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## The role of nutritional supplements in burning fat, losing weight, and maintaining muscle mass in bodybuilding athletes

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### ABSTRACT

The topic of the article carries, in its depths, many clues and indicators that highlight its importance in the role of nutritional supplements in burning fat, losing weight, and maintaining muscle mass among bodybuilding athletes in particular. On this basis, it is necessary to research the role of nutrition, which is considered one of the factors for increasing efficiency and Maintaining muscle mass while losing weight. Neglecting the aspect of nutrition and following a diet that is not appropriate with the training style leads to the athlete facing many problems that may prevent him from obtaining the appropriate body structure depending on the type of tournament in which he participates.

### Keywords:

Nutritional supplements - fat burning - weight loss - muscle mass - bodybuilding athlete

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## INTRODUCTION

Along with a healthy diet, sports are the ideal recipe for losing weight and getting rid of obesity. When talking about sports, there are many types of them; Aerobic sports, swimming, and special cardio sports (cardio exercises), to weight lifting and bodybuilding.

The concept of weightlifting has been closely linked to increasing muscle mass and body building, while the concept of cardio exercises to reduce excess weight has prevailed, but this in the literal sense is not entirely true.

The sport of bodybuilding is also witnessing an increasing demand among young people, who have begun to attend it periodically to gain a harmonious physical form and a significant muscle mass characterized by (**density and clarity**) by following a rational training program accompanied by a diet rich in carbohydrates to provide the body with the energy necessary for muscle contractions, in addition to It is necessary to consume proteins continuously in order to ensure good recovery to build and maintain muscle fibers, which are mainly responsible for muscle hypertrophy. This is what leads some bodybuilding practitioners to eat artificial protein, claiming that it is the best way to improve and accelerate the recovery process and above recovery and thus obtain They get better results in a short time compared to others who do not take artificial protein.

### **The problem:**

- Do nutritional supplements play a role in burning fat, losing weight, and maintaining muscle mass in bodybuilding athletes?

### **Hypotheses:**

- Nutritional supplements have an effective role in burning fat, losing weight, and maintaining muscle mass in bodybuilders.

### **Importance of the research:**

The subject of the article carries deep within it many clues and indicators that highlight its importance, and sheds light on the role of nutritional supplements in burning fat, losing weight, and maintaining muscle mass among bodybuilding athletes in particular. On this basis, it is necessary to research the role of nutrition that It is considered one of the factors for increasing efficiency, increasing recovery, and resisting fatigue. When nutrition is neglected and an inappropriate diet is followed with the training style, this leads to the athlete facing many problems that may prevent him from obtaining the appropriate body structure.

### **Research objectives:**

In this study, we seek to highlight the following objectives:

**The role of nutritional supplements in burning fat, losing weight, and maintaining muscle mass in bodybuilding athletes**

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Identify the appropriate diet that a bodybuilding athlete must follow within his training patterns.

Find out the availability of sports halls for bodybuilding with a sports nutritionist.

Knowing the reasons that hinder a bodybuilding athlete from obtaining the appropriate body structure.

Bodybuilding athletes understand the difference between sports drinks, energy drinks, and nutritional supplements.

**Reasons for choosing the topic:**

**A. Subjective reasons:**

- Enriching the library in this field.
- Delving deeper into this field is due to our previous experience in it.
- Knowing the role of nutritional supplements on the performance of a bodybuilding athlete.

**B. Objective reasons:**

- We notice stability and stagnation in the growth of skeletal muscles after a period of training in a regular and continuous manner.
- Lack of skill performance by bodybuilders in gyms, despite their having the necessary motivation to perform the effort necessary to achieve results.

**The method followed:**

The method is defined as the method followed by the researcher in his study of the problem to discover the truth, and the method in scientific research means a set of rules that are followed and steps are respected in order to finally reach the truth. In our research, we used this descriptive approach.

## **2. Defining concepts and terminology:**

### **1.2. Definition of nutrition:**

**1.1.2.Language:** A word derived from food and what it uses, and it was said that food and drink constitute the growth and strength of the body.

In the French dictionary, nutrition is defined as the set of different processes through which an organism obtains the nutrients necessary for growth and maintaining body functions.

The biological concept of nutrition is to provide the body of living organisms with the nutrients necessary for the metabolism process.

