EUROPEAN ACADEMIC RESEARCH
Vol. III, Issue 7/ October 2015

Impact Factor: 3.4546 (UIF)
DRJI Value: 5.9 (B+)

ISSN 2286-4822
www.euacademic.org

Study of the effect of the size of electrical efficiency of the heart muscle on the left ventricular mass

MOHAMMED HASAN TUAIMAH
College of Physical Education and Sports Science
University of Dhi Qar - Iraq

Abstract:

The progress in many areas of life and in the various fields of science, through the use of modern scientific instruments developed in all fields (such as knowledge of physiology and medicine, as well as engineering etc ...) as well as in the field of Physical Education, which would like all other sciences, and because of its impact on human development and raise the physical and health Almistoah and assist in reaching its objectives as soon as possible and reflected the importance of research in the study of electrical efficiency of the heart muscle and block the left ventricle of the players duel variables in addition to the status of each of these variables in the statistical aspects to be knowing the size of the effect of electrical efficiency of the heart to the left ventricle mass variables either research problem Vttgly to answer the following question ((what is the nature of the impact of electrical efficiency of the heart muscle on the left ventricular mass of the heart muscle as a main pump blood laden with oxygen and nutrients and delivers to all over the body)) and this gave the researcher the concept and briefing to the problem of his research commensurate with the nature of the objectives of the study The study aimed to identify the extent of responses electric effectiveness of the heart muscle and some Alodafah variables in a sample search individuals and also to identify the level of the size of the effect of electrical efficiency on left ventricular mass Lama conclusions researcher concluded the great importance of the size of the effect of time of rest the heart of the variable (tp), which reflected on the decline Heart rate as a result of the large mass of the left ventricle size and characteristic of this sport for non-athletes as

also concluded that the importance of the effect of variable size (qrs) on left ventricular mass and is demonstrating the strength of ventricular contraction resulting from the strength of the electrical signal for ventricular mass.

Key words: size of electrical efficiency, the heart muscle, left ventricular mass

1. INTRODUCTION AND THE IMPORTANCE OF RESEARCH:

The progress in many areas of life and in the various fields of science, through the use of modern scientific instruments developed in all fields (such as knowledge of physiology and medicine, as well as engineering etc ...) as well as in the field of Physical Education, which would like all other sciences, and because of its impact on human development and raise the physical and health Almistoah and help in reaching its objectives as soon as possible.

Where some physiological studies applied relied on sports medical equipment techniques to detect adaptive physiological responses enjoyed by athletes level, giving it a scientific results that will help coach and competent athlete to stand on the functional capabilities possessed by the sports and the level of responses made by the functional agencies of the athlete as a result of training and exercise.

The importance of research in the study of electrical efficiency of the heart muscle and the mass of the left ventricle of the players duel variables in addition to the status of each of these variables in the statistical aspects to be knowing the size of the effect of electrical efficiency of the heart to the left ventricle mass variables, in order to know the real level of the mass of the left ventricle and the extent of affected periods and waves electrical heart of the sample individuals in order for workers and specialists in this field diagnosis of the extent of

the effect of each variable electrical efficiency on left ventricular mass variables being the main pump blood laden with oxygen and nutrients to all the muscles that share performance motor with players fencing to be reached to the required levels. .

1-2 Research Problem

Depending on the concept of systematic research of the problem, known as Aldakkik understanding of the facts and ideas and agreed that represent specifically for craftsmanship and knows researcher (1)

In Astvhammep inter rely on scientific methods to get to the facts, and this researcher formulates his problem to answer the next question: What is the nature of the impact of electrical efficiency of the heart muscle on the left ventricular mass of the heart muscle as a main pump blood laden with oxygen and nutrients and delivers to all over the body.

In this concept and gave the researcher a briefing to the problem of his research commensurate with the nature of the objectives of the study.

2. RESEARCH METHODOLOGY:

Choosing the right approach, which mainly depends on the nature of the problem to be solved and the objectives to be reached up to the minute solutions and objectivity of the study, The curriculum is the road to truth in science ... and access to certain result (2).

So the researcher used descriptive approach so as to suitability in solving the problem of the search, after it was some physiological measurements such as electrical efficiency of the heart muscle and some other functional variables for each individual sample application.

