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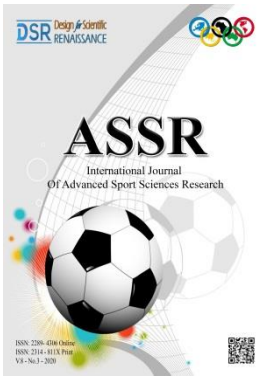

"The effect of respiratory physical exercise on some physiological variables of futsal players"

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Abstract

There is a weakness in the work of the respiratory muscles during the high physical effort and this weakness varies during different pregnancy periods, which leads to their feeling tired after a short period of training. The research aims to prepare and experiment with respiratory physical exercises on female futsal players. The researchers followed the experimental approach by designing the two equal groups of the research sample, which amounted to (10) players from the team of the University of Kufa College of Education for Girls, Department of Physical Education and Sports Sciences in Football for halls, and the sample was divided into two groups (5) for each group. After the pre-tests, the experimental group followed the units. Training using respiratory physical exercises prepared by the researchers, within a period that lasted (10) weeks, at the rate of two training units per week, thus the total number of units reached (20) units and that the training unit time was (60) minutes, and after completing the curriculum units, the tests were conducted Dimensional research on the experimental and control groups. The researchers concluded that the respiratory physical exercise has an effect on the respiratory muscles.

Keywords: aerobic exercise, physiological variants, futsal.

1- Introduction

Our contemporary world is witnessing a series of continuous developments in all areas, including the sports field, and we often find new developments that appear from time to time, all of which are focused on serving the training process and achieving the goal of which is to bring about change and improvement in the level of training. Physical education and mathematical sciences are an important field of education and learning, as it prepares the learner and the trainee as physical, skillful and emotional numbers. Regulating lung volume during exercise is an important factor because it reflects the strategy by which tidal volume is achieved and contributes to breathing action. Typically, increased tidal volume during exercise as a result of increased lung volume is an inspirational end and decreased expired lung volume in Regarding comfort values, the decline between men and women in most exercises is similar. Exercise under minimal or at a certain level of micro-ventilation. The respiratory muscles are unique among the skeletal muscles, as they must continue to function without permanent rest throughout life. Therefore, the weakness of the respiratory muscles is a decrease in muscle contraction, which leads to the inability of the respiratory muscles to generate normal levels of pressure and air flow during inspiration and expiration, and this weakness can affect the exercise performance of female athletes, and thus the implementation of the interventions that It has the ability to increase the strength of the respiratory muscles, represented by the use of respiratory physical exercises, thus improving the performance of exercises and functional ability because conditioning is one of the most reasons that can help the muscles to perform different and high training loads at high levels and for long periods, and indoor soccer is an important game that was formed It is very popular in recent times, due to the large number of stadiums that have been built, as well as the nature of the game and the special law in it, as it is distinguished by special features that distinguish it. About open football.

Through the researchers following up on the football game and the matches of female football players inside the halls, they found that there is a weakness in the endurance of the respiratory muscles until the end of the matches and that they feel tired within a short period of time. In the futsal game, this reflects positively on both the players and the coach.

The research aimed to prepare respiratory physical exercises for soccer players, and to know the effect of respiratory physical exercises on some physiological variables for soccer players.

2- Research Procedures

2-1 Research Methodology

The two researchers followed the experimental method by designing the two equivalent groups of pre and post test.

2-2 Research sample

The two researchers chose the random sample of the research from the original research community, which was (20) players from the team of the University of Kufa, College of Education for Girls, Department of Physical Education and Sports Sciences, with a number (10).

2-3 Equivalence of the research sample

The two researchers resorted to checking the equivalence of the two research samples (experimental and control).

Table (1) It shows the equivalence of the research sample in the research variables

Variables	Median	Vernal Deviation	Kruskal-Wallis value	degree of freedom	error ratio	statistical significance
FVC%	89.33	1. 100	2.102	2	0.233	is insignificant
FEV1%	85.50	1.104	2.100	2	0.123	not significant
FVC / FEV1%	88.40	1.106	2.230	2	0.132	is insignificant
PEFR%	45.88	1.190	2.252	2	0.089	not significant

It is evident from Table (1) that the sample is equivalent in terms of the It is evident from Table (1) that the sample is equivalent in terms of the above variables, because the values of the error rate are greater than the level of statistical significance (0.05). We conclude that there are no significant differences between the research groups in the searched variables.

