

Impact of a Dietary Regimen Accompanying to Dietary supplements on Some Biochemical Indicators for Iraqi National Team Weightlifters

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Abstract

This study aims to identify the impact of a dietary regimen accompanying to dietary supplements on some biochemical indicators for Iraqi national team weightlifters. The research problem focuses on the emergence of fatigue and muscular pain among these players, and pallor during the second phase of the training camp. Unfortunately, these symptoms have been treated incorrectly by having short period of rest, taking analgesics, and receiving massage sessions without making the medical examinations necessary for addressing the actual cause for such a fatigue or following a dietary regimen. Therefore, the researchers established a dietary regimen that encompasses four main meals throughout the preparation period. The dietary supplements include L-Carintine (Crinine 500 mg, ISO Whey protein 100 mg, Tribulus 625 mg, Vitamin E, Branched-Chain Amino Acids [BBCA]). The researchers have determined the biochemical variables of Glutamic-pyruvic transaminase (GPT) and Glutamic-oxaloacetic transaminase (GOT) measurements, S. Alkaline phosphatase, blood urea, total bilirubin, and erythrocyte sedimentation rate (ESR). The study results revealed that the dietary regimen accompanying to dietary supplements has a positive influence on the aforementioned biochemical indicators. The researchers recommend using a dietary regimen in line with the training program.

Keywords: *Dietary Regimen; Dietary supplements; Biochemical Indicators; Weightlifters*

I. Introduction

The process of achieving achievement and accessing coronation platforms do not be accomplished except through relying on research and investigation in minutes, which only came by relying on the physical education sciences emerging from the other medical and human sciences. No matter how complete the picture of

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preparations for the athletes, such a picture cannot be fulfilled without the dietary regimen built on scientific principles that are compatible with the type of practiced sport, as well as being the main pillar of the training process.

The diet and dietary supplements are considered one of the most important links in which achievement is achieved, as they cannot be disregarded, as they are the only tributary to supply the body with energy. Being the main pillar of the training process. The process of building the dietary regimen accompanying some dietary supplements according to sound, scientific steps that will ensure that the athlete has an access to all the nutrients for the maintenance of the body cells with energy, as well as monitoring their effect on some biochemical indicators that lead, without a doubt, to achieving the desired goal in the shortest way and the least effort.

The weightlifting sport is one of the important sports in the Olympic Games in general and very important; particularly in Iraq, because of its history and originality extends to the most ancient times and being the only Olympic achievement, it has a special importance in pursuing study and scientific research and its application in the field.

Since the player is the instrument that we must maintain on the part of the human duty, and he/she is the supreme goal that the Olympic Charter aims to, as well as on the part of the importance of the scarce high achievement weightlifters, we had to prepare a dietary regimen accompanying some dietary supplements and study its impact on some biochemical indicators investigated in order to shed light on an indicator that is considered by researchers as the most beneficial in building and completing an integrated training system based on what the developed world countries achieved in this field.

The research problem focused on the emergence of cases of fatigue among the players of the Iraqi national team and the emergence of muscle pain in most weightlifters and pallor during the second period of the training camp, which was often treated incorrectly by short rest, taking painkillers and submitting to massage sessions without relying on examinations. The necessary medical conditions to find out the true cause of this fatigue or to follow the followed diet.

This study depends on the scientific aspect to determine the real causes of such pain and pallor. This can be achieved through relying on a refined dietary regimen accompanying some dietary supplements during the special preparation stage and its impact on some biochemical indicators for the Iraqi national team weightlifters in order to open new horizons and correct visions and ideas for building weightlifter. This study aims to identify the effect of a dietary regimen accompanying some dietary supplements on some biochemical indicators for the Iraqi national team weightlifting.

The concept of the feasibility of dietary supplement lays in that the nutritional supplement if taken with a balanced, regular diet without medication. Supplements include vitamins, minerals, amino acids, herbal preparations and some plant-based substances.

Millions of people take supplements to supplement their nutritional needs, increase energy production, relieve stress, and treat some special conditions. They take dietary supplements as natural alternatives to medications and drugs. The dietary supplements are sold as tablets, capsules, liquid materials, extracts, tea or powder.

Many supplements are associated with folklore or herbal medicine. The dietary supplements provide the human with the necessary substances that help him enjoy good health. Most people get their needs from these substances when eating a balanced diet. Some dietary supplements may contain natural compounds that block the use of certain medications. Promoting a specific drug in the United States of America requires the approval of the Food and Drug Administration and this administration guarantees the quality and effectiveness of the drug for the treatment of the conditions for which it was made.