2-2 The research community sample:

The methods and modalities for the selection of the research

sample are many and varied, but there are other things to consider when selecting the research sample, it should be selected a representative sample of the original community of honest and truly representative so that the researcher disseminate the results of his research later on society, with all of the "Jaber Abdul Hamid indicates Ahmed Kadhim and charity "that he" must be on the researcher to try to get.

On a representative sample of the original community truly representative (3), and to identify the research community the original chosen researcher society original research and are the players clubs Basra Premier League (Union, South Oil, port) where numbered (20) The sample was selected way intentional, and their number was (15) player, has reached the percentage (75%) researcher has used appropriate statistical methods in order to learn a good distribution of the sample under gauss curve for the purpose of the homogeneity of the sample, and Table 1 shows the details of the sample.

Table (1): Sample preparation and details of the searches that were conducted tests and measurements it shows

Sample Search Details	Players Excluded	The research sample	Research community	Percentage
Sample numbers	5	15	20	%75

Table (2) Circles calculations and standard deviation and a lower and a higher degree and the mediator and the coefficient of sprains to see a good sample distribution under gausscaos

Statistical methods / Variables	Measuring unit	The standard deviation	Arithmetic mean	Test Kmengerov Smirnov	Kurtosis coefficient	Torsion modulus	Mediator
Weight	**Kg**	**4.21**	**66. 7**	**0.05**	**1.10**	**0.99**	**65.3**
Height	**cm**	**5.43**	**175.2**	**0.22**	**0.83**	**0.11**	**175**

Age	**Year**	**1.11**	**25.3**	**0.03**	**1.88**	**5.94**	**23.1**

Clear that the sample distribution values under the normal distribution curve for each of the variables Anthropometric in the table (1) where build degrees kurtosis coefficient lies between (+3, -3), as well as indicate torsion coefficient in all values of the variables was close to the degree (0) This ensures that the sample may be distributed closer to the normal distribution under the curve (4) gauss The researcher used the test (Kmengerov- Smonrov) for the purpose of good homogeneity of the sample.

3. MEASUREMENTS USED:

The Measurement:
For the purpose of access to the accuracy and objectivity in determining the requirements of research was conducted measurements and tests through a combination of hardware and tools according to the following measurements: -

The spas measure length: measured length of the sample by a device to measure the length.

Secondly - Weighting: Qais weight of the sample by the medical device balance, as the athlete to climb on the balance without wearing shoes, and then read the weight in kilograms.

Circulatory System Measurements:

1. Arterial Systolic Blood Pressure (SBP) Systolic Blood Pressure
This variable was measured through a device (Ross Max) and mail it by connecting the device to the left forearm area, where they are reading the systolic pressure level of the device's

screen. Note that the normal value for this variable SBP of 120 mmHg Mliltr.mlm.

.

2. Arterial Diastolic Blood Pressure (DBP) (Diastolic Blood Pressure)

This variable measuring the same systolic blood pressure measurement mechanism, where the device's screen displays all of the systolic pressure and diastolic pressure, and as shown in Figure (1) The medicinal value of this variable DBP about (80) Mliltr.mlm Mercurial.

3. The average arterial pressure measurement (MABP) (Mean Arterial Blood (Pressure)

It is calculated from the following equation (3)

$$MABP = DBP + 1/3\ PP.$$

4. Pulse Pressure Measurement (PP) (Pulse Pressure).

Was calculated from the following equation:

$$PP = SBP - DBP.$$

5. Physiological Measurements (Physiological measurements)

Some physiological variables measured during medical devices (ultrasonic testing device Echocardio Gram ultrasonic device to measure arterial blood pressure Rossmax) was measured some other physiological variables through equations.

5.1 Own Heart Muscle Measurements (5).

Measurements are made of the heart muscle using a screening device ultrasonic EchocardioGrum, where this device directly measures the dimensions of cavities and the thickness of the walls of the heart of the heart muscle and the amount of cardiac output Cardiac Output and other functions and cardiovascular responses.

This device was employed to measure and diagnose the cumulative adjustments to the heart muscle in athletes, to stand at the level of adaptations due to sports training and the amount of functional improvement in heart muscle.
The sensing instrument relating to the display also connected to the calculator placed (Computer) on the heart, and then to start with measurements by specialist Kiesagza heart muscle in athletes doctor.

