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The Effect of Applying These Exercises is to Simulate Competition in Order to Develop Balance and Accuracy in the Numerical Combination Attack

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Abstract

The importance of this research lies in its contribution to enriching the scientific literature on the impact of applied exercises on developing fencing skills, and it opens avenues for similar studies in other sports. The research problem arose from the researcher's observation of a weakness in motor balance that may result from a lack of focus on exercises that simulate competition. This leads to difficulty maintaining the player's balance during the attack, increasing the risk of loss of control or injury. A lack of training that simulates competitive pressure can also affect the player's ability to deliver accurate jabs, reducing the effectiveness of numerical combination attacks. Furthermore, there is a lack of research... In terms of application, there is a limitation in studies that link practical, competition-simulating exercises with the specific improvement of fencing skills, making it difficult for coaches to design evidence-based training programs. Therefore, the researcher decided to study this problem to answer the main question: What is the effect of applying exercises that simulate competition on developing balance and accuracy of the numerical combined attack among students of the College of Physical Education and Sports Sciences? The two objectives of the research are to prepare applying exercises that simulate competition to develop balance and accuracy of the numerical combined attack, and to identify the statistical differences between the pre-tests. The researcher studied the lateral balance and accuracy of the combined numerical attack, and used the experimental method with a single group approach to suit the nature of the problem. The research population was determined purposively and consisted of fencing players in the (youth) category affiliated with the Ministry of Youth and Sports in Dhi Qar Governorate for the sports season (2024-2025), totaling Their number is (8) players, and they were chosen as a sample for research and they represent (100%) of the original community. One of the most important conclusions is that the exercises applied to simulate competition had an effect on developing balance for fencing players.

Keywords: Applied Drills; Competition-Like Simulations; Balance; Thrust Accuracy; And Numerical Combined Attack

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1. INTRODUCTION

Sports training is a fundamental process for improving athletic performance, focusing on developing the physical, psychological, and technical abilities of athletes. Effective training relies on designing well-structured programs that aim to enhance physical fitness components such as strength, speed, endurance, flexibility, and agility, in addition to improving technical and tactical skills (Molohan et al., 2026). Specific to each sport with recent advancements in sports science, the use of advanced training methods and competition simulations has become a crucial part of athletic preparation strategies, contributing to improved performance and better results in competitions. Athletic training aims to prepare the athlete not only to achieve success in sports but also to Championships, but also to enhance his overall health and develop his leadership skills (Liu et al., 2024; Vealey, 2024).

Fencing is one of the sports that requires high precision in skill execution and quick reactions to the opponent, as the player's success depends largely on his ability to control his balance and the accuracy of his thrusts. The numerical combination, which includes a series of successive offensive movements, is considered one of the basic skills in foil fencing, and requires the fencer to be able to adapt to the conditions of competition, control distances, and coordinate movement and concentration. Balance is a fundamental component of athletic performance, defined as the ability to maintain body position in both stationary and moving states, whether on a firm or moving surface (Li et al., 2025; Zemková & Zapletalová, 2022). Balance plays a crucial role in most sports activities, contributing to improved accuracy, enhanced stability, and reduced risk of injury. Injuries. In sports like fencing, balance is essential for controlling distances, executing attacks and defenses effectively, and adapting to changes in an opponent's movement. Balance is influenced by multiple factors such as muscular strength, flexibility, and motor coordination, making its development a primary objective in sports training programs to

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improve performance and achieve better competitive results. The importance of this research lies in its contribution to enriching the scientific library on the impact of applied exercises on developing fencing skills, and it opens up prospects for similar studies in other sports (Wang & Liu, 2022; Zuwayr & Malih, 2024).

Fencing, particularly foil, suffers from a lack of research addressing the impact of practical exercises that simulate real-world competition conditions on the development of fundamental skill elements. The numerical combination attack, which relies heavily on balance and thrust accuracy, is a complex skill requiring high levels of motor coordination and adaptation (Ramezani et al., 2024; Wang et al., 2024). Quickly reacting to the opponent's movement, the researcher observed a weakness in motor balance. A lack of focus on competitive drills may lead to difficulty maintaining balance during an attack, increasing the risk of loss of control or injury, and resulting in poor stabbing accuracy. The absence of drills simulating competitive pressure also contributes to this. This may affect a player's ability to deliver accurate thrusts, reducing the effectiveness of numerical combination attacks. Furthermore, there is a lack of applied research; studies linking competition-simulated practice exercises to specific improvements in fencing skills are limited, making it difficult for coaches to design evidence-based training programs. Scientifically, the researcher decided to study this problem to answer the main question: - What is the effect of applying exercises that simulate competition on developing balance and accuracy of the numerical combined attack among students of the Faculty of Physical Education and Sports Sciences?

