

The Effect of Omega 3 on Nerve Impulse Speed, Muscular Activity, Cholesterol Level and the Relationship with Performing Some Volleyball Skills

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Abstract

The importance of the research lies in studying the effect of omega 3 on some physiological abilities including speed of nerve impulse, muscular activity and cholesterol level in blood due to their great effect on athletic performance. The study aimed at identifying the effect of omega 3 on nerve impulse speed, muscular activity and cholesterol level in blood and its relationship with the performance of some volleyball skills. The researcher hypothesized a statistical relationship between omega 3, nerve impulse speed and cholesterol level in blood as well as finding a relationship among these variables. The researcher recommended taking omega 3 according to doctor's order has positive effects.

Keywords: *omega 3, nerve impulse, muscular activity, cholesterol level, volleyball.*

Introduction

Most of the research that researchers recently study in all fields of research are of scientific, physiological, medical, chemical, physical and other scientific dimensions because they are the basis for the formation of the human being and its vital activities, and this is observed in developed countries because of their huge budgets for development and study in the field of scientific research and this What we noticed in the field of the development of devices, tools, drugs and scientific methods, and all these areas reflected the progress made in qualifying athletes and non-athletes in all areas and the ability to improve the individual's physical and functional and give fictional results and achieve record numbers in most international and Olympic games and championships. (Mason, 2000) Y of it is necessary to take into account the side of the physiological for humans in general and sports in particular and should be regaining with great interest by specialists from this point of which give positive results , based on modern scientific and accurate foundations and to find ways and methods to ensure use them to the fullest . (Hass, 1964) The game of volleyball is often practiced by a large number of age groups and all ages, male and female, because this game has interesting skills and because it can be played in any field or on the beaches and at the same time it is a game that needs special capabilities because it is physiologically of a mixed nature , any need all energy systems , oxygen is dominated by oxygenation system because the duration of may take two hours or more than one who we need to maintain capacity for a long time, whether functional or physical or skill and most of the skills of volleyball need muscle activity and nerve conduction velocity and performance of movements You need speedy reaction and accuracy in performance to get the point. (Montgomery, 1996) Enzymes are substances of great importance in functional and physical performance because they have to do with reactions that occur during muscle work, energy release and reconfiguration (ATP) in the muscles, which is the regulator of chemical reactions. Is also cholesterol and raise rates in the blood of non - health indicators for the individual because it is an increase in the blood have negative effects on human health in general and Riyadh in particular, high cholesterol causes hardening of the arteries , which impedes

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blood flow smoothly and easily and thus adversely affects the health of Riyadh and increase the cause metabolisms of diseases , including heart attacks , and in the present time taking many dietary supplements source of interest to researchers because of their importance in the development of functional and physical and skill capabilities and this is evidenced by many recent studies and here tack from the importance of research so Art DONC Al Ba urged to study the effect of omega3On some of the m changes and functional hanger accurately and improve athletic performance . (Reiner, 2007) The use of modern means and methods to develop functional and skill ability and improve the level of skill performance of volleyball has a major role in achieving the best performance in terms of functionality and skill. The researcher was a teaching instructor for volleyball in the College of Education, Physical and Sports Science / University of Baghdad, where a weakness in the accuracy of the performance of some basic skills in volleyball among students and the speed of motor response during practical application was diagnosed. (Punstan, 2007)

Literature review

1. The omega3

It is a fatty acid from unsaturated fatty acids consisting of two components, namely (Epicos apentaeno ic epa) (Epicos apent aenoic DHA (It is extracted from salmon, and it is effective in preventing many diseases and improving health conditions (Punstan , 2007) And omega fatty acids 3 It is one of the nutritional supplements that many researchers have praised in several areas of its importance and its ability to improve the performance and healthy activity of the individual or athletes because of the health ingredients that this has confirmed by Kimon and others is that omega fatty acids 3 It has a role in the development of the functions of the brain, the immune system, the visual system, the blood clot and the prevention of heart and respiratory diseases in helping the body's functions to increase the level of high-density fats (HDL(In the process of losing weight and is considered a nutritional supplement that is not forbidden for athletes (kemin , 2002) Mason mentioned that the most important sources of fish oil in marine life are tuna, salmon, and liver oil of whale as it is found in plants such as soybean oil (Mason, 2000) There is a study by Renray and obtained results, the most important of which is omega 3 It has anti-arrhythmic effect and increased heart rate fluctuation and is used to treat high blood fat and omega 3It reduces the risk of cardiovascular disease and also includes combating clots and it reduces platelet aggregation, reducing viscosity and plasma, anti-inflammatory effects, improving blood vessels and lowering blood pressure (Reiner, 2007)

