



**ANAEROBIC EXERCISE IN COMBINATION WITH THE SUPPLEMENT
(N.O.XPLODE) AND THEIR EFFECT ON (CPK) ENZYME CONCENTRATIONS
AND LACTIC ACID FOR WHEELCHAIR PLAYERS**

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Abstract

The progress made in various fields of life has opened a door to science and knowledge, and countries have been racing with each other to reach the highest levels of sophistication and progress and to benefit from the experiences of others and add something new to the field of human knowledge, and the sports field is one of the pillars of this development and derived its importance from the integration of proper nutrition And his life program, taking care of his body, and integrating every movement that a person makes with mental processes aimed at the activity practiced, as physical abilities can be of great value by using some modern nutritional supplements that lead to healthy integration and balance of physical effort, so the use of different and appropriate methods for the athlete to improve the level And performance has an impact on sports and it has an applied value and a special relationship for those concerned with the development of sports performance through the learner's tendency to choose the style that suits him, which leads positively to improving the level of performance in order to achieve the correct motor performance and master the skill better with all activity and dynamism. The importance of the research lies in the benefit that accrues to raising the level of productivity or efficiency of performance for tennis players, which is important in improving the level of performance, and thus reaching an integrated player needed by the wheelchair tennis game, which depends on the effectiveness in order to serve the development of this game to achieve the best results in local and international competitions The use of methods and a tight sports system through training and good nutrition and according to the type of training and following different methods in dealing with sports problems is in itself an art in shortening the way to reach the results and the desired level easily and effectively.

Introduction

Research Problem

Neglecting the coordination between training and adequate nutrition may have a negative impact on the athlete in all events, which the researcher noticed clearly among players in wheelchair tennis, as he is concerned with the game and a former player in tennis for the Muthanna University team, and through his scientific and practical follow-up and his interest in wheelchair tennis players, he noted that Most of the advanced players in this field suffer

from a decrease in the level of performance and activity in competitions, as well as in the last part of the training units, it appears clear physical and nervous fatigue in performance. The researcher used nutritional supplements in conjunction with some anaerobic exercises to enhance energy productivity even for the longest possible period during which a player can complete his physical and skill duties efficiently.

Research Objectives

1. Preparing anaerobic exercises and using the supplement (N.O.XPLODE) for wheelchair tennis players at Al-Muthanna Club.
2. To identify the effect of anaerobic exercise and supplement (N.O.XPLODE) on some variables(Lactic accumulation at rest, lactic accumulation after exertion, CPK enzyme).

Research Hypotheses

Anaerobic exercise with the supplement ((N.O.XPLODE) had a positive effect on variables (lactic acid at rest, lactic acid accumulation after exertion, and CPK enzyme).

Areas Of Research

- The human field: advanced players from the (wheelchair tennis) event in Al-Muthanna Governorate / for the season (2021-2022) AD.
- The temporal field: (21 \ 1 \ 2022 - \ 2023) AD.
- Spatial field: tennis courts in Al-Muthanna Governorate.

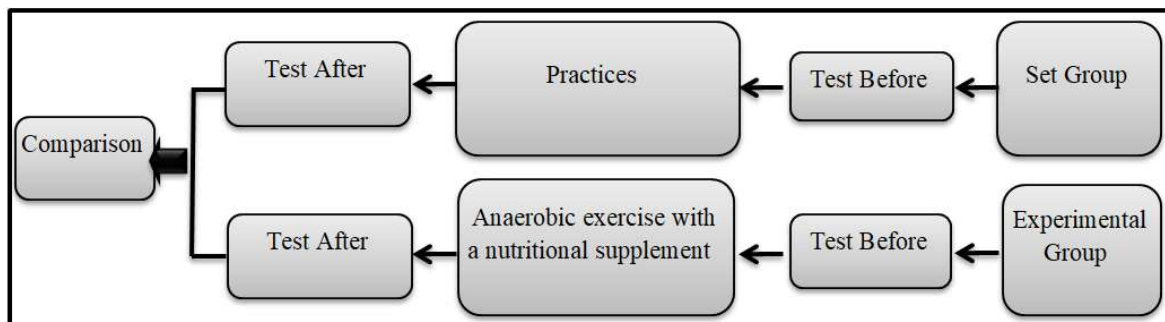
Definition of Terms

No-Xplode supplement (N.O.-XPLODE): It is one of the most powerful energy stimulants. After taking it, it will increase the body's energy and raise concentration rates, which makes it possible to continue working for a longer period in training without feeling tired. Also, it increases blood pumping to the muscles and leads to the expansion of arteries and helps you to Focusing on exercise by raising mental energy as well as physical energy