To prepare application exercises that simulate competition to develop balance and accuracy of the numerical combined attack. To identify the statistical differences between the pre- and post-tests of balance and accuracy of the numerical combined attack. There are statistically significant differences between the pre-tests and post-tests for the research group, favoring the post-tests. Fencing players in the (Youth) category affiliated with the Ministry of Youth and Sports in Dhi Qar Governorate for the (2024-2025) sports season. Timeframe 3/4/2024 to 17/7/2024, The closed hall at the Nasiriyah Model Forum.

2. RESEARCH AND METHODS

The researcher used the experimental method with a single group approach to suit the nature of the problem. The research community was determined purposively. It consists of (8) fencing players in the (youth) category affiliated with the Ministry of Youth and Sports in Dhi Qar Governorate for the (2024-2025) sports season. They were selected as a research sample and represent (100%) of the original community. To verify the homogeneity of the sample, the researcher performed some procedures to control the variables, even though the selected sample was from a similar age group. The coefficient of variation was used to determine whether there was a difference or not, and Table 1 shows this.

Table 1. Shows the Homogeneity of the Research Sample

No	Body Measurements	Unit of Measurement	Arithmetic Mean	Standard Deviation	Coefficient of Variation
1	Age	Year	17.32	2.54	٪14.66
2	Mass	kg	70.13	2.02	٪2.88
3	Height	cm	172.04	4.81	٪2.79

Methods, Equipment, and Tools Used Information Gathering Methods, Internet, Virtual Library, Personal Interviews with Iraqi Experts and Specialists, Measuring Tape, Medical Scale, Whistle, Manual Stopwatch, Dell i7 Laptop, Regulation Volleyball Court and Foils.

Balance Test (Mohammed Hassan Alawi and Mohammed Nasr Al-Din Radwan: 2001)

Test Name: Modified Bass Test for Kinetic Balance.

Purpose of the Test: To measure the ability to jump accurately and maintain balance during and after the movement. Required equipment: Stopwatch, measuring tape, (11) markers firmly fixed to the ground to record landing errors and balance errors, and to audibly count down five seconds to the subject.

Performance specifications: The subject stands with their right foot on the starting point and then begins to jump towards the first marker. With his left foot, he tries to maintain his position on the ball of his left foot for the longest possible time, up to a maximum of (5) seconds. After that, he jumps to the second mark with his right foot, and so on until he reaches the tenth mark using the same method, noting that the landing foot is

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changed in each jump and that the balance is on the ball of the foot in each jump. Once, the distance between the marks must be 30 cm. The examinee is awarded (5) points for each mark if the landing is correct.

The examinee is awarded one point for each second they maintain their balance above the mark, up to a maximum of (5) seconds, thus making the total score for the test (100) points. The five marks for a correct landing on a single mark will not be awarded to the test-taker if they fail to stop during landing after jumping onto the mark, or if any part of their body touches the ground except the instep, or if they fail to cover the mark with the instep. In the event of any of the above landing errors, the test-taker is permitted to... By re-establishing a balance position on the ball of the foot on which the turn is taking, above the mark, within a maximum of (5) seconds. Accuracy of the lunge in the numerical attack (Risan Khuraibat Muhammad: 1998), Accuracy of the lunge movement, To measure the accuracy of directing the attack from the lunge movement. The bar is placed on the playing field and the electricity is connected to it. A line is drawn at a distance appropriate to the length of the player's thrust, from which the player begins performing the thrust. The player stands in front of the bar in the ready position, holding the foil, which is connected to the electricity behind the aforementioned line. The player begins performing the straight thrust. Directly towards the target (the circles on the chest), the tester is given ten attempts within fifteen seconds.

The researcher conducted a pilot test on Friday, December 15, 2023, at 3:00 PM on the sample. The pilot test helps identify shortcomings and determine the location and time of the test. And its duration." (Wajih Mahjoub, 1993). To prepare and guide the support team according to the research objectives, to prepare the necessary equipment and tools, To determine the time required for the test and to establish the scientific basis for the test.

The researcher presented the tests to experts and specialists in the fields of training, fencing, and motor learning through personal interviews, and they agreed on the validity of the tests, as shown in Table (2).

Table 2. Shows the Percentage of Validity of the Research Tests

No	Test Name	Number of Experts	Number of Agreeing Opinions	Percentage
1	Balance	9	9	٪100
2	Accuracy of the Numerical Combined Attack	9	8	٪88.88

The researcher used the test-retest method to calculate the reliability coefficient, with a time interval of (7) days between the first and second tests. The test-retest method is one of the simplest methods and is characterized by its ability to determine the interval for consistency, since the error associated with the measurement is, fortunately, always more apparent when there is the period between the two tests is from one day to more (Ibrahim Ahmed Salama: 1980). The researcher extracted the reliability coefficient using Pearson's correlation coefficient between the results of the first test and the results of the second test, and determined the significance of the correlation. The researcher concluded that the tests possess high significance because the value(sig) > (0.05) as shown in Table 3.