2. Creatine enzyme phosphokinase (CPK) :

Enzymes are substances that have the ability to regulate most of the reactions in the body and directly affect chemical reactions. These interactions do not occur. These enzymes can be defined as ((a complex organic cofactor produced as a living cell if it works independently of the cells that made it)) and that the enzymes are The cell is able to allow complex reactions to occur under conditions during which little or no response is expected and due to its colloidal nature, the enzyme is subject to aging and demolition, so it must be continuously reprocessed through additional building in the body (Muhammad , 1987) and is considered an enzyme (CPK) From cellular enzymes that have a very wide spread in different tissues of the body)Hass, 1964(And enzyme) CPK(A key role in the energy production process) (Through the energy, the phosphate group of the high-energy compound is made by phosphate creatine)CP(Which can be used to rebuild (ATP) (ADP) It comes in the event that there is less demand for (ATP) That is, at rest, the enzyme reduces the phosphate group from (ATP) Dah building (CP Of creatine (Montgomery: 1996)

3. Cholesterol

It refers to the steroidal fats necessary for many of the functions of the body produced by most cells and the production of which regulates a special receptor in the liver. Outside the liver (Robergs , 2007) It is a fat store in the fat cells that is converted by hydrolysis into fatty acids that the blood transports to the muscle cells for use as fuel for energy. The muscles store about 2% of the body fat, while the rest is stored in the fatty tissue. Muscles can use their

fat reserves as fuel for energy. They can also use the free fatty acids they receive from the liver or cells. During rest, the main fuel for energy is fat as well as when performing physical loads (Abu Alala, 2003). Take omega 3 It leads to lowering cholesterol because it is based on stimulating yellow sap acids, which can be disposed of by the liver (Shawqi, 2000) with a previous study of the effect of injecting fish oil emulsion for a short period on the pattern of lipids and lipo-protein enzyme)

4. Fast nerve conduction and muscle activity

The feature of rapid delivery and muscle activity of the muscle is very important for athletes and non-athletes, in order to participate in the perfected performance of all life and sporting activities in particular, and since the human nervous system is the one that controls all these motor instructions, it controls the functions of the body systems and links all vital and functional activities in order to work regularly and accurately High, a section of which is voluntary, while others are involuntary, and the nerve signal is an electrical charge that travels from a neuron to another until it reaches the organ that is required to be connected to it by the members of the body, such as the transmission of the nerve signal to a specific muscle group, which is similar to the transmission of electrical current through the electrical wire. To operate a household appliance, the reason is that there is a difference in the distribution of sodium and potassium ions around the cell membrane (Geyton, 1997). Abu Ala that mentions adaptation to the nervous system appears in cases where muscular strength increases and boils down to the role of the nervous system in the possibility of increasing muscle strength through greater mobilization of a number of muscle fibers involved in muscle contraction and increase the timing of the work of motor units synchronization (goods loyalty , 1997). Therefore, the speed of the nerve conduction () is defined as the speed of nerve sensing of microscopes coming from the neural planning system EMG and NCS) (Jun , 2003) The speed of conduction in nerve fibers differs from 0, 25 S/M In non-congested and very small fibers 100 S/M In fermented and very large fibers, the velocity increases approximately in diameter of the muscle stiffened fiber (Arthure , 1997) The speed of nervous conduction from one nerve to another decreases with age, and the exercise of the individual is one of the priorities upon which it depends, in order for the speed of nervous conduction to remain active, by increasing the number of active motor units and the rate of activation of the motor units. It is possible that controlling the signaling style of kinetic units is the main factor that is used not only for those who are distinguished in good and bad kinetic performance, but also used to classify the two sports (Muhammad , 2000) And a device (ENG) It is one of the modern devices that sends Pluton signals about muscle activity in the body, and it is received like the other device, which is the receiver of these signals, and it is linked to a personal computer (Lap Top) It allows the player or person to make fixed or moving movements of all types, and the incoming signals are recorded and stored at the beginning and end of muscular activity, electrical capacitance, speed in the delivery of the muscle, and the work area of the muscle, which is done by placing surface plaques stuck to the top of the muscle mediating it, which is the detection of electrical current or weak signal from the activated muscle and turn it into a computer screen to show the signal strength and shape, and through the program (software) analyzes the data stored and dealt with various types of analyzes, and the issuance of reports form in the hand on muscle activity (Sillan , 2007) There are special devices for measuring muscle activity and a device ENG. It is found in hospitals and private clinics and is measured by placing sensors on the muscle to be measured. It is connected to a computer in order to record data after the processors and their information in the event of contracting and relaxing the muscle and display it on the screen to be read either as a device (NCS) It is a device that measures the speed of nervous instruction by placing adhesive electrodes on the muscle to be measured or examined, after which small electrical currents are given by a metal disk from above the skin on the nerve, after which the speed at which the nervous instruction is transmitted (transfer speed) and the response range are recorded . The researcher also considered studying the effect of omega3 On the effectiveness of the accuracy of skill performance in volleyball and the conduct of skill tests because volleyball is

