



Ketogenic Diet and Your Child

What is a ketogenic diet?

The ketogenic diet is a medical treatment for controlling seizures. It is made up of foods that are high in fat and low in protein (meat) and carbohydrate (sugar and starch). Ketones are made when the body uses fat for energy. Ketones will rise to a high level in the blood, called ketosis. For some children, being in ketosis can help to control seizures.

Can the diet help my child?

Infants, school-aged children and teens can use this diet. In the past, the diet has 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 the ketogenic diet for other types of seizures.

How does the diet work?

The body normally uses sugars from food for energy. When sugars or carbohydrates are greatly restricted, the body will use fat for energy, resulting in ketosis. The ketosis is maintained by a diet high in fat and low in protein and carbohydrate. The brain then uses the ketones for energy rather than sugar.

Sometimes the diet and anti-convulsant medicines are both needed to control seizures.

How much will my child's foods be limited?

The ketogenic diet is very limiting and your child may rebel. It restricts major food groups and your child can have only the foods and amounts planned. Even medicines must not have sugar or starch in them.

Your child's dietitian will adjust the diet for your child's hunger and nutritional needs, as well as the level of ketosis.

What will help me understand my child's diet?

The main thing to understand is that the diet is planned so that ketosis occurs from eating fats, small amounts of protein and very limited amounts of carbohydrates. The dietitian will figure out how many calories and protein your child needs for energy and growth.

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

The foods allowed on the diet include:

- Fresh meats, eggs, cheese, fish, heavy whipping cream, butter, oils, bacon, and certain fruits and vegetables in small amounts.

The diet leaves out nearly all:

- Sugar, starches, grains and breads. There are also some common non-food items that need to be checked and altered, such as certain toothpastes.

It is important to understand that the diet must be followed very closely. Even when in ketosis, break-through seizures may occur with a small bite of cookie or cracker crumbs.

The neurologist, nurse practitioner and dietitian with the ketogenic diet program will work with you and your child to follow the diet. They can help with tips to make meals as pleasant and tasty as possible.

Does the diet give my child enough nutrition?

Since the diet limits dairy foods, grains, fruits and vegetables so much, it is not enough nutrition. Also many anti-convulsant medicines affect your child's nutrition. The dietitian will help you find the right vitamin and mineral pills that need to be taken. Several supplements may be needed.

How long will my child be on the diet?

You will need to follow the diet 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 not have seizures or need medicines when back on a normal diet.

What are the benefits and risks of the diet?

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. Another benefit is that sometimes anti-convulsant medicines can be slowly stopped.

The diet has some risks. Some children get too much ketosis and/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 upset stomach at first, but this usually goes away or can be treated. The diet can also cause constipation.

Another risk is that your child may not grow as quickly as before. Blood levels of protein, vitamins and minerals will be checked regularly. Your child's weight and height are watched carefully. Too much weight gain can make ketosis go away. Your child will also have a bone scan to look at bone density after about 1 year.

To Learn More

- Neurology
206-987-2078
- Clinical Nutrition
Services Ketogenic
Diet Program
206-987-1129
or Dietitian
206-987-1222
- Ask your child's nurse
or doctor
- 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.
- For Deaf and hard of
hearing callers
206-987-2280 (TTY)

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. Lab tests will be done to check for any chance of this problem.

Sometimes the restriction of food leads to behavioral problems. You may decide to stop the diet for this reason. It is also possible your child's behavior and learning may get better on the diet. We do not have ways of telling which children will have behavioral effects.

An illness along with the diet may make your child too dehydrated. During illness it is important for your child to drink fluids. Talk to your doctor or ketogenic diet nurse if your child has signs of dehydration.

Will my child have to stay in the hospital?

Your child will need to stay in the hospital for 4 to 7 days to start the ketogenic diet. There will be careful watching and ketogenic diet teaching.

The ketogenic diet program will help you and your child after you go home. Your child will then have clinic appointments at least every 3 months.

Please call Neurology if you have more questions about the ketogenic diet.