

## The impact of unique exercises utilizing an educational method in motor compatibility and learning the abilities of diving and boxing for students

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Received: 22/03/2025

Accepted: 12/05/2025

### Abstract

The present study endeavored to ascertain the impact of specialized exercises employing an educational modality. The objective of this initiative is twofold: first, to enhance motor compatibility, and second, to facilitate the acquisition of diving and juggling skills in boxing among students. The researcher employed the experimental method to measure the effect of special exercises by dividing the participants into two experimental groups. The subject underwent a series of specialized exercises, employing an educational methodology. The control group was not subjected to the traditional curriculum. The research community was selected from the second-stage students of the Faculty of Physical Education and Sports Sciences at the University of Babylon for the academic year 2022-2023. The total number of subjects in the study was 119, and the experimental research sample was randomly selected. The experimental group comprised 25 students. A total of twenty-five students were selected to serve as the control group, with the selection process being executed in a similar manner to that employed for the other groups. Moreover, the survey sample comprised ten students. The subjects were selected at random. The researcher developed a series of specialized exercises using an educational approach. The experimental research sample was the subject of the application of these metrics, following the attainment of the requisite results and the execution of the necessary statistical processing. The researcher's conclusion was that the results demonstrated the efficacy of specialized exercises, administered through an educational method, in enhancing motor compatibility and facilitating the acquisition of diving and juggling skills in the context of boxing among students. The researcher posits that the incorporation of specialized exercises, based on an educational methodology, within the context of boxing instruction holds potential for enhancing motor compatibility and facilitating the acquisition of motor skills.

**Keywords:** Special exercises, AIDS, motor compatibility, diving skill, zoogan skill.

## 1. Introduction

Special exercises are a set of physical exercises specifically designed to achieve specific goals in the field of sports or fitness. The objective of this study is to enhance performance and to acquire the requisite motor skills.

According to Al-Shaghati (2011, p. 254), it is defined as "a set of exercises that are primarily aimed at achieving a specific goal, such as exercises that serve and assist in learning a skill from sports. These movements bear a resemblance to the physical actions observed in specialized sports or competitive settings.

Mohammed (2017, p. 33) conceptualizes special exercises as "the repetition of performance for a specific movement or several movements in different forms to achieve a specific effect and reach a particular goal. This assertion is founded upon scientific principles and is substantiated by robust educational foundations."

The dissemination of information to students during educational units has become increasingly dependent on the use of various auxiliary means instead of traditional methods, which are based on oral explanations and practical presentations by the teacher. This shift is indicative of advancements in educational technology and the pursuit of more efficacious methods to engage students and enhance their comprehension.

Abdelzaid (2008, 170) defined educational means as "all the tools, devices, and organizations that are used in the educational system in order to achieve educational goals, which contribute to enhancing the learning process and improving student outcomes."

Nashev (2015, 12) has defined it as "a set of physical potentials that take many forms and sizes and serve different goals, with their contribution to the development of motor skills ranging from simple to complex, while entering into the components of motor skills, along with their subtleties and details in form and content."

Motor compatibility is an essential element in the sport of boxing. Training necessitates the execution of movements with both expediency and precision. The necessity of compatibility among the eye, arm, and body is paramount. Upon achieving mastery over motor compatibility, the practitioner can execute rapid movements, deliver punches, direct those punches at an opponent, and perform swift and graceful defenses.

According to Abdel Fattah (2012, 214), compatibility is defined as "the ability of the learner to expedite motor performance while maintaining precision in achieving the objective with minimal exertion."

As Shalash and Abdul Hadi (2010, 71) define it, "the ability of a learner to move two or more different muscle groups in two different directions simultaneously" exemplifies the concept under discussion. Boxing is a combat sport that demands a high level of technical and physical prowess. The discipline encompasses a wide array of competencies, including dodging and juggling techniques in the realm of boxing. These competencies are widely regarded as fundamental prerequisites for achieving success in the sport. Furthermore, they play a pivotal role in counterattacking and controlling the game.