5.2 There was measured parts of the heart means Alambeshrhoagheir directly through any of the equations and both T ~:
First, direct measurements of the device through ultrasound EchoCardioGram:
1. The diameter of the left ventricle in diastole (LVDD)
Note that the normal value for this variable must not exceed (54 mm). (6)
2. The thickness of the ventricular septum (IVS). And that the normal level for this variable (IVS) of (6) (6-12 mm
3. The thickness of the rear wall of the left ventricle (LPW) The normal level for this variable (LPW) about (7) (6-12 mm).
4. left ventricular mass (LVM). The left ventricular mass is calculated from the following equation (7)

LVM = 0.8 [1.04 (IVS + LPW + LVDD) 3 - (LVDD) 3] + 0.6.

And that the natural rate of left ventricular mass (LVM) in a medium (140 g / m 2) (8).

4. ELECTRICAL EFFICIENCY OF THE HEART MUSCLE MEASUREMENTS (ELECTRO CARD GRAPH).
Were measured electrical efficiency of the heart muscle by (9) (ECG)

It was calculated the time period of the waves and periods of EEG in the period put comfort and after decubitus athlete on the bed for five minutes, the time periods of the waves and the periods are directly calculated by graphic paper

for the device, particularly from the second electrode (10) (Lead II)/

In light of this account has been following responses:

1. Measurement of Heart Rate (HR) (Heart Rate)

The calculate your heart rate (HR) for each member of the sample using a device (ECG), which represents the record of the sequence of electrical events and the transmission signal before and during each cardiac cycle (11), where the show four poles (Leads) Power of the said device (ECG) in places defined in the arms and legs after the device is switched on and record heart rate speeds (25 mm) per second, it took (10) consecutive blows of paper registration of the device after that gives the lab a five-minute break from the situation lying down, and through the arithmetic mean extraction (M) Ten cardiac cycles of the second electrode (Lead II) and using the following equation ... (10).

$$HR = 60 / M (RR)$$

2. Cardiac Cycle (CC) Cardiac Cycle.

Is it takes time for all associated with incidents of heart attack and one of the normal range for the time of cardiac cycle of man's (.833), second (CC was calculated) by the following equation ... (11).

$$CC = 60 / HR.$$

For example, heart rate (HR) for a sample (62) z / d, the time it is the cardiac cycle (0.967) again.

.

3. Attracting heart time (TP) (Repolarization Wave).

It is a period of stability of polarization to the heart muscle and is determined by the end of the wave (T) and the beginning of a wave (P) in the next session, but the length of this period gives the impression of low heart rate (HR), ie it goes on and shorten depending on the number of heart ... (11)

The normal time for this period is about 0.30 seconds .. (11).

4. ventricles contraction time (VST) Ventricular Systolic Time

Determined by the contraction of the ventricles are generally time by identifying wave (QRS) and the calculation of her time, which represents a contraction of the ventricles, on the other hand, represents the wave (QRS) the demise of the polarization of the ventricles period, the trend is going to shrink around the ventricles.

The contraction of the ventricles time (VST) at about the proper rights (0.09) again, where this wave extends from the beginning of the wave (Q) until the end of wave (S).

5. Energizes The Ventricles Time (VDT) Ventricular Diastolic Time

Determined energizes the ventricles are generally time by setting a time wave (T), which represents energizes the ventricles time and the longer this period of important periods that reflect the activity of the heart during diastole, as they constitute a large proportion of the cardiac cycle time, particularly She is at the proper rights around (0.16) again.