Research methodology and field procedures

Research Methodology

The experimental approach is the closest research approach to solving problems in the scientific way, as it is an attempt to control all the variables and basic factors except for one or more variables that the researcher changes in order to determine and measure its scientific impact and because the nature of the research needs knowledge of (a specific) effect, so the researcher used the experimental approach and designed (equivalent groups) and Figure (1) illustrates this



form (1)

Demonstrates the experimental design of the research groups

The research community and its sample

The researcher identified the research community using a comprehensive enumeration method, which is represented by wheelchair tennis players for the Samawah Club for the sports season (2021-2022), with a disability athlete classification (iii) and their number is (8) players, as they were distributed by lot into three groups, with (4) players for each group, then the researcher conducted a medical examination to ensure their safety and that they are free from chronic diseases such as (blood pressure, diabetes, etc..) before distributing them into three groups as in the following table:

Experimental sample 1	The control sample	the sample
4	4	distribution
12		the total

Table (1) shows the distribution of the research sample

In order to avoid the influences that may affect the results of the research due to the individual differences in the sample and to reach a single and equal level for the sample in the variables studied, which are considered influential in the experiment, they must be controlled.

It is homogeneity and equivalence and Table (2) shows that

Table (2) shows that the significance level of the (LEVEN) test appeared greater than the error rate (0.05) in all research variables, and this indicates the presence of homogeneity among individuals.

The level of significance for the analysis of variance (ANOVA) test was greater than the error rate (0.05) in all research variables, and this indicates the existence of equivalence between the three research groups.

Tools and methods used in the research

Means of collecting information

The researcher used the following methods to collect data:

- Arabic and foreign sources.
- International Information Network (Internet).
- the exams .

The tools used in the research

For the purpose of achieving field research procedures, the following tools were used:

- Tennis court with a legal tennis court (tartan floor)
- Wilson tennis rackets
- Pens, whistle, sticky tape of different sizes for paddle games
- 60 tennis balls
- Signs of cones

The devices used in the research

- A German-made lactate analyzer
- HP electronic calculator (corei7 Computer)

- Auto analyzer to measure CPK and LDH enzymes
- (Hematology analyzer) to measure red and white blood cells.

Determine the search variables

The researcher conducted a survey study on many sources and previous studies and the opinion of the supervisor. The variables needed by the researcher were determined:

Determination of chemical indicators

- The rate at which lactic acid builds up in the blood at rest
- The rate of lactic acid accumulation in the blood after exercise.
- Enzyme (CPK)

Characterization of tests

Firstly. Measurement of lactic acid concentration in the blood

The aim of the test: It is to measure the degree of lactic acid concentration, which can give an idea of the lactic acid response in the blood that often begins to appear when performing an effort that lasts for a short period of time. Method of conducting the test: The tester is given a physical effort (hitting and receiving the ball from a ready ball thrower) for a period of less than three minutes, with a heart rate of 170 and 190 v / d, and five minutes after the end of the test time, the lactic concentration is measured. The analysis chip of the device is placed, and the medical assistant takes a drop of blood from the laboratory by poking the thumb with the needle attached to the device and puts it in the place designated for blood, so the device reads it and displays the results of the analysis on the screen, i.e. the percentage of lactic acid accumulation. The device in the form below will be used (to measure the rate of lactic acid accumulation in the blood) when resting after five minutes of effort).

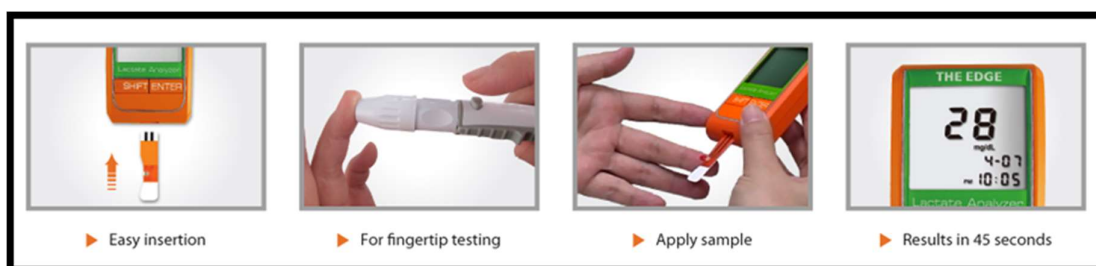


Figure (4)

