

Benefits of ketosis: The impact of ketosis on blood sugar and insulin sensitivity

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Description

Ketosis is a natural metabolic state characterized by the production of ketone bodies as an alternative energy source when carbohydrates are scarce. Under normal circumstances, carbohydrates are the primary source of glucose, which fuels the body. However, when carbohydrate intake drops significantly, the body turns to fat stores for energy. The liver metabolizes these fats into ketones-acetoacetate, beta-hydroxybutyrate, and acetone is providing a fuel source for various organs, including the brain. This shift from glucose to ketones as the main energy source defines the state of ketosis.

■ Ketosis working process

In a typical metabolic state, glucose is derived from carbohydrates and is used to power bodily functions. When carbohydrates are severely restricted, usually below 50 g per day, the body's glucose reserves are depleted. In response, the liver begins to break down stored fat into fatty acids and glycerol. Fatty acids are then converted into ketones, which are released into the bloodstream and utilized by cells for energy. This process not only helps in maintaining energy levels but also aids in burning excess body fat, making it a popular approach for weight management.

■ The ketogenic diet

The ketogenic diet is specifically designed to induce and maintain ketosis by altering the macronutrient composition of the diet. Typically, this diet consists of 70%-75% fats, 20%-25% proteins, and 5%-10% carbohydrates. By reducing carbohydrate intake and increasing fat

consumption, the body is pushed into a state of ketosis. This diet emphasizes foods such as avocados, nuts, seeds, oils, fatty fish, and meats while severely limiting high-carb foods like bread, pasta, fruits, and most vegetables. The goal is to keep blood ketone levels elevated, ensuring that the body relies predominantly on fat for energy.

■ Benefits of ketosis

One of the primary benefits of ketosis is its potential for significant weight loss. By shifting the body's energy reliance from glucose to fat, ketosis enhances fat burning. Additionally, the ketogenic diet often leads to a reduction in appetite, which can contribute to lower calorie intake and further weight loss. Improved blood sugar control for individuals with type 2 diabetes or insulin resistance, the ketogenic diet can be particularly beneficial. By minimizing carbohydrate intake, blood glucose levels are more stable, and insulin sensitivity may improve. Some studies suggest that individuals following a ketogenic diet experience a reduction in HbA1c, a marker of long-term blood glucose levels.

Enhanced mental clarity ketones are believed to provide a more efficient and consistent energy source for the brain compared to glucose. Many people report enhanced mental clarity and cognitive function while in ketosis, which may be attributed to the brain's reliance on ketones for fuel. Once the body adapts to burning fat for energy, individuals often experience sustained energy levels throughout the day. This is partly because ketones provide a steady and efficient energy supply, which can be advantageous for physical and mental performance.

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■ Potential risks and side effects

While ketosis can offer numerous benefits, it is not without its potential drawbacks and side effects.

Keto flu: During the initial transition into ketosis, individuals may experience “keto flu,” characterized by symptoms such as headache, fatigue, nausea, and irritability. This reaction occurs as the body adjusts to its new metabolic state and can typically be alleviated with adequate hydration and electrolyte intake.

Nutrient deficiencies: A ketogenic diet may lead to deficiencies in essential nutrients. Since the diet restricts many fruits, vegetables, and whole grains, individuals may miss out on vital vitamins and minerals. It is crucial to plan meals carefully and consider supplementation to ensure nutritional adequacy.

Digestive issues: Changes in dietary fibre intake can result in digestive problems such as constipation. Since many high-fibre foods are restricted on a ketogenic diet, incorporating low-carb, fibre-rich options and maintaining good hydration are essential for digestive health.

Research into ketosis and the ketogenic diet has expanded significantly, highlighting both its benefits and limitations. While some studies support its effectiveness in weight management and metabolic health, others emphasize the need for further investigation into its long-term effects. Research continues to explore the optimal applications of ketosis for various health conditions and populations. While some studies support its effectiveness in weight management and metabolic health, others emphasize the need for further investigation into its long-term effects. Research continues to explore the optimal applications of ketosis for various health conditions and populations.

Ketosis represents a significant shift in how the body generates energy, offering potential benefits such as weight loss, improved blood sugar control, and enhanced mental clarity. However, it is important to approach ketosis with a balanced perspective, considering both its advantages and potential risks. Consulting with healthcare professionals before embarking on a ketogenic diet is advisable to ensure it aligns with individual health needs and goals.