We can define dietary supplements as nutrients that are extracted from unrestricted, natural substances that serve to build and supply the body with energy. Among these materials:

1. Tribulus: It is a plant extract that increases the compensation and production of the testosterone naturally, as well as increasing protein and muscle mass manufacturing and recovering ⁽¹⁾.

2- Whey protein: It is a type of (pure) proteins extracted at very low temperatures, free of sugar, fats, and carbohydrates. The pure serum formula is designed to achieve two important goals ⁽²⁾:

Provision of high, actual concentration of protein

Allowing the user to consume protein that helps create the most important and fastest flow of amino acids into the muscles. Thus, it gives the strongest boost to a structural formula. The special protein source in the formula (100% isolate) is characterized by the presence of a unique kinetic ability to absorb amino acids, as the serum peptides are effectively transferred to the bloodstream and muscles. Faster and better absorption of amino acids gives better muscle building. This product contains low lactose, fat, and carbohydrates.

It plays an important role in cases of hepatitis and HIV, and in cases of cardiovascular diseases, osteoporosis, and even in cases of chronic stress.

There are many dietary supplements that differ according to the purpose of their manufacturing, as well as the origin, which differs in type according to the manufacturer. Many studies have examined the use of some of these supplements, such as:

The effect of using different loading doses of creatine phosphate and carbohydrate compounds on developing some physical abilities and achieving enzymatic significance (LDH-CPK) among the 400m antagonists elite youth group ⁽¹⁾.

The aim of the research is to identify the effect of using creatine phosphate and carbohydrate compounds on developing some physical abilities, represented by the maximum speed and the force characterized by the maximum speed, the force characterized by speed, speeds endurance, and biochemical indicators of creatine enzyme, phosphokinase, and lactic dehydrogenase for a 400-meter youth runner.

The research problem was the insufficient awareness of the dietary supplements and their types, as well as the lack of knowledge in the methods of their use. The researchers used the devices and tools necessary to achieve the study objectives, and they reached a set of conclusions including that creatine phosphate and carbohydrate compounds had an impact in developing the physical abilities of the study subjects. The researchers recommend benefit from the diet prepared by the researcher in developing a hostile 400 Youth meter.

The aim of the research is to identify the effect of the use of food compounds as phosphate creatine and carbohydrates in accordance with a proposed training approach on some special physical abilities of young players with handball ages (18-19) years.

The research problem focused on the weakness of the physical capabilities of young handball players, especially those who are ignorant of how to take dietary supplements, and which of these supplements leads to the development of some special physical characteristics to suit the targeted physical characteristics.

The researcher used the required devices and tools to achieve the study objectives. The researchers concluded that the compounds of phosphate and carbohydrate creatures had an impact in developing the special physical capabilities of the study subjects. While, the researchers recommend emphasizing the appropriate choice of the type of food supplement and appropriate physical capabilities Targeted by training.

II. Methods and Procedures

The researchers used the experimental approach to its appropriateness to the nature of the problem to be researched. The researchers chose the deliberate method of selecting the sample represented by the lifters of the Iraqi national weightlifting team who entered a training camp to prepare for the Asian Games, which were 13 out of 13. Since all weightlifters are under the same conditions of in terms of training and nutrition. The study subjects age 9-24 years, both youth and advanced.

Materials

Electronic balance to measure weight and height.

The German-made centrifuge (CENTRIFUGE) (HITTICH), (N = 2).

A German-made water bath (MEMERT) called (WATER BATH) (1).

A Chinese-origin laptop (TOSHIBA)

CASIO timer (2) tray of origin

Kits to measure biochemical research indicators

Medical cotton, sterilizing alcohol, plastic tubes for keeping blood samples (N = 25).

Syringes (N = 25) and a box to store blood samples.

Tourniquet (N = 2)

Arabic and English sources and the Internet

Tests and measurement

Data sheet

The assistant work team (medical and field)

Dietary regimen and dietary supplements used in the research

The measurements used in the study were determined by:

Liver enzymes (GOT) and (GPT)

Measurement of s. alkaline phosphatase

Blood urea

Total Bilirubin Measurement

ESR measurement for the rate of erythrocyte sedimentation rate

The researchers conducted the pilot study on April 1st, 2014 to identify the anticipated barriers, testing the materials to be used in the main experiment, preparing the assistant medical staff in numbering the test tubes, filling them with blood, and making laboratory analyses. The researchers measured the variables under investigation in the first training session of the study subjects by drawing blood and urine samples from the subjects on February 25th, 2014 at Al-Kout Sports Club Hall at 5:00 p.m. in the presence of the assistant medical and field work team. The researchers drawn blood and urine samples before starting the training session.

