



Diets and Epilepsy

There are a number of diets linked to the treatment of epilepsy. Children and adults with uncontrolled seizures may be helped by these diets however there is no way to predict beforehand whether it will be successful.

This factsheet provides a summary of these diets. Each of these diets should only be initiated under the supervision of a dietitian and with the approval of treating doctors and specialists.

What is the Ketogenic diet?

The Ketogenic diet is a special high-fat diet that is used for difficult to treat seizures. Heavy cream, butter and vegetable oils provide the necessary fat. It is low in carbohydrates thus eliminating sugar and other carbohydrate rich foods such as bread, rice, pasta and cereals. The main source of carbohydrate is from small serves of measured fruits and vegetables.

What is the difference between the Classical Ketogenic diet and the Modified Ketogenic Diet?

A variety of diets have been developed over time and as a result the Ketogenic diet for epilepsy is now referred to as the "classical" Ketogenic diet. This differentiates the ratio controlled diet from popular mainstream diets which may be referred to as 'ketogenic'.

The "classical" ketogenic diet is an exact diet where every meal must provide just the right amount of fat, protein and carbohydrates. The diet is calculated in terms of ratios such as 4:1, 3:1 and 2:1. In a 4:1 ratio, there is 4 times as much fat as there is protein and carbohydrate combined. The dietitian devises meal plans that complete the required fat, protein and carbohydrate for each meal. Recipes indicate the exact gram of each food ingredient that must be accurately weighed on a gram scales.

A typical meal includes a small amount of fruit or vegetables, a protein rich food, and a source of fat such as heavy cream and butter or vegetable oil.

The Modified Ketogenic Diet (or MKD) is less restrictive than the Classical Ketogenic Diet. It allows all protein rich foods such as meat, chicken, eggs and fish to be eaten to appetite and fats are encouraged. Food does not need to be weighed and recipes do not need to be precise.

Carbohydrate foods are counted and spread throughout meals with the aim to keep within the daily gram limit set by the dietitian.

The MKD is often used for adolescents and adults as it allows more flexibility in mealtime choices compared with the Classical Ketogenic Diet.

Who can be helped by the diet?

Children from infancy through to teenage years and adults with uncontrolled seizures may find their seizure are reduced by either of these diets. There is no way of predicting this reduction or whether it will be successful. Children with feeding tubes and some infants are commenced on the Ketogenic diet using a special formula designed for this purpose. Teenage Children and adults may find the diet difficult to follow due to its restrictions.

How does the diet work?

Normally, your body breaks down the carbohydrates in the food you eat to glucose or sugar, which is the fuel for the brain and your body. When you do not have enough carbohydrate (such as during starvation) your body starts to break down fat reserves to use as fuel for your body instead. When fat is broken down it produces a by-product called ketones. The body can use these ketones as a source of energy instead of glucose. The ketones circulate through the blood in the body and brain and then are excreted into the urine. These ketones in the brain act similar to epilepsy medications. One theory attributes the anti-seizure effect of the diet to the ketones that the Ketogenic diet produces.

The Modified Ketogenic Diet (MKD) has replaced previous terminology such as Modified Atkins Diet (MAD). Both are low carbohydrate diets although the fat content of the diets varies.

The Modified Ketogenic Diet (MKD) is more commonly used in epilepsy treatment settings.

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encouraged. Food does not need to be weighed and recipes do not need to be precise. Carbohydrate foods are counted and spread throughout meals with the aim to keep within the daily limit.

Are these diets healthy?

These diets alone do not contain enough vitamins or minerals. A nutritional deficiency could develop without supplements. Generally a multivitamin and mineral supplement plus calcium is prescribed while on the diet. A common adverse effect of the diet is constipation. There are dietary options to prevent this including eating high fibre vegetables and drinking sufficient water. In addition, it is important to monitor blood cholesterol levels and other levels of vitamins and minerals while on the diet. Blood tests are also required prior to commencing the MKD diet and so is ongoing monitoring for the duration of the diet.

How effective are the diets?

Studies following children on the diet for long periods reveal around 50% of those treated with either the Classical Ketogenic diet or Modified Ketogenic diet have greater than 50% seizure reduction. Greater rates of seizure reduction are seen in some children with specific epilepsy syndromes. More and more research is also being undertaken for adults which are showing similar outcomes.

Referrals

For safety and to ensure the best opportunity for seizure reduction, it is recommended that you speak with neurologists or other specialists before children, teenagers or adults commence these diets. All diets require dietary supervision.

Blood tests are required before starting the diet to check for anything that might put you at risk if you were to start the diet. For people living in South East Queensland it is possible to be referred either publicly or privately as long as the neurology team is supportive of the referral.

Referral information:

Both adults and children using either the public or private health systems require approval from their treating neurologist and referral to a trained Accredited Practising Dietitian. These diets must be conducted under medical supervision.

For adults and children:

Public: You must be under the care of a Neurologist who is supportive of commencing the diet.

Private: Various private services are available throughout Queensland.

Those wishing to attend the Dietetics Mater Health and Wellness Clinic must be referred by private neurologist – MKD packages are available.

Contact: 07 3163 6000

Useful Websites

www.charliefoundation.org

www.matthewsfriends.org

<http://wellness.mater.org.au/>

<http://www.mater.org.au/health/services/allied-health>

<https://www.childrens.health.qld.gov.au/service-dietetics-food/>

Acknowledgements:

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Although every effort has been made to ensure that the information provided is accurate and up to date, Epilepsy Queensland cannot accept any liability in relation to the information provided. It is strongly recommended that you discuss any information with your doctor or other relevant organization.