A device for measuring the concentration of lactic acid in the blood

Second: Centrifuge) to extract and measure the enzyme (CPK) Method of conducting the test: After the blood was drawn by a specialized medical staff (immediately after the anaerobic physical effort), as (5 mm L) of blood was withdrawn after (5) minutes, noting that the method of measurement is according to the device used (Auto analyzer). Self-Clinical Chemistry method (End Point) at a temperature of (37) and placed in special tubes so that it can be analyzed in the laboratory to obtain measurements of the following biochemical variables: lactate dehydrogenase (LDH)



Figure 5: Centrifuge

As the blood samples are entered into the centrifuge (centrifuge), which in turn works by separating the blood components to obtain the serum, as the serum is transferred to the spectrophotometer analysis device) after feeding it with the variables to be analyzed through the electronic calculator associated with the device, as the blood samples are placed in special places and then Three robots inside the machine take over to get the work done. After the end of the analysis process, the device gives a special signal through a light stimulus, then the competent person (Al-Bilad laboratory in Al-Muthanna Governorate) works to give a directive via the calculator to show the results.

Exploratory Experience

Scientific research experts recommend conducting exploratory experiments for the tests used in research, in order to obtain the necessary reliable results and information, to be used when conducting the main experiment. The survey is "a preliminary experimental study that the researcher conducts on a small sample before conducting his research in order to test the research methods and tools. Accordingly, the researcher conducted an exploratory study on (4) players, and they were chosen by the simple random method and by (50%) of the research community. This was applied The experience in the tennis court / Muthanna in the days: -

- Wednesday, 3/9/2022, a blood sample was drawn from the test subjects for the purpose of measuring CPK concentrations and lactic acid concentration (at rest and effort).
- As the aim of conducting the exploratory experiment was on several points, including.

- Identify the negatives and positives that meet the researcher in the main tests.
- Knowing the safety of devices and ensuring their validity
- The adequacy of the assistant team and their understanding of how to apply the test items and distribute them to know their tasks when conducting the tests for the research sample. □
- Identifying the time period for recording the highest reading of lactic acid, as blood samples were drawn in minutes (4-5) minutes for each player after performing the performance endurance test, as the highest reading of lactic acid was recorded in the fifth minute after the effort. □
- Identify the maximum intensity for each exercise
- Extracting the scientific foundations of the tests (honesty, reliability, objectivity) by re-testing the same sample of the exploratory experiment a week after conducting the exploratory experiment tests
- This experiment achieved its purpose.

Scientific basis for the tests

1- Test stability: The constant means “that the test gives the same results or close results if it is repeated more than once on the same group and in the same conditions” (). The stability of the test was calculated using the method of (testing and re-application of the test). Therefore, the researcher repeated the tests on Wednesday, Thursday and Friday corresponding to (3/17-18/2022) on the sample of the same reconnaissance experiment and under the same conditions and context, and the stability coefficient between the two tests was extracted by the law Correlation coefficient (Pearson) The results showed that there is a high correlation between the tests, because the closer the stability value is to (+1), it indicates that the tests have a high degree of stability as shown in Tables (3).

Statistical significance	a test Person	The second test		The first test		lonliness measurement	variants
		p±	s	p±	s		
non-moral						mmol	Lactic buildup at rest
non-moral						mmol	Lactic buildup after exertion
non-moral						unit/litre	CPK enzyme

Table (3) shows that the Pearson correlation values were greater than (0.05), and this indicates that there are no significant differences between the first test and the second test, which means that the sample enjoys the stability of the test result.