To ensure the life of the cell, or in other words, it is a set of physiological functions that ensure the absorption of nutrients and the elimination of waste.

**2.1.2.Terminology:** Nutrition is an essential factor in human growth and the integrity of his health. Correct nutrition is knowing everything related to the functioning of food, including eating, digestion, and absorption of nutrients within the body.

We distinguished between the concepts of food and food. Food represents a biochemical concept, that is, every substance that is ingested and capable of nourishing and keeping the organism in good health. As for taste, it represents a cultural concept that means the substance that is appropriate for our nutrition.

As for anthropologists: Nutrition includes the concepts of social status and social class. It is the study of eating habits and the vital role they play in establishing and consolidating the maintenance of the dietary pattern.

**3.1.2.Procedural definition:** Nutrition is the process of supplying the body with the necessary nutrients, supplying it with its energy needs for growth and movement, as well as strengthening its immune system and resistance to diseases.

### **2.2. Definition of bodybuilding:**

**1.2.2.Linguistic definition: Kamal: (noun):** source of Kamal, Kamal, Kamal and bodybuilding means building the body by practicing physical exercises and following a specific diet.

**2.2.2.Terminal definition:** George Lombar says, “Bodybuilding is a group of methods and means that allow the development of muscular strength, which is linked to other physical attributes such as (**continuous speed and flexibility**).

Saeed Othman points out the most accurate and clear definitions that have been developed to define bodybuilding as physical preparation on sound scientific foundations to achieve muscular size, muscle strength, coordination, endurance, and flexibility.

Gilbar Andreu believes that bodybuilding is a sport derived from physical culture, which includes various qualities in a way that makes the athlete complete, healthy, strong, beautiful, and able to withstand all life's challenges.

**3.2.2.Procedural definition:** Bodybuilding is a sport that relies on strengthening and seeks to achieve large muscle size and coordination.

### **3.2.The appropriate diet to build muscle and burn fat:**

Physical activity and proper nutrition are among the most important and necessary factors for building muscle. Muscles cannot be built by exercising alone, because increasing muscle mass will stop without proper nutrition. Fats and carbohydrates are good sources of energy expended during exercise, and foods rich in protein are necessary for gaining muscle. When exercising to build muscle, the body's need for protein becomes higher, while maintaining muscle mass requires a lower percentage of protein compared to building new muscle.

As mentioned previously; The body depends on fats to supply the muscles with energy while practicing some types of physical activity, and it is recommended to focus on healthy fats to maintain general health and muscle strength, according to the recommendations issued by a review of a group of studies published in the Journal of the International Society of Sports Nutrition; Building muscle for athletes may require the following:

Consume between **2.3-3.1** grams of protein daily for every kilogram of fat-free body mass.

Consuming an amount of fat that constitutes **15-30%** of the total calories.

Get the rest of your calories from carbohydrates.

To learn how to calculate the calorie needs of athletes, you can refer to the article: How many calories does a bodybuilder need?

It should be noted that eating a balanced and healthy diet is the key to maintaining the body's health and fitness. Below is an explanation of a group of foods that may help burn fat, and others that may enhance muscle building in the body.

### **4.2.Foods that may help burn fat:**

Some foods can help burn fat and lose weight. However, the most important thing is that these foods be part of a healthy and balanced diet. Physical activity must also be practiced on a regular basis to burn fat and lose weight. Below are some foods that help burn fat. :

- **Coffee:** A small study that included **9** athletes who practiced cycling, and was published in the journal Medicine and Science in Sports, indicated that consuming coffee before exercise may help improve performance and enhance fat burning. Drinking coffee an hour before

exercise can help enhance endurance levels, and this may be due to the positive effect of caffeine on the breakdown of fats and the transmission of nerve impulses.

To obtain the benefits of caffeine in burning fat without being exposed to its potential side effects, such as anxiety or insomnia; It is possible to consume **100-400** milligrams of caffeine daily, which is the amount found in **1-4** cups of coffee, depending on the type and concentration of coffee.

You can read more about this in the article on the benefits of drinking coffee before exercise.