one of the games that needs speed in performance and renewable energy because it needs high relative anaerobic abilities during play, especially in the skill of overwhelming hitting and blocking or overwhelming transmission, all of these skills require high accuracy And the speed in the kinetic response and the speed of the reaction, and these indicators depend on the speed of nervous instructions and the speed of energy availability represented by ATP Thus, the effectiveness of the enzymes for the interactions in the muscles and the speed of the muscular activity that collected these indicators are closely related and are intertwined with each other, which the researcher conducted this study to develop and improve skill performance by giving nutritional supplements represented by (omega 3) To increase the effectiveness of these indicators and thus obtain accuracy in skill performance.

Methodology

The procedure: The researcher will use the experimental method for its suitability of the one-set nature of the pre and post measurement. The researcher tested the research community in an intentional way, and he represents the students of the College of Physical Education and Sports Science / University of Baghdad for the academic year 2017-2018 and they numbered 224 students for the third stage, while the sample of the research is chosen randomly by conducting the lottery between the people, and after selecting the division the number of students was (22) students, 18 students were chosen from them, and (4) students who did not attend their participation in sports clubs were excluded. As for the rest, (6) students are selected to conduct the exploratory experiment for them and (12) students to conduct the main experiment for them while they represent the research sample and their percentage was (5, 35) out of (224), which is a ratio between (+3) and it is within the curve, so the results can be generalized.

The devices and tools used: (medical scale, phototherapy device, device) EMG(, Syringes and blood tubes, medical cotton and sterile alcohol, centrifuge, stopwatch, volley balls, adhesive tapes, colored tapes and scissors, tape measure, hair removal blade, pickup gel, anticoagulant EPTA. After examining the sources of the interviews, the indicators, physiological capabilities, and skill tests were identified, and the researcher used the creatine enzyme (phosphocaine) test. CPK Blood cholesterol test, neuronal prompting test NCS Muscle Activity Test. EMGAs for the skill tests (Louay, 2010). So it was (overwhelming transmitter accuracy test, overwhelming hitting accuracy test, high pass accuracy test)

