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**КЕТОГЕННАЯ ДИЕТА И ЕЁ ВЛИЯНИЕ НА ЗДОРОВЬЕ ЧЕЛОВЕКА****Научный руководитель – к.филол.н., доцент О.Н.Гордеева**

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Статья посвящена одной из самых популярных диет 21 века- кетогенной диете, заключающейся в потреблении пищи с высоким содержанием жира, умеренного количества белков и низкоуглеводных продуктов. Она раскрывает суть диеты, описывает ее механизм действия, включая состояние кетоза, и обсуждает влияние на различные системы организма, такие как сердце, сосуды, кожа, волосы, ЖКТ и мозг. Также предоставляются простые советы по соблюдению этой диеты.

**Ключевые слова:** кетогенная диета, жиры, углеводы, кетоз.

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**KETOGENIC DIET AND ITS IMPACT ON HUMAN HEALTH****Scientific Advisor – Ph.D in Philology, Associate Professor Gordeyeva O.N.**

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The article is devoted to one of the most popular diets of the 21st century - ketogenic diet, which consists of the consumption of food with a high content of fat, moderate amounts of protein and low carbohydrate products. It reveals the essence of the diet, describes its mechanism of action, including the state of ketosis, and discusses the effects on various body systems such as the heart, blood vessels, skin, hair, GI tract, and brain. Simple tips for following this diet are also provided.

**Key words:** ketogenic diet, fats, carbohydrates, ketosis.

In recent times, the ketogenic diet has surged in popularity, capturing the attention of individuals worldwide. The essence of the keto regimen lies in its emphasis on high fat intake, moderate protein consumption, and minimal carbohydrate intake. This dietary approach, abbreviated as "keto," has become widespread for its potential effects on the human body. The focal point of this review is to delve into the intricate impacts of the ketogenic diet on human physiology. Specifically, it aims to unravel the mechanisms through which the keto diet influences the treatment of neurodegenerative conditions and facilitates weight management. [1]

**Material and methods**

The ketogenic diet, known for its high-fat, low carbohydrate, moderate-protein profile, has gained popularity for inducing ketosis, where the body shifts from glucose to ketones as its primary fuel source. Transitioning to this diet requires supervision, especially considering its metabolic impact. Originally used to treat epilepsy, it now shows promise for various health benefits. [2] These benefits include appetite regulation, weight management, cognitive improvement, and blood sugar stabilization. Ketosis, achieved through ketone breakdown for energy, offers an alternative fuel source, particularly beneficial for organs like the brain and heart. The diet begins with glycogen depletion, prompting fat metabolism for ketone production. Once adapted, individuals efficiently use both stored and dietary fat for energy, aiding weight loss.

Recommendations for the ketogenic diet: preparing for the ketogenic diet involves gradually reducing carbohydrate intake over about a month. This includes cutting down on sugary and starchy foods. Before starting, it's advisable to have a detox day to clear the body of toxins, focusing on hydration and smaller, more frequent meals. When beginning the diet, it is necessary to ensure a diverse range of foods for balanced nutrition. It is advisable to include meats like fish, beef, pork, lamb, and poultry, as well as various greens such as spinach, kale, dill, parsley, arugula, and romaine lettuce for essential vitamins and minerals. Incorporate dairy products high in fats like cheeses, cream, butter, sour cream, and cottage cheese to meet fat intake needs. Vegetable fats such as coconut oil, olive oil, flaxseed oil, and hemp oil provide healthy fat sources. The recommended macronutrient ratio for the ketogenic diet is typically 25% protein, 70% fat, and 5% carbohydrates (diagram 1), ensuring adequate protein intake to complement the energy provided by fats. [3]

