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The effect of special exercises accompanying nutritional supplements in the development of some respiratory indicators and achievement level for AdhamiyaYouth Club swimmers

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Abstract

Free swimming is one of the important types of water sports that take advantage of the water medium as a means to move through it through the movements of the arms, legs, trunk and breathing, with the aim of improving human efficiency, not only from a physical point of view. functional and skill, but also from a psychological and social point of view, and even mentally.

The study aimed to identify the values of the respiratory indicators under study and the level of achievement for the research sample, and the researcher hypothesized that there are statistically significant differences between the two pre- tests. And the dimensionality in the values of the respiratory indicators under study and the level of achievement and in favor of the post-test for the research sample.

The researcher used the experimental method on 6 of the Adhamiya Youth Club swimmers, and after analyzing and treating the values of the studied functional indicators for the research sample, the researcher reached several conclusions, including that the special exercises used have a clear impact on the development of respiratory system work and the values of the indicators under study and through the results in the post test.

The recommendations were the necessity of following up the players by conducting periodic functional tests and knowing their functional status during the training year.

Keywords*: Exercises, nutritional supplements, respiratory system, swimmer, Adhamiya Youth Club.*

Introduction

The development of the level of training status of the players directly depends On the physical and functional preparation of the organs of the body and this It is of great importance in reaching the best sporting achievements, as the levels reached by many world champions are a form of imagination, especially the free swimming champions and records recorded in swimming races of all kinds after the progress that occurred in the sciences related to the field of sports, especially the science of sports training. training physiology Swimming competitions are interesting competitions for the player and the spectator, and the 100m freestyle competition that requires a large amount of muscular strength associated with speed (strength distinguished by speed) and also requires the player to have complete control over performance and physical ability and to possess

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some functional and special physical attributes. Freestyle swimming is one of the most important sports for the human body Which requires from its practitioners high physical strength and complex technical skills, and that this requires proper planning using the correct scientific rules in the science of sports training, training physiology and other sciences. As the energy of the human body is represented by biological processes inside the body (respiration and metabolic processes) and outside it to maintain and control the energy level (external oxygen), and it must be accompanied by organizational and training programs to develop and prepare the athlete in the best way. The importance of the research lies in the interest in swimming races in Iraq, including the 100m freestyle swimming for young people Therefore, scientific methods must be adopted in training and the need to use appropriate methods to explore the latent physical and functional capabilities In the player's body represented by strength and level of muscular activity during sports training, as well as providing the requirements for muscular work. The problem of the research was revealed through observation and follow-up of the researcher and to see what the world uses of methods, means and exercises in training swimmers, especially the 100m freestyle athletes. The achievement is second, and the researcher aspires to it To find appropriate exercises for the research sample in training and accompanying taking nutritional supplements to raise the functional and physical level and to improve the level of achievement for the research sample.

The aim of the research: to identify the values of some respiratory indicators and the level of achievement for the research sample under study, as well as to identify the effect of special exercises accompanying some nutritional supplements on some functional indicators of the respiratory system and the level of achievement for the research sample.

as imposing The researcher found that there were statistically significant differences between the pre - test And the dimensional in the values of respiratory indicators and the level of achievement and in favor of the post test for the research sample under study.

The human field consisted of a group of young swimmers, who represented the Adhamiya Sports Club for free swimming, numbering 6 swimmers, and the research period was from 2/4/2019 Until 7/18/2019 in Qadisiyah swimming pool.

2- Research Methodology and Procedures:

1-2 Research Methodology: The researcher used the experimental method with a pre-, inter- and post-test for one group to suit the nature of the research problem.

2-2research sample The selection of the sample is the basic thing for the researcher's work, as it is one of the basic things in scientific research. On this basis, the sample was selected from among the swimmers, and the total number of the sample was (8) runners who were chosen by the intentional method.. The researchers chose (6) players from them for the purpose of study and tests. One of the total sample was excluded after a week due to lack of commitment to training And one of them was a reconnaissance experiment.

3-2Research tools and devices and means of collecting information.

- HP p4 portable calculator._
- J Haz Fitness (fitmate pro)
- Italian device for measuring height and weight.
- Electronic stopwatch.
- camera to record exams
- Arab and foreign sources and references.
- The World Wide Web of Information (Internet.(
- Personal interviews.

4-2Research Procedures:

1-4-2Determining the variables studied in the research:

,the researcher determined the most important functional and physical indicators Under study, which is related to the activity of swimmers, which is related to the respiratory system, and in agreement with the coach concerned with training for free swimming.