- **Green tea:** There is a link between consuming green tea extract and increasing fat burning, especially during exercise. A study published in The American Journal of Clinical Nutrition in **2008**, which included healthy men who did not suffer from diseases, indicated; It was found that the energy consumed from fat during moderate-intensity exercise was **17%** greater in people who took green tea extract. The effect of green tea may be due to the fact that it helps increase fat oxidation during moderate-intensity exercise, and it has also been observed that it improves insulin sensitivity and glucose tolerance in healthy young men.
- **Apple cider vinegar:** Apple cider vinegar can help reduce appetite and promote the loss of belly fat. It was observed in a study published in the journal Bioscience, biotechnology, and biochemistry in 2009, which included people suffering from obesity. Body weight, body mass index, visceral fat, waist circumference, and blood triglyceride levels were significantly lower in people who consumed vinegar, so consuming vinegar daily may be beneficial for weight loss, and thus reducing the risk of metabolic syndrome.
- **Olive oil:** Olive oil is a good source of monounsaturated fatty acids and medium-chain triglycerides, and some studies have indicated that these two types of fats have many benefits when included in weight loss diets. A study published in the British Journal of Nutrition in **2004** indicated that olive oil helped significantly enhance postprandial fat oxidation and stimulated dietary thermogenesis in obese women after menopause.
- **Coconut oil:** Coconut oil contains a high level of medium-chain triglycerides, which may have a range of health benefits. It is believed that these fats can help increase energy expenditure and reduce fat stores. A statistical analysis of **13** studies, published in the Journal of

the Academy of Nutrition and Dietetics in **2015**, indicated that sources of medium-chain triglycerides - such as coconut oil - rather than sources of long-chain triglycerides; It can help you lose weight without negatively affecting blood fat levels. However, more research is needed to confirm the effectiveness of this type of fat.

- **Fatty fish:** Salmon, herring, sardines, mackerel, and other fatty fish contain omega-3 fatty acids. A study that included **44** participants, published in the Journal of the International Society of Sports Nutrition in **2010**, indicated that consuming fish oil supplements for **6** weeks helped significantly increase lean body mass and decrease fat mass, and this is attributed to the role of fish oil. In reducing levels of the hormone cortisol, high levels of which are linked to increased accumulation of fat in the body.
- **Hot pepper:** Hot pepper contains the compound capsaicin, which may have a positive effect on weight loss. A systematic review published in the journal Appetite in **2012** indicated that the compound capsaicin can increase the rate of fat burning and reduce appetite, so it can Hot peppers play a beneficial role in weight loss as part of a healthy and balanced diet.

## **5.2.Foods that may help build muscle:**

Muscle growth requires eating a variety of foods rich in nutrients, and additional protein supplements and powders are not necessary to reach the desired goal, as what has been scientifically proven is that enhancing muscle growth depends on healthy eating habits and regular exercise, and among the foods that are beneficial for building muscle we mention What follows:

- **Chicken breast:** It is considered one of the excellent foods for gaining muscle, because it is rich in protein, as **85** grams of it contain about 26 grams of high-quality protein, and it also contains a good amount of vitamin **B3** and vitamin B6, which help the body function properly during pregnancy. Physical activity and exercises necessary to gain muscle.
- **Tuna:** **85** grams of tuna contains **20** grams of protein. Tuna also contains high amounts of vitamin A, vitamin **B3**, vitamin **B6**, and vitamin **B12**, which are important nutrients for producing energy and performing exercises well. Tuna also provides good amounts of Omega-3 fatty acids that may support muscle health.
- **Eggs:** Eggs contain a good amount of B vitamins necessary for energy production. They also contain healthy fats and a large amount of amino

acids, which are the basic component of protein. Leucine is the main amino acid in eggs, and it is a very important element for gaining muscle.

**Low-fat meat:** Beef is a good source of creatine, minerals, B vitamins, and proteins. Eating low-fat meat can help increase muscle without consuming a lot of calories. You can eat beef bone broth, which is easier to digest than meat.

**Salmon:** Eating salmon can help promote muscle gain, as it contains protein, B vitamins, and omega-3 fatty acids that can promote muscle gain and health.

- **Milk:** Milk contains whey protein, which can be digested quickly, thus delivering its amino acids more quickly to the muscles, and casein, which the body digests more slowly, which means that its amino acids may take several hours to reach the body's tissues. It is worth noting that many athletes use proteins extracted from milk as nutritional supplements to build muscles, and in general it is recommended to use whey protein immediately before or after resistance exercises, while using casein may be useful before going to sleep, which helps muscles recover during sleep. .