As Ali (2018) asserts, diving in boxing entails a rapid descent, a lateral bend, and evasive maneuvers to circumvent punches from the opponent and mitigate the harm they inflict. The term "zogan" is defined in the literature as "fast lateral movement, moving backwards, and bending to avoid punches from the opponent, thereby providing opportunities for counterattack" (Arab et al., 2011, 54). Therefore, the significance of research in the development of specialized exercises employing an educational methodology and its influence on motor compatibility and the acquisition of diving and zogan skills for students is paramount. The research contributes to a more profound comprehension of the learning process and the development of effective learning strategies.

### 1.2 Research Problem:

A considerable number of students encounter challenges in acquiring boxing skills due to its reputation as a complex sport that comprises a multitude of techniques, such as diving and juggling, which

significantly impact their performance during the learning process. This complexity stems not only from a deficiency in technical proficiency but also from inadequate motor compatibility, a factor that plays a pivotal role in executing these techniques with optimal efficiency.

The following question is posed: The present study seeks to ascertain the impact of specialized exercises, administered through an educational methodology, on the enhancement of motor compatibility and the acquisition of diving and juggling competencies in the context of boxing for students.

### **1.3 Research Objectives**

- 1- To prepare special exercises using an auxiliary tool.
- 2- To identify the impact of special exercises using an educational tool on improving motor coordination and learning the skills of diving and dodging in boxing for students.

### **1.4 Research Hypotheses**

- 1- There are statistically significant differences between the pre-tests and post-tests of the experimental and control groups.
- 2- There are statistically significant differences in the post-tests between the experimental and control groups.

### **1.5 Research Areas**

- 1-5-1 Human Field: Second-year students for the academic year 2022-2023 in the College of Physical Education and Sports Sciences / University of Babylon.
- 1-5-2 Temporal Field: From 26/10/2022 to 18/12/2022.
- 1-5-3 Spatial Field: The boxing hall in the college.

## **2. Methodology and field procedures**

### **2.1 Methodology**

The present study utilizes an experimental curriculum to ascertain the impact of special exercises on the performance of students in diving and juggling skills in boxing. These exercises are based on a method of motor compatibility.

### **2.2 Community and its sample**

The research community was selected by means of the intentional method. In the current academic year, the Faculty of Physical Education and Sports Sciences at the University of Babylon is hosting 119 students in its second-stage program.

The experimental research sample was selected by a random method (lottery), and their number was (25) students. A total of 25 students were selected to serve as the control group, with the selection process being identical to that of the other groups. Furthermore, a sample of 10 students was selected to represent the survey population.

### **2.3 Means, Devices, and Tools**

#### **2.3-1 Data Collection Methods**

1. Observation (Performance Assessment).
2. Arabic and foreign sources and references.
3. World Wide Web (Internet).
4. Supporting the work team.

#### **2.3.2 Devices and Tools Used in Research**

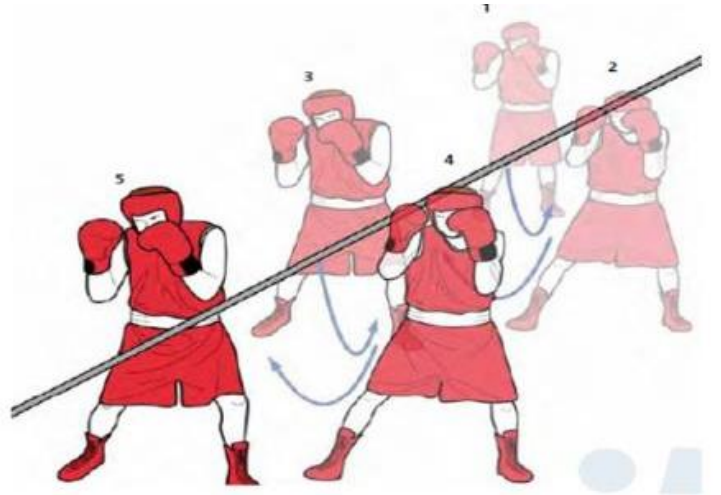
1. Electronic medical scale for measuring mass, quantity: 1.
2. Measuring tape, quantity: 1.
3. Phone (iPhone) (12 Pro), quantity: 1.
4. Gloves, quantity: (50) pairs.
5. Boxing ring, quantity: 1.

