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## Research Paper

# The Effect of Breathing Techniques on Weightlifting Performance and Physical Endurance

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ABSTRACT	Manuscript Info.
<p>The aim of the research was to know the effect of the respiratory program on the performance of the clean and jerk lift and strength endurance of weightlifters in the effectiveness of the clean and jerk lift. The research sample included weightlifters in Babylon Governorate, numbering 35 players. After they were tested in the tests specific to the research objectives, the information was collected, the necessary statistical processing was carried out, and the results were extracted. In light of the results, the most important conclusions were reached, the most important of which are: The respiratory program had a significant effect on the variables under study due to its major role in increasing the muscle's oxygen reserves necessary for the muscle and the result of muscle strength.</p>	<ul style="list-style-type: none"> <li>✓ ISSN No: 2584-184X</li> <li>✓ Received: 15-09-2024</li> <li>✓ Accepted: 09-10-2024</li> <li>✓ Published: 29-11-2024</li> <li>✓ MRR:2(11):2024; 63-66</li> <li>✓ ©2024, All Rights Reserved.</li> <li>✓ Peer Review Process: Yes</li> <li>✓ Plagiarism Checked: Yes</li> </ul>
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**KEYWORDS:** Breathing, techniques, weightlifting and physical endurance

## 1. INTRODUCTION

The work deals with studying the effect of advanced and traditional breathing techniques on weightlifting performance and physical endurance. This research aims to understand the vital role that the respiratory system plays in improving athletic performance and increasing the physical endurance of athletes. Breathing, whether correctly or incorrectly, is expected to have a very significant impact on the physical performance of athletes practicing various sports. It is very important to understand how to use breathing techniques correctly and effectively to improve overall performance and increase endurance levels. By highlighting the different

principles and techniques of breathing, athletes will be able to achieve outstanding performance and reach new levels of physical endurance, which contributes to achieving their athletic goals better. The importance of breathing is crucial in the performance of physical sports as the respiratory system plays a vital role in providing oxygen to the muscles and controlling the acid-base balance. Athletes must understand how to use correct breathing techniques to improve their performance and physical resistance. It is also important to understand how to benefit from breathing in various sports and physical training to achieve the best results. Recent research

indicates that breathing techniques can significantly impact weightlifting performance, as studies have shown that using correct breathing techniques can increase physical performance efficiency, muscle strength, and endurance. In addition, maintaining a balance of breathing techniques during weightlifting can help prevent injuries and reduce muscle tension later on. Concentration is an important and vital factor during weightlifting, and breathing can have a significant and profound effect on this aspect. Correct and appropriate concentration during breathing helps improve balance and coordination between the mind and body during the lifting process. Studies and research indicate that correct and appropriate breathing techniques can significantly increase the level of focus and attention during weightlifting exercises, which directly contributes to achieving better and more effective results.<sup>[1]</sup> Numerous studies indicate that effective breathing techniques can significantly contribute to increasing the body's physical endurance. These correct techniques help significantly improve the flow of oxygen to the muscles, which leads to reducing the harmful process of lactic acid formation in the muscles. Thus, it becomes possible to achieve a higher level of athletic performance and achieve a significant increase in physical flexibility. If these sound techniques are applied regularly, they have a clear positive effect on physical endurance in general, in addition to the ability to withstand and endure for long periods while practicing various sports activities.<sup>[2]</sup> Hence the importance of research in using endurance techniques to increase the output of performance strength and increase physical endurance to ensure that the player continues to achieve the best performance.

### 1.1 Research Problem

Through the researcher's experience in the field of specialization, he found that the library today lacks studies on the use of breathing in sports performance, especially

weightlifting, which relies on anaerobic energy sources to achieve muscle strength output. Therefore, the ability to employ various breathing techniques to increase the body's oxygen supply has a major role in increasing muscle strength output and thus increasing performance output.

## 1.2 RESEARCH OBJECTIVES

Identify the effect of breathing techniques on weightlifting performance and physical endurance.