2- Validity of the test: It is “the extent of the validity of the test or measure in measuring what was set for it” and since “the coefficient of validity depends on the coefficient of stability, so it increases with its increase and decreases with its decrease.” Therefore, the researcher used the self-honesty, which is measured by calculating the square root of the stability coefficient

Main Experience

Pre-Exams

The researcher conducted the tribal tests on the research sample, which is (4) players, and the results of (4) players from the reconnaissance experiment were relied upon, and thus the number became (8) players. In order to create the same conditions for the post-tests, the pre-tests were conducted in the following chronological order:

- On Saturday, 3/19/2022, a blood sample was drawn from the test subjects for the purpose of measuring CPK concentrations and lactic acid concentration (at rest and effort).
- The curriculum prepared by the researcherThe researcher proceeded to apply the curriculum prepared by the researcher, with direct supervision by him, on the sample of the two experimental groups, which numbered (4) players, on Sunday 3/27/2022.

When developing the curriculum, the researcher did the following:

1. Anaerobic exercises were applied to the first two experimental groups.
2. Anaerobic exercise and nutritional supplement were applied to the second experimental group.
3. The prepared curriculum took (8) weeks, with (3) training units per week, and thus the total number of training units amounts to (24) training units.
4. The researcher used the high-intensity interval training method with intensity ranging from (80-95)%.
5. The duration of the main section of the training unit is (45-50) minutes.
6. Leave the two groups on their own diet.
7. The researcher dealt with the main section only of the prepared training units, and immediately after the warm-up, so that the players could be at the peak of mental, physical and psychological readiness.
8. During the curriculum and before each training unit for (30) minutes, the researcher gave the supplement (N.O.XPLODE) in the amount of (1) scoop attached to the package, i.e. (20) gm to (200) mm of water, while stirring it with a spoon well, and giving it to the sample of the experimental group. Only consisting of (4) players.
9. The total number of doses of the nutritional supplement (N.O. XPLODE) for each player amounted to (24) doses.
10. The amount of doses for the supplement (N.O. XPLODE) for each player was (480) grams over two months.

Post-tests

After completing the eighth week of his curriculum, the researcher carried out the research tests for the post-measurement of the research sample on Friday, dated (5/20/2022), taking into account and creating the same conditions, variables, and requirements that were done in the pre-tests.

Statistical means

To process the research results, the researcher used the statistical program (spss).

Presentation, analysis and discussion of results

The normal distribution of the data of the three groups

Table (4-1) Normal distribution for the data of the three groups

experimental group		the control group		the test	variants
significance level	value Shapiro-	significan ce level	value Shapiro-		

	Wilk		Wilk		
0.245	0.856	0.255	0.832	Tribal	Lactic at ease
0.683	0.945	0.158	0.826	after me	
0.074	0.782	0.021	0.722	Tribal	Lactic with effort
0.272	0.863	0.406	0.895	after me	
0.757	0.956	0.101	0.799	Tribal	CPK coenzyme
0.062	0.773	0.129	0.814	after me	

The results of Table (4-1) show that the significance level values of the (Shapiro-Wilk) test for the data of the three groups in the search variables were all greater than the value of the error percentage (0.05), and this means that the values are subject to the normal distribution, and thus the condition of using (t) is fulfilled. to compare averages.

Presenting, analyzing and discussing the results of the control group

Presentation of the results of the first experimental group in the variables CPK and lactic acid in the blood

Table (2-4) Arithmetic means, standard deviations, (t) value, and the significance of differences between the pre and post tests in the chemical variables of the control group

Statistical significance	significance level	(value) calculated	Dimensional tests		Pre-tests		measuring unit	variants
			p	s	p	s		
moral	0.045	3,337	0.943	18,665	1,448	19,728	.Milli mall	lactic when resting
moral	0.02	4,571	1,258	157.75	1,446	162.15	.Milli mall	lactic after effort
moral	0.018	4,721	8,421	160.25	11,633	140	unit/litre	CPK coenzyme

In the light of the extracted data for the research sample members of the lactic variables, at rest, lactic, after effort, CPK enzyme), as the level of significance for the value of (t) for correlated samples and for all variables was smaller than the error rate (0.05), and this indicates the existence of significant differences for the control sample. between the pre and post tests and in favor of the post test

Discuss the results of the first experimental group

The researcher attributes the apparent moral differences in the first experimental group to the fact that the subject curriculum had a positive impact on the development, and that development is an axiom for any training curriculum through which the trainer seeks to develop a sample to

certain limits that may not rise to the advanced level because the subject curriculum may be Within one context in terms of temporal distribution and a similar style of training, the slight development here in the first experimental group came in favor of dimensionality as shown in Table (2-4) and because the (chemical) variables are carefully selected as the researcher assumes that they have the main role in all physical and skill activities where It can be developed through training.

