

# Evaluation of Biochemical Health Measurements to Predict Backpack Achievement (50m)

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## Abstract

The tests and measurement is one of the most important scientific subjects that seek to achieve the requirements of research by linking to the delicate aspects that are objective through the results of measurements that carry the scientific side, and swimming on the back is very important in the field of sports and biochemical indicators scientifically shows us the amount of potential To predict the level of achievement of young swimmers indicate the amount of safety of different devices and reflect the positive side of the level of real achievement.

**Key words:** *Biochemical Health Measurements, Predict Backpack.*

## Introduction

Measurements are tools that can be identified on many indicators through the analysis or quantification of the components that indicate the knowledge of the scientific facts and the amount of prediction between them during what is required of the performance <sup>1</sup> of the athlete, which achieves development rates in the side that works by To create a scientific experience for trainers or employees within their specialties and thus we may reach the desired performance of the best in the movement of sports according to a scientific measure which is a direct goal in this aspect. The research in the field of tests and measurement in the field of sports proved qualitative changes in order to secure the requirements of athletic achievement <sup>2</sup> and raise the physical and functional level of athletes by giving us a precise description and analysis of different responses to the current or cumulative variables that occur to different body cells when practicing sports activity. Physical or functional for athletic effectiveness There are characteristics imposed on the various body devices depending on the nature of performance Sports efficiency characterized by high speed and maximum strength in a short time will inevitably impose different

responses and functional adaptations, each depending on the nature of the actor And swimming is one of the activities that are not limited to a particular age or age, considering that all ages are suitable for development, but this level <sup>3</sup> and its speed varies from age to stage and from one stage to another due to physiological, physical and dynamic reasons and whenever these qualities and elements are available at a high level When individuals learn the easier and better, The importance of research is one of the field indicators in most of the research and in this research is a scientific evidence shows us the amount of biochemical potential of the swimmers on which the safety of different devices and reflected positively on the level of real <sup>4</sup> achievement. And the main problem of this event is the lack of scientific research that dealt with the prediction of swimming in the back in terms of some biochemical indicators, and the lack of observation measurements that can be a scientific indicator in this area, which examines the most accurate details of the level of achievement, in addition to that we find that most swimmers do not have The scientific idea of biochemical measurements, which is one of the factors important for this type of swimming or other, and also noted the weakness of the researchers to achieve the new figures when most young swimmers in the country, and the reasons that the researchers see is the lack of interest most of the trainers in the note These measurements as possible to be one of the factors causing the failure <sup>5</sup> to achieve the required level, all of these reasons prompted the researchers to study this subject so that in front of

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employees and athletes in this area of work under the results that will be obtained by the researchers, and the most important goals seen by the researchers.

1- Identify the level of completion of the swimming pool (50) m for young swimmers.

2 - Identification of the measurements of some biochemical indicators in the members of the research sample.

3 - The conclusion of predictive equations for some biochemical indicators of enzymes studied.

Research methodology and field procedures

Research Methodology:

That «research in all scientific fields resort to the selection of a curriculum that is appropriate to the

problem, so the use of the descriptive method of surveying methods as this approach is an appropriate approach to the study of social phenomena as it provides data on the reality of these phenomena and the relationship between the causes and results and analysis, In which it would be useful to draw conclusions and recommendations thereon<sup>[1]</sup>.

**Research community and design:**

The researchers are interested in selecting the community and the sample they choose. Hence, the research community was identified. They are young people in the province of Thi-Qar (20) swimmers for the sports season (2018-2019). The researchers chose the research sample. (100%). The two researchers conducted homogeneity in the studied indicators in order to derive scientific equations for prediction as shown in Table (1)

Measurements	Measuring unit	Mean	standard deviation	Median	Skewness
لوطلا	م س	165.6	2.83	164.2	-0.82
نزولا	م غك	60.1	3.09	59.50	0.66
يبيردتلا رمعلا	ق نس	2.95	0.11	3.001	0.23-
Cpk <sub>mm</sub>	U\L	61.3	8.90	64.5	1.39-
LDH	U\L	362	57.0	377	0.13-
زاجنالا	ا ت	44.3	3.91	42.1	1.68

Table (1). Shows the values of the computational circles, standard deviations and torsion coefficients of the research sample.

Field research procedures:

**Measurements and Tests Used:**

\* - Measurement of biochemical indicators:

\* Metabolic measurement (CPK) and (LDH) in the blood

Objective of the test: an enzymatic measurement (CPK) and (LDH) in the blood before and after the voltage.

Used equipments :

\* A link to the area of the humerus - medical cotton, sterile materials - syringe (syringe).

