



# A PROPOSED TRAINING CURRICULUM AND IMPACT ON ELECTRICAL ACTIVITY OF CARDIAC MUSCLE, SOME BIOCHEMICAL VARIABLES, AND FUNCTIONAL AND PHYSICAL INDICATORS FOR SHORT AND MEDIUM DISTANCE RUNNERS

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Article history:	Abstract:
<p><b>Received:</b> 22<sup>th</sup> February 2023 <b>Accepted:</b> 22<sup>th</sup> March 2023 <b>Published:</b> 26<sup>th</sup> April 2023</p>	<p>Certainly progress of sports levels depends on several factors, including upgrading functional level of sports body systems, and this comes by developing training methods and methods that aim to improve the results and reach the highest levels of achievement where training methods play their important role towards this required goal, and process of physical preparation correct career based on correct scientific foundations is far from many of passengers of trainers and their narrow, superficial, and proper training reality. In the style of one experimental group, the research sample was chosen in intentional way, and they are from players of Basra University of Athletics, Basra Governorate, and age (22) years old, who hold third place in Iraq Universities Championship and with participation of (70) Iraqi universities, and they are (24) male runners who are players of short and medium distances And the researcher focused on designing training program using training methods and means that will ensure level of cardiac capabilities by raising character of air endurance and training in three training stages (year -private – before) competition Its which is distributed over (3) months, and it is sufficient to end of effects of effects on the functional sports body. Sample members implemented training program prepared by researcher in a uniform in terms of intensity, size and comfort, and the most important recommendations were:</p> <ol style="list-style-type: none"><li>1- Attention to development of air endurance within training units more than development of elevation tolerance because of its positive impact on improving physiological capabilities and achievement of players of sports halls.</li><li>2- Necessity of great attention to air endurance exercises.</li><li>3- Need to take advantage of exercises prepared by researchers by the trainers in the field of developing air training within sports halls.</li></ol>
<p><b>Keywords:</b> Electrical Effectiveness of Cardiac Muscle; biological variables; functional indicators, short and medium distances.</p>	

## 1- DEFINITION OF RESEARCH

### 1-1 Introduction Research And Import

It is no secret to one of role played by a physiological science of sports training in recent times of great importance of what it achieves and provides it for workers in the field of sports training, which in turn helps the heroes to achieve the mediators and Olympic, continental or global mediators and thus the registration of the country with an Olympic medal historically and sings its heroes for what they have achieved And raising that country also contributes to encouraging young people to practice these individual and group competitions to achieve international, continental and Olympic achievement.

Specifically, the sports heart and its role in drawing training programs that depend mainly in the technicians of pregnancy levels on the work of the heart, its safety and strength by pumping blood loaded with oxygen and the necessary substances in the continuation of the training process and the efficiency of the sports person. (Borry B.philips :2008 ) that progress of sports levels depends on several factors, including upgrading the functional level of sports body systems, and this comes by developing training methods and methods that aim to improve results and reach highest levels of achievement where training methods play their important role towards this goal . (Awais Ali Al -Jabali: 1985) also indicates that the process of correct physical and functional preparation based on the correct scientific foundations is far from many of the passions of the trainers and their narrow superficial view that is not

consistent with and the proper training reality positive Tolerance depends on the athletes 'response to the various training requirements as well as providing them with a certain amount of both air and anaerobic energy in different proportions, as it is known that the anaerobic energy cannot be developed unless there is a clear development in the air energy, which is basis for the different training stages that play with them heart is the main role. And each of (Abu -Ela Abdel Fattah & Nasr al -Din: 1993) that physiological variables give a general evaluation of the efficiency of the respiratory periodic system and the ability of muscles to work in the absence of oxygen. It also adds that the speed of the speed is needed by both short and long distances alike, as it sometimes requires that long distances and endurance sports from their speed, especially at the end of race. (Muhammad Hassan Allawi: 1994) refers to the role that physical qualities play and thus the development of functional and muscular efficiency, which can continue in event of a lack of oxygen, as happens when relying on anaerobic energy.

