

Mini Review

What are the Benefits of a Ketogenic Diet, especially for the Brain? - A Review

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Abstract

We live in a time when the quality of food in 1st and 2nd world countries has reached an all-time low. Industrially processed food makes up the majority of the diet, with high levels of sugar, low-quality fats and table salt. The consequences of this are civilization diseases of all kinds, which, in addition to diabetes mellitus, primarily cause deaths from heart, blood vessel and brain diseases. The ketogenic diet can be a solution to this. Above all, it offers the brain the opportunity to return back to its natural ability to process ketone bodies instead of glucose. The results are excellent and should lead to a rethink.

Keywords: Ketogenic Diet, Brain, Ketone Bodies, Glucose

Received date: May 25, 2025; **Accepted date:** June 01, 2025; **Published date:** June 10, 2025

Citation: Manfred Doepp (2025) What are the Benefits of a Ketogenic Diet, especially for the Brain? - A Review. J Clin Trial Case Stud 7: 2.

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Introduction

We live in a dough and sugar culture: wheat bread, rolls, pasta, snacks, cakes. Hardly any beneficial nutrients, but blood sugar chaos. The consequences are visible and tangible: cravings, weight gain, lack of energy, sleep problems. Many patients say that they "constantly need something" - one of the many artificially produced bars or sugar-rich drinks or juices. But the body does not demand food with an "up and down" of blood sugar levels and insulin. It needs a natural rhythm and stability. This is where the ketogenic diet comes in: not as a diet, but as a return to a healthier metabolic mode.

Ketosis Instead of a Carbohydrate "coma"

Eating ketogenically does not mean eating only bacon, butter and meat. It means allowing the body to burn fats/oils instead of sugar. The liver forms ketone bodies from fatty acids-a clean, efficient fuel for the brain and muscles. Ketone bodies are small energy stores: made from fat, designed for performance [1-3].

This principle is not an idea of modern fitness gurus, but an ancient ability of the body to remain efficient in times of scarce carbohydrates. Originally, the ketogenic diet was even used medically-for example to treat epilepsy [4-6].

What does "ketogenic" mean?

Essentially, it's about three things:

- As few carbohydrates as necessary-ideally less than 50 grams per day
- As much healthy fat as sensible
- Proteins-but not in excess, but high quality and enough to cover your needs

The idea behind it is simple-but physiologically highly effective: When insulin levels are high, they block fat metabolism. Only when insulin levels fall does the body switch-from storing to utilizing, from dependency to self-propulsion.

It then begins to extract energy from fat-and not only that: the regeneration of the cells, autophagy, also gets going. Sounds logical and convincing. It is an old, but false, notion that the brain needs glucose to work. This is only the case if it has become so accustomed to glucose that it has become dependent on it.

Dependence on glucose can lead to addiction of the brain, which in turn is associated with "switching" [7]. This means that the brain reacts paradoxically to stimuli: positive stimuli are rejected, negative stimuli are accepted. This occurs frequently in children. "Deswitching" can be considered as a therapy, accompanied by avoiding substances that the body cannot tolerate. In addition to sugar, this nowadays also includes technical electro smog.

The brain can live of ketone bodies just as well and more easily. This has the advantage of preventing Alzheimer's as an auto aggressive inflammation of the glia ("diabetes type 3") [8].

In the 1960s, it was discovered that medium chain triglycerides (MCTs) produce more ketone bodies and therefore more energy per unit mass in the body than the predominantly long-chain triglycerides of normal dietary fats [5]. MCTs are also absorbed more efficiently and transported faster to the liver via the hepatic portal vein instead of the lymphatic system [6].

Concrete

But what do you eat then?

What is left over when bread, pasta and sweetened foods are reduced?

The answer: quite a lot-if you say goodbye to old habits.

The menu for one day could look like this:

- In the morning: eggs with avocado (instead of jam and sugar in your coffee)
- For lunch: roasted vegetables with feta/tofu, olive oil and pine nuts
- In the evening: wild salmon with asparagus and herb butter
- For dessert: berries with coconut cream or goat's yogurt

As snacks, eat nuts (non-genetically modified). The focus is on products that are not filling but nourishing: broccoli, zucchinis, avocado, cabbage, and root vegetables in particular. They do contain carbohydrates, but in a slowly assimilable form and without steep blood sugar spikes. In addition, high-quality fats such as olive oil, coconut oil, linseed oil, hemp oil, ghee or butter from grazing animals. If you eat meat, make sure it is of high quality and organic origin: Beef, veal and poultry. Pork should be avoided: The high content of arachidonic acid can promote auto aggressive inflammation-which is a particular problem for chronically ill people. Meat from animals that have been exposed to stress before slaughter should be avoided [9].

Ketogenic does not mean fat in quantities. It means: the right fats-consciously chosen, used wisely. Because not all fats are the same, and not all oils are the same. What the metabolism needs is energy, not triggering inflammation. But this is exactly what many modern oils provide: trans fats from margarine and deep-fat fryers, oxidized fats from sunflower or soybean oil that has been heated several times. And above all linoleic acid, an omega-6 fatty acid that fuels inflammation. It is found in countless convenience products because it is cheap.

The better choice: heat-stable fats that do not immediately go up in smoke, such as coconut oil, ghee and clarified butter. Olive oil and linseed oil are ideal for cold dishes-but natural and not burnt in a pan or deep fryer. Especially in a ketogenic phase, the quality of the fat determines the effect. Whoever makes the distinction here decides between inflammation and health. Cold-pressed olive oil improves the body's absorption of lycopene, the antioxidant that gives tomatoes their red color. It is also worth mentioning the cholesterol lie, which was created around 50 years ago to replace butter with margarine. However, low cholesterol reduces the body's own production of steroid hormones.

Eat More Naturally

Practice shows that it works. Time and again, people report stable energy levels, better sleep, a clearer head and less appetite. Some remain ketogenic in the long term, others use it as a reset-for example after a fasting cure or to relieve chronic complaints. However, the changeover should be made slowly [10].

The ketogenic diet is not a dogma or a panacea. Nor should it be followed fanatically. But it does make us eat more consciously: think about protein quality, rediscover a variety of vegetables and distinguish between good and less good fats. Back to metabolic sanity means: out of sugar inertia and into self-regulation. As a new direction for more conscious eating. The ketogenic diet is not a trend, but a reminder of what is possible when we trust our bodies again.

Discussion & Conclusion

Let's remember that sugar only became part of the diet in most countries when the Spanish discovered the Caribbean and began to cultivate cane sugar (although pressed cane sugar was still relatively healthy as molasses). Until then, the main sweetener in Europe was honey, which was available on festive days. A negative turning point was the cultivation of sugar beet around 300 years ago, resulting in refined household sugar, which is a burden to us all. After that, metabolic problems began to occur in children, accompanied by tooth decay and metabolic acidosis. We may take bicarbonate to counteract this.

The Paleo Diet [11-14] as a form of ketogenic nutrition would be a step back to a better and millennia-old past, when men hunted animals and women gathered roots and berries. The human digestive system as well as the brain were informed and shaped back then, they cannot switch to an abnormal and harmful form of nutrition in a short time-relative to the age of humanity. It is time we take this into account, especially for our heart and brain.

Acknowledgement

The author thanks Dr. Jan Roy Edlund for his sponsoring.

Competing Interests

The author declares no competing interests.

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