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Research Paper

The Effect of Breathing Exercises on Some Physical Variables in The Spike Skill of Volleyball Players

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ABSTRACT

Researching the effect of breathing exercises on endurance and strength in volleyball players is important because it provides a deeper understanding of the relationship between breathing and athletic performance. Determining the effect of breathing exercises on players and providing valuable guidance to coaches and players on how to improve their performance and endurance is an urgent need. Moreover, this research may contribute to the massive development of effective training programs that are important in improving athletic performance and enhancing strength in volleyball plans, given the importance of these training strategies in enhancing the overall fitness level of athletes. After reviewing the sources and research, the researcher found that most training exercises do not emphasize breathing exercises, which play a major role in increasing the oxygen sources needed by the muscles to produce energy and rebuild their source necessary for continued contraction and muscle work. The researcher used the experimental method with a single-group design. The research sample included 16 players out of 18 players from the University of Diyala volleyball team, as one player was excluded after conducting the exploratory experiment on them. Pre-tests were conducted for the sample on the variables under study, and after applying the breathing exercises, post-tests were conducted. After collecting the data, the results were extracted and the most important conclusions were reached, which are Respiratory exercises play a role in improving the function of the respiratory system and thus enhancing physical and athletic performance in general.

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1. INTRODUCTION

Volleyball is a popular sport, where players compete with great skills and physical endurance. From this important standpoint comes the importance of training that helps develop players' performance and strength. Therefore, we are conducting an in-depth scientific study to understand the effects of new and innovative breathing exercises on the performance of distinguished volleyball players and to confirm their effectiveness in increasing performance endurance and strength. This study will include a group of professional players and will provide reliable and comprehensive details and results that will help teams and coaches improve their training programs. The study will take into account various aspects such as age, gender, and physical fitness level of individuals to measure the effects of these exercises on

performance in various races and team performance. The training will include theoretical and practical aspects to ensure continuous improvement in the physical performance and tactical skills of players. The ultimate goal of this study is to raise awareness of the importance of breathing exercises and enhance the performance of volleyball players and their success in international competitions.

Proper and efficient breathing plays a vital role in the performance of athletes. It gives them the ability to get rid of excess carbon dioxide in the body and get the oxygen needed for the muscles during strenuous exercises and intense physical performance. Because sports require great physical effort, players must develop and train their respiratory system properly and regularly to improve their performance and increase their endurance. This means that breathing must be part of the athletes' daily training routine, and they must be taught the correct breathing techniques appropriate for each type of exercise. In addition, players must pay attention to their nutritional lifestyle and follow a balanced and healthy diet to ensure that the necessary energy is provided to the athletic body and the various organs in the body. Ultimately, investing in improving the quality of breathing and enhancing physical fitness is a necessary step for any player looking to succeed and excel in their favorite sport. The respiratory system consists of the organs and structures that allow breathing, including the nose, throat, bronchi, and lungs. The respiratory system exchanges gases necessary for life, allowing oxygen to enter the body and carbon dioxide to exit it. Understanding this system and how it works is important for volleyball players to improve their performance.[1]

Breathing has a significant impact on athletic performance and strength endurance, as proper breathing exercises can improve the body's ability to use oxygen better, allowing them to maintain strength and performance for long periods without over-tiring. Proper breathing is also important for increasing strength, as it strengthens the chest and abdominal muscles and improves muscle performance during exercise. Sports training plays a crucial role in developing the ability of volleyball players and increasing their performance. Regular and intensive sports training helps in enhancing physical fitness and developing players' skills at the highest level. Sports training includes providing modern and varied exercises to develop the body's muscles and increase the muscle strength needed to achieve excellent performance on the courts. In addition, training focuses on improving physical endurance, quick movement and stability, which enables players to overcome challenges with confidence and skill. Continuous and organized sports training plays an effective role in developing the technical and physical skills of volleyball players, which enhances their chances of winning sports matches with confidence and excellence.[2]

Research into the effect of breathing training on performance endurance and strength in volleyball players is important because it provides a deeper understanding of the relationship between breathing and athletic performance. Determining the effect of breathing training on players and providing valuable guidance to coaches and players on how to improve their performance and endurance is an urgent need. Furthermore, this research may contribute to the massive development of effective training programs that are important in improving athletic performance and enhancing strength in volleyball plans, given the importance of these training strategies in enhancing the overall fitness level of athletes.