**Soy:** Soy protein is a plant source of protein, and it is similar to whey protein in terms of its rapid digestion. Although soy protein comes in second place after whey, it is a good choice for building muscle with the added benefit of containing antioxidants that Whey does not have it, as antioxidants help reduce oxidation reactions caused by free radicals that the body produces during exercise, which can lead to muscle damage and fatigue. You can read more information about the benefits of soy for satisfied people when you visit the article Benefits of Soy for Bodybuilders.

**Greek yogurt:** Greek yogurt contains twice the amount of protein found in other types of yogurt, and in general; It is recommended to choose free and low-fat types, and free of added sugar.

**Quinoa:** It is one of the types of whole grains that is easy to cook like rice. It can be mixed with some vegetables, nuts, and lean proteins. One cup of it contains **8** grams of protein and **5** grams of fiber, in addition to iron, zinc, selenium, and vitamin E.

**Chickpeas:** They are a good source of carbohydrates and proteins, as a cup (240 grams) of canned chickpeas contains about 12 grams of protein. As is the case with many plants, the protein in chickpeas is of lower quality than animal sources. However, it is possible to Be part of a balanced diet to build muscle.

**Lentils:** They are a rich vegetable source of protein, as one cup of them contains **18** grams of protein. Lentils are available in red, green, and brown,

and they are all very similar in nutritional terms. Red lentils are quick to cook, so they can be a good choice as a dinner. Quick after exercise.

## **6.2. Diet to build muscle and burn fat:**

The appropriate diet for a person varies based on gender, weight, and goals. In addition, nutrition experts may provide different recommendations for the muscle building system if the person is trying to reduce excess body fat, or build fat-free muscle mass. Below is an example of a diet: To build muscle and burn fat for one day:

**Breakfast:** oatmeal with berries and scrambled egg whites.

**Snack:** Turkey breast with carrots and celery. Lunch: steak with broccoli and mushrooms.

**Snack:** an apple with natural nut butter.

**Dinner:** Grilled fish, brown rice, and mixed green salad.

It is worth noting here that these foods and their quantities may not be suitable for all people, as it depends on several factors, as we mentioned previously, and therefore it is important for people who are trying to build their muscles to consult a nutritionist to determine the appropriate quantities according to the person's condition.

## **7.2. General tips to help build muscle and burn fat:**

Building muscle and losing fat are dual goals for weight training and physical conditioning, but the body resists performing both at the same time, because they are contradictory physiological processes, and it is recommended to consult a sports trainer to help achieve this. Following the following tips may also help in achieving a balance between these two processes in Body: Drink enough water. Avoid fatty foods and foods rich in simple sugars.

Do not skip meals or fast to try to lose weight, as fasting slows down metabolism in the body.

Do weight exercises to increase lean muscle mass.

Do low-intensity aerobic exercise, such as cycling **30** minutes a day, **3-4** days a week. Prepare meals ahead of time, and set mealtimes in the daily schedule. Sleep 8 hours straight every night.

Eat 4-5 small meals spaced every **3-4** hours, as this helps speed up the metabolism and continuously supply the body with nutrients.

Avoid losing more than **0.5-1** kilogram per week, as losing weight at a faster rate can lead to loss of lean muscle mass and not consuming sufficient amounts of essential nutrients.

## **8.2. Types of sports that burn fat and lose weight:**

- Aerobic exercises.
- Anaerobic exercises.

- Benefits of weight lifting exercises (bodybuilding).
- The relationship between weight lifting and weight loss.
- The time required to lose weight from weightlifting.
- Important tips to avoid injuries while lifting weights.
- Commitment to warm-up exercises.
- Breathe well and avoid holding your breath.
- Diversify between exercises.
- Exercise different muscles.
- Types of sports that burn fat and lose weight.

The relationship between weight lifting exercises and weight loss can be understood after clarifying the difference between two basic types of exercise, which are:

**Aerobic exercises:** Aerobic exercises such as jogging, walking, cycling, and cardio exercises are low-intensity exercises and can be practiced for a relatively long time, and a sufficient amount of air enters the body necessary to continue the exercise.

Anaerobic exercises Anaerobic exercises, such as lifting weights and iron, are considered high-intensity exercises, and their practice consumes a large amount of oxygen by the muscles, so they cannot be practiced for a long time.