6. Electronic calculator.
7. Electronic stopwatch.
8. Rope, length: (12) m.
9. Various punching bags.

## 2.4 field research procedures

### 2.4.1 preparation of special exercises

Following a comprehensive review of numerous scientific sources and an analysis of the researcher's scientific expertise, which is informed by his professional experience as a boxing instructor at a collegiate institution and his interest in the field of boxing, a set of six exercises was meticulously designed to enhance motor compatibility, diving, and juggling skills.



**Figure (1)** Illustrates the method utilized in the research.

### 2.4.3 tests used in research

**Initially, a motor compatibility assessment is imperative (Abdul Rasul, 2023, 88)**

- The objective of the present study is to assess the motor compatibility between the arm and the eye in the context of boxing.
- The following devices and tools were utilized in the test: a variety of punching pads.
- Performance specifications: The learner is to stand in front of the device from the standby position and at the distance of the front arm. At the start signal from the teacher, the learner is to start punching all the pads numbered from (1-7) and arranged in a random way. This is to be done for two times, and the punching must be continuous and as soon as possible to calculate the time from the moment the performance starts to finish.
- Registration: The learner's performance time is calculated from the teacher's signal until the last punch is delivered. In the event of an error in the learner's performance, the learner returns to the last group and repeats the test when the turn is reached a second time.



**Figure (2)** Demonstrates a diverse punching pad.

#### **Secondly, the administration of the Diving and Zugan test is to be conducted**

- The test is referred to as: FreeStyle boxing. (Jawad, 2005, 97)
- The objective of the evaluation is to assess the performance of the skills in the boxing game.
- The following tools were utilized: boxing Paws, a boxing ring, an electronic stopwatch, a special form for awarding grades, and a camera.
- The test is to be conducted as follows: The two testers are to stand in the two corners of the ring. When the start signal is heard, the two testers are to deliver three free punches in one round of three minutes. The fight is to be managed by a middle referee.
- Test conditions:
  - It is imperative that the image be of a high resolution and clarity in order to facilitate the evaluation process for the arbitrators.
  - It is imperative that photography be captured from multiple angles.
  - It is imperative that the testers wear different colors (blue and red) to ensure optimal visibility and facilitate the evaluation process.
  - The preparation of a special form for expert evaluators is imperative.

#### **2.4.3 Exploratory Experiment**

- The exploratory experiment was conducted on Tuesday, October 26, 2022.
- The experiment took place in the boxing hall at the College of Physical Education and Sports Sciences at the University of Babylon.
- The objective of this experiment was to ensure the validity of the procedures followed regarding the appropriateness of the tests and exercises used for the research sample, the suitability of the method employed, the location of the camera setup, and the efficiency of the supporting team.

#### **2.4.4 Pre-tests**

The pre-tests were conducted on Sunday, November 2, 2022, with the aim of assessing the participants' level before the application of the exercises and providing baseline data for comparison with the results after the application of the exercises. The appropriate time and place were determined, and the objectives of the tests were clarified to the participants. Specific and standardized measurement tools were used to ensure the accuracy and reliability of the results.