The researcher determined the objectivity coefficient for the tests under investigation by calculating the simple correlation coefficient (Pearson correlation coefficient) between the results of the two referees in the first application conducted during the pilot study yielded high correlation coefficients, indicating the objectivity of the tests used in the research, as shown in Table 3.

Table 3. Shows the Reliability Coefficients of the Research Tests

No	Testing	Stability Coefficient	Sig	Objectivity Factor	Sig
1	Balance	0.90	0.000	0.92	0.000
2	Accuracy of the combined numerical attack	0.89	0.000	0.90	0.000

The correlation coefficient is significant at a significance level > (0.05).

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The researcher conducted pre-tests before beginning the application of the exercises proposed by the researcher on Tuesday, April 30, 2024, at 3:00 PM. All (8) players in the research sample were present, and the results were extracted.to obtain effective exercises, it was necessary to consult modern sources and references in sports training science, which would provide the researcher with the information needed to develop complex exercises. Therefore, the researcher prepared exercises for the research sample based on... It was prepared based on scientific training principles and several scientific sources and references, as well as the opinions of specialists in the fields of sports training science, motor learning, and fencing.

The exercises began on Thursday, May 9, 2024, and continued until Thursday. On 4/7/2024 and for a period of eight weeks, with three training units per week (Sunday, Tuesday, Thursday), the research sample was supervised by the researcher and the assisting work team. The following are some clarifications regarding the exercises used in its.

3. RESULTS AND DISCUSSION

The post-test was conducted on the research sample on Monday, July 9, 2024, after the completion of the exercises. The researcher ensured that the pre-test conditions and procedures followed for the research tests were maintained.

Table 4. Shows the Arithmetic Means, Standard Deviations, and Calculated T-Value for the Pre- and Post-Tests of the Sample

Physical abilities	Unit of Measurement	Before		After		Calculated T	Sig	The result
		x	sd	x	sd			
Balance	Degree	47.13	1.17	58.30	0.39	8.33	0.000	significance
Accuracy in complex numerical attacks	Frequency/second	7.11	1.09	9.95	0.72	5.18	0.000	significance

Table 4 shows the arithmetic means, standard deviations, and calculated t-value between the pre- and post-test results. The results presented in the table indicate that the significance level In all values, the value was (0.000), which is less than the significance level value (0.05), indicating that there are statistically significant differences between the pre-test and post-test for the sample.

Table 4 shows a significant difference in the post-test results for the research group. The researcher attributes this to the exercises implemented to simulate competition. The researcher ensured that these exercises were designed to closely resemble the conditions of performance during a fight, which aligns with what Mahdi Fadel stated, The more the applied exercises simulate, as much as possible, conditions similar to what the player goes through in real competition, the more effective they will be in bringing about development in mental ability levels while performing the required skills (Williams & Hodges, 2023). The researcher attributes these differences to the impact of the exercises, which simulated competition. This approach proved effective in developing balance, thus contributing to a clear improvement in the skill level of the lunge throwers among the research sample. This indicates that the training program was appropriate for the sample's level and skill level. Moreover, it was built on sound scientific principles and implemented properly and systematically, as when curricula are implemented effectively, the student's overall performance improves significantly (Martin-Alguacil et al., 2024).

When he stated that one of the natural phenomena of the learning process is that there must be development In learning, as long as the teacher follows the steps of the sound foundations of learning and teaching as well as the results of the studies of both, that the organized practice of sports activities positively affects the technical level of the players(Calleja-González et al., 2023). Furthermore, the researcher indicates that practical exercises simulating competition helped enhance the fencers' ability to adapt to psychological pressures and kinetic variables during the execution of the numerical combination attack, leading to improved dynamic balance and a significant increase in thrust accuracy. This type of training not only works on Developing technical

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skills not only enhances players' self-confidence but also increases their focus, reflecting the importance of incorporating real-world competition conditions into the training process (Ghorbanzadeh et al., 2025).

These findings underscore the necessity for fencing training programs to regularly include competition simulation exercises, along with the study emphasizes developing balance and motor control skills. It also recommends that coaches design diverse training sessions that simulate various competition scenarios to ensure players are prepared to face the actual challenges of matches. In light of this, it can be said that the research findings highlight the importance of integrating technical and psychological training in developing fencers' skill performance, thus opening up avenues for improving training strategies in fencing.

Utilize exercises that simulate competition and develop balance and accuracy in complex numerical attacks. Conduct similar studies on other skills not addressed in this study. Conduct similar studies with other age groups and different training methods focused on developing offensive or defensive fencing skills, and observe the results of these studies. Paying attention to conducting tests and measurements on a regular basis.

4. CONCLUSIONS

aThe exercises, which simulate competition, had an effect on developing the balance of the fencers. The exercises, which simulate competition, had an effect on developing the accuracy of the combined attack thrust. And the exercises, which simulate competition with this load fluctuation, led to this degree of development in balance ability and accuracy of the combined attack thrust.

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