### 1.3 Research Hypotheses

There are statistically significant differences between the results of the pre-and post-tests for weightlifting performance and physical endurance in favor of the post-tests.

### 1.4 Research Areas

**Human field:** Players of Babylon Governorate clubs in weightlifting for the clean and jerk lift.

**Time domain:** From 02/04/2024 to 20/06/2024.

**Spatial domain:** Sports hall in the College of Physical Education and Sports Sciences / University of Babylon.

## 2. RESEARCH METHODOLOGY & FIELD PROCEDURES

### 2.1 Research Methodology

The researcher used the experimental method and the single-group design to suit the research procedures method.

### 2.2 Research community and sample

The research community included weightlifters in Babylon Governorate, numbering (35) players, as the community represented the research sample by (100%), as homogeneity was conducted among them in the variables of height, weight, and age, as shown in Table (1).

**Table 1:** Shows the homogeneity of the research sample

Variables	Units	Median	Mean	STD	Skewness
Age	Year	23	23.31429	1.703298	-0.04525
Weight	Kg	105	103.4	10.08592	-0.28289
Length	Cm	171	169.2857	5.863063	-0.18147

### 2.3 Tools and methods used in the research

- Stopwatch.
- Information collection form.
- Multiple iron weights.
- Chinese-made respiration rate measuring device.
- Electronic calculator.
- Smart watch to measure blood oxygen saturation.

### 2.4 Exploratory experiment

The exploratory experiment was conducted on a sample consisting of (2) players from outside the research sample on 10/04/2024, to ensure the validity of the measurement tools and to guide the assistant work team on how to implement the tests and determine the appropriate time for each test.

### 2.5 Main Experience

#### Tests used in the research

##### 1. The jerk lift test:<sup>[3]</sup>

**The aim of the test:** is to measure the maximum force in the jerk lift.

##### The tools:

- A 20 kg iron bar.
- Multiple iron weights.
- A camera.

**Test description:** The participant is asked to stand in front of the platform on which the weight is placed, and after hearing the instructions, the participant lifts the weight with maximum force and complete performance.

**Recording:** The measurement is recorded in kilograms after three attempts and for the best lift.

**2. Upper Body Endurance Test:<sup>[4]</sup>**

**Objective of the test:** To measure the strength endurance of the upper body muscles.

**Tools used**

- Sponge mat.
- Whistle.

**Implementation**

The participant is asked to perform the test with the body straight and at a uniform pace so that the palms of the hands are touching the ground and the hands are chest-width apart. After hearing the whistle, the tester bends and extends the elbow fully and for the maximum number of times.

**Recording**

The unit of measurement used in the test is the equipment that the tester can reach during the test.

**2.6 Pre-tests**

The pre-tests were conducted on the research sample of 35 players at exactly 10:00 am.

**2.7 Respiratory program application**

From the ready position in standing to lifting the weight, the participant is asked to take a deep breath before starting the movement, emphasizing keeping the air in the lungs at the moment of lifting the weight and applying force to the weight. After that, emphasis is placed on breathing slowly and at a steady pace while lifting the weights. It is very important to emphasize maintaining focus on the breathing process during the movement so that it is consistent with the weightlifting movements.

**2.8 Post-tests**

The post-tests were conducted on 10/6/2022 at exactly 10:00 AM and under the same conditions as the pre-tests.

**3. RESULT AND DISCUSSIONS**

**Presentation, analysis, and discussion of the results of the pre-and post-tests for the achievement variable of the jitter lift and upper limb strength endurance.**