Laboratory investigations

- The enzyme creatine phosphodiesterase Caine's test (CPK And blood cholesterol test on (15/10/2018)
- The researcher conducted tests quickly instruct nervous (NCS) And muscle activity (EMG) On 10/16/2018.
- It was conducted skill tests on 17.10.2018 and respectively : test and accuracy overwhelming transmitter - test accuracy batting overwhelming - test accuracy hit from the top - Test wall block accuracy
- Dimensional tests: The advanced dimensional tests were conducted by the researcher on the research sample on 18-19 / 11/2018. After giving omega doses (3(For research sample by capsule)1(G) for each person daily for a month after lunch at two o'clock in the afternoon, taking care of the research sample and making sure to set the time specified daily and lunch after consulting the specialized doctors (Appendix 1) in order to set the time and search variables. Physiological tests were conducted on the research sample and my agencies. 1. Creatine enzyme test phospho-kinase (CPK), where blood samples were drawn from a group for research by the medical analyst, to conduct the necessary analyzes according to the laboratory devices, add the required chemicals and extract the results. 2. On the same day, a cholesterol test was performed for the research group. 3. Conduct the neuronal prompting test (NCS) Goods soft search. 4. Conduct the muscle activity test (EMG) of the research sample.

Results

Table (1) Statistical treatment for the physiological and skill indicators test in the pre and posttest of the research group.

Measurements and tests	measuring unit	Tribal tests		Post-test		Values t Calculated	indication	The result
		s_	+_P	s_	+_P			
CPK	ut					10,60	0,000	moral
		67,820	1,567	69,085	1,525			
Blood cholesterol	Mg / 100ml	191,683	5,241	184,8833	5,696	19,23	0,000	moral
(m / s) cv Polar conduction velocity)m / c(cv	56,185	2,194	56,473	1,585	2.74	0,019	moral
Muscular activity (Emg) And electrical (planning) mv	Mv	2,687	0.034	2,905	0,016	19,977	0,000	moral

Shows group results in the functional capabilities of pre- and post-test using a value (T Calculated. And under the degree of freedom (11) at the significance level (0.05) (. The results showed in Table (1) the differences between the pre and posttests of the research sample for one group in the physiological and biochemical variables, which are, respectively:

- **Creatine enzyme test phosphokinase CPC**

The results in this indicator showed that the mean value of this test (67,820(Standard deviation)1,567(In the pre-test, the dimension was the middle)69,085(And with a standard deviation)1,525(As for the value)T(Calculated as was)10,60(At a significant level)0,000(Which indicates the significance of the differences in this test because the value is less than the significance level)0.05) Moral differences have shown in this test is an indication of the importance of using omega3 In human life, because this substance has proven effective in many physiological aspects of the human body, and because the substance quoting is phosphokinase (CPC(It is an important enzyme in reactions that occur within the muscle during muscle work.) Ketyian. s. j fax, pyy , 1998(The high enzyme level(CPK)It was catalyzed after the physical efforts to interpret adenosine diphosphate (APP)That is, it supports anaerobic energy processes during biochemical reactions to produce energy and support muscle requirements for fast energy as an enzyme(CPK)It stimulates production reactions(ATP (Within the anaerobic system, as the researcher sees, the enzyme ratio increases after taking omega doses 3 It is due to the importance of this supplement physiologically, as its high level improves the skill performance of the individual from a practical point of view because the increased concentration of this enzyme in increasing the effectiveness of training and good skill work as mentioned by Abu Al-Ela (Ahmad 276, 2003((Training increases the effectiveness of enzymes responsible for the release of energy within a working time ranging between (5-10) such as an enzyme) ATPase) Which enlarges the phosphate bond during the hydrolysis process to form (ADP) With phosphate in the absence of oxygen to produce (7,300) kilocalories of energy that is used to perform the maximum kinetic duties, such as crushing, crushing, firing, and other fast skills that a volleyball player needs .And that increasing the effectiveness of this enzyme works to increase the high physical exertion and performance of skills that require high speed and strength for the longest possible period and this is indicated by (Safa, 1987) that during athletic training and exercise, the enzyme increases) CPK (To 24 times more than the normal limit of its activity and then return to its normal range during rest, so creatine can phosphorus ATP And the phosphogen energy system provides muscle energy for 10s-15s " as the omega 3 Rich material good one who

is an important source to supply the body with the required energy and the development of muscle enzymes are even one important phosphorus - known work in the muscle where the male (Mustafa , 1983) that the amount of phosphate known in the muscles positively affect the body's ability to edit high - energy short-term.