2-4 Research procedures

2-4-1 Determining the job search variables

1 Forced vital capacity (FVC)
2 Forced expiratory volume at first second (FEV1)
3 ratio (FEV1 / FVC)
4 Peak expiratory flow rate (PEFR)

Table (2) Shows tests and measurements

T	Variables	Measurement/test
1	Forced Vital Capacity FVC	Spirometer
2	Forced expiratory volume 2 in the first second FEV1	
3	FEV1 / FVC ratio	
4	PEFR	

2-4-2 Physiological tests

1-(FEV1, FVC, FEV1 / FVC), and PEFR[1: 983-993]

Arrangements before the test: The players were told not to eat and drink, to do no physical exertion, and to maintain their psychological state very well on the morning of the test day, because it affects the test results, increasing the thickness of phlegm and causing shortness of breath.

Used devices: The Spirometer was used because it is one of the basic devices in examining the narrowing of the airway obstruction, it is approved in many specialized clinical laboratories and its results are of high accuracy depending on the effort exerted by the tester and the tester in the measurement stage, and a lot of sources Emphasizes the importance of measuring (FEV1) and (FVC) and the ratio (FVC / FEV1) and (PEFR) as these parameters were measured with the aforementioned device and the short expiratory volume in the first second (%) was recorded as well as the forced vital capacity and the ratio between them and the maximum rate of expiratory flow To find out the extent to which the respiratory muscles perform their main function without delay for all players, Figure (1) shows how to use a spirometer.

Figure (1) shows how the spirometer works

Method of conducting the test: FEV1), FVC, FEV1 / FVC, (PEFR). These ratios were evaluated by sitting on a chair at a height of (40 cm), where the feet are touching the ground and the back is straight and resting on the back of the chair. The researcher begins to teach the players the technique of the test by taking A deep inhale and then forcefully and quickly expel the air from the chest (exhale) until the lungs empty or until the device makes a sound and the nose is closed with an airtight stopper to ensure that the inhalation is taken out from the mouth only.

Scoring method: The players must continue to completely expel the exhaled air until apnea and the inability to continue, and it must be at least (6) seconds and may last up to 12 seconds or more, and the test was performed on three attempts for each player and the rest period was between the test And the last one minute and records the best performance, noting that the reading of the attempt appears directly on the device's screen, and then it is printed to become a graph paper and the unit of measurement is the percentage.(%)

2-4-3 Pre-tests

The pre-tests were started on Monday 11/2/2019 at ten in the morning. Functional tests (FVC, FEV1, FEV1 / FVC, PEFR) were carried out simultaneously in the physiological laboratory hall of the University of Kufa _ College of Physical Education and Sports Sciences and for all members of the research sample Because the spyrometer gives the results of the tests in the same moment

2-4-4 Main Experience

The application of the vocabulary of the training curriculum began with the electronic respiratory muscle function training device on Sunday 17/2/2019. The players attended the indoor hall of the College of Education for Girls, Department of Physical Education and Sports Sciences, and inside the stadium for the five-a-side football on Sunday and Tuesday.

2-4-5 Dimensional Tests

The dimensional tests were conducted on Sunday, 4/21/2019 at ten in the morning. Functional tests were carried out and included (FVC, FEV1, FEV1 / FVC, PEFR) in the internal bases of the Physiology Laboratory of the University of Kufa _ College of Physical Education and Sports Sciences at one time and for all members of the sample Research because the spyrometer gives results for the tests in real time.

2-5statistical methods

The researchers used the program (SPSS) version (24) for the purpose of extracting the statistical results.