Variables	R	Sig	T	Sig	a.s
P	**0.083**	**0.769**	**0.33**	**0.89**	**0.0%**
(VST)	**0.631**	**0.012**	**3.43**	**0.03**	**39%**
(VDT)	**0.246**	**0.377**	**1.08**	**0.71**	**6%**
t-p	**0.913**	**0.146**	**9.67**	**0.00**	**83%**
p.p	**0.610**	**0.016**	**3.26**	**0.04**	**37%**
Qrs	**0.677**	**0.032**	**5.10**	**0.02**	**59%**
T	**0.599**	**0.067**	**3.05**	**3.03**	**34%**

(Table 3): Shows the influence of electrical efficiency on left ventricular mass to the heart muscle size

Through Table (3) shows that the size of the effect of each of the variables (VST) has reached (39%) and variable (VDT) has reached (6%) and variable (tp) has reached (83%) and variable (pp) has reached (37 %) and variable (qrs) has reached (59%)

and variable (t) has reached (34%) through the media and statistical tables above shows the importance of periods and the waves of the heart muscle in determining the size of the impact on left ventricular mass of the heart muscle (lvm)

And explains the researcher of this relationship to the importance of periods and the waves of the heart muscle in determining heart muscle efficiency as an increase in diastolic period lead to ventricular filling is greater than loaded with oxygen and nutrients and increase the contraction period lead to increased payment of blood from the ventricle the blood quantity and therefore this will impact on increasing the amount of blood paid in a single strike, which lead to lower heart rate and this is what is signified by a wave (t) This is a result of sports training and systematic study indicate and believe that the most vulnerable period is the period (TP). It is the period in which the delivery of blood laden with oxygen and nutrients to the fibers of muscle to the heart muscle through the capillaries of the coronary, "and so any increase in the time of this distance is the result of cumulative to the heart muscle responses and will have a positive effect obviously the work of the circulatory system on the one hand and relaxing job burdens the work of the respiratory system on the other hand, Sports Games which focus depends on the performance on several competencies and functional and other mobility as any physical activity is closely linked to the internal organs so you see that the individual athlete strives to access internal Bojhzath higher adapt as reflected positively on his fitness physical generally leading to accommodate the training modules are actively training and vitality and continued high correctly thus access to the desired level of achievement.

The researcher believes that the performance of any physical work and continuous effort of training in athletes leads to adapt functional Aladzh and increase their efficiency, including the most important muscle is the heart muscle, and this accounts for us the importance of efficient electrical

efficiency of the heart, and little (Resan Kahribt and Ali Turkish) that physical activity requires high power must be provided to moving the muscles and quickly appropriate and this will increase the heart muscle and its ability to carry out its functions effectively and efficiently concomitant vascular system fits in functions with a strong contraction and the size of the paid blood rates.

5. CONCLUSIONS AND RECOMMENDATIONS:

Conclusions:

The researcher concluded the great importance of the size of the effect of time of rest the heart of the variable (tp), which reflected lower heart rate as a result of the large mass of the left ventricle size and this characteristic of all non-sports athlete.

They also concluded that the importance of the effect of variable size (qrs) on left ventricular mass and is demonstrating the strength of ventricular contraction resulting from the strength of the electrical signal for ventricular mass.

Recommendations:

The researcher recommends a study of the biochemical variables to determine the size of their impact on left ventricular mass.

It also recommends a study on other sporting events.

RESOURCES

(1) Ahmed Badr: **Origins and methods of scientific research**, Kuwait, agency publications 0.1988

(2) Abdul Rahman Badawi: **Research Methodology**, i 4, Kuwait, agency publications 0.1977.

(3) Jaber Abdel-Hamid and Ahmed Kadhim charity: **Research**

Methods in Education and Psychology, Cairo, Dar authoring Press 0.1973.
(4) the depositary of Yassin and Abdul Hassan Mohammed al-Obeidi: **statistical applications Computer and Research of Physical Education**, Mosul and uses, National Library for printing and publishing 0.1999.
(5) Mohammad Hassan Allawi and Ahmed Abul Ela: **Physiology of sports training**, Dar Al Arab Thought, Cairo, 2000.
(7) Igesias A, Cabero Q, Reguero JJ, et al: **Aldosteron levels and cardiac hypertrophy in professional cyclists**, int J Sports Med, 1995
(8) Guyton A.C :**Text Book of Medical Physiology** , W.B. Sunders Company , Philadelphia , 1986.
(9) GanongW.F :**Reviw Physiology**, 18th Ed, Prentice- Itall International, Alange Medical Book , 1997
(10) Hashim Adnan al-Kilani: **physiological bases of sports training**, Emirates, Falah office 0.2000,
(11) -rushdi Fattouh Abdel-Fattah: **General basics in science Fayyologia, Kuwait**, with chains 0.1988.