- **View, analyze and discuss the results of the cholesterol test**

Table (1) shows the results of the blood cholesterol test in the pre and posttests, where the results showed that there was a significant difference and the mean (5,24(And with a standard deviation) 191,883 (For pre-test or post-test, the mean value is)184,8833(Standard deviation)5,896(And value)T(Calculated)19,23(At a significant level)0,019(This indicates the significant differences in this test because it is less than the significance level)0.05The results showed the significance of the differences, and the researcher attributes this morale to the importance of oils and special nutritional supplements that are used in this research, represented by omega. 3This supplement is one of the important substances in which it has been proven that it is able to reduce the rate of cholesterol in the body, and these results are the best evidence for that in addition to previous studies, which all confirm these oils (i.e. fish oils) are useful oils to the body and leaders to get rid of other fats It is desirable in the body which causes many health problems, arteriosclerosis and human clots . That's where omega is 3In fish; it reduces the percentage of fats in the blood known as triglycerides. Increasing these fats exposes the body to a risk of heart disease .And omega3 Fights bad cholesterol and increases good cholesterol in the body) WWW.dailymedicalinin of .com .(And omega 3Each one has the ability to dissolve most of the sclerosis on the arterial walls, thus reducing the risk of heart disease and heart attacks. The results presented in Table (1) showed the speed of nervous conduction and muscular activity, as the mean for the speed of nervous conduction (56,185(And with a standard deviation)2,194(In the pre-test, the post-test was the middle)57,473(Standard deviation(1.585)The value is(T)Calculated(2.74 (At a significant level) 0.019)It is less than the significance level(0.05)Which indicates the significance of the differences in this test, as for the muscle activity test(EMG)Was a value of the mean(2.887)Standard deviation(0.034)In the pre-test and arithmetic mean(2.905)Standard deviation(0.016)It was the value of T)Calculated(19.977)At a significant level(0.000)It is less than the significance level(0.05)Therefore, the significant differences appeared in this test between the pre and post tests .The researcher attributes the significance of these differences in these two tests to the effect of the complementary substance used in this research, which had the greatest role in showing these results because the speed of nervous prompting and muscular activity have the largest role in delivering the sample signals coming from the nervous system to the muscles and vice versa by properties, including That omega 3 It is a substance rich in oils beneficial to the body and rich in substances that have the ability to develop physical susceptibility because it is an unsaturated fatty acid and has a high effectiveness in getting rid of unwanted fats in the body and has the ability to nervous and muscular activity and is considered healthy and natural fats that anyone can eat but regularly In a dose benefiting the body, omega is prepared3Among the supplements that work on nervous activity because they are saturated oils and contain more than one sphere, oils that stimulate the glands in the body and hormones, and it is an auxiliary factor in the activity of the nervous and muscular system as it prevents the ability of these two devices to receive instructions and respond to them in a good way during the athletic skill of the athlete .He mentioned the site)http; llhyatok.com (the omega fatty acid3They are substances that help the muscular work and help the muscles work, store energy in them, and stimulate nerve instructions in the muscles. By obtaining moral results in this test, the researcher attributes the importance of the substance represented by omega.3The rated doses that were carried out gave positive and significant differences in this test, because the speed of nervous instruction is very important in the physical and skill performance of the individual and the athlete in particular, and they constitute special skills in volleyball, as they require speed in performance and reaction such as the player or athlete, and a rapid movement response The fact that the speed of the ball makes the player have high physical and skill capabilities in order to be

able to return it correctly and the right place, and this was confirmed by him (Muhammad, 1998), which is that the muscle intensity is the resultant force that the muscle exerts when its constriction stops depending on the number of muscle fibers Common contraction, which works according to the neurological information sent from the nervous system and also differs according to the different type of muscle contraction.

- **Analyze and discuss the results of volleyball skill tests.**

Table (2)
Statistical processing of all skill tests

Measurements and tests	measruing unit	Tribal tests		Post-test		Values t Calculated	indication	The result
Top handling accuracy	Degree	8:00	0,853	16,75	1,545	15,846	0,000	moral
The transmission accuracy is overwhelming	Degree	12,33	1,037	32,83	2,887	23,2-7	0,000	moral
The accuracy of the Qatari landslide	Degree	33,08	5,035	46,08	3,65	7,961	0,000	moral
Precision blocking wall	Degree	10,42	1,165	17,08	1,730	15,422	0,000	moral

P end level (0.05) And a certain degree (11).

