Faculty of Physical Education and Sport Sciences, University of Mosul; 2003. p. 96.
4. Fadel AK, *et al*. A guide to tests in the sport of fencing. Diyala: Central Press, Diyala University; 2021. p. 249-252.
5. Mahmoud AK. Designing a fitness measurement battery for students applying to the Police College [master's thesis]. Diyala: Faculty of Physical Education and Sport Sciences, Diyala University; 2007. p. 55.
6. Mahdi AH. Designing a test for measuring agility in fencing sport. Journal of Mathematical Sciences. 2007 May;1:121-122.
7. Bey A, *et al*. Raha Al-Riyadi. Alexandria: Al-Nasher Knowledge Facility; 1999. p. 30.
8. Allawi MH, Rateb OK. Scientific research in physical education and sport psychology. Cairo: Dar Al-Fikr Al-Arabi; 1999. p. 215.
9. Hatem N. A proposed training curriculum for variable resistors according to some biokinematic indicators and their effect on some special physical abilities of the accuracy and speed of fencing stabbing movement [master's thesis]. Baghdad: University of Baghdad, College of Physical Education for Girls; 2009.
10. Mahjoub W. Scientific research and its methods. Baghdad: Dar Al-Kutub for Printing and Publishing; 2002. p. 297.
11. Schmitz D. Functional training pyramids. New Trier High School, Kinetic Wellness Department; USA; 2003. p. 21.
12. Pastucha D, *et al*. Clinical anatomy aspects of functional 3D training - case study. Biomedical Papers of the Medical Faculty of the University Palacky. 2012;156(1):63-69.
13. Jones R. Functional training: introduction. Corporate Well Coach; 2007. Available from: www.ronjones.org.
14. Davis B, *et al*. Physical education and the study of sport. UK: Harcourt Publishers Ltd; 2000. p. 129.
15. Procedos. Available from: https://procedos.com.
16. Haff GG, Triplett NT, editors. Essentials of strength training and conditioning. 4th ed. Champaign (IL): Human Kinetics; 2015.