### **1-2 Research Aims:**

- 1- Learn about differences between tribal and post – test of rate comfort of Cardiac Muscle.
- 2- Learn about differences between tribal and post-test to feed Cardiac Muscle .
- 3- Knowing differences between tribal and post –tests of Cardiac Muscle.
- 4- Knowing tribal and post –tests and the dimensions of Cardiac Muscle.

### **1-3 Research Hypotheses:**

- 1- There are statistically significant differences between tribal and post - tests in (Cardiac Muscle. Comfort rate).
- 2- There are statistically significant differences between tribal and post measurements in rate of (myocardial feeding).
- 3- The presence of statistically indicative differences between tribal and post -measurements in rate of (Cardiac beat).
- 4- There are statistically significant differences between tribal and post measurements in average (cardiac session).

### **1-4 Research fields:**

**1-4-1 Human field:** sample was chosen in intentional way, where athlete researcher was chosen at the age of (22) years from Basra University Athletics Team for season 2022-2023.

**1-4-2 spatial field:** Al -Asiyad Hall in Al -Zubair. & Al -Zubair Medical Laboratory.

**1-4-3 Time field:** from 6 /1 /2023 to 10 /4/2023.

## **2--RESEARCH APPROACH AND FIELD PROCEDURES:**

### **2-1 Research curriculum:**

Researcher used experimental curriculum in same experimental group style because it is more suitable for solving research problem and achieving its goals. Choice of experimental approach indicates the introduction of an adjective or variable through which the condition of the sample or thing to change can be changed.

### **2-2 Research Sample :**

Research sample was chosen in the intentional way, and they are from the players of Al -Basra University for Athletics, Al -Basra Governorate, at age of (22) years, who have a third place in the Iraq Universities Championship, with the participation of (70) universities, and they are 24 male runners -up, jurisdiction of short and medium distances.

### **2-3 Tests used in research:**

#### **Physical Tests:**

- 1 - Press's scrub to measure the achievement.

#### **2-4 Determine Biochemical measurements:**

-Measure percentage of lactic acid in the blood before and after physical effort.

#### **2- 5 Physiological measurements:**

Measuring the pulse before and after physical effort.

#### **2-6Tools used Research:**

- A medical scale for measuring weight.
- Lactate Test Strips to determine the percentage of lactic acid in the blood.
- Soft Clix, medical cotton and antiseptic materials.
- Cardio 4 German -made.

#### **Second: Statistical Means:**

Arithmetic mean .

Mediator .

Standard deviation.

Wilcoxon test

### **2-7 Training program:**

A three -month training program has been prepared (four days per week) the time of training unit (hour) in the general preparation stage (month), special preparation (month) and before the competitions (month).

The researchers have taken into account that a coach of the Iraqi team for strong games, the principle of gradual increasing the training load by (1-3).

The researcher has focused on designing the training program using training methods and methods that guarantee the level of cardiac capabilities by softening the capacity of air endurance.

Training in three training stages (private - pre -competitions).

Training ranged between (60 % - 80 %) and taking into account the appropriate training size for it, which is distributed over (3) months, and it is sufficient to limit the effects of the effects on the functional sports body.

The sample personnel implemented the training program prepared by the researcher in a unified manner in terms of intensity, size and comfort.

The physiological and training references indicate that the complete comfort is more effective, and the pulse of 110-120 z / d was adopted as a complete rest between groups and training repetitions.

The researchers relied on the severity used in this on Arab and foreign sources, as the intensity used is consistent with training requirements in terms of the concentration of lactic acid, raising the maximum consumption of oxygen and raising the heart rate during one minute.

Statistical description (the average and standard deviation) Cardiac Muscle was calculated before and after the program and in case before and after the effort and as shown in table below

**3- Display, analyze and discuss the research results in chemical, physical and physiological variables and blood components**

3-1 Display and discussion of results of chemical, enzymatic and physiological variables, blood measurements, and speed types of the experimental groups and control before and after the effort before the experimental approach

**Table (1)**

**Shows experimental physiological variables before and after experimental approach**

basic variables	unit measurement	Before program				after program			
		Before effort		After effort		Before effort		After effort	
		M	S	M	S	M	S	M	S
QRS	Mel/volt	1.2	0.031	0.981	0.081	1.1	0.029	0.825	0.019
T.P	Mel / Sec	0.42	0.021	0.318	0.0921	0.31	0.302	0.0825	0.0782
Cardiac cycle	Mel / Sec	0.84	0.181	0.721	0.195	0.79	0.093	0.75	0.093