Therefore, weight loss has been associated with aerobic exercises (**cardio exercises**) more than anaerobic exercises, but in order for a person to get the best results for losing weight and building the body, it is recommended to combine the two types. After doing weight lifting exercises, the body is thirsty for oxygen, so experts advise practicing aerobic exercises between lifting exercises. Weights to compensate for the body's needs.

Benefits of weight lifting exercises (**bodybuilding**). Resistance exercises, including weightlifting or barbell exercises, are considered one of the most important components of physical fitness in sports training and programs around the world. Resistance exercises, which include (**lifting weights and barbells, resistance exercises without equipment, and complex training exercises**) aim to expose the body's muscles to double effort to reach muscles that have the required strength, energy, and flexibility.

According to the American Council on Exercise, a person loses approximately half a kilogram of muscle every year after the age of thirty, because after this age a person has less physical activity compared to his activity before this age.

Therefore, the decrease in muscle mass, which coincides at the same time with the decrease in the body's metabolic rate (**in English: Metabolism Rate**) after the age of thirty, works together to open the door to weight gain and obesity and the accompanying chronic diseases and negative complications.

Therefore, building muscle is not considered a secondary or additional matter. It is the cornerstone of maintaining a healthy body and preventing aging diseases such as osteoporosis, heart disease, etc. It also improves the body's balance and stimulates increased energy and activity.

Maintaining muscle mass in the body is very important, especially as a person ages, and practicing it at an early age gives a greater opportunity to protect the muscles and give better results. Many documented studies have been conducted to support the benefits that result from practicing weightlifting exercises on health and the body in general, including:

Increasing body strength and healthy balance, especially as one gets older.

Increase the average bone mass in the body.

Reducing the possibility of fracture, especially associated with osteoporosis fractures, as one gets older.

Protecting the athlete from sports-related injuries.

Improving a person's view of his body and increasing self-confidence.

Improving insulin response and sugar levels in diabetics.

The importance of a healthy breakfast: We can say that breakfast is the most important meal of the day, but most people may not know... Read more.

The relationship between weightlifting and weight loss: When comparing weightlifting to another sport such as cardio, cardio burns a larger amount of calories during half-hour training for a person weighing **70** kilograms, so **250** calories are burned compared to only **120-220** calories for exercises. Weight lifting. The desired benefit from weightlifting exercises is not only the amount of calories that are burned during the training period, but after practicing weightlifting, the body raises the level of its metabolism for hours after completing the training, meaning that the body continues to burn fat for up to **38** hours after completion. From weight lifting (**it depends on the intensity and duration of training**). Lifting weights increases the level of resting metabolism to **9%** in men and **4%** in women, which is equivalent to burning an additional **150** calories from fat for men and **50** calories for women.

Certainly, weightlifting exercise takes time to have this effect on the level of metabolic processes in the body, so this effect does not appear after the first time, but with continuity it gives a continuous effect of burning fat, as the person can lose more calories in the hours following the completion of lifting weights. Weight lifting exercise has another advantage in addition to burning

fat and its prolonged effect on weight loss. It enables a person to replace the fat in the body with muscle. Increasing muscle mass in the body gives strength and energy, in addition to the aesthetic appearance.

### **3.The time required to lose weight from weightlifting:**

The American College of Sports Medicine (**ACSM**) recommends exercising more than **150** minutes per week to lose weight. Any period less than that is not considered sufficient to encourage the body to burn fat. But it is important to consider not doing weight lifting exercises two days in a row, because the muscles need time to rest.

This time is very important for the muscles to respond to the exercises without causing injuries, and also to take the appropriate time for new muscle to be built and blood nourished to it.

**3.1.Important tips to avoid injuries while lifting weights:** On the other side of the benefits of lifting weights or barbells, there are some collateral damage or injuries to the muscles, such as the possibility of a muscle strain or tear, specifically in the back or shoulder muscles.

These expected damages as a result of weightlifting exercises occur at a very small rate, reaching **0.29** per **100** hours of training.

This percentage increases in very heavy weightlifting sports, but the possibility of injuries can be reduced through the following steps:

**3.2.Commitment to warm-up exercises:** It seems very fun to start lifting weights immediately after entering the gym, but this is considered stressful and surprising for the muscles. Warming up before starting to lift weights by doing aerobic exercises for five minutes makes the person able to lift more weights.