3- Presenting, analyzing and discussing the results

3-1 Presentation and analysis of the results of the differences between the pre and post tests of the functional variables of the experimental group

Table (3) shows the median, spring deviation, and Lucoxin value between the pre and post tests of the research variables for the experimental group

Variables	Unit of measurement	pre-test		post-test			error ratio	statistical indication
		Median	Spring Deflection	Median	Spring Deviation	and Lucoxen		
FVC	%	85.00	1.20	90.00	1.20	2.030	0.030	**Significant**
FEV1	%	80.42	1.023	100.30	1.105	2.020	0.040	**Significant**
FVC/FEV1	%	90.60	1.103	109.20	1.463	2.040	0.039	**Significant**
PEFR	%	49.60	1.170	70.48	1.623	2.030	0.030	**Significant**

3-2 Presentation and analysis of the results of the differences between the pre and post tests of the functional variables of the control group

Table (4) shows the median, the spring deviation, and the Lucoxin value between the pre and post tests of the research variables for the control group

Variables	Unit of measurement	pre-test		post-test			error ratio	statistical indication
		Median	Spring Deflection	Median	Spring Deviation	and Lucoxen		
FVC	%	87.00	1.60	95.00	1.60	2.050	0.040	**Significant**
FEV1	%	82.45	1.123	105.40	1.405	2.040	0.044	**Significant**
FVC/FEV1	%	95.63	1.123	113.24	1.763	2.045	0.043	**Significant**
PEFR	%	50.64	2.173	75.50	1.823	2.050	0.035	**Significant**

3-3Discussing the results of the differences between the pre and post tests of the functional variables of the two groups:

Tables (3,4) for the results of the pre and post tests for the two groups show that there are significant differences between the pre and post tests in the functional variables of the two research groups.

The results of the current study show that there is an effective effect in increasing the strength of the respiratory muscles, the speed of breathing, the amount of air entering and leaving during inhalation and exhalation, and the development of some athletic abilities when using the electronic respiratory muscle function training device, that the inhalation gates on both sides of the device help to breathe dust free air Because it works to filter it through the filters on the sides of the device.

Some previous studies confirmed that training using respiratory physical exercises needs a period of at least 3 weeks to obtain positive results. Among these studies is a study (Geddes et al., 2005), which found that a period of 2 weeks of training using physical exercises is not sufficient to obtain Significant results. (2: 1440-1458) Paltiel et al. (2003) concluded that a period of 2 weeks using physical exercises is insufficient to improve the strength, speed and endurance of respiratory muscles, reduce pressure on the diaphragm during breathing, and improve the physical aspect of athletes. (3: 468-473)

The measurement of lung volume, vital capacity and respiratory muscle strength is important from a physiological point of view for female athletes, as the results of studies and scientific research have shown that the ideal vital capacity for women between the age of 20-30 years is 4.8 liters - 3.2 liters respectively, and that the largest value was measured. For a woman, it was 5.98 liters, which is a previous swim, so the expected values for this woman were 3.99 liters, depending on her age of 31 years and a length of 5.5 feet, and based on the observed value and in terms of height and age, the percentage of the prediction was equal to 150%, as the scientists agreed However, the percentage is good if it is between 100-120%. (4: 416)

Breathing during physical activity is related to the conditions of the body, as the lung capacities and volumes differ according to the different positions of the body, and the breathing movements are compatible with the movements of the body through the integration of volumes and capacities and pulmonary ventilation and increase the effectiveness of breathing and the compatibility of breathing with the circulation, and teaching how to breathe when performing sports movement. (5: 96)

The researchers also attribute the differences in the dimensional tests and the superiority of the experimental group to the use of respiratory physical exercises, as it contributed to making a clear and tangible development in the strengthening and development And expand the muscles of the respiratory system, and had an effective role in bringing about addition and stimulation of the training process.

One of the methods that have the ability to increase the strength and endurance of the respiratory muscles is to train those muscles (6: 707-724) , and training is done either by devices or by aerobic exercises for breathing through repeated against external load, which can be controlled by various factors such as time and intensity or through Training frequency. (7: 240-250)

4- Conclusions and Recommendations

4-1 Conclusions

1 The presence of a positive and significant effect of respiratory physical exercises on some functional variables for female futsal players.
2 The presence of a very slight effect of the exercises followed by the control group in some functional variables for female futsal players.
3 The experimental group outperforms the control group in the post tests.3

4-2 Recommendations

1 The use of respiratory physical exercises during the training curriculum followed by the coach for the players of the halls of football teams.
2 The use of respiratory physical exercises in purely medical aspects to strengthen and rehabilitate the respiratory muscles.
3 Using the same exercises to develop the respiratory muscles according to the patient's stage.

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