

Let's Talk About...

Ketogenic Diet

A ketogenic diet is a very strict diet that is high in fat, but with a normal number of calories. Some-times, seizures in children can be controlled if the child stays on this strict diet.

How does a ketogenic diet control seizures?

The ketogenic diet makes your child use fat instead of carbohydrates for energy. Usually, a person eats lots of carbohydrates and our bodies change the carbohydrates into glucose, a type of sugar. The glucose feeds the body's cells. There are very few carbohydrates in the ketogenic diet and a lot of fat. The body uses fat for energy instead of carbohydrates. The fat changes into ketones, and the ketones feed the body's cells. The high amount of ketones in the body can sometimes help control seizures in children.

Who can try the ketogenic diet?

Usually, the ketogenic diet is used after several medicines have been tried, and a child continues to have seizures. The ketogenic diet is usually recommended for children 3–8 years old. Sometimes, infants 12 months to 3 years old are treated with the ketogenic diet. If a ketogenic diet is used for a child less than three-years-old, the child has to be watched carefully to make sure he grows properly. Older children may try the diet, but the child's family has to be very motivated and willing to resist food temptations outside the home. Families have to promise to use the ketogenic diet for at least two months.

What happens if I decide to try the ketogenic diet with my child?

Your child will have a clinic appointment with the nurse practitioner and the dietitian to discuss the diet and to make sure that all the laboratory tests are

normal. A dietitian will also provide you with sample menus to see if your child will accept this diet. For the initiation of the ketogenic diet, your child will be admitted to the hospital for about three days for close monitoring while the diet is started. While your child is in the hospital, your family will receive intense training about the diet from a dietitian. A team of a doctor, a dietitian and a nurse rigidly supervises the ketogenic diet.

What is the diet like?

The ketogenic diet is high in fat, normal in protein, and low in carbohydrates. All three of these must be present in your child's diet for it to control seizures. The dietitian determines the amount of calories your child will eat each day and is based on their age and activity level. To achieve a desired level of ketosis, the diet is calculated in terms of ratios such as 2:1, 3:1, and 4:1. In a 4:1 ratio, there is 4 times as much fat as there is protein and carbohydrate combined. The dietitian creates meal plans and recipes that complete the required fat, protein, and carbohydrate for each meal. Each recipe includes the exact weight of the ingredients in grams, which must be weighed on a gram scale. The diet alone does not contain enough vitamins or minerals. Special vitamin and mineral supplements are prescribed for each child while on the ketogenic diet. It is also important that the child drink adequate fluids while on the diet. If you feed your child through a tube, he can have a ketogenic diet using a special ketogenic formula. The dietitian will determine the type and amount of formula for your child.

What happens in the hospital?

Your child will be admitted to the hospital to start the diet. The diet is gradually introduced and increased to full strength over a 3–4 day period. In the hospital, blood sugars and urine ketones are

checked regularly. Based on recent studies, a fasting period is not necessary to start the diet. A combination of meals and eggnog shakes are used for introduction of the diet. The ratio of the diet may be adjusted based on the child's tolerance and ketone levels. The dietitian will provide recipes and recommendations for the amount of fluids needed for the diet.

If you feed your child through a tube, a special ketogenic formula will be given of a different strength each day. Your child's dietitian will help your family carry out the feeding schedule to be used at home.

What education will my family receive?

Your family will be taught how to measure foods, develop menus, and read labels to identify proper foods for the ketogenic diet. In addition, you will be taught how to test for ketone levels with ketone strips, and watch for signs of low blood sugar or excessive ketosis.

Are there any side effects of the ketogenic diet?

One of the most common side effects of the ketogenic diet is constipation. Eating high fiber vegetables allowed on the diet and drinking enough fluids will help to prevent this problem. Another less common side effect are kidney stones, this can also be prevented by making sure your child is drinking enough fluids. Certain anti-seizure medications can cause kidney stones, which will need to be monitored closely with the ketogenic diet.

When will my child have blood tests?

Before starting the diet, blood test may be needed to determine if the diet is safe for your child. Additional routine blood test will be needed after the diet is started, usually at two months, and then every three to six months after. The results of the blood test will determine the exact diet for your child and the amount of vitamins and minerals needed.

What doctor and clinic visits are required?

Your child will have a clinic visit one month after being discharged from the hospital, and then every 3–6 months thereafter. At each visit, your child will meet with the ketogenic team including the nurse practitioner and the dietitian. Your child's neurologist is available for consultation at these visits. Throughout the course of the diet, you will have regular email and telephone communication with the dietitian and the nurse practitioner.

Are there other types of diets that can help control seizures?

The Modified Atkins and Low Glycemic Index diets are also low in carbohydrate, but are less restrictive than the traditional ketogenic diet. Both of these diets still require regular follow-up visits and monitoring with the nurse practitioner and the dietitian.