



Keto Diet

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Submitted: 05-01-2025

Accepted: 15-01-2025

INTRODUCTION-

A ketogenic (or 'keto') diet is a low-carbohydrate, high-fat diet. While it has benefits as a medical treatment for certain groups of people, as a long-term weight loss diet. In keto diet ketones are used for energy. The body will break down proteins from food or from muscle to make glucose. Ketogenic diet, means eat a very small amount of carbohydrates, some protein and a high amount of fat every day. Body breaks down fat into 'ketone bodies' (or 'ketones') as energy through a process called ketosis. Some parts of your body, such as the brain and red blood cells, need glucose to work and can't

Types of keto diet?

There are several versions of the ketogenic diet, and what you eat depends on the type. They include:

Standard ketogenic diet (SKD): This is a very low carb, moderate protein and high fat diet. It typically contains 70% fat, 20% protein, and only 10% carbs.

Cyclical ketogenic diet (CKD): This diet involves periods of higher carb refeeds, such as 5 ketogenic days followed by 2 high carb days.

Targeted ketogenic diet (TKD): This diet adds carbs around workouts.

High protein ketogenic diet: This is similar to a standard ketogenic diet, but includes more protein. The ratio is often 60% fat, 35% protein, and 5% carbs. However, only the standard and high protein ketogenic diets have been studied extensively. Cyclical or targeted ketogenic diets are more advanced methods and primarily used by bodybuilders or athletes. Base the majority of meals around these foods: **meat**: red meat, steak, ham, sausage, bacon, chicken, and turkey, **fatty fish**: salmon, trout, tuna, and mackerel, **eggs**: pastured or omega-3 whole eggs, **butter and cream**: grass-fed butter and heavy cream, **cheese**: unprocessed cheeses like cheddar, goat, cream, blue, or mozzarella, **nuts and seeds**: almonds, walnuts, flaxseeds, pumpkin seeds, chia seeds, etc., **healthy oils**: extra virgin olive oil, and avocado oil, **avocados**: whole avocados or

freshly made guacamole, **low carb veggies**: green veggies, tomatoes, onions, peppers, etc., **condiments**: salt, pepper, herbs, and spices

What is ketosis?---Ketosis is a metabolic state in which body uses fat for fuel instead of carbs. It occurs when consumption of carbohydrates, limiting body's supply of glucose (sugar), which is the main source of energy for the cells. Following a ketogenic diet is the most effective way to enter ketosis. Generally, this involves limiting carb consumption to around 20 to 50 grams per day and filling up on fats, such as meat, fish, eggs, nuts, and healthy oils. It's also important to moderate your protein consumption. This is because protein can be converted into glucose if consumed in high amounts, which may slow your transition into ketosis. Since body doesn't have enough carbs to burn for energy, it burns fat instead. As body breaks down fat, it produces a compound called ketones. The ketones, or ketone bodies, become body and brain's main source of energy. The fat body uses to create ketones may come from diet (nutritional ketosis), or it may come from body's fat store, liver produces a small amount of ketones on its own. But when glucose level decreases, insulin level decreases. This causes liver to ramp up the production of ketones to ensure it can provide enough energy for brain. Therefore, blood has high levels of ketones during ketosis.

How many carbs are needed for ketosis?

Under 50 grams of carbohydrates per day to enter and stay in ketosis. That's about three slices of bread, two bananas or 1 cup of pasta.

How long does it take to get into ketosis?

If between 20 and 50 grams of carbohydrates are consumed each day, it will usually take two to four days to enter ketosis. However, the time it takes to enter this state varies based on several factors. It may take a week or longer to get into ketosis. Factors that may influence how long it takes to achieve this state include: Age, Carbohydrate, fat and protein intake, Physical activity level, Metabolism, Sleep health, Stress level. It may



be able to get into ketosis faster with intermittent fasting. The most common method of intermittent fasting involves eating all of food within eight hours. Then, fast for the remaining 16 hours of a 24-hour period.

