

# The Ketogenic Diet Program

## What does the diet consist of?

The dietitian works with the family to mimic the young person's usual meal pattern at home as much as possible. This includes three meals a day with or without snacks. The diet consists of familiar foods such as vegetables, chicken, eggs, red meat, cream, oil, butter and some fruit. Each meal is measured using gram scales, and it is essential to strictly follow all recipes. The diet does not provide a young person with the full complement of vitamins and minerals and as such, supplements are required. It is also important that young people on the diet get enough fluid.

## Difficulties

Whilst on the diet, some young people can have loss of ketosis or excessive ketosis. If there is a loss of ketosis, the diet needs to be adjusted by the dietitian to ensure the correct balance and amount of food. Sometimes loss of ketosis can also result from weight gain or loss, incorrect preparation of food, incorrect information on food packaging and the young person being given extra food or eating in secret. In the case of excessive ketosis, parents can give their children extra carbohydrate in the form of orange juice or lemonade.

Young people on the diet may be more susceptible to bone thinning, high cholesterol, kidney stones, poor growth, nutrient deficiencies and have increased susceptibility to infection. They may also have constipation on the diet. However, the Austin Health team rigorously monitors young people on the diet to make sure that any side effects are promptly addressed.

## Education

Education is a key component of implementing the ketogenic diet. This starts with the consultations prior to admission, which involve the Ketogenic Dietitian and the Ketogenic Diet Nurse. These consultations cover the implementation of the diet, the type of foods in the diet, and also analyse a dietary plan of the young person's current intake. During the admission, further education sessions are held with the parents to enable

them to manage the diet independently. Following discharge, frequent communication between the family and the Ketogenic Diet team occurs to ensure that the diet is progressing smoothly. It is important that both parents become informed about the diet and consider how it will be implemented into their daily life.



## The Ketogenic Diet team at Austin Health

Ketogenic Diet Program Leader  
 Professor Ingrid Scheffer, Paediatric Neurologist.  
 TOP FROM L-R: Paediatric Epilepsy Nurse Karen Stewart, Ketogenic Dietitian Kellie Draffin, Ketogenic Dietitian Judy Nation.

### For more information

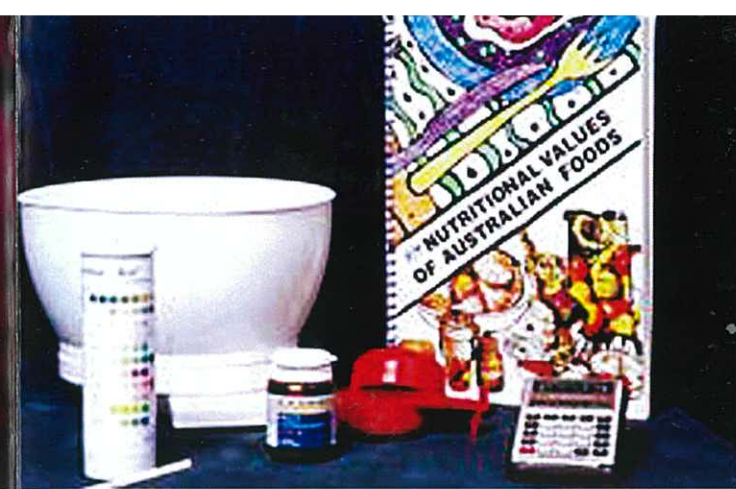
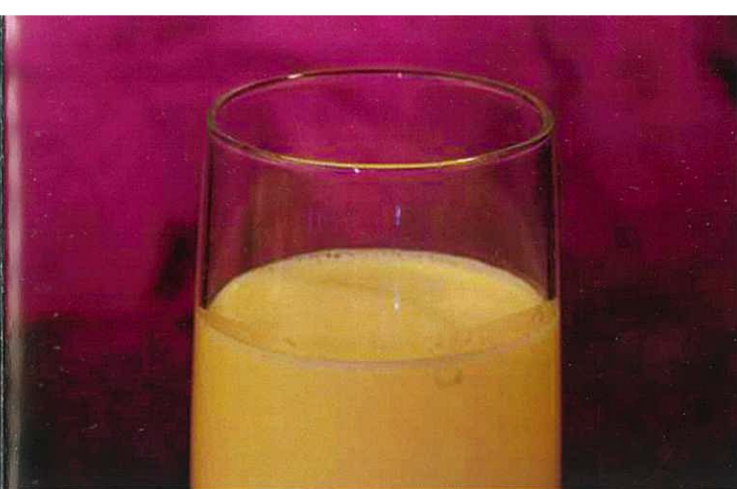
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### **What is the Ketogenic Diet?**

