COMPARISON OF DIET THERAPIES FOR EPILEPSY

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QUESTIONS	Ketogenic Therapies	MCT Oil	Low Glycemic Index Treatment	Modified Atkins
Is medical supervision required	Yes	Yes	Yes	Yes
Is diet high in fat?	Yes	Yes	Yes	Yes
Is diet low in carbohydrate?	Yes	Yes	Yes	Yes
What is the ratio of fat to carbohydrate & protein?	4:1, 3:1, 2:1, 1:1	Approximately 1:1	Approximately 1:1	Approximately 2:1
How much carbohydrate is allowed on a 1000 Calorie diet?	8gm carb on a 4:1 16gm carb on a 3:1 30gm carb on a 2:1 40-60gm carb on a 1:1	40-50gm	40-60gm	10gm adolescents or 15gm adults for 1 month 20gm afterwards
How are foods measured?	Weighed	Weighed or measured	Measured or estimated	Estimated
Are meal plans used?	Yes	Yes	Yes	Optional
Where is the diet started?	Hospital	Hospital	Home	Home
Are calories controlled?	Yes	Yes	Yes	No
Are vitamin and mineral supplements required?	Yes	Yes	Yes	Yes
Are liquids (fluids) restricted?	No	No	No	No
Is a pre-diet laboratory evaluation required?	Yes	Yes	Yes	Yes
Can there be side-effects?	Yes	Yes	Yes	Yes
What is the overall difference in design of these diets?	This is an individualized and structured diet that provides specific meal plans. Foods are weighed and meals should be consumed in their entirety for best results. The ratio of this diet can be adjusted to effect better seizure-control and also liberalized for better tolerance. This diet is also considered a low glycemic therapy and results in steady glucose levels.	An individualized and structured diet containing Medium Chain Triglycerides (MCT) which are highly ketogenic. This allows more carbohydrate and protein than the classic ketogenic diet. A 2008 study showed that both diets are equal in eliminating seizures. A source of essential fatty acids must be included with this diet.	This is individualized but less structured diet than the ketogenic diet. It uses exchange lists for planning meal and emphasizes complex carbohydrates. The balance of low glycemic carbohydrates in combination with fat result in steady glucose levels. It is not intended to promote ketosis.	This diet focuses on limiting the amount of carbohydrate while encouraging fat. Carbohydrate may be consumed at any time during the day as long as it is within limits and should be consumed with fat. Suggested meal plans are used as a guide. Protein is not limited but too much is discouraged

STATISTICS ON TREATMENTS FOR EPILEPSY

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Epilepsy is a diagnosis that is made after someone has had a seizure along with specific symptoms. An anti-seizure drug is typically tried as a first line of treatment. Some people are candidates for epilepsy surgery if their epilepsy is found to stem from a localized area of the brain.

Statistics on the success of anti-seizure drug treatment haven't changed in 60 years.[1]

- After trying the 1st drug, 47% become seizure-free; 53% continue having seizures.
- After trying the 2nd drug, 13% become seizure-free; 40% continue having seizures.
- After trying the 3rd drug, 1% become seizure-free; 39% continue having seizures.

This treatment failure is known as **"medication resistant epilepsy".**

WHEN SHOULD KETOGENIC DIET THERAPY BE CONSIDERED?[2]

After trying a 2nd drug according to the International Ketogenic Diet Study Group's published guidelines in 2018 and, sooner for some conditions (see chart below).

ACCORDING TO THE 2016 COCHRANE REVIEW OF EVIDENCE FROM 11 RANDOMIZED CONTROLLED TRIALS:[3]

Seizure freedom reached as high as 55% with the ketogenic diet and 10 to 25% with the Modified Atkins Diet (MAD).

The proportion of individuals who had 50% or greater seizure reduction was as high as 85% in the ketogenic diet and 60% in MAD.

KETOGENIC DIET THERAPY SHOULD BE TRIED EARLIER IN THE COURSE OF TREATMENT FOR THESE CONDITIONS: [2]

Conditions where diet therapy should be considered.

- Angelman syndrome
- Complex 1 mitochondrial disorders
- Dravet syndrome3
- Epilepsy with myoclonic–atonic seizures (Doose syndrome)
- Glucose transporter protein 1 deficiency syndrome
- Febrile infection–related epilepsy syndrome
- Formula-fed (solely) children or infants
- Infantile spasms
- Ohtahara syndrome
- Pyruvate dehydrogenase deficiency
- Super-refractory status epilepticus
- Tuberous sclerosis complex

Conditions where diet therapy could be considered

- Adenylosuccinate lyase deficiency
- CDKL5 encephalopathy
- Childhood absence epilepsy
- Cortical malformations
- Epilepsy of infancy with migrating focal seizures
- Epileptic encephalopathy with continuous spike-and-wave during sleep
- Glycogenosis type V
- Juvenile myoclonic epilepsy
- Lafora body disease
- Landau-Kleffner syndrome
- Lennox-Gastaut syndrome
- Phosphofructokinase deficiency
- Rett syndrome
- Subacute sclerosing panencephalitis

1. Kwan P., Brodie, MJ. N Engl J Med. 2000;342:314-31. Early identification of refractory epilepsy.
2. Kossoff EK, Zupec-Kania BA, Auvin S. Optimal clinical management of children receiving dietary therapies for epilepsy: Updated recommendations of the International Ketogenic Diet Study Group. Epilepsia Open, 1–18, 2018 doi: 10.1002/epi4.12225
3. Martin K, Jackson CF, Levy RG, Cooper PN. Ketogenic diet and other dietary treatments for epilepsy. Cochrane Database of Systematic Reviews 2016, Issue 2. Art. No.: CD001903. DOI: 10.1002/14651858.CD001903.pub3.