**Table 2:** The show paired Samples Statistics

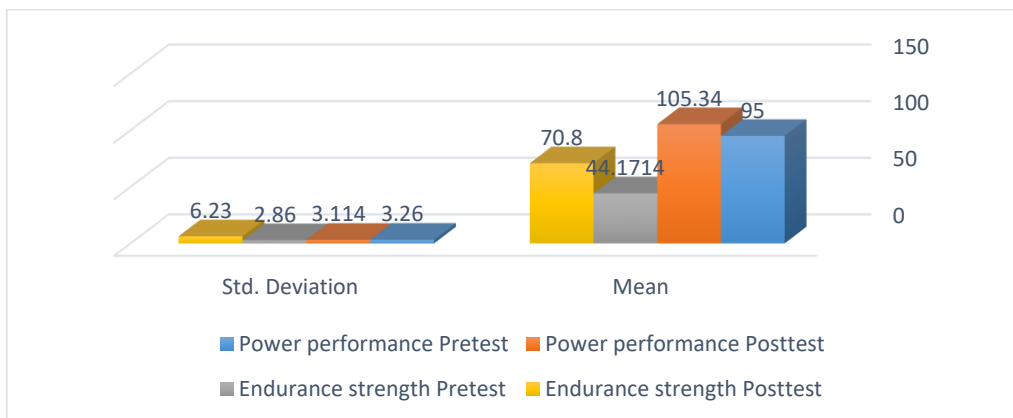
Variables		Mean	N	Std. Deviation	Std. Error Mean
Power performance	Pretest	95	35	3.26	0.55
	Posttest	105.34	35	3.114	0.53
Endurance strength	Pretest	44.1714	35	2.86	0.48
	Posttest	70.8	35	6.23	1.05

**Table 3:** Show paired Samples Test

Variables		Paired Differences			t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean			
Power performance	Pretest –Posttest	10.343	4.108	.69445	14.894	34	0.000
Bear Strength	Pretest –Posttest	26.63	7.121	1.20370	22.122	34	0.000

From the results presented in Tables (2 and 3), it is clear that there are large differences between the results of the pre-and post-tests in favor of the post-tests. This confirms that the respiratory program played a major role in increasing the strength and endurance output of the participating players as a

result of increasing the percentage of oxygen saturation in the blood and increasing the energy output necessary for muscle contraction and relaxation, thus increasing the action of movement and achieving the required performance.



**Fig. 1:** Shows the arithmetic means and standard deviations of the variables under study

Muscle balance is an important aspect of weightlifting performance and endurance, and breathing techniques can have a significant impact on this balance. Proper breathing helps to improve muscle strength and control, which leads to improved overall athletic performance. Combining proper breathing techniques with muscle training can help to strengthen muscles and improve balance, which can have a positive impact on weightlifting performance and endurance.<sup>[5]</sup> The relationship between breathing and muscle balance lies in its role in regulating muscle tension and maintaining its stability. Proper breathing techniques can activate the muscles used in weightlifting and physical endurance, which contributes to maintaining muscle balance and reducing the chances of injury. Therefore, breathing techniques can have a positive effect on improving athletic performance and the ability to better face physical challenges.<sup>[6]</sup> Another very positive effect of various breathing techniques on improving physical endurance is increasing lung capacity. If a person can effectively increase their lung capacity, they will undoubtedly be able to breathe larger amounts of air during various exercises, which will enhance their endurance.<sup>[7]</sup> This development in lung capacity allows them to significantly increase the amount of oxygen available to the body, which helps them delay the onset of fatigue and exhaustion. Consequently, they can perform better during exercise, which will lead to an increase in their endurance of the physical efforts they undertake.<sup>[8]</sup> The training that was applied to weightlifters, especially in the clean and jerk, had a significant impact on increasing concentration, which means increasing adaptations among weightlifters, which led to increasing the energy output necessary to perform and continue performing.<sup>[9]</sup> Sources indicate that good breathing increases the amount of oxygen reaching the muscles, thus increasing their ability to work efficiently, which in turn achieves maximum benefit from exercises and goals faster. It was also noted through field follow-up that proper breathing increases stability and control during weightlifting, especially the clean and jerk, which helps reduce vibration and limit injuries, and this is a very important aspect in protecting players and developing performance.<sup>[10]</sup>

## CONCLUSIONS

1. The training program used had a significant impact on the performance of the jerk lift and strength endurance.
2. The correct use of breathing increases concentration and achieves stability and muscle balance when performing the jerk lift.
3. Effective breathing techniques play a major role in preventing injuries, increasing strength output, and improving performance.

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