ISSN: 0975 -8542

Journal of Global Pharma Technology

Available Online at www.jgpt.co.in

RESEARCH ARTICLE

Comparing the Gene ACE Variant with Some Cardiac Muscle Variables for Handball Players

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Abstract

The study objective to recognize the diversity of the gene ACE and the heart variables and the researcher used the descriptive research in the survey method to identify the majority of players who have cardiac functions that distinguish them from others according to genetic diversity where the dominant gene types were identified in the sample research (DD, ID , ii) The search sample was identified and chosen in the intentional manner, the 12-player handball players of the Diwaniya Governorate, divided by shapes into DD (6) players and (II) were (3) players and finally (ID) were (3) players and a blood withdrawal test was performed for the sample P Date on Monday (5 \ 3 \ 2018) and after which the checks were performed on the ACE gene and all the players have appeared to have the gene where the genes were dominant in the sample then the gene forms were detected to know the differences between groups through any group delayed to reach fatigue and the group. The gene structure (DD) is the most delayed to reach the anaerobic threshold where the researcher attributes that the genetic structure (DD) is what distinguished this group from others and the objectives of the search is to identify the types of the ACE as well as to identify the differences between the totals of the shapes according to the variables of the heart muscle In the fields of research, the human field was the handball players of the Diwaniya Sports and Spatial club, the sports hall in the Ramadan district and the period of time between (5 \03 \ 2018) – (8 \05 \ 2018) The statistical means were used (arithmetic mean, standard deviation, Variance test (p) for the differences between totals, the Law (LSD) is the least significant difference, Simple link.

Keywords: *ACE I, D gene and cardiac muscle.*

Introduction

The progress in contemporary scientific technology is the result of the study of partial structures and the factors behind the biological processes. Physiology of sport and training is no longer limited to studying physiological changes only at the level of biological devices, but the nature of the studies has evolved to study these variables at the cell level and inside the cell And other scientists suggest that genetic techniques as a method of selection and development of talented people become a convergence of interest in the field of sports science and that the heart muscle requires them to work during the physical effort [1].

The type of physical activity in terms of the speed and time required for muscular action for the time-sensitive reactions when repeated for a certain period of time leads to a condition in the heart muscle. Therefore, these changes may be different depending on the genetic diversity of the athletes produced to identify the individual differences according to the variables Cardiomyopathy according to different genotypes. The purpose of the study is to identify the work of genetic diversity according to the variables of the heart muscle. This is to find the differences between the genetic makeup and its work towards heart muscle variables among young handball players [2].

The physiological requirements of handball players require functional efficiency of heart muscle variables and also affect physical fitness. Knowing the extent to which ACE's gamers can vary according to the diversity of ACE genes will give physiotherapists and trainers sufficient information on the extent to which the genetic side is associated with training the research problem lies in:

What is the effect of the diversity of the ACE I / D gene in the events of physiological and physical changes in some cardiomyopathy variables?

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Research Objectives

- Identifying the diversity of the ACE gene in handball players Al Diwaniyah Club.
- Identify the differences between the diversity of ACE gene according to some variables of the heart muscle in handball players Al Diwaniyah Sports Club.

Research Hypotheses

There are statistically significant differences in the diversity of ACE genes according to some heart muscle variables.

Method and Procedure

Community and Sample Search

The researchers used the descriptive approach to suit the problem and the deliberate manner. The society identified the players of the Diwaniyah Sports Club as youth handball for the year 2017-2018, and the number of (12) players. The sample was divided into three groups according to the forms of the AEC gene. (I / D) (3) And the allele group (D \ D) (6) players.

Means of Gathering Information and Equipment and supplies Search

- Centrifuge, PCR Thermo cycler, Electrical Transfer, U.V light source for genetics.
- Primers for the ACE gene (see no. (1)).
- FITMET device for measuring VO2MAX Italian.
- Center Fugue with 3000 cycles.
- A device to measure the lactic acid type (lactic promoter) Japanese.
- TUBATES FOR SAVE SAMPLING SAMPLES (Plan Tube).
- COOL BOOX COOLING BOX to transfer blood samples to the analysis laboratory.
- Strips strip test Laboratory preparation for the purposes of laboratory measurements (lactic acid).

Field Research Procedures

Identification of study variables:

First

Identification of genetic variants: gene variants (II, ID, DD)

Second

- Cardiac variables: [5]
- Heart rate Pulse Rate.
- Stroke volume.
- Cardiac output.
- Extruded blood ratio EF%.
- The rate of contractility CL.

