

Dietary Therapies to Treat Seizures and Epilepsy



Dietary therapies can help control various types of seizures in both children and adults when medicines alone don't work. There are four major dietary therapies used today for epilepsy. They are all low in carbohydrates (like sugar, pasta, and bread) and high in fat (like butter, oils, bacon, and avocados).

The main diet people think of is the "classic" **ketogenic diet**. There are 3 other diet therapies used to treat seizures: Medium-chain triglyceride diet (MCT), Modified Atkins Diet (MAD), and Low Glycemic Index Treatment (LGIT).



If you are considering a dietary therapy for yourself or your child, talk with your treatment team. You may also want to talk with other people who have been on the diet.

Ketogenic Diet

The classic ketogenic diet is the oldest of the diet therapies. It works by changing how your body gets energy from food. Normally, the body uses carbohydrates for energy. With this diet, your body uses fat instead (this is called "ketosis").

The diet is very high in fat, it's low in protein (i.e., meat) and carbohydrates. Dietitians figure out the number of calories you or your child will need. Recipes are created and available through computer programs. One resource is the [Charlie Foundation](#).

Health care providers usually recommend the ketogenic diet for children, but it can be used at any age. It's usually the first choice for children under 2 years of age. The MAD and LGIT are often recommended for teenagers over 12 years old.

To start the diet, you should first see an epilepsy specialist and a nutritionist to get a personalized food plan. Then you will need to fast (not eat anything) for 12 to 24 hours. Typically, the diet is started when you are in a hospital.

Dietary therapy for seizures isn't like a weight-loss diet — you can't just do it on your own. Your medical team will help you plan and make sure it's going okay.

Other Dietary Therapies

The **MCT diet** is like the classic ketogenic diet but focuses on a specific type of fat called MCT. MCT refers to the type of oil used (medium chain triglycerides). MCT oil can be used as a supplement instead of normal fats in the diet. Sometimes people can have more carbohydrates on the MCT diet, but check with your epilepsy diet team first.



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The **Modified Atkins diet (MAD)** limits the number of carbohydrates you eat to usually 20 grams each day. Eating fat in the diet is encouraged. It can be started at home and doesn't need specific meal plans. This means you can eat a wider variety of foods. This is the most common epilepsy diet used for adults and teenagers with epilepsy.

The **Low Glycemic Index Treatment (LGIT)** limits the type of carbohydrates you can eat. This diet allows carbohydrates that are less likely to raise your blood sugar quickly, like whole grains and berries. Foods that raise your blood sugar a lot (called high glycemic index foods) are avoided. Like the MAD diet, it is started at home and foods don't have to be weighed.



Grilled chicken and shrimp with dill pickle and avocado relish (top)

Charlie Chocolate Bites (bottom)



What's it like to be on a diet therapy?

- On the classic ketogenic diet, you'll need to carefully weigh and measure all your food. It's very important to follow the diet exactly—every day, for every meal.
- You'll also need to check the ingredients in medicines that may have sugar, usually avoiding liquid forms.
- With the MAD and LGIT, foods don't need to be measured the same way. The type and number of carbohydrates are watched though. There are no limits on protein, liquids or total calories.
- It's important to read food labels of what you eat with any of these diets.
- Most people also keep taking seizure medicine while on a dietary therapy.
- You will probably be given a vitamin supplement and calcium to take regularly.
- You'll be asked to check for ketones in your urine or blood occasionally. Your doctor or nurse will show you how to do this. Keep track of your weight too.
- See your epilepsy team for follow-up visits to see how you are doing.

What are the side effects?

- Side effects may include hunger, constipation, weight changes, kidney stones, and high cholesterol. You'll need to get blood and urine tests regularly to check for problems.
- Children on the ketogenic diet may grow more slowly than other children. The doctors and nurses will check your height and weight regularly to see how your child is developing.



How well does it work?

Many people who try the ketogenic diet have fewer seizures, and some people will become seizure free. There is good evidence that all 4 major epilepsy diets have good results. Some work better in young children than others and some are easier to use in teenagers or adults. The ketogenic diet can lower seizures by 50% or more in half of the people who try it. Many people on dietary therapies can also reduce doses of their seizure medicines too.

Dietary therapy may be specifically used for people with certain epilepsy syndromes or types such as¹:

- Angelman syndrome, complex 1 mitochondrial disease, FIRES, Ohtahara syndrome, super-refractory status epilepticus, Dravet syndrome, Doose syndrome, Glut-1 deficiency syndrome, formula fed children, infantile spasms, pyruvate dehydrogenase deficiency, tuberous sclerosis complex.

Remember, it's important to consult a neurologist or epileptologist before you start any special diet for seizures and epilepsy.



When and how can I stop the diet?

- Some people stay on the ketogenic diet or one of the other diets for many years. Other people may stop after a few years if seizures are well controlled.
- An EEG will often be done before stopping a diet therapy to see if this is safe to do.
- To stop the diet, your doctor and nutritionist will make a plan to help you stop slowly over several weeks. Stopping suddenly can sometimes make seizures worse.

Learn more about treatments for epilepsy and seizures at www.epilepsy.com/treatment.

1. Kosoff et al. Optimal clinical management of children receiving dietary therapies for epilepsy: Updated recommendations of the International Ketogenic Diet Study Group. *Epilepsia Open* 2018;3(2):175–192

About the Epilepsy Foundation: The Epilepsy Foundation, and its network of 50 organizations throughout the United States, leads the fight to overcome the challenges of living with epilepsy and to accelerate therapies to stop seizures, find cures, and save lives. As an unwavering ally for individuals and families affected by epilepsy and seizures, the Epilepsy Foundation connects people to treatment, support and resources; leads advocacy and awareness efforts; funds innovative research and the training of specialists; and educates the public about epilepsy, sudden unexpected death in epilepsy, and seizure first aid. To learn more, please visit epilepsy.com.

Disclaimer: This publication is designed to provide general information about epilepsy and seizures to the public. It is not intended as medical advice. People with epilepsy should not make changes to treatment or activities based on this information without first consulting with their health care provider.

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