

## **Ketogenic Diet**

### **by the Ketogenic Diet Team**

The ketogenic diet was introduced in Albuquerque with the first patient admission in 1991. The diet has produced some positive results in more than 67% of patients treated. We have treated over 100 patients to date. There is one clinic on the third Tuesday of each month. Our program is the only one in New Mexico that specializes in this diet. The team that monitors this diet therapy consists of a full time dietitian, nurse, and physician.

The ketogenic diet is a therapeutic diet that is high in fat and low in protein and carbohydrates. When the diet is followed, ketosis is produced. The diet is prescribed for children who have seizures.

Fasting, and the ketosis it produces, has been recognized since Biblical times as beneficial for seizure control. In 1921, Wilder introduced the modern Ketogenic Diet in an attempt to reproduce the metabolic effects of starvation. It has been used since then, but probably less frequently since the early 1950's when more effective anticonvulsants became available. It seemed easier to give medications than to carefully control a child's diet.

Many children with seizures can be helped by the diet. There is no way to predict whether it will be successful; one must simply try it. Traditionally, the diet has been used in children between the ages of 2 and 10, with myoclonic, atonic and tonic-clonic seizures.

The diet involves reaching ketosis which is produced by eating foods that are ketogenic (fats) and avoiding foods that are antiketogenic (carbohydrates and proteins). Dieticians calculate how many calories and protein a child needs for energy and minimal growth.

The children on this diet do get enough calories, but the amount of foods seems exceedingly small by normal dietary standards. Fat, which is concentrated in calories, is included in large amounts. Protein is adequate to maintain weight and some growth. The diet is not nutritionally adequate and daily vitamin and mineral supplementation may be taken if necessary.

The obvious benefits of the diet are the potential for seizure control. Sometimes seizures are controlled as soon as the child becomes ketotic, but this effect may not be seen for as long as a month.

Another benefit is that frequently the anticonvulsant medications can be gradually discontinued. This could lead to a child who has seizure control without any of the side effects of medication.

The diet is very restrictive, but the restriction is usually worthwhile once the seizures stop. Only the foods and quantities calculated into the diet can be consumed. Food is weighed on a gram scale. Meals are planned to be as palatable as possible. Medications must not contain sugar or starch. The calories and components of the diet are modified to meet each child's individual needs.

The full therapeutic ratio of fats to carbohydrates and proteins is usually maintained for a two-year period. If all is going well, it is then weaned over a 1 year period.

If the diet has successfully stopped and eliminated the need for anti-epileptic medications, some parents are still reluctant to take their child off the diet. But it is eventually discontinued in most situations. Many children continue to go without seizures or other medications when the diet has been discontinued.

Clinicians and dietitians familiar with devising palatable and acceptable meal plans for a child should use the diet. Phone consultations may be frequent at the onset of the diet with the ketogenic diet team and the child should be seen in clinic once a month for the first few months. Follow-up will be less frequent as the family and the child adjust to the diet. One of the most important support elements is contact with other experienced parents. Parents with children of similar ages and food preferences can share way of making the diet attractive and tasty. Access to these resources is essential.