As "the player's body is considered the main focus of the sports activity to adapt its devices, and achieve integrated growth in its parts, in order to reach an advanced sports achievement. The coach seeks with all his scientific arts and training experiences, to develop the work of these devices, and adapt them according to the load on them, in order for these devices to carry out their duties." All doubly at the athlete. It is known that the regularity in the practice of training gives the individual some tangible physiological changes, as it is a manifestation of adaptation to the nature of this physical activity, and both (Rafi Saleh Fathi and Hussein Ali Al-Ali) explain adaptation: "as one or more changes in structure or function As a result of repeating a set of exercises for a long time. The researcher attributes this to the quality of the exercises proposed and added to the coach's training curriculum, which helped the players focus their training on the muscle groups required for the requirements of motor and skill performance by linking the implementation of the motor duty and enduring its performance for a long period in harmony and consistency. It is known that this physical characteristic is not developed automatically. And spontaneous, but through regular and planned training according to scientific formulas, so the exercises that were applied were derived from the nature of the actual skillful performance by designing it by the researcher, and this is confirmed by(Qasim Hassan Hussain) (Using exercises and forms of load that pertain to kinematic and kinetic criteria that are similar to competition exercises, or models of parts of movements... in the form of organizing the integration of sports techniques) (. Sports training This is what the researcher built on and confirmed through the proposed exercises on the most important characteristics of the type of sports activity

Presenting, analyzing and discussing the results of the first experimental group

Presenting the results of the variables of the first experimental group in the variables CPK and lactic acid in the blood

Table (4-8)Arithmetic means, standard deviations, (t) value, and the significance of the differences between the pre and post tests in the chemical variables of the experimental group

Statistical significance	significance level	(value) calculated	Dimensional tests		Pre-tests		measuring unit	variants
			p	s	p	s		
moral	0.008	6,328	0.816	14	1.09	19,825	.Milli mall	lactic when resting
moral	0.000	19,762	0.957	149.75	1,422	162,075	.Milli mall	lactic after effort
moral	0.001	12,063	5,416	192	12,675	144	unit/litre	CPK coenzym

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In the light of the data extracted for the research sample individuals for the chemical variables (lactic, at rest, lactic, after effort, CPK enzyme), as the level of significance for the value of (t) for correlated samples and for all variables was smaller than the error rate (0.05), and this indicates the presence of significant differences for a sample The experimental research between the pre and post tests in favor of the post test

Discuss the results of the second experimental group

The development of the second experimental group on the experimental one, so the researcher attributes this to the nutritional supplement (N.O.XPLODE) and anaerobic exercises, as this nutritional supplement works in addition to anaerobic exercises that are characterized by maximum and less than maximum intensity, which results in a high concentration of lactic acid and thus the appearance of fatigue, but with the presence of the nutritional supplement Which is the catalyst in addition to anaerobic exercises that increases the efficiency of exercise with a higher intensity and for a long time due to the increased concentration of the carnosine compound in the muscles, which works to reduce or delay the appearance of lactic acid, as the physical requirements of wheelchair nets need speed in performance, which leads to An increase in the accumulation of lactic acid, which makes the player in a state of lack of high concentration due to fatigue, and since the nutritional supplement beta moaning helps to delay the accumulation of lactic acid and thus increases the player's resistance to fatigue, which led to the improvement that occurred in the tests of speed and endurance performance in the post-test in addition to the exercises Anaerobic, and this was confirmed by (Jabbar Rahima) that when developing speed endurance, it is necessary to use exercises that have a direct impact on the anoxic energy production system, as these exercises result in an increase in the ability of muscles and high efficiency to work in conditions of lack of oxygen and bear high concentrations of lactic acid in Muscle and blood.

