

An overview of the ketogenic diet: information for children, young people and families

This information sheet from Great Ormond Street Hospital (GOSH) provides information about the ketogenic diet. This is a medical therapy for drug-resistant epilepsy. The ketogenic diet can be effective at reducing seizure frequency and intensity in all types of epilepsy. The ketogenic diet team at GOSH consists of paediatric neurology consultants, dietitians, a nurse and the administration team. If you would like to know more about the ketogenic diet, please contact the team.

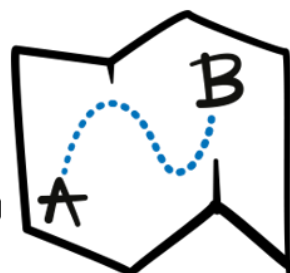
The ketogenic diet is very high in fat, enough protein for growth and very low in carbohydrate. The table below shows carbohydrate-containing foods. The ketogenic diet provides small amounts of fruits and vegetables and dairy products, while other carbohydrate-containing foods are limited or excluded. The diet is carefully calculated for each child individually and is dependent on their age, growth and activity level.

Foods containing carbohydrates	
Excluded	In small amounts
<ul style="list-style-type: none"> • Foods high in sugar including sweets, some fizzy drinks, puddings, chocolate, cake • Bread • Rice • Pasta • Cereals and grains 	<ul style="list-style-type: none"> • Dairy products (which contain a natural sugar called lactose) • Fruit • Vegetables – particularly starchy vegetables such as potatoes, butternut squash, cassava, pumpkin, yam, parsnips; and pulses including peas, beans and lentils

The ketogenic diet aims to mimic the effect of fasting, after it was noticed that this can reduce seizures in some patients. When we fast, or eat a ketogenic diet, our bodies use fat instead of carbohydrate as the main energy source, producing ketones. Although the ketogenic diet has been proven to be helpful in reducing seizures in some patients, the exact way that this works is not known.

What are the benefits of the ketogenic diet?

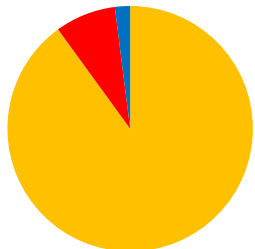
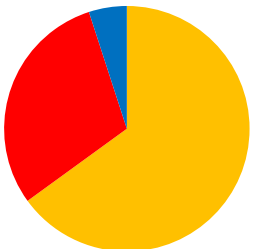
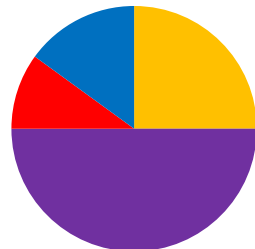

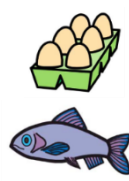

- The ketogenic diet has been shown to be effective in significantly reducing seizures in about half of the children who start it. A small number of children will become seizure-free on the diet.

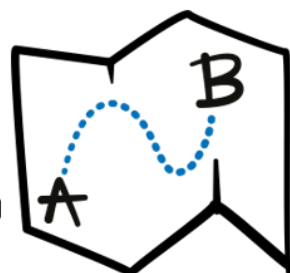


- For some children, anti-epileptic medications can be reduced, leading to a reduction in side effects of medications.
- Some families also report improvements in behaviour, learning ability, development and awareness.

Types of ketogenic diet

There are different types of ketogenic diets which are used. The ketogenic team will advise on the diet most suitable for your child. The dietitian will calculate the diet to ensure that it is safe and nutritionally adequate. For certain types of the diet, some special products may be needed which are available on prescription.

Classical ketogenic diet (CKD)	Modified ketogenic diet (MKD)	Medium chain triglyceride (MCT) diet
<ul style="list-style-type: none"> • Fat in the diet provides – around 90 per cent of calories and mostly comes from foods naturally high in fat, like double cream, butter, oil and avocado. • Carbohydrates are very limited. • Diet is lower in protein than a normal diet, but provides enough for growth. • All foods are weighed for everything eaten on the diet. 	<ul style="list-style-type: none"> • High in fat with limited carbohydrate and unlimited protein. • Carbohydrates are weighed and fat is provided in household measures (e.g. 1tbsp double cream). • Protein foods do not need to be weighed. 	<ul style="list-style-type: none"> • More generous intake of protein and carbohydrate. • Diet contains some fat which occurs naturally in food, as well as supplements of MCT fat. • Prescribed supplements will include: MCT oil and Liquigen®. • All foods are weighed for everything eaten on the diet.
		
<p>Key</p> <ul style="list-style-type: none"> ■ Fat ■ Protein ■ Carbohydrates ■ MCT fat   		



Before starting the ketogenic diet

- Referrals for the diet are made by your child's paediatrician or paediatric neurologist.
- Before starting the diet, your child will need to see the ketogenic team and have the following:
 - Blood and urine tests to ensure the diet is safe to start
 - Weight and height measurements
 - A medication review
 - A review of your child's seizure types and how often seizures are happening
 - A review of your child's current diet

If the team are happy for your child to start, an appointment will be arranged with the dietitian who will discuss the individual diet plan for your child. The nurse will teach you how to do a finger prick blood test to check your child's blood ketone and blood glucose levels and will discuss what to do if your child is unwell.

When your child has started the ketogenic diet

- Once your child has started the ketogenic diet, the dietitian will be in touch with you regularly by phone or email to discuss how the diet is going, as well as to monitor your child's weight and blood ketone levels. They may advise changes to the diet during this time.
- The ketogenic team will follow you up after three months of starting the diet to check whether the diet is still the most appropriate treatment option
- The ketogenic team will ask you to keep a ketone and seizure diary to help best manage and adjust your child's diet.
- It is important to follow the diet as the dietitian has advised, and to weigh and measure foods carefully. If you have any problems following recipes, or have concerns about side effects, you should discuss these with your dietitian before making any changes.
- The diet may be weaned after approximately two years to evaluate the benefits of the diet and whether or not to continue with the diet.

Further information and support

- Matthew's Friends (UK) - www.matthewsfriends.org
- The Daisy Garland Charity (UK) - www.thedaisygarland.org.uk

Further information is also available from:

- Epilepsy Action - www.epilepsy.org.uk
- Young Epilepsy - www.youngepilepsy.org.uk/

