

Nutrition and fasting for the brain: Why the keto diet shows promise

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Eline Dekeyster: "I want to implement scientifically proven ketogenic interventions safely in healthcare." Credit: Monique Shaw/Leiden University

Autism, Alzheimer's and bipolar disorder: Can the development of these mental health conditions be influenced by the ketogenic diet?

Increasingly, research suggests it might. "For those it helps, it can be life-changing," says neuroscientist Eline Dekeyster.

The turnout of more than 700 attendees, both live and online, at Eline Dekeyster's lecture on nutrition and the brain signals how popular the topic is. Not surprising, according to the neuropsychologist.

"Many people struggle with [mental health issues](#), and more research shows that nutrition plays a significant role," she explains. Dekeyster heads the Lifestyle Brain Interaction lab, where she studies how nutrition affects the development of Alzheimer's and autism, among others. Can lifestyle and diet help prevent such mental health issues? "Yes, I believe so," she asserts.

The power of ketones

Dekeyster and her colleagues study the effects of ketogenic interventions on mental health. "A ketogenic intervention," she explains, "is a way to bring the body into a state of ketosis, which occurs when you have a certain amount of ketones in your blood. Ketones are a fuel for your body but can also regulate the expression of our DNA, influencing how our genes manifest. They also have anti-inflammatory effects and protect our brain cells."

Entering ketosis

How do we achieve this state of ketosis with all its potential benefits? "There are three ways," Dekeyster explains. "First, fasting: when you don't eat for an extended amount of time, your body first depletes its glycogen stores from carbohydrates. Afterward, your body switches to burning fat, releasing it from tissue and converting it into ketones in the liver. Second, you can take supplements, ketones in liquid or powder

form. Finally, you can follow a ketogenic diet, a low-carb, high-fat dietary pattern."

Bread, grains, potatoes

Without conscious effort, the body won't easily enter a state of ketosis. "Unlike in hunter-gatherer times, we no longer go long periods without food. In fact, food is available everywhere, and many people eat all day long." Additionally, the average Western diet is high in bread, grains, potatoes, and rice, while a [low-carb](#) diet is needed to switch the body to fat burning and bring it into ketosis.

Is keto safe for everyone?

While Dekeyster is positive about the effects of ketogenic interventions for various conditions, she emphasizes that the keto diet is not suitable for everyone. "Keto can be dangerous. With uncontrolled diabetes or [excessive alcohol consumption](#), you can get too many ketones in your blood, making your blood acidic and impairing oxygen transport.

"Also, with certain [metabolic disorders](#), kidney diseases, heart rhythm disturbances, and in combination with certain medications, keto is not advisable. Always consult your doctor if you are interested."

Hippocrates

Despite the surge in keto cookbooks and more and more research being done on the topic, keto interventions are nothing new. "Hippocrates suggested as early as 500 BC that fasting was an effective therapy for various conditions," says Dekeyster.

"Also, since 1921, the [ketogenic diet](#) has been the standard treatment for

epilepsy patients: it halved the number of seizures in half of them, and 10% even fully recovered."

Symptom management

Dekeyster finds increasing evidence that ketogenic interventions can be effective in preventing autism. "People with autism often suffer from [anxiety disorders](#) and depression; current treatments focus on symptom management. I wanted to address the underlying mechanisms of autism."

Ketones and autism

One approach is to target the genetic variations associated with autism. "In research, we bred mice with the same genetic markers as people with autism. These mice exhibited repetitive behaviors, social interaction difficulties, or increased anxiety—common [autism](#) symptoms. We fed them ketogenic food, as ketones can activate or deactivate certain DNA. The symptoms in the mice decreased."

Human studies also show promising results. "But these are still small studies of up to 45 people," Dekeyster notes.

Hopeful

Additionally, various studies suggest that ketogenic interventions may also be effective in preventing Alzheimer's and reducing symptoms of [bipolar disorder](#). With her Lifestyle Brain Interaction research group, Dekeyster aims to further explore how ketogenic interventions work in different mental disorders to eventually implement these interventions safely in mainstream health care.

"Keto works for some people but not for others. But for those it works

for, it can be life-changing. And especially if there are no other treatment options, that's hopeful."

Want to explore keto further?

- Want to read more about Dekeyster's research? Visit the [Lifestyle Brain Interaction research group's website](#).
- For those curious about the effects of keto, Dekeyster recommends checking the website [Metabolic Mind](#).
- On the website [Diagnosis Diet](#), you'll learn more about how your diet can impact the development of mental health conditions.

Provided by Leiden University

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