Main Experiment

A special dietary regimen was established for a period of 55 days in agreement with the restaurant responsible for the players' meals through the directions of the medical device that conducted the analyzes from Ghazi Al Hariri Hospital in addition to developing a curriculum for sports dietary supplements and monitoring the players in the use of any material without any advice. It was also agreed with the training staff to reduce the intensity of training for a period of three weeks and prepare a curriculum containing the same exercises that the training and weekly unit aims to, but it takes into account the health condition of the players, taking into account the lack of access to the overload of the players, as well as maintaining the level of motor performance through exercises Special and increase the hospitalization period and the following table shows the diet and dietary supplements used in the research:

Table 1. The nutritional program adopted for the study subjects

List	Meal	Ingredients	Notes
1.	Breakfast	A spoon of natural honey + 1 cup of skimmed milk, 1 piece of white cheese, 150 g of low-fat + half a loaf of bread + a cup of tea with milk or a spoon of natural honey + 1 cup of skimmed milk, 2 eggs without yolk + half a loaf of bread + a cup of tea with milk, after 30 minutes, a cup of natural orange or lemon juice	No soft drinks at all, No sweets that contain high fat at all, No red meat at all; especially that include high fat
2.	Lunch	Cooked rice, chicken breast 300g + vegetable salad + half loaf of bread or fish 500g + vegetable salad + half of bread	Not eating fruit excessively
3.	2 hours	A piece of banana + 1 green apple	

	after lunch		
4	Dinner	Cooked broccoli + salad + low-fat yogurt + half a loaf of bread or vegetable soup + grilled chicken breast + salad + half a loaf of bread, lemon juice with a teaspoon of honey	

Table 2. The program of dietary supplements adopted by the study subjects

List	Material	Notes
1.	L-CARINITINE 500 mg	The ratios were distributed according to the results of the analyses and the instructions provided for each material by the producing company, with an emphasis on the dates of use of each material under a direct supervision
2.	ISO Whey protein	
3.	Tribulus	
4.	Vitamin E	
5.	BCAA	

After completing the application of the dietary regimen accompanying the dietary supplements and after 55-days, the posttest indicators were measured before the last training session following the same method used in the posttests and under the same conditions.

III. Discussion

Table 3. Means, standard deviation, mean difference and their standard deviation, t-value, and significance of differences for the pretest and posttest for the study group in the examined biochemical indicators

Variables	Measurement Unit	Pretest		Posttest		Mean Difference	SD for mean difference	T-value	Sig.
		Mean	SD	Mean	SD				
GPT	International Unit	23.7692	7.0728	7.4615	1.5064	16.3076	6.3032	9.328	.0000
GOT	International Unit	58.5385	27.4609	9.0769	1.6563	49.4615	27.4518	6.496	.0000

S. alkaline phosphatase	International Unit	64.0769	14.8012	37.4615	7.2527	26.6153	11.6728	8.221	.0000
Blood urea	mg/dL	35.6923	8.2601	27.4615	3.7994	8.2307	10.3533	2.866	.0140
Total bilirubin	mg/dL	.72310	.11650	.59230	.10370	.13070	.11820	3.989	.0020
ESR	ml/hour	7.8462	3.9967	4.4615	2.5038	3.3846	5.2367	2.330	.0380

Significant at p-value ≤ 0.05

Table (3) displays that concerning the GPT, the mean score of the pretest was 23.7692 with a standard deviation of 7.0728; whereas such a value in the posttest was 7.4615 with a standard deviation of 1.5064. The mean difference was 16.3076 with a standard deviation of 6.3032, the t-value was 9.328 which when compared to the significance level, the study findings revealed statistically significant difference in favor of the posttest.

Concerning the GOT, the study findings displayed that the mean score of the pretest was 58.5385 with a standard deviation of 27.4609; whereas such a value in the posttest was 9.0769 with a standard deviation of 1.6563. The mean difference was 49.4615 with a standard deviation of 27.4518, the t-value was 6.496 which when compared to the significance level, the study findings revealed statistically significant difference in favor of the posttest.

Regarding the S. alkaline phosphatase, the study findings exhibited that the mean score of the pretest was 64.0769 with a standard deviation of 14.8012; whereas such a value in the posttest was 37.4615 with a standard deviation of 7.2527. The mean difference was 26.6153 with a standard deviation of 11.6728, the t-value was 8.221 which when compared to the significance level, the study findings revealed statistically significant difference in favor of the posttest.

As per the blood urea, the study findings demonstrated that the mean score of the pretest was 35.6923 with a standard deviation of 8.2601; whereas such a value in the posttest was 27.4615 with a standard deviation of 3.6563. The mean difference was 8.2307 with a standard deviation of 10.3533, the t-value was 2.866 which when compared to the significance level, the study findings revealed statistically significant difference in favor of the posttest.

