



Ketogenic Diets and Your Child

What are the ketogenic diets?

Ketogenic diets are medical treatments to control seizures. There are 2 types of diets:

- The classic ketogenic diet
- The Modified Atkins diet

Both are made up of foods that are high in fat, medium in protein (meat), and very low in carbohydrates (sugars, fruits, vegetables and grains).

How do the diets work?

The body normally uses carbohydrates from food for energy. When carbohydrates are eaten in very small amounts, the body will use fat for energy instead. As a result of a high fat diet, the body will make ketones (KEE-tones). With ketogenic diets, ketones will rise to a high level in your child's body. This is called ketosis (kee-TOE-siss). For some children, being in ketosis controls seizures.

What will help me understand my child's diet?

The main thing to understand is that the diets are planned so that ketosis occurs from eating fats, medium amounts of protein and very limited amounts of carbohydrates. The ketogenic diet team will teach you about the diet and how to prepare meals for your child. We will work closely with you and your child to make the meals pleasant and tasty.

The foods allowed on the diets include:

- Fresh meats, eggs and cheeses
- Heavy whipping cream, butter and oils
- Small amounts of fruits and vegetables.

The diets leave out nearly all:

- Sugar, starches, grains and breads.
- Common non-food items like certain toothpastes that have starches (sugar) in them. These need to be checked and changed to a low sugar option.

What are the 2 types of diets?

Classic Ketogenic Diet:

- The classic ketogenic diet is calculated by a ratio of fat to protein and carbohydrates combined. A 4 to 1 (4:1) ratio means that for every 1 gram of protein and carbohydrate combined, your child needs 4 grams of fat, or

4 times as much fat. This means that for every 100 calories, 80 calories must come from fat and 20 calories from protein and carbohydrate.

- Food is weighed on a gram scale. It is very important to do the diet exactly as the dietitian plans it for your child. Each meal plan gives the exact number of grams for each food item allowed in a meal. **Your child has to eat all of the food at every meal.**
- The dietitian will figure out how many calories and how much protein your child needs for energy and growth.
- It will require a 3 to 5 days hospital stay to start the diet.

Modified Atkins Diet (MAD):

- Your child can only eat 10 to 20 grams of carbohydrates per day. As an example, a small apple has about 15 grams of carbohydrates.
- Your child has to eat a source of fat with every meal. Sources of fat include butter, oils, avocado, mayonnaise and heavy whipping cream.
- It is important that your child is able to eat protein with every meal.
- Food is not measured on a gram scale.
- **Your child is not required to eat every single bite of every meal.**
- Starting this diet does not require staying in the hospital overnight.

How much will this affect our lifestyle?

The diets are life changing for your child and your family. It is important to understand that the diets must be followed **very** closely. Even when in ketosis, break-through seizures may happen with a small bite of cookie or cracker crumbs. The ketogenic diets can make it difficult for your child to easily eat away from the home. Anybody who cares for your child must understand the basics of your child's ketogenic diet. The ketogenic diets will also limit medicine, lotion, and toothpaste choices as these products often contain sugar or starch.

Do the diets give my child enough nutrition?

Not with food alone. Since the diets limit dairy foods, grains, fruits and vegetables so much, it is not enough nutrition. This is why your child's ketogenic diet team will help you find the right vitamin and mineral pills that your child needs to take. Your child may need several different supplements.

Can the diets help my child?

The ketogenic diets are used to help control seizures. Sometimes a diet and anti-seizure medicines are both needed to control seizures. Infants, school-aged children and teens can use these diets. In the past, the diets have been used with myoclonic, atonic and tonic-clonic seizures. However, when medicines have not worked well or if they cause bad side effects, it is worth trying one of the ketogenic diets for other kinds of seizures.

To Learn More

- Neurology
206-987-2078
- Your child's healthcare provider
- www.seattlechildrens.org

Free Interpreter Services

- In the hospital, ask your child's nurse.
- From outside the hospital, call the toll-free Family Interpreting Line 1-866-583-1527. Tell the interpreter the name or extension you need.

How long will my child be on the diet?

You will need to keep your child on the diet and follow it very closely and carefully for at least 3 months. If your child does well, the diet is usually followed for at least 2 years. After 2 years, carbohydrates will be slowly added back into your child's diet. Some children will have long-term improvement of their seizures after stopping the diet. Other children need medicines when they go back to a normal diet.

What are the benefits of the diets?

- The best thing about the diet is that it may control your child's seizures. Sometimes seizures improve during the first week on the diet. However, this may not happen for as long as 1 to 3 months after the diet starts.
- Sometimes anti-seizure medicines can slowly be stopped.
- It is also possible your child's behavior and learning may get better on the diet.

What are the risks of the diets?

- Some children may have ketones that are too high or blood sugar that is too low. You will learn what to watch for and how to take care of any problems.
- Because the diet is high in fat, some children may have an upset stomach at first, but this usually goes away or can be treated.
- The diet can cause constipation.
- Your child may not grow as quickly as before. Your child's weight and height will be monitored. The ketogenic diet team will make sure they are getting enough protein, vitamins and minerals.
- The diet can cause your child's bones to become weaker and more likely to break.
- In adults, fats in the blood can lead to heart and blood vessel problems. Most children on a ketogenic diet will have more fat in their blood than normal. However, this does not seem to continue into adulthood when eating a normal diet again.
- A few children have developed kidney stones while on the diet. Your ketogenic diet team will do lab tests to check for any chance of this problem.
- Sometimes restricting food leads to behavioral problems. You may decide to stop the diet for this reason.
- An illness along with the diet may make your child too dehydrated. During an illness it is important for your child to drink fluids. Talk to your ketogenic diet team if your child has signs of dehydration.

Seattle Children's offers interpreter services for Deaf, hard of hearing or non-English speaking patients, family members and legal representatives free of charge. Seattle Children's will make this information available in alternate formats upon request. Call the Family Resource Center at 206-987-2201.

This handout has been reviewed by clinical staff at Seattle Children's. However, your child's needs are unique. Before you act or rely upon this information, please talk with your child's healthcare provider.

© 1998- 2016, Seattle Children's, Seattle, Washington. All rights reserved.