The results showed in Table (2) the arithmetic mean and the standard deviations for the skill tests, respectively, the skill of accurate handling and handling from the top with an arithmetic mean (8:00(Standard deviation(0.853)By tribal tests and arithmetic mean(16.75)Standard deviation(1.545)Amounted to(T)Calculated between the two tests(15.246)And level of significance(0.000The difference was significant for this test .As for the test of the crushing transmission accuracy, it was the arithmetic mean) 12.83)And with a standard deviation(1.073)In the pre-test, as for the post-middle of my arithmetic(32.83)Standard deviation(2.887)The value is(T)Calculated(23.207)And level of significance(0.000)The result was the emergence of a significant difference between the pre and posttests, while the accuracy test for overwhelming multiplication was the mean(33.08)Standard deviation(5.035)In the pre-test, as for the post-test, the arithmetic mean(46.08)Standard deviation(3.57)As for the value(T (It was) 7.96)In terms of(0.000)It was significant between the pre and posttests, and the accuracy of the blocking wall was the mean.(10.42)Standard deviation(1.165)In the pre-test, as for the post-test, the mean for this test was(17.08)Standard deviation(1.730)As for the value(T)Calculated was(15.422)And level of significance(0.000It is also significant, so all results (praise be to God) indicated the significance of all differences because they are less than the significance level.0.05 .(Where the researcher attributes the morale of these teams to the importance of using omega supplements 3 (Because of its impact on the clear performance skills because this article body composition but can be obtained from dietary supplements (omega 3Or by eating foods rich in this substance, such as fish, especially salmon and nuts, such as nuts, almonds, flaxseed, and other foods rich in these bitumen oils, they are important in giving the body the ability to develop the nervous and muscular system because these two devices are important in improving the ideal performance of the individual and also these Oils have the ability to store energy in muscles.

This is a like that (Muhammad , 2012) The development of a streamlined and accuracy going to get a regular electrical signal free of random muscle and intolerance. The researcher agrees in studies that indicate that the direct equation

between the nervous and muscular systems is not separated in the physical and skill performance of the athletic and non-athletic individual, and if the results show in all the variables of the research to the significance of the differences and showed the clear effect of the nutritional supplement used in the curriculum and the extent of the clear results that I showed in these variables In the end, emphasis must be placed on an important aspect , and before this omega supplement is used 3 (Or any other supplement should consult the specialist doctor and perform the necessary examination to ensure that no negative consequences occur as a result of unhealthy use, and therefore it can be used with ease if the health aspect is confirmed, and therefore it can be used with ease if the health aspect is confirmed to the individual or the injured Any side effects, and most doctors have confirmed that the use of (Oega3 (With appropriate doses is a good and healthy supplement and has positive effects, not only on enzymes and the muscular and nervous system, but has the benefit of improving vision and giving glasses to skin, hair, nails, and others.

Conclusions

1. Positive effects were obtained on the use of (omega)3 In posttest tests in physiological variables (creatinase enzyme phosphokinase and cholesterol)
2. The use of (omega 3) has had a positive impact on the development of (nerve conduction speed and muscle activity) EMG) in the results of the dimensional tests of the research sample.
3. The use of (omega)3 It has had a positive effect in developing the skillful performance accuracy in some basic volleyball skills (transmitting, fence blocking, crushing, and passing skills)

Recommendations

1. Use nutritional supplements (omega 3) in our daily life and while performing exercises to improve the performance of the individual.
2. Use supplements other than this supplement and study its effects on the athletic and non-athletic individual.
3. Use a nutritional supplement (omega3) For research samples and other categories to study its results on the sample.
4. The attention of coaches and players on healthy food that contains vitamins and materials necessary for the body to obtain high physical and skill efficiency.
5. The specialist doctor must be consulted before taking any food supplement or vitamins to ensure the individual's health.
6. The use of modern equipment and periodic physiological tests in conjunction with sports training to obtain full information about the extent of development of the physiological aspect of the athlete.

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