A blood-free tube to prevent anticoagulation (EDTA)

- to determine the level of serum (CPK) concentration in the blood - to determine the level of LDH concentration in the blood - the centrifuge.

Performance: The special test for the measurement of CPK and LDH enzymes in the blood was carried out at one stage. At the time of rest, the blood was withdrawn from the sample of the research sample in the morning and before any effort was made (in the case of rest) by calling the swimmer on the chair And extends one of his arms as shown in Figure (13), the analyst lends a compressive ligament in the humerus to limit the blood in the vein of the humerus then sterilize a small area of the vein and injects the syringe in the vein (the attachment area) and begins to withdraw blood by (5C) Which is sufficient quantity according to the instructions indicated with the book, after which the analyst pulls the syringe from the swimmer Sterilize the area and decompose the compressive ligament and then empty the blood in a plantub and leave the blood at room

temperature to clot and then place the blood sample in the centrifuge to extract the serum and then place the necessary material in its position in the Copas machine as shown in )Figure 14 ) By placing CPK and LDH materials in the space assigned to the Kopas device. We put the sample of the test through placing 50 ml of the special nematomium syrup and placing it in the space assigned to it, The device then gives the device an order to do a CPK and HDL scan and then the device analyzes them until the results appear on the device screen Twenty minutes later.

Second Test: The completion of a swimming pool (50) meters:

\* Purpose of the test: Measurement of the level of achievement of swimming on the back (50) m.

\* Test instruments: swimming pool (50) m - stopwatch number (8) - whistle - registration form.

\* Method of performance: The laboratory begins to perform the moment of hearing the whistle start and jump to the specified area and be in accordance with the movement of successive arms by the consensus of the feet and start from the jump to water in the opposite direction so that the back of the swimmer in the water, which consists of stages:

1 - Hate: Enter the swimming pool in the opposite direction with the movement of the arms outside and the shoulders are going out slightly.

2 - Tensile and push: The elbow must be attached and is higher than the shoulders, and the water tightens back and ends the movement before the arms bend slightly on the body to be complemented by a strong and fast movement of the sponsors back in the back and the arm must reach behind the shoulder level during tension.

There should also be a continuation of the end-of-tensile movement to the back-forward through the compatibility between the movement of the arms and legs, in which the hand faces both individually and sequentially when the two arms move forward. 1. Body position: The body should be extended in a straight horizontal position, hands down and slightly outwards, legs moving sequentially with the arms at the push, with a small part of the shoulder appearing above the surface of the water. The movement begins from the position of the adjacent extended men and the combs outstretched. The movement starts by pushing the articulation of the thighs and knees to the abdomen in a sequential manner, so that the angle between the thigh and trunk is approximately 5 5 because the angle is greater, affecting the flow of the body, which reduces the speed of movement in the water.

Calculation of grades: Calculates the time of the swimmer within a distance of (50) m.

Main experiment: The main experiment was conducted on 23/6/2018 after the completion of the exploratory experiments and the validation of the devices and tools. This experiment was conducted on the swimming pool of the Sumer Youth Forum in Dhi Qar Governorate. The test was applied to the research sample and with the help of cadre Auxiliary work where the time to test the swimming pool was measured (50) meters for the sample of the research. On the second day, biochemical measurements (LDH-CPK) were performed by the specialized physicians in Dhi Qar Governorate.

Statistical Methods: The researchers used SPSS ver20 to process data.

Presentation, analysis and discussion of research results:

**Table (2) (T) and the predictive equation of the variable (Cpk)**

Coefficients <sup>a</sup>					
Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	41.983	4.381		11.18	0.00
CPK	0.169	0.071	0.490	2.38	0.02

a. Dependent Variable: Achievement  
Y= ax+ b = 42.15

Table (3) shows the results of the statistical treatment of the value of slope (b) of the variable (cpk), noting that the value of inclination (b) was significant through T test

where the calculated T (2.38) at the level of significance (0.02) (19). The results showed that the value of the regression constant (a) was 42.15.