It is clear from Table (1) differences between three tests of time period for period of electricity were seen according to the values of the arithmetic circles to (Kh1 k3 K2), where the time period for the period of electricity (T -p) reached the time for the research sample before performing the physical effort (42). Researcher sees the arrhythmia and the lack of an external influence of the influence on the internal environment, making the time period for a period of T.P The researcher, who had the requirements by the athlete's body, especially the muscular cells, was accompanied by reactions, including raising the heart rate, and this means changing the time of the heart cycle due to its small time and that one of the most important points for studies that can be discovered by the extent of the effect of the electrical effectiveness of the heart muscle is to know the change in The period of being it will reflect the extent of the amount returned and driven by the heart muscle and the connection to the different areas Its end whenever the players lose the level of accuracy in the plans performance, including the distribution of the voltage and then the end of the race in the required way and the achievement of the best center among the competitors, which is one of the decisive factors for the results of the competitions, and this is confirmed by Current Medical: 2010)).

**3-2 Pulse before program and after program**

Calculations and the standard deviation of the pulse were calculated before the program, after the program, and in the case before effort and after effort, and the table (2) shows the results of the calculations and the standard deviation

**Table (2)**

**Results of calculations and standard deviation of pulse before program and after program and in case before and after**

program	Effort	average	standard deviation
Before program	Before Effort	68.071	14.516
	After Effort	139.875	4.397
After program	Before Effort	60.958	1.922
	After Effort	121.292	3.712

Table (2) shows that mathematical circles of the pulse before program are less than mathematical circles of the pulse after the program, and that the standard deviations after the program are less than the deviations before program, and this is a first indication that there is an effect of program on reducing the pulse and the statistical indication test of the effect of the program. The test T. As shown in the following table:

**Table (3)**

**T test results for statistical significance Pulse test**

Paired Differences			

program				T	d f	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean			
Before program Before Effort After program Before Effort	7.11250	14.410	2.941	2.418	23	0.024
Before program After Effort After program After Effort	18.583	4.844	0.988	18.792	23	0.000

Table (3) shows the differences in the mathematical circles, standard deviation, testing, and probability value of the heartbeat before the program before the effort and the extent of the effort. Since level of morale is greater than the value of Sig, the hypothesis, which indicates the existence of moral differences of statistical significance of the witness before and after the program, and in favor of the dimensional tests, will be accepted by the effect of the training program prepared by the researchers who took into account the development of vanish and physical capabilities of the trainees, which affected the cardiac payment of blood Consequently, the development of air faces, which positively affected the delivery of the largest possible amount of blood loaded with oxygen and foodstuffs, and thus the development of the achievement level.

The results of calculations and the lactic normative deviation before program, after program, before and after the effort Statistical description of the lactic before and after the program before and after effort The mathematical medium, standard deviation, and standard errors of the average of the lactic

**Table (4)**

**Arithmetic circles, standard deviation, and standard mistakes for the average of the lactic before and after program**

Effort	program	Mean	standard deviation	Std. Error Mean
After	After program	9.053	0.571	0.117
	Before program	10.867	0.334	0.068
Before	After program	1.223	0.252	0.051
	Before program	1.880	0.571	0.117

Table (4) shows a decrease in the value of lactic acid to the sample individuals after the voltage before and after, as the value decreased from (10.867) to (9.053). Good at this estimated computational medium index. The value of the lactic acid has been removed after the program, the training accepted and after the physical effort about it before the program, despite the high intensity, due to the impact of the training program that caused functional and muscular adaptation to physical work with the same efficiency despite the presence of lactic acid in blood without landing at the level, and this is confirmed (Farouk El -Sayed Abdel Wahab: 1983 ) The lower the adaptation, the lower the percentage of lactic acid in the blood.

To find out the effect of the program on sample members, T test for approved averages has been used. Table (4) show the results of T test for the average

**Table (5)**

**Test results T for lactic before and program**

Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		T	df	Sig. (2-tailed)
			Lower	Upper			
0.694	0.694	0.142	-2.107	-1.521	-12.802	23	0.000
0.352	0.352	0.072	-0.805	-0.508	-9.133	23	0.000

It is clear from table that there are moral and statistically significant differences for sample members before and after program, by comparing the Sig for the test, which amounted to (0,000) with the required morale (0.05) and since the level of morale is greater than the value of Sig for the test has been accepted by the hypothesis that provides for the presence of moral differences.