### 2.4.3 The Main Experiment

Following the validation of the procedures and the conduction of preliminary tests, the specific exercises were implemented on the experimental research sample. These exercises were meticulously designed to enhance motor coordination and to master the techniques of evasion and avoidance in the context of boxing. The specific exercises were applied for a duration of six weeks, with one session per week, resulting in a total of six educational units implemented from November 9 to December 14, 2022. These units were conducted in the primary section of the educational unit, with a focus on the effective and targeted execution of the exercises. The implementation of these exercises is instrumental in achieving the research's educational objectives, which are twofold: first, to enhance motor coordination, and second, to acquire the competencies of evasion and avoidance.

### 2.4.3 Dimensional Testing

After the completion of the main experiment, the post-tests began on Sunday, 18/12/2022. The same conditions were provided as for the pre-tests to ensure the accuracy and consistency of the results.

## 3. Presentation and Discussion of Results

### 3.1 The experimental and control groups' results are presented and discussed.

**Table (1)** Indicates the results of the search variables for both groups.

Groups	Variables	Testing	Arithmetic mean	Standard Deviation	Calculated value	Error Ratio	Significance
Experimental Group	Motor Compatibility/Time	Pre-test	8.29	0.45	23.68	0.000	Moral
		Post-test	5.63	0.54			
	Diving/Degree	Pre-test	6.20	0.78	5.16	0.000	Moral
		Post-test	9.60	0.51			
	Zogan/Degree	Pre-test	5.60	0.88	5.32	0.002	Moral
		Post-test	10.02	0.78			
Control Group	Motor Compatibility/Time	Pre-test	8.54	0.86	4.35	0.000	Moral
		Post-test	7.70	0.58			
	Diving/Degree	Pre-test	6.10	0.73	1.36	0.754	Insignificant
		Post-test	7.01	0,60			
	Zogan/Degree	Pre-test	5.72	0.83	2.085	0.001	Moral
		Post-test	7.43	0.81			

### 3.1.1 Discussion of results

As demonstrated in Table (1), a substantial discrepancy is evident between the post- and pre-tests, with the post-tests exhibiting a pronounced advantage. This superiority is attributed to the exercises, which were meticulously prepared by the researcher. The design of the aforementioned apparatus has been accomplished through the utilization of a tool that has demonstrated its efficacy in enhancing motor compatibility, as well as diving and zoogan skills. Exercise has been demonstrated to effectively contribute to the development of eye-hand compatibility. It is a critical component in enhancing motor efficiency. This finding indicates optimal neuromuscular compatibility and inter-limb compatibility. These elements are indispensable components of the sport of boxing.

This assertion is corroborated by the findings of Ahmed (2014, 117), who demonstrated that the incorporation of exercise with auxiliary tools significantly enhances the functionality of the neuromuscular system. This pedagogical approach aims to facilitate a more profound connection between the learner and the movement or skill being acquired, thereby enhancing the learning experience. This approach is conducive to eliciting the desired responses. This is generated in the learner during the performance of the skill to improve the process of motor compatibility. This enhances his understanding and ability to perform the skill correctly.

The exercises are meticulously designed according to rigorous scientific principles and structured to ensure systematic progression. The study's findings were consistent with the characteristics of the research sample, thereby facilitating the emergence of observed differences and the successful attainment of the study's objectives.

This finding aligns with the assertion made by Abdul Hamid (2014, 90) that the systematic development of exercises, grounded in scientific principles and taking into account the necessary criteria for selecting the most suitable exercises, is instrumental in achieving the desired outcomes.

In the context of boxing, it is imperative for the learner to possess precise motor compatibility between the eye and the legs, as well as between the eye and the hands. This necessity arises from the repetitive nature of the sport and the frequent absence of stimulus identification. The compatibility between the eyes and hands plays a pivotal role in the execution of offensive and defensive maneuvers in boxing. Furthermore, the synchronization between the eyes and the two hands is crucial for the player's movements and the evasion of attacks.

This finding aligns with the assertion by Faraj and Fikri (2002, p. 245) that "the learner's capacity to integrate diverse movements into a unified framework, marked by fluidity and coordination in executing movements with effectiveness and efficiency, signifying a high degree of control and neuromuscular regulation."