Research Problem

Through the researcher's field observation, he noticed that there was a decrease in the level of endurance and strength among players during the match. After reviewing the sources and researching, the researcher found that most of the training does not emphasize breathing exercises, which play a major role in increasing the oxygen sources necessary for the muscles to produce energy and rebuild their source necessary for the continuation of contraction and muscle work.

Hence, we find that studying this type of research has a major role in developing performance and achieving advanced results.

2. RESEARCH OBJECTIVES

To identify the effect of breathing exercises on performance endurance and strength among volleyball players

Research hypotheses

There are statistically significant differences in performance endurance and strength among volleyball players between the pre-and post-tests in favor of the post-tests.

Research field

Human field: Kirkuk University volleyball team players for the academic year 2023-2024.

Time field: From 10-12-2023 to 4-2-2024.

Spatial field: Sports hall in the College of Physical Education and Sports Sciences / Kirkuk University.

3. RESEARCH METHODOLOGY

The research methodology in this study is based on implementing a practical experiment that includes specific breathing exercises for volleyball players and measuring their effect on performance endurance and strength. Scientific methods were used to achieve the specific objectives of the study and ensure the validity and objectivity of the results.

Study Design: An experimental study was implemented with a repeated design where the single-sample experimental design is adopted, as the researcher receives stomach breathing exercises and the effect of the exercises on performance and strength is measured using the tests under study.

Research Sample: The research sample in the study included 16 players from the University of Kirkuk volleyball team. The participants were carefully selected to ensure the reliability of the results, after they were matched as shown in Table 1.

Table 1: Shows the homogeneity of the sample

		Age	Length	Weight
N	Valid	16	16	16
	Missing	0	0	0
Mean		20.5	175.63	78.063
Median		20	175.5	79
Std. Deviation		0.633	4.01456	5.297
Skewness		0.91	0.646	0.36

From the table (1) the researcher finds that the value of the skewness coefficient ranges between ±1 and this indicates that the research sample is homogeneous in the variables under study.

Field Procedures

1. Pilot study:

The pilot experiment was conducted on 12-12-203 on players from the research sample, to adjust the research procedures, control the support team, and determine the appropriate time to conduct the tests.

2. Tests used in the research

Performance Endurance Test for the Spike Skill [3]

The aim of the test: To measure the performance endurance of the spike skill in volleyball

The tools used: A volleyball court, 10 volleyballs, A whistle, A stopwatch.

Performance description: The tester stands at a distance of one meter from the center (4) and from the ready position to perform the spike skill after being asked to perform the performance within (45) seconds, he starts to perform the test according to the specifications mentioned for the test.

Performance recording: The recording is made to the nearest meter within 45 seconds. The following equation was adopted to calculate the performance endurance index:

Performance endurance = mass - distance during 45 seconds/square of time + total accuracy.

Unit of measurement meter and its parts.

Performance Speed Test [4]

The aim of the test: is to measure the speed of performance in the spike skill.

The tools used: A volleyball court, 10 volleyballs, A whistle, A stopwatch.

Performance description: The set of distances covered during the execution of the spike skill from a distance of nine meters was calculated.

Recording: The set of distances covered during the time unit specified at 45 seconds was adopted to extract the speed.

The unit of measurement is meters per second.

Sargent test [5]

Purpose of the test: To measure the explosive power of the legs.

Tools used: Tape measure, wall and piece of chalk.

Test description: A tape measure is fixed to a wall in order to measure the vertical jump distance between two marks, the first of which is determined by the player's height from rest with the arm extended upwards and the second is indicated after hearing the player's command and indicating it.

Recording method: The difference between the first and second marks is calculated to the nearest centimeter.

Unit of measurement meter and its parts.