**Table (3) Shows the results of the significant stability of variance analysis of variable (CPK).**

**ANOVA<sup>a</sup>**

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	42.800	1	42.800	5.675	0.02 <sup>b</sup>
Residual	135.750	18	7.542		
Total	178.550	19			

a. Dependent Variable: Achievement

b. Predictors: (Constant), CPK

Table (4) shows the results of the statistical treatment of the significance of the regression of the variable (CPK) and the completion of (50) meters on the back in the test (F), where there are significant differences between the two variables with the value of (F) calculated at (5.675) 0.02b) and at degree of freedom (19). This confirms the predictability of the variable (CPK). The researchers believe that the reason for this is that the exercise of physical activities varies from one activity to another and the body gets Atp. Since swimming is one of the high-effort activities, Requires quick compensation to the energy, which leads to the speed of the processes of representation within the body and also this works at the speed of nerve impulses The release of various control mechanisms leads to an increase in the work of more than a device such as myocardial nervous system and this leads to a group of rapid reactions to meet the body's need of energy needed during physical exertion through these chemical reactions decomposes (CP) the muscle stock that is decomposed by phosphate during the cycle One in the cell that generates the energy needed during physical exertion. The enzyme CPK is a group of

transferable enzymes. It transfers the phosphate group to the receiving nitrogen group, also called the CK. This enzyme is excreted into the blood and is increased in case of injury or after exertion. Blood CPK is an energy-rich chemical that plays an important role during the effort. This enzyme helps release a large amount of energy and rebuild the ATP, which is the first energy back. ADP is regenerated into a system called ATP-CP, Energy in the physical activity of oxygen, which lasts for about 10 seconds <sup>13</sup>, the enzyme CPK is important in the preparation of the interactions of energy production necessary for physical activity, so we see concentrated in the skeletal muscle and heart muscle, which is an important parts of sports movements and it is known that most muscle cells have phosphocrytin CPK is two or three times greater than ATP and it is transformed in a small fraction of a second into ATP for the purpose of continuing consecutive muscle contractions <sup>14</sup>. Thus, CPK can be used for young swimmers. Based on the above, (CPK) And the level of achievement of young swimmers to detect the significance of the regression between the two variables.

**Table (4) Shows the significance of the degree (T) and the equation of the prediction of achievement in terms of (HDL)**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	32.785	4.100		11.65	0.00
LHD	10.025	0.011	0.469	2.254	0.03

a. Dependent Variable: Achievement

Y= ax+ b = 42.70

Table (5) shows the results of the value of the tendency (b) of the variable (LDH), noting that the value of inclination (b) was significant through T (T) calculated (2.254) at the level of (0.03) 19). The results showed that the value of the regression constant (a) was 42.70. Thus LDH was used for young swimmers. The simple regression of the LDH variable and the level of achievement of the young swimmers were analyzed to detect the regression between the two variables.

**Table (5) The results of the mean stability of the variance analysis of LDH**

ANOVA <sup>a</sup>					
Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	39.308	1	39.308	5.081	0.03 <sup>b</sup>
Residual	139.242	18	7.736		
Total	178.550	19			

a. Dependent Variable: Achievement  
b. Predictors: (Constant), LHD

Table (6) shows the results of the statistical treatment to show the significance of the regression between the variable (LDH) and the completion of (50) meters swimming on the back in the test (F), where there are significant differences between the two variables as the value (F) calculated at (5.081) (0.03b) and the degree of freedom (19) This confirms the possibility of predicting the variable (LDH), and researchers believe that this enzyme is the most important characteristic of the chemical reactions that get directly between athletes from others through access to energy sources needed during work, (ATP) by anaerobic glucose analysis through a series of reactions ending with the conversion of pyrofil from glucose to no Which leads to the production of energy needed during physical work, assuring that “the conversion of pyrufac to lactic acid in the case of O<sub>2</sub> in the muscles working at the large muscle activity through the processes of biodegradation of pyrofecac to lactic by hydrogen”<sup>16</sup>, as the high level of enzyme Lactate dehydrogenase (LDH) after exertion in some sports practices, including swimming, is due to its vital role in the biochemical reactions of the anaerobic system<sup>8</sup>. It is the system on which the players depend on performing the physical efforts associated with the pills that require high physical exertion. Is consistent with Atwell et al. 1991. At the same time, the continuation of a high-intensity controlled physical load for 60 s produces a significant increase in blood LDH immediately after performance. In addition, LDH stimulates the conversion reactions Pyrenees to Lactate, which is consistent with what he reached. “LDH works to stimulate interactions of conversion of pyrons into lactat<sup>7-9</sup>.

## Conclusion

Determination of equations to predict the level of achievement depending on some measurements of some biochemical indicators through: The prediction of the enzyme C.P.K according to the following equation:  $Y = ax + b = 42.15$ . Predicting the enzyme (LD.H) according to the following equation  $Y = ax + b = 42.70$ . Safety of devices Function in the composition of energy through the results of prediction of enzyme (cpk). Improve the time period of energy production after fatigue through (ck) and the unity of calcium.

**Financial Disclosure:** There is no financial disclosure.

**Conflict of Interest:** None to declare.

**Ethical Clearance:** All experimental protocols were approved under the Physical Education and Sports Sciences / Thi- Qar University and all experiments were carried out in accordance with approved guidelines.

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