The Pilot Study

The pilot study was conducted on Sunday (11/3/2018) at (10) am in the gymnasium of the University of Qadisiyah and on (3) players from the research community to see the possibility of the team of the Assistant and Medical in the completion of duties of the withdrawal Blood and put it in (Tubes) and numbered according to the sequence of players as well as transfer from the place of the experiment to the laboratories to be measured and knowledge of the validity of devices.

The Scientific Foundations of the Test

Validation of the Test

The researcher has used the sincerity of the content as it relies on the opinions of experts and specialists in emphasizing that the test measures the phenomenon for which it was developed.[6]

Test Stability

The researcher used the re-test method to find the stability coefficient. The first test was carried out on Sunday, March 11, 2018. It was re-applied after seven days, on Sunday, 18/3/2018, first test.

The tests were performed on four players from the same research sample. The researcher used the simple correlation coefficient Pearson to extract the coefficient of stability, with the correlation coefficient (0.93).

Objectivity of the Test

Because the test used in the research (lactic threshold) is a laboratory test as data is taken directly using measuring devices, it does not require objectivity to be subjective and non-subjective.

Laboratory Measurements [7]

The sample was collected by the players of the Diwaniyah Youth Club on Monday, 11/3/2018. The blood was withdrawn from the samples as 5C as in Fig. (1)And then placed in the cooling box and then transferred to the laboratory for the purpose of analysis according to the following measurements:

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Figure 1: Demonstrates how to draw blood from the research sample

Measurement of the Genetic ACE I / D Gene: [8]

After the blood draw was performed, the gene was measured to determine the results on 11/3/2018. The AIME I / D primers were obtained. These primers were used to detect the multiple forms of the ACE I / D gene and according to the devices used from DNA testing and electrical relay for the across gel in order to determine the polymerization reaction to the detection to identify the forms of the ACE gene. The results of the test were shown in Fig. (2).

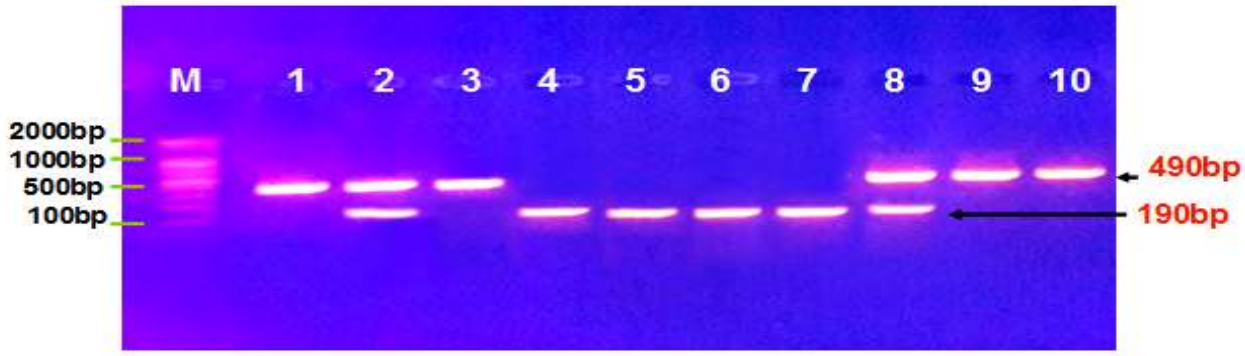

Figure 2: Demonstrates the electrical reproduction of acroes

The image of the electrolysis of acroes and the analysis of the results of the polymerase chain reaction of the genetic mutations associated with the ACE gene from human blood models. The model mover, models (5,4,6), bears a type II boom with a length of only 490bp and models (1,3,9) bearing an ID-type boom with two lengths of 490bp and 190 models (2) , 8,11,12,10,7) bearing a type DD (DD) with a length of 490bp.

Measuring Cardiac Output

Cardiac parameters were measured in terms of heart rate, stroke size and cardiac output (HR-SV-CO) at the time of rest by means of the Visalia device. The work of this device is done after the player completes the warm-up scheduled for him and arrives at the test room. (HR-SV-CO) by means of the device (Visalia) as in Figure (3), which is shown on the chest of the player by a belt designed for this purpose, as the data is read through the laptop During rest.

Figure 3: The Visalia device is used to measure cardiac output

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The Main Experience

The main experiment was conducted on (25/4/2018) on the research sample of (12) handball players in the youth category.