The Ketogenic Diet is a medically supervised diet that may be a treatment option for some people with epilepsy. It involves a high fat and very low carbohydrate and protein diet that makes the body burn fat rather than carbohydrate and protein for energy. This creates ketones, and when the body is in a high ketone state, called ketosis, the brain no longer uses glucose for energy but instead uses ketones. This can reduce seizure activity in some people. It is difficult to maintain ketosis but the Ketogenic Diet uses a carefully calculated regimen with rigid meal plans to deliberately maintain this state. Compared to other epilepsy treatments, less is known about the beneficial and adverse effects of the Ketogenic Diet. The way that ketosis reduces seizures is not fully understood. The diet was initially used in the 1920s and fell out of favour when new anti-epileptic medication was developed. Interest in the diet has regained over the last 20 years, and it is now used in many countries.

### **Who is eligible?**

Not everyone with epilepsy should start the Ketogenic Diet. It is usually only suitable for young people with poorly controlled seizures. The young person must be assessed by a paediatric neurologist before starting the diet, and will also meet with an Austin Health dietitian and paediatric epilepsy nurse to learn about the diet. Families should be fully informed about the advantages and disadvantages of the diet before trying this treatment. Before commencing the diet, the family will learn how it works and how it is calculated, meal preparation, diet duration, the admission process and ongoing management at home. The diet requires

organisation and preparation and will not suit everyone. If both the specialist and family decide that they would like to proceed, then an admission is booked at Austin Health to commence the diet.

### **Admission**

Upon admission or just prior to admission, several investigations are performed to monitor the effects of the diet. Bone density studies, EEG, ECG and blood, urine and radiological investigations will be performed. During the admission, which is usually seven days, the young person's blood ketone and sugar levels are monitored regularly using a finger prick blood test. The ketone levels in urine will also be tested regularly, and the young person will be weighed each day. This is because the diet can be quite different to a normal diet and it is important to monitor metabolic status and nutritional health.

From day one of the admission, the young person will start on eggnog drinks. If the young person is fed via PEG or gastrostomy, a ketogenic enteral formula is used. The dietitian will ensure that ketone levels are slowly increased to help the body achieve and maintain a high level of ketones.

No medication is weaned during the admission, and the young person is encouraged to relax and keep themselves busy. They do not have to stay in bed and can play, watch TV, read, draw or keep themselves occupied in a productive and fun way on the ward. Parents are encouraged to stay with their child during hospitalisation. This enables the Ketogenic Diet team to continue education so that by the end of the admission, the parent can take over responsibility for the diet.

### **At home**

After the admission, the family and young person return home to continue the diet. These first weeks can be difficult as everyone adjusts to the diet, and fine-tuning is often required. Close contact with the dietitian and paediatric epilepsy nurse will be maintained throughout this time. The family will monitor ketone levels in urine twice a day and keep a seizure diary to record any changes in seizure activity. Appointments will be made for formal outpatient review with the Ketogenic Diet team every month for the first three months, and then at three-month intervals thereafter, but more frequently if necessary. Routine blood tests will continue at regular intervals, and weekly weighs need to be recorded. Initially the diet tends to be difficult and time-consuming, however with practice it does become easier. Many parents think their child will not be able to attend school or social events involving food. This is not the case: the young person will generally need to take their meal with them but anything is possible if organised in advance. All carers and teachers should be fully informed about the diet.

The diet is trialled for at least 10–12 weeks to assess whether or not it is having a beneficial effect on seizure frequency. If the diet results in a decrease in seizure frequency, it can continue for two years. If, after the trial period, there is no significant improvement in seizures or the diet is not tolerated, or is judged too difficult to manage, a joint decision between the family and the Ketogenic Diet team will determine whether the diet should be ceased. A plan to wean the diet will be formulated.