**Table (6)**

**T test results for statistical significance pulse test**

program	Paired Differences			T	d f	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean			

<b>Before program Before Effort</b>	<b>9.74625</b>	<b>9.42457</b>	<b>1.92378</b>	<b>5.066</b>	<b>23</b>	<b>0.000</b>
<b>Before program After Effort</b>						
<b>After program Before Effort</b>	<b>8.98750</b>	<b>0.52050</b>	<b>0.10625</b>	<b>84.590</b>	<b>23</b>	<b>0.000</b>
<b>After program After Effort</b>						
<b>Before program Before Effort</b>	<b>0.10250</b>	<b>9.43956</b>	<b>1.92684</b>	<b>0.053</b>	<b>23</b>	<b>0.958</b>
<b>Before program After Effort</b>						
<b>After program Before Effort</b>	<b>9.74625</b>	<b>9.42457</b>	<b>1.92378</b>	<b>5.066</b>	<b>23</b>	<b>0.000</b>
<b>After program After Effort</b>						

Front pressure (anesthesia Press)

Statistical indicators of front pressure (Penis Press) calculated before and after the program and showed the following results

**Table (7)**  
**Mathematical circles and standard deviation of front pressure before and after program**

<b>program</b>	<b>Mean</b>	<b>standard deviation</b>
<b>Before</b>	<b>76.8750</b>	<b>2.47268</b>
<b>After</b>	<b>96.2500</b>	<b>2.1032</b>

It is clear from Table (7) that an increase in front pressure increased in the case after program, as it increased from (76,875) to (96,250). Table shows a slight increase in homogeneity in the case before program from what it is in the case after the program.

**Table (8)**  
**T test results for statistical significance pulse test**

<b>program</b>	<b>Paired Differences</b>			<b>T</b>	<b>d f</b>	<b>Sig. (2-tailed)</b>
	<b>Mean</b>	<b>Std. Deviation</b>	<b>Std. Error Mean</b>			
<b>Before program - After program</b>	<b>19.37500</b>	<b>4.49940</b>	<b>0.91844</b>	<b>21.096</b>	<b>23</b>	<b>0.000</b>

Table (8) shows the differences in the mathematical circles and the standard deviation of front pressure before and after program, and it becomes clear from comparison of the Sig value, which is in the language (0,000) with the moral level (0.05). For the front pressure, and this indicates the effect of the training program prepared by the researchers on improving the physical capabilities of the sample members or trainees, in which researchers sponsored the ripples of training pregnancy in terms of intensity, size and comfort, which gave a clear connotation on the role of the training program in raising the vulnerable and physical competencies and thus improving the level of achievement In the anterior pressure test (Pencine Press), and this is what many sources have given to whenever the researcher takes into account the individual differences, the tidy load ripples, and the efficiency of the athletes whenever the direction is towards improving performance and achieving the best achievement. (Farouk El -Sayed Abdel -Wahab: 1983).

#### 4- CONCLUSIONS & RECOMMENDATIONS

##### 4-1 Conclusions:

- 1- Experimental group has achieved a remarkable development in air and anaerobic endurance as a result of regularity in training and result of application of exercises to develop air capabilities, which led to improvement of physiological capabilities under research and level of achievement
- 2 training curriculum prepared by researcher contributed to increasing efficiency of physiological and hormonal devices and development of physical qualities under study and achievement. For players.
- 3- Improvement of players as a result of improving physical capabilities and physiological capabilities to apply the training and development of air endurance that serve the players in sports hall in terms of fitness and continued training with high efficiency.

##### 4-2 Recommendations:-

- 1- Attention to development of air endurance within the training units more than the development of elevation tolerance because of its positive impact on improving the physiological capabilities and achievement of the players of sports halls.
- 2- Necessity of great attention to air endurance exercises.
- 3- Need to take advantage of exercises prepared by the researcher by the trainers in the field of developing air training within the sports halls.

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