Breathe well and avoid holding your breath. Some people hold their breath when they lift weights. Holding the breath or breathing slowly reduces the oxygen that reaches the muscles.

Muscles during weightlifting exercises need double the amount of oxygen to be able to perform this effort, so you must be careful to breathe deeply during exercise so that sufficient oxygen reaches the muscles. Also, good breathing delays the early feeling of exhaustion or fatigue.

**3.3.Diversifying between exercises:** Doing the same exercise for a long time makes the muscle get used to it and lose its progress, so trying to change the exercise routine every **6-8** weeks restores enthusiasm and energy to the muscles.

**3.4.Exercising different muscles:** It is recommended to follow a program to exercise all muscles while lifting weights. Focusing on one group of muscles without others in an exaggerated manner does not give a good appearance, and

the body also needs to be integrated in the amount of muscle mass and its strength.

Exercising alone is not enough to lose weight, and eating healthy food alone is not enough, as studies have shown that exercising while modifying the diet leads to a weight loss of **20%** more than adhering to a diet alone.

An integrated system is necessary, and weightlifting, along with cardio exercises, is considered the most ideal exercise system for losing weight and building an athletic and healthy body.

the study aimed to find out if the athletes that practice this sport have the nutritional culture that needed to reach high levels and big achievements, and if whether they follow special nutritional diets that serve their goals. our sample was chosen intentionally, as it reached 50 bodybuilding athletes in Biskra province. And the Research Methodology for our study was the descriptive Methodology, where we used the questionnaire as a tool for the study, and after using the statistical tools, The results were as follows:

- The Bodybuilders follow special nutritional diets during their practice of this sport.
- Bodybuilders do not realize what kind of nutritional components they need.
- Bodybuilders do not know the difference between nutritional supplements and steroids.
- Bodybuilders do not make their nutritional diets using the scientific way.

#### 4. CONCLUSION

Through this article, we have tried to highlight the extreme importance of nutrition and nutritional supplements to achieve the goals set for bodybuilding practitioners, and what we have concluded is that the bodybuilding athlete faces reasons that hinder him in obtaining a complete body structure, including irregularity in the distribution of nutritional meals and the necessary calories that he consumes daily. Likewise, his financial capabilities do not allow him to meet the requirements of sports in terms of supplies and nutritional supplements. We also concluded that he is aware of the difference between nutritional supplements and energy and sports drinks, as we concluded that he believes that nutritional supplements are the most appropriate and that help him while practicing this sport.

What can be pointed out in the end is that attention must be given to the awareness aspect and the dissemination of correct information because some do not give this issue sufficient importance due to the accumulation of wrong cultures drawn in their minds over time about the impact of the latter on their health condition, so correct information is an effective tool for better performance and prevention of Risks, and this deserves more care and attention, and it becomes clear that appropriate nutrition is one of the most important and inevitable factors to achieve and reach the desired muscle building. It also works to increase physical performance and recovery in bodybuilding athletes and thus ensure increased muscle hypertrophy.

## 5. Bibliography List :

1. Allison M. Myers, Nicholas W. Beam, and Joseph D. Fakhoury. Resistance training for children and adolescents. Retrieved on the 11th of October, 2019, from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5532191/#!po=44.1176>
2. Anna Schaefer. How Many Calories Do You Burn Lifting Weights?. Retrieved on the 11th of October, 2019, from:
3. Curioni, Lourenço PM. Long-term weight loss after diet and exercise: a systematic review. Retrieved on the 11th of October, 2019, from:
4. Dana Sullivan Kilroy. Weight Training. Retrieved on the 11th of October, 2019, from: <https://www.healthline.com/health/fitness-exercise-weight-training#weight>
5. Dipartimento di BiologiaUniversità di Napoli 'Federico. Improvement of obesity-linked skeletal muscle insulin resistance by strength and endurance training. Retrieved on the 11th of October, 2019, from:
6. Grant Tinsley, PhD. Cardio vs Weight Lifting: Which Is Better for Weight Loss?. Retrieved on the 11th of October, 2019, from:
7. <https://www.healthline.com/health/fitness-exercise/calories-burned-lifting-weights#2>
8. <https://www.healthline.com/nutrition/cardio-vs-weights-for-weight-loss#section1>
9. <https://www.ncbi.nlm.nih.gov/pubmed/15925949>
10. <https://www.ncbi.nlm.nih.gov/pubmed/28778962>