Results and Discussions

Table 1: Shows the standard deviations and deviations of groups (DD, II, DI)

Heart Variables	Genotype type	Mean	STD.EV.	Measuring unit	Number of sample
Cardiac output(CO)	DD	6.093	0.797	L \ Min	6
Stroke volume(S.V)		96.66	13.47	Ml/Min	
Heartrate(H.R)		63.66	1.632	Pulse \ Min	
Constriction rate		3.210	0.489	L \ m 2 \ Min	
Cardiac output(CO)	ID	4.57	0.15	L \ Min	3
Stroke volume(S.V)		69.3	1.52	Ml/Min	
Heartrate(H.R)		67	1.00	Pulse \ Min	
Constriction rate		2.34	0.09	L \ m 2 \ Min	
Cardiac output(CO)	II	4.66	0.05	L \ Min	3
Stroke volume(S.V)		72.3	1.15	Ml/Min	
Heartrate(H.R)		64.3	1.52	Pulse \ Min	
Constriction rate		2.46	1.58	L \ m 2 \ Min	

Table 2: Shows the differences in the tests for cardiac muscle variables of the three groups (II.ID.DD)

Source of variation	Sum of squares	df	Average groups	(F) Value	Level of significance	Type of significance
Heart rate(H.R)						
Between groups	22.66	2	11.33	5.10	0.033	Sig.
Within groups	20	9	2.22			
Stroke volume(S.V)						
Between groups	2015.583	2	1007.792	9.916	0.005	Sig.
Within groups	914.667	9	101.630			
Cardiac output(CO)						
Between groups	6.523	2	3.262	9.073	0.007	Sig.
Within groups	3.235	9	0.359			
Constriction rate						
Between groups	1.974	2	0.987	7.027	0.015	Non sig.
Within groups	1.264	9	0.140			

Table 3: Shows the least significant difference (L.S.D) for cardiac variables of the three groups (II.ID.DD)

Variables	Groups		Mean deference	Standard error	Significance	Type of significance
Heart rate(H.R)	II	DD	0.66	1.054	0.806	Non sig.
		ID	2.66	1.217	0.126	Sig.
	DD	ID	3.33	1.054	0.028	Sig.
Stroke volume(S.V)	II	DD	24.33	7.128	0.008	Sig.
		ID	3.00	8.231	0.724	Non sig.
	DD	ID	27.33	7.128	0.004	Sig.
Cardiac output(CO)	II	DD	1.430	0.423	0.020	Sig.
		ID	0.068	0.489	0.983	Non sig.
	DD	ID	1.516*	0.423	0.015	Sig.
Constriction rate	II	DD	-0.746	0.264	0.048	Sig.
		ID	0.120	0.305	0.919	Non sig.
	DD	ID	0.866*	0.264	0.024	Sig.

Tables (2) and (3) show that there are differences between the types of the ACE gene, which leads to the functional change of the body according to the composition of the protein and its work for each of these types of alleles. The tables indicate that there are only differences between the two types, the pure allele (II) DD) because the first work opposite the other, but the allele hybrid (ID), which combines the allele of this is equal, there are no differences in the allele and the researcher sees that the difference in the physical capabilities of this is selected in the light of the alleles of the ACE gene where it

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determines the human abilities in certain events The ACE gene carries the favorite qualities that have to do with athletic performance and have been brother Human genes to map the performance of health and fitness related phenomena studied by (Wolfforth: 2005,20) in medicine and sports science bar was chosen because Jane ACE believes alleles variations have a significant role in the performance of sports activities [9]. These differences in the ACE gene affect performance in sports such as sprinting, swimming, cycling, and other games, and to understand how this enzyme works.

To the presence of protein plasma called Angiotensinogen, which is found in the blood of all individuals, and under certain conditions, the kidney secrete a hormone called Renin inside the blood, which cut (10) amino acids of Angiotensinogen to form a compound called Angiotensin (1) This process has not yet been fully understood, but what has been identified is that the enzyme gene of the angiotensin-converting enzyme (ACE gene) can drop two amino acids of angiotensin I (angiotensin II). Angiotensin II is associated with many physiological functions, Increases blood pressure directly by reducing arteries, and b Indirect shape increases blood pressure and volume by stimulating thirst centers in the brain and directs kidneys to save minerals and water [10]. The researchers found that 50% of individuals have the pattern ID, 25% pattern II, 25% the family of the alpha-actin protein plays an important role in the construction and synthesis of skeletal muscle and in the processes of contractions and muscular excretion. Each cell of the skeletal muscle consists of a bundle of fibroblasts surrounded by a plasma membrane, interspersed with an expansive smooth endoplasmic network that stores the calcium ions necessary for contraction [11].

Conclusions

- The study sample was divided into different groups of genes for the ACE gene, as they were ACE \ II (4), ACE \ DD (5) and ACE \ ID (3) players.
- The group (DD) was better than the genotype (ID, II) of cardiac muscle variables.

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