With regard to the total bilirubin, the study findings revealed that the mean score of the pretest was 0.7231 with a standard deviation of 0.1165; whereas such a value in the posttest was 0.5923 with a standard deviation of 0.1037. The mean difference was 0.1307 with a standard deviation of 0.1182, the t-value was 3.989 which when compared to the significance level, the study findings revealed statistically significant difference in favor of the posttest.

Concerning the ESR, the study findings displayed that the mean score of the pretest was 7.8462 with a standard deviation of 3.9967; whereas such a value in the posttest was 4.4615 with a standard deviation of 2.5038. The mean difference was 3.3846 with a standard deviation of 5.2367, the t-value was 2.330 which when compared to the significance level, the study findings revealed statistically significant difference in favor of the posttest.

Discussion of the findings for the biochemical indicators in the study group demonstrated that there was a statistically significant difference in favor of the posttest. The researchers attribute this to the dietary regimen prepared by the researchers, as well as the dietary supplements accompanying this regimen. The sports achievement and healthy food are two interrelated things in that the exercise alone; without a refined dietary regimen is not sufficient to achieve the desired results. ⁽¹⁾

The researchers also attribute the statistically significant differences to the dietary supplements that had an important role in improving the level of concentrations of the variables under investigation. L-Carnitine 500 mg which is made from the essential amino acid lysine, promotes oxidation of fatty acids, which are important compounds for energy production during exercise, which preserves muscle glycogen during exercise, which is a factor helps to resist fatigue, switching fuel toward glucose, which reduces the need for oxygen during exercise and increases the oxygen capacity of skeletal muscles. There are some evidences that carnitine improves athletic performance ⁽¹⁾.

Regarding Tribulus, it serves to increase testosterone. It stimulates the pituitary gland to secrete more luteinizing hormone, which reaches to the testes through the bloodstream, which leads to an increase the secretion of testosterone. ⁽¹⁾

While, Vitamin E played an important role in enhancing the work of the body cells, as it is an antioxidant, as well as protecting all cellular membranes from the danger of oxidation. Some studies have indicated that it plays an important role in insulin sensitivity and the release of glucose, which will undoubtedly lead to muscle building. ⁽¹⁾ The benefits of BCAA can include (1) increase the rates of muscle protein production, as the amino acid leucine works to increase protein production rates more than the rates achieved by eating food protein. It also increases the cell's ability to produce protein, (2) combating protein breakdown, as the process of amino acids assimilation occurs in the liver. As for BCAA, they are assimilated in the muscles which leads to inhibition of the muscle breakdown process and reducing its pain, as well as increasing muscle mass, and (3) stress prevention and increases strength and activity, since BCAA work to compete with tryptophan to reach the brain, which in turn transformed into serotonin, which is a neurotransmitter of the feeling of stress. Therefore, when the BCAA overcomes tryptophan, serotonin rates also decrease and consequently, stress rates decrease. The BCAA is a basic acid that the body does not produce it.

For ISO Whey protein, it play a role in (1) fundamentally contributing in building muscle and helps speed muscle mass, (2) it is rapidly absorbed and reaches cells and muscles faster than protein in food, (3) helps maintain muscles during dietary regimen, (4) it strengthens immunity and contributes to muscle recovery, and (5) contains very little fat and calories ⁽¹⁾. One of the main reasons for increasing (GPT, GOT, S. Alkaline phosphatase) in the blood is the presence of infections or liver cirrhosis ⁽¹⁾, or due to using some wrong medications that incur the liver additional burdens with unrefined exercises. Whereas, the increased urea level is attributed to the urea formation in the liver as a result of having a high-protein meal or the lack of protein

metabolism as in the case of stress, in addition to the reasons related to kidney diseases ⁽¹⁾. While, high bilirubin is caused by either the use of certain medications, certain liver disease or in cases of analytical anemia ⁽¹⁾. For ESR, it is increased in cases of anemia, inflammation or in arthritis. ⁽²⁾ All of the aforementioned reasons related to the variables under investigation the dietary supplements had had primary role in improving and developing them, as well as the dietary regimen prepared by researchers.

The researchers concluded the following:

The dietary regimen accompanying to dietary supplements had a positive influence on GOT, GPT, S. Alkaline phosphatase, Blood Urea, Total Bilirubin, and ESR for the Iraqi national team weightlifters.

The researchers recommend the following:

It is not possible to adopt a training curriculum without adopting an integrated dietary regimen accompanying dietary supplements.

It is necessary to conduct laboratory tests accompanying the training curricula in order to know and identify the weaknesses that may accompany the athlete during the preparation stages.

The necessity of conducting a similar research on other samples and determining other functional and biochemical variables (such as studying the effect of dietary supplements on some hormones or enzymes).

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