2-4-2Experimental Experiment:_ _ _

The researcher conducted a reconnaissance experiment at 4:30 p.m. on Saturday (2/2/2019) due to the importance of this experiment in order to obtain accurate results. And he conducted it on a swimmer from outside the research sample under study and from the research community itself, and tested them on the use of the fitmate pro To find out closely the obstacles or problems that may arise in the stages of conducting the test, as well as to ensure their safety when applying the tests.

3-4-2 Determining the search tests:

1Test name: VO2max test.

Aim of the test: Measurement of VO2max) and some indicators Other respiratory ones, including (heart rate HR, pulmonary capacity VE, RF breathing frequency)

Tools used: Fitmate Pro device, Treadmill device, Height and weight device.

Method of performance: the measurement process is carried out by attaching the special pulse belt (HR) On the swimmer 's chest, then the swimmer climbs on the moving treadmill and wears the mask for the stress test, and the mask is tightened so that the runner breathes from it only, and the Bruce standardized test is applied, noting that the Fitmate Pro device is turned on a minute after the runner starts jogging for the purpose of correcting errors and warming up, The performance is by gradient effort (increasing the intensity) and directly through the device (Fitmate pro). who does b Gas analysis By means of the mask for measuring this indicator and its accessories, the Bruce Test was applied as in Table (2) on each individual from the sample, through continuous running by increasing the intensity stages by increasing the speed and height of the treadmill until exhaustion of effort (fatigue) player and the end of the test,

Registration: The results of the functional indicators under study are shown through the printer that is in the same device and on special paper for each player separately, as the table includes the values of the functional indicators under study.

Table (1)
Shows the stages or syllabus of Bruce Test when using a device Treadmill (Robert.A.Robergs& Scott O.Roberds,2000,p330

The Bruce Treadmill Test Protocol			
level eht Level	**(setunim) emit Time (mins)**	**h/mk deepS Speed (km/ hr)**	**edutitla Grade (%)**
1	**0**	**2.74**	**10**
2	**3**	**4.02**	**12**
3	**6**	**5.47**	**14**
4	**9**	**6.76**	**16**

5	**12**	**8.05**	**18**
6	**15th**	**8.85**	**20**
7	**18**	**9.65**	**22**
8	**21**	**10.46**	**24**

3- Achievement test:
The purpose of the test: To test the achievement of 100m freestyle.
Equipment: 50m Olympic swimming pool with legal measurements, stopwatch.
Performance Specifications:
The tester stands on the edge of the pool at the start of the race and performs a 100m swim to the end (50m back and forth).
Recording: The recorder records the time of each swimmer.
5 - 2The main experience:
1-2.5Pretest:After the preparations made by the researcher, including recording and recording information about the research sample such as age, height and weight. The tribal tests of the research sample were conducted in the laboratory and sports pool in Baghdad The pre-test was carried out at exactly four o'clock in the evening on Wednesday and Thursday, corresponding to 6-7/2/2019, as the functional (respiratory) and achievement tests were carried out, respectively, for the research sample.
2-5-2Exercising with nutritional supplements: The researcher, in agreement with the trainer, used a set of special exercises that depend mainly on weighting in training, which is the process of using weights added to the torso, arms and legs, divided for each exercise for the members of the research sample As well as the hypoxic exercises and gradually increasing the weights, starting from the weight of half a kilogram for each man, or adding weights to the player's torso through the vest for carrying the added weights, as they are distributed and arranged according to the training units during the period of the research study. During the training units, doses of nutritional supplements are given and twice per day, four days a week for protein. It is whey protein. (Gold standard whey protein: it contains high levels of all essential amino acids. Players are also given creatine supplement, which is a chemical molecule that is produced naturally in the body to provide energy for muscles and various tissues, however, taking it as a nutritional supplement may raise the level of muscle growth by more than 40 %. And the dose for swimmers is one time during the training unit and the length of the study period of 12 weeks.
2-3-2The post - test of the research indicators: The post-test of the research sample was conducted after 12 weeks of the date of the pre-test and after training within the prepared program, and the sample was subjected to regular training units, with doses of nutritional supplements. The post-test was carried out at exactly three o'clock in the evening also on Saturday (7/5/2019) the laboratory of the University of Baghdad and the Al-Qadisiyah swimming pool in Baghdad and with the same procedures that were followed in the pre-test. The results or data extracted from the device used and the physical test were collected, unloaded and arranged, For the purpose of statistical processing.
6-2Statistical means:The researchers relied on the statistical package SPSS, using parametric statistics in the treatment of The results of the values of the studied functional indicators are under research.