3. Training Program

The training sessions were designed based on sources and professional trainers in breathing and fitness training. The sessions were implemented under full medical supervision to ensure the safety of the players and avoid any injuries. All procedures and measures followed during the training sessions were also recorded and documented to assess compliance, and ensure quality and continuous improvement. The latest effective and scientifically proven techniques and methods were applied in the training process. Excellent support and care are also provided to every player and individual in our team to ensure their personal and skill development in the future.

Pre- and post-tests

The pre-and post-tests were conducted for the research sample under the same conditions and with the same variables prepared for the current study by controlling the variables that may affect them.

4. RESULTS AND DISCUSSIONS

Table 2: Descriptive statistics for the variables under study in the pre-and post-tests are shown

Variables		Mean	N	Std. Deviation
Endurance	Pretest	16.53	16	1.095
	Posttest	19.083		1.182
Speed	Pretest	0.37		0.024
	Posttest	0.42		0.0263
Force	Pretest	40.38		10.282
	Posttest	88.94		7.801

Table 3: It shows the value of the differences between the arithmetic means and the standard deviations calculated between the pre-and post-tests of the variables under study

Variables	Paired Differences			(t) value	df	Significance level	Significance of differences
	Mean	Std. Deviation	Std. Error Mean				
Endurance	2.556	1.788	0.44692	5.72	15	0.000	Sig.
Speed	0.057	0.04	0.00993	6.08	15	0.000	Sig.
Force	48.563	13.7	3.43022	14.157	15	0.000	Sig.

From the results presented in Table 1, we find that correct breathing exercises have a very positive effect on the performance endurance and ability of volleyball players, as these exercises helped them to significantly improve their ability to control breathing during the game and increase their endurance. In addition, proper breathing control can reduce the stress that players may feel and increase their ability to achieve superior physical and mental performance during sports matches.[6] When it comes to volleyball in particular, good breathing training will provide players with the ability to control breathing while serving and receiving the ball and while jumping and dribbling on the net. In short, correct breathing exercises have significant and multiple positive effects on the performance of volleyball players and their physical and mental endurance in sports matches.[7] The breathing exercises used by the researcher increased the strength and efficiency of the respiratory muscles, which enhanced the endurance and speed of volleyball players and their ability to continue performing without feeling tired quickly. It improved the flow of oxygen to the muscles and improved overall athletic performance by developing the respiratory system and increasing the ability to control the muscle oxygenation rate.[8] Breathing exercises are one of the main factors in improving athletic performance and increasing physical capacity. Thanks to these exercises, volleyball players can achieve higher strength and efficiency in the respiratory muscles. As a result, their ability to continue performing without feeling tired quickly increased. Therefore, it is highly recommended to include breathing exercises in the training programs for volleyball players. These exercises will contribute to improving the strength and efficiency of the respiratory muscles, and thus enhance the players' ability to continue performing without feeling tired. As a result, they will have better overall athletic performance and the ability to control the muscle oxygenation rate.[9] Based on the above results, it is highly necessary to consider the effect of breathing exercises on the performance endurance and strength of volleyball players from a scientific perspective to ensure a detailed analysis of the obtained results. The results related to breathing exercises were analyzed in a comprehensive and accurate manner to understand the complex relationship and actual effect between these exercises and improving the players' performance.[10]

5. CONCLUSIONS

1. Breathing exercises have a significant impact on performance endurance, speed and strength in volleyball players.
2. The importance of paying attention to breathing exercises as an essential part of the players' sports training program works to increase the oxygen reaching the muscles and thus improve the efficiency of muscle work.
3. Respiratory exercises play a role in improving the function of the respiratory system and thus enhancing physical and athletic performance in general.

6. RECOMMENDATIONS

1. Further research and in-depth exploration are needed to explore the impact of advanced breathing exercises on performance endurance, speed and strength in volleyball players in a comprehensive and accurate manner.
2. The scope of the included studies should be expanded in the future to explore the effects of these breathing exercises on other important elements and aspects of athletic performance and player readiness.
3. This type of research will contribute to increasing our understanding of the actual potential positive effects of breathing exercises on athletes and will enable us to develop a more effective and efficient approach to training and preparing for outstanding performance in volleyball.

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