What's the difference between ketosis and diabetes-related ketoacidosis (DKA)?

Ketosis and diabetes-related ketoacidosis (DKA) are two very different things. During ketosis, ketones are in blood but not enough to turn blood acidic. It usually happens if you're fasting or following a low-carbohydrate diet. Ketosis isn't harmful. DKA is a condition that affects people with diabetes and people with undiagnosed diabetes. It happens when blood turns acidic because it has too many ketones due to a lack of insulin. Diabetes-related ketoacidosis is life-threatening and requires immediate medical attention.

The ketogenic diet as a medical treatment-

Epilepsy --The ketogenic diet can be helpful if your child has epilepsy and continues to have seizures while on antiepileptic medicines. Your child should only start a ketogenic diet if their neurologist recommends it, and with the support of a specialized dietitian.

Diabetes --In type 2 diabetes, a ketogenic diet may improve blood sugar management in the short term. However, the long-term effects are not known. The ketogenic diet can be hard to maintain because it limits what foods can be consumed. This means many people drop out of the diet. This can also contribute to unhealthy, 'yo-yo' dieting behavior. The key to maintaining a healthy weight in the long-term is a healthy eating pattern that can follow over time.

Exercise impacts ketosis by making it easier to enter this state. Anyone who starts a keto diet will be able to reach ketosis sooner through exercise, which works by depleting glycogen stores. Glycogen is the storage form of glucose from the carbohydrates. Once glycogen storage gets depleted body starts metabolizing fat. As a general rule, longer and prolonged physical activity degrades muscle glycogen more quickly than mild exercise.

Many health food stores sell exogenous ketones (EKs) over the counter. Several different EK types exist. These include: **Ketone esters** - Ketone esters are the most potent type of EK. As a result, they may cause longer ketosis periods than other EK supplements. However, ketone esters can be very expensive to buy, and they usually have a strong, unpleasant taste. **Ketone salts**-Supplement

manufacturers make ketone salts by adding artificial ketones to electrolytes, such as calcium, magnesium, potassium, and sodium. Ketone salts are available in a variety of forms, including drinks, pills, and powders. These particular EKs can increase electrolyte levels. Higher levels can be harmful if a person has a medical condition, such as kidney disease, that affects their ability to regulate electrolytes. While ketone salts rapidly induce ketosis, this metabolic state does not usually last as long as it does with ketone esters. **Ketone salts**-Supplement manufacturers make ketone salts by adding artificial ketones to electrolytes, such as calcium, magnesium, potassium, and sodium. Ketone salts are available in a variety of forms, including drinks, pills, and powders. These particular EKs can increase electrolyte levels. Higher levels can be harmful if a person has a medical condition, such as kidney disease, that affects their ability to regulate electrolytes. While ketone salts rapidly induce ketosis, this metabolic state does not usually last as long as it does with ketone esters.

Other similar supplements-Medium chain triglycerides (MCTs) are not technically a type of EK, but they do have similar effects. The body rapidly absorbs MCTs. Following this absorption, the liver converts the MCTs into ketones. However, a person will not get into ketosis by taking MCTs alone. Taking ketone supplements may cause the following side effects: **Stomach distress**: Ketone supplements may cause stomach upset and increased bowel movements. **Electrolyte imbalance**: Electrolytes are vital for your muscles to function properly and for your heart to maintain a normal rhythm. Ketone supplements can cause electrolyte imbalance, which is particularly harmful if you have a kidney disease that already affects your body's ability to maintain balanced electrolyte levels. **Hypoglycemia**: Ketogenic diets can cause blood sugar levels to go too low. This is dangerous in diabetes and take medications that lower blood



glucose levels. Extra ketones in the form of ketone supplements may lead to hypoglycemia (low blood glucose), which causes fatigue and lethargy. **Hypertension:** Ketone salts usually contain sodium, which could be dangerous in high blood pressure (hypertension). **Dehydration:** Taking ketone supplements can heighten the effects of a keto diet and causes dehydration.