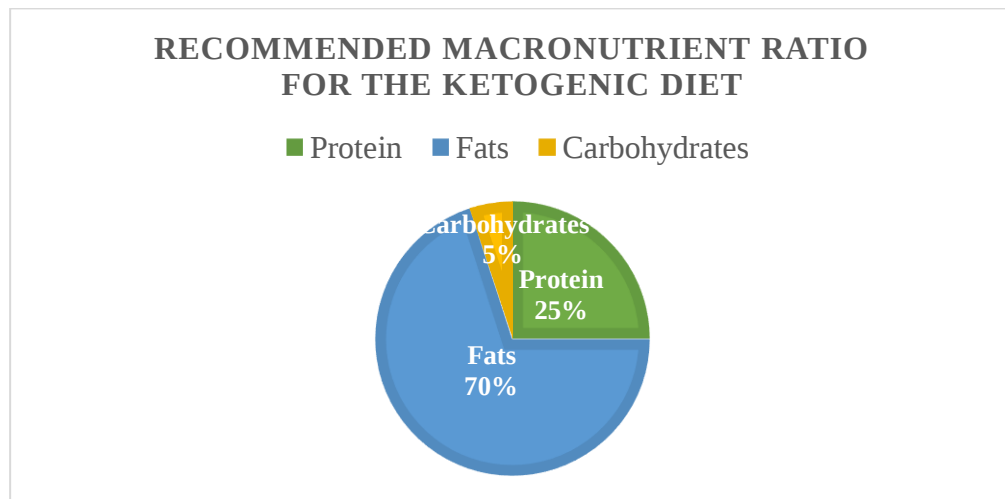


Fig. 1. Recommended macronutrient ratio for the ketogenic diet

#### Changes in the body and harmful effects of the ketogenic diet

Prolonged adherence to a ketogenic diet may occasionally trigger an overproduction of ketones, potentially leading to ketoacidosis, although this occurrence is exceedingly rare. Ketoacidosis typically arises in circumstances of low insulin levels, a rarity among those with a fully functioning pancreas. Transitioning to a ketogenic diet necessitates biochemical adjustments within the body. Enzymes, typically engaged in carbohydrate metabolism, must now pivot towards fat processing and utilization. During this adaptation phase, the body may initially utilize residual glucose, depleting muscle glycogen stores and potentially inducing sensations of weakness and lethargy. Symptoms such as dizziness, headaches, and irritability can be attributed to electrolyte depletion, underscoring the importance of adhering to a proper hydration regimen and incorporating sufficient dietary salt to maintain electrolyte balance.

Possible side effects include:

1. **Muscle Cramps:** Result from mineral deficiencies, particularly magnesium.

2. **Constipation:** Arises from dehydration; mitigation strategies include adequate water intake and fiber-rich foods.
  3. **Tachycardia:** Results from electrolyte imbalances, supplementation with potassium-rich foods can alleviate this issue.
  4. **Decreased Physical Performance:** Initial fatigue and reduced endurance are common as the body adjusts to utilizing fat as its primary energy source; typically resolves with continued adherence.
  5. **Hair Loss:** Occurs infrequently and may relate to micronutrient deficiencies, prompting the recommendation for vitamin supplementation.
  6. **Elevated Cholesterol Levels:** Often attributable to increased high-density lipoproteins (HDL), which are protective against cardiovascular disease. Transient elevations in triglyceride levels may occur during weight loss phases but tend to normalize as weight stabilizes.
- [4]

## Conclusion

Through our investigation, it has become evident that there exists no unanimous consensus facilitating the widespread adoption of a low-carbohydrate diet, notwithstanding the presence of favorable clinical outcomes observed in patients with type 2 diabetes mellitus, obesity, PCOS, and various neurological disorders. Concurrently, the ketogenic diet is gaining popularity among individuals even in the absence of underlying pathologies, although such a drastic dietary shift necessitates rigorous medical oversight not solely from nutritionists but also from practitioners of other disciplines. Despite the increasing frequency of reports documenting certain benefits of the ketogenic diet, lingering apprehensions persist regarding potential risks and the long-term implications of its usage, primarily due to the limited number of clinical trials available.

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