3- Presentation and discussion of the results:

1-3Display the arithmetic means and standard deviations of the values of the functional indicators for the research sample.

Table (2)

Shows the mean, deviation, mean ranks, the calculated value of E, the error rate and the significance of the VO2MAX index for the research sample.

srotacidni lanoitcnuF	tinu gniursaem	tseterp		tset tsop	
		elddim	noitaived	elddim	noitaived
VO2 max _	Ml/kg/min	15.925	2.673	18.350	3,656

Discussion of the results of the indicator (VO2max):

T	lanoitcnuF srotacidni	gniursaem tinu	egareva knar em erofeb	egareva knar em retfa	seulaV e))	etaR ehT rorre	noitacidni
2	VO2 max _	Ml/kg/min	5.50	7.38	0.550	0.760	tnacifingisni

In light of the results in Table (2), it was found that there was an improvement in some values despite the absence of significant differences, including a clear development of the VO2max indicator.) As we see an increase in the value of the first in the post test, and this is considered a healthy and positive condition for the research sample and indicates an improvement in the functional ability of the research sample, as is clear in graph (2). The training used by the researcher and the trainer during the training units, which in turn affected the training status of the player and is suitable for the development of some functional devices in the body, including the improvement of the respiratory system of the swimmers under study, as this was supported by Baha Al-Din Salameh (2002: 67) who sees that the oxygen consumption is a measure It is an integral part of the most important vital organs during performance, namely the respiratory system, the circulatory system, the muscular system, and the blood. Therefore, physiological laboratories depend on it to evaluate the athlete's training and physiological condition. This is also a good indicator that reflects the safety of the players' heart and circulatory system and their accustomedness to practicing muscular work. It also leads to an increase in the volume of cardiac output and a decrease in the number of heartbeats as a result of an increase in the size of the heart Which leads to an increase in the amount of oxygen paid to the tissues in one hit, which helps to continue to work regularly and properly for a longer period without feeling tired or delaying the appearance of fatigue.

Table (3)

It shows the arithmetic means and standard deviations in the test (pre, post) for the values of the functional indicators (HR, RF) for the research sample

selbairaV		N	Meaning	std. Deviation	std. Error	Minimum	Maximum
HR	_ tseterp	6	120.363	1.612	0.570	118.700	123.500
	tset tsop	6	119,475	2.130	0.753	115.100	122.300
	Total	18	119.567	1.979	0.404	115.100	123.500
RF	pretest _	6	31.125	1.126	0.398	30,000	33,000

post test	6	30.125	1.246	0.441	28.000	32,000
Total	18	30.958	1.517	0.310	28.000	35,000

Table (4)

It shows the value of the analysis of variance between the tests for the functional indicators (HR, RF) for the research sample

ANOVA

selbairaV		fo mus serauqs	fo eerged modeerf	naem serauqs	F	Sig.	noitacidni
HR	neewteb stnemerusaem	9.101		4.550			tnacifingisni
	edisni stnemerusaem	80.973		3.856	1.180	0.327	
	Total	90.073	6				
RF	neewteb stnemerusaem	9.333		4.667			tnacifingisni
	edisni stnemerusaem	43,625	6	2.077	2.246	0.131	
	Total	52.958					

Discussion of the functional indicators values of breathing frequency and heart rate after exertion (HR, RF) for the research sample:

When we observe Table 2 and Table 3, which are related to the two indicators above, we see that there is some improvement in the post tests, and this is also a good indicator that reflects the safety of the respiratory and circulatory system of swimmers and their accustomed to practicing muscular work. We did not find significant differences between these tests and the researcher believes that the time period is insufficient For the study, perhaps, and the lack of major adaptations of the circulatory - respiratory system during this period. As shown in graph (2). And in confirmation of this, "regular and regular exercises lead to a positive functional response to the vital organs in the body, especially the respiratory system (such as the expansion of the rib cage and the increase in the volume of the lung cavity), and this contributes and increases the process of gas exchange and the economy of breathing movement due to the increase in vital capacity and this ultimately leads to a decrease In the respiration rate or respiration frequency of the swimmer (Qasim Hassan Hussein, 1990, p. 134), and all this achieves the second objective of the study.

Chart (2)

It shows the change of functional indicators (pulmonary ventilation, heart rate, breathing frequency) during tests (pre-, inter-, post-test).