### 3.1.2 presentation of the results of the dimensional tests of the two groups

**Table (2)** The results of the two groups in the dimensional tests.

Variables	Groups	Arithmetic mean	Standard Deviation	Calculated value	Error Ratio	Significance
Motor Compatibility/Time	Experimental	<b>8.29</b>	<b>0.45</b>	<b>11.52</b>	0.000	Moral
	control	<b>7.70</b>	0.58			
Snorkeling/Degree	Experimental	<b>9.60</b>	<b>0.51</b>	<b>12.28</b>	0.000	Moral
	control	<b>7.01</b>	0,60			
Zogan/Degree	Experimental	<b>10.02</b>	<b>0.78</b>	<b>16.29</b>	0.000	Moral
	control	<b>7.43</b>	0.81			

### 3.1.2 Discussion of results

As illustrated in Table (2), the experimental group exhibited favorable outcomes, signifying the efficacy of the specialized exercises devised according to the educational method employed. These exercises played a pivotal role in the development of the experimental research sample, consequently leading to its superiority over the control group. This finding aligns with the assertion by Abdul Hamid (2020, 34) that "the utilization of the educational method significantly enhances students' comprehension of motor skills and refines their proficiency in executing them correctly, serving as an effective instrument in facilitating the learning process and imparting information in a simplified and comprehensible manner." The experimental group has been shown to demonstrate superiority in comparison to the control group. This phenomenon can be attributed to the exercises prepared by the researcher. The researcher has posited that "preparing or designing special exercises that are appropriate to the needs of students plays an important role in developing motor skills and improving sports performance" (Ali, 2022). Hassan, 2022, The study emphasizes the importance of educational aids in the educational process. The researcher posits that the educational medium plays an important role in enhancing the learning process and improving student performance. The practical application of special exercises, the researcher believes, provides students with the opportunity to develop their motor skills and improve their neuromuscular compatibility. The practical application of these skills has been demonstrated to contribute to the enhancement of confidence and the ability to properly perform skills.

## 4. Conclusions and Recommendations

### 4.1 Conclusions

1. Specific exercises play a crucial role in improving motor coordination and learning the skills of diving and dodging.
2. The results emphasize the role of educational tools in enhancing the learning process and improving student performance, as they are an effective means of facilitating learning and presenting information in a simplified and comprehensible manner.

### 4.2 Recommendations

1. It is recommended to use specific exercises in teaching motor skills in boxing to improve motor coordination and athletic performance.
2. It is recommended to apply educational tools in the learning process to enhance student understanding and improve their performance in motor skills.

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**Appendix (1)**

Demonstrates the exercises used:

1. Bending and ducking under the rope to avoid punches coming from the front.
2. Ducking from a lateral movement to improve your ability to evade punches, right and left.
3. The teacher stands wearing training gloves while the student ducks and then directs a punch towards the teacher's glove.
4. Learning how to duck under punches to avoid them; the teacher punches while the student ducks under the rope to evade the punches.
5. Exercise to learn how to bend forward to avoid punches from under the rope.
6. Lateral bending exercise from under the rope, alternating right and left to improve your ability to evade punches.
7. Exercise to learn how to bend backward to avoid punches.
8. Bending and ducking from lateral movement to improve your ability to evade punches, right and left.

**Appendix (2)****Illustrates a module template**

Week : First Unit : First Day / Tuesday / 9/11/2022

Stage / II (A) Number of students (25)

aim of the unit: Improve motor coordination and learn diving and diving skills

section	Time	Exercise	Workout Time	Rest between workouts	
Main	60 minutes				
Exercises used	30D	1	Bending and diving from under the rope to avoid punches in front of the rope.	10 min	2min
		2	Learn how to dive under punches To avoid it, the teacher punches and the student dives under the rope to avoid punches.	10min	2 min
		3	Exercise the side bend from under the rope once right and once left to improve your ability to dodge punches.	10min	2min