The researcher believes that the player exerts a high-intensity effort and overcomes high resistances during the time specified for the test, which requires the provision of large energy commensurate with the intensity and time of the test, especially that the work takes place in conditions of lack of oxygen. Therefore, the effective nutritional booster represented by the supplement (N.O.XPLODE) was used with exercises, which proved Its positive effect through the results under study has helped provide energy to sustain the activity for as long as possible with effectiveness and high concentration, which is reflected in the development of the ability to endure the skillful and motor performance. The key to winning and excelling as the supplement (N.O.XPLODE) and what it contains of beta-alanine does not allow the accumulation of lactic acid quickly, which leads to a delayed onset of fatigue during speed and endurance training. It is consumed when the player performs this special physical attribute. The researcher explains this improvement in the indicators to the auxiliary factor for anaerobic exercises, which is the supplement (N.O.XPLODE), as these exercises led to a decrease in the number of heart beats as a result of the development that occurred in the internal and external work mechanism of the heart and makes this decrease during rest, (Fadel Sultan Sherida), which helps To improve the ability of the athlete to maintain the effectiveness of his activity and focus for as long as possible

The researcher believes that the supplement (N.O.XPLODE) and anaerobic exercises have a

clear role in reducing lactic acid at rest, as they were at proportional rates and within normal limits, which indicates that the players did not perform a physical effort before the test, as the concentration of lactic acid in the blood was within its normal range. During rest in the pre and post test, these percentages are consistent with most of what was indicated by the sources and studies that confirm that there is a percentage of lactic acid present in the blood during rest and it varies between the player and another and changes from time to time, as both (Kel and Neil) mentioned The normal rate of lactic acid concentration in the blood during rest ranges between (10-20) / 100 milliliters of blood.

For this we notice that the reason for the high percentage of lactic acid during the effort is due to the presence of a reverse chemical reaction between pyruvic acid and lactic acid, and this relationship depends on the presence of oxygen, when the percentage of oxygen is low, the pyruvic acid turns into lactic acid, and when the percentage of oxygen is sufficient, the lactic acid turns into pyruvic .

Therefore, the increase in the carnosine compound in the muscles of the body due to the intake of the supplement (N.O.XPLODE), which led to the performance of exercises with a high ability to perform and an increase in repetitions and the continuation of high intensity, due to the delayed appearance of lactic acid as a result of the effect of the nutritional supplement and anaerobic exercises, which led to the occurrence of functional organs The body has developed in performance due to the lack of rapid lactic acid accumulation.

The researcher attributes the development of (CPK enzyme) that the reason for the emergence of significant differences is due to the nature of the exercises used in the training program prepared by the researcher, which requires a rapid release of energy, and that the (CPK) enzyme is one of the important and direct factors in accelerating the release of energy. In the body, by rebuilding adenosine triphosphate (ATP), as the rebuilding of (ATP) depends on the chemical compound creatine phosphate, so the enzyme (CPK) transfers a group of phosphates from the compound creatine phosphate to adenosine diphosphate (ADP), to form a triple adenosine phosphate (ATP) and vice versa

And since the exercises and exercises and what they contain of rapid contraction and relaxation in the working muscles, which requires the liberation of sufficient energy to perform such work, as (Hussein Abdel Amir), quoting (Safaa Mereb), confirms that muscle activity is accompanied by a series of reactions in which enzymes contribute, Being auxiliary, contributing, active, and active factors, thus increasing the activity of enzymes, which act as catalysts This is in anaerobic metabolism, due to training.

Statistical significance	significance level	(valuet) calculated	Dimensional tests		Pre-tests		measruing unit	variants
			p	s	p	s		

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The appendices

Accessory (1)

- Dietary Supplement (XPLODE) No Xplode: The most powerful energy stimulant, after eating it, it will raise energy, it will increase the body's energy, raise concentration rates, and make you continue for a longer period of training without feeling tired. Also, it increases blood pumping to the muscles, leads to the expansion of the arteries, and helps you focus on exercise by raising mental energy as well as physical energy.

Components of N.O. - XPLODE No Xplode

Each scoop of 18 grams contains

- Beta-alanine: an amino acid that increases energy production and works to improve athletic performance by resisting the feeling of fatigue or muscle fatigue, and it also works to increase muscle mass building.
- Arginine: It turns into nitric oxide gas, which works to increase blood flow and thus improve the delivery of blood loaded with oxygen and nutrients to the muscles.
- Creatine Ethyl Ester: One of the types of creatine, and it is characterized by its easy absorption, as it draws water into the muscle cell, giving stiffness and strength to the muscles.

ANAEROBIC EXERCISE IN COMBINATION WITH THE SUPPLEMENT (N.O.XPLODE) AND THEIR EFFECT ON (CPK) ENZYME CONCENTRATIONS AND LACTIC ACID FOR WHEELCHAIR PLAYERS