VE HR RF

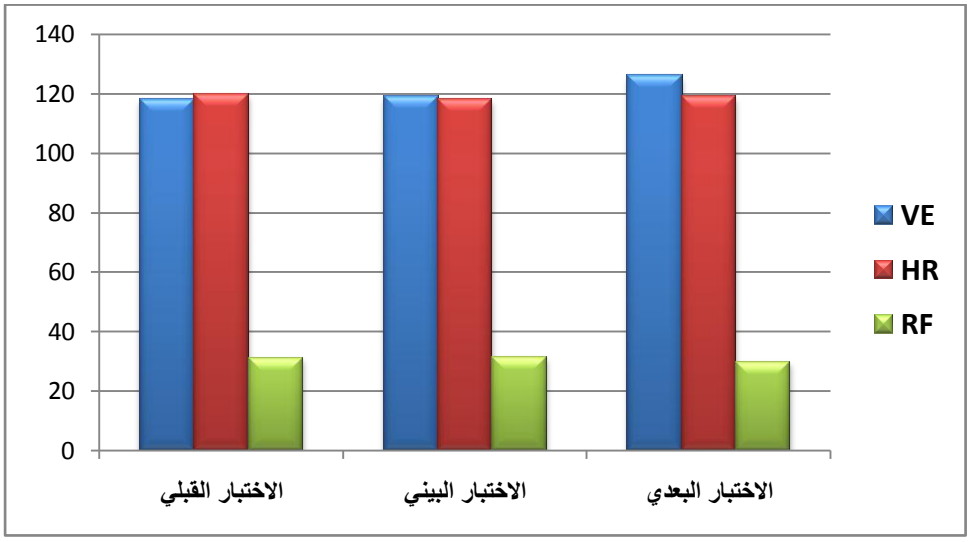

Table (5)

It shows the arithmetic means and standard deviations in the test (pre-test, post-test) for the value of the pulmonary ventilation index VE of the research sample

selbairaV	N	Meaning	std. Deviation	std. Error	Minimum	Maximum
_ tseterp	6	118.783	7.868	3.212	108.9	130.5
VE L/ min tset tsop	6	1 46.933	7.346	2.999	118.3	1 46.2
Total	18	1 51.500	7.926	1.868	108.9	136.2

Table (6)

Shows the value of the analysis of variance between tests for the pulmonary ventilation index (VE) for the research sample

ANOVA

selbairaV	fo mus serauqs	fo eerged modeerf	naem serauqs	F	Sig.	noitacidnI epyt
VE neewteb stnemerusaem	265.690	2	132.845	2.483	0.03	larom
edisni stnemerusaem	802.370	15th	53.491			
Total	1068,060	17				

Discuss the values of the pulmonary ventilation index (VE) for the research sample:

ni srehcraeser eht yb deniatbo stluser eht hguorhTTable 6, and by looking at the arithmetic means for this indicator, we see a noticeable improvement in the post-test

during the study period, which led to the presence of a moral difference, and this indicates the positive effect of the special exercises used, which was evaluated by the researcher depending on the values Extracted from the tests, as the pulmonary ventilation index, the higher its value, the better.

Table (7)

It shows the arithmetic means and standard deviations in the test (pre- and post-test) for the achievement values for 100 m swimming for the research sample.

m100 elytseerf nemeveihca d / t	itemhtirA naem c	radnats d oitaived n	q q	p	T. eulav etaluclac d	ekatsim gatnecrep e	oitacidni n
tseterp	1.36	0.04	0.03	0.02	3.69	0.046	larom
tset tsop	1.21	0.05					

3-4 Discussing the results of the physical tests (the level of achievement) for the swimmers of the research sample:

Through the results obtained by the researchers from Table 7 for the variable above, there was a noticeable change in the result of 100m free swimming between the arithmetic circles between the pre and post test, and the differences were significant. This indicates a clear improvement in the performance and achievement of swimmers, and this confirms the existence of a clear effect of the exercises accompanying the nutritional supplements and weight exercises or added weights on the improvement of achievement according to the researcher's opinion.

This achieves the aim of the study

.**Conclusion**

Through the results obtained The researcher, through statistical treatments of the data, reached several conclusions, which are:-

1- Special exercises with nutritional supplements have a clear effect on improving the work of the respiratory system in the study through the results of the indicators under study in the tests.
2- There is a clear development and improvement of the pulmonary ventilation index in the post test.
3- There is an effect of the exercises used and nutritional supplements on improving the level of completion of 100m free swimming for the studied research sample.

Recommendations

In light of the findings, the researcher recommends the following:

1. The use of weight and hypoxi exercises in swimming training due to the positive results achieved by these exercises, including adaptations for the respiratory system and circulation.
2. periodic functional tests and measurements by trainers to predict the effectiveness of the training curriculum used on swimmers and the level of achievement.

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