

Modified Atkins diet can cut epileptic seizures in adults

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A modified version of a popular high-protein, low-carbohydrate diet can significantly cut the number of seizures in adults with epilepsy, a study led by Johns Hopkins researchers suggests. The Atkins-like diet, which has shown promise for seizure control in children, may offer a new lifeline for patients when drugs and other treatments fail or cause complications.

For almost a century, doctors have prescribed an eating plan called the ketogenic diet to treat children with epilepsy. This diet often consists of a short period of fasting, strictly limits fluids and drastically restricts carbohydrates. It appears to limit or even eliminate seizures, possibly by generating the build-up of ketones, compounds the body produces when it derives calories mostly from fat. Some of the largest studies to scientifically test this diet's efficacy took place at Johns Hopkins in the mid-1990s, led by pediatric neurologists John Freeman, M.D., and Eileen Vining, M.D.

Why exactly the ketogenic diet works remains unknown, and it is notoriously difficult to follow, relying almost solely on fat and protein for calories. Consequently, doctors typically recommend it only for children, whose parents can strictly monitor their eating habits. The ketogenic diet is almost never prescribed to adults, who generally make their own food choices and often have difficulty complying with the diet's strict guidelines.

In 2002, Johns Hopkins researchers began testing a modified version of

the Atkins diet in children with epilepsy. The modified diet shares the high-fat focus of the ketogenic diet, prompting the body to generate ketones. However, it allows more carbohydrates and protein, doesn't limit fluids and calories, and has no fasting period. When studies showed that the new diet prevented or curtailed seizures in children, the researchers began testing it for efficacy and ease of use in adults.

Reporting on the results in the February issue of *Epilepsia*, Eric H. Kossoff, M.D., an assistant professor of neurology and pediatrics at the Johns Hopkins University School of Medicine, said 30 adults with epilepsy, ages 18 to 53 years, who had tried at least two anticonvulsant drugs without success and had an average of 10 seizures per week, were placed on the modified Atkins diet. All patients were seen for free in the Johns Hopkins General Clinical Research Center.

The regimen restricted them to 15 grams of carbohydrates a day. "That's a few strawberries, some vegetables, or a bit of bread," says Kossoff. The diet offers most of its calories from fat-eggs, meats, oils and heavy cream-with as much protein and no-carb beverages as patients want.

Each day, patients kept diaries of what they ate and how many seizures they had. The researchers evaluated how each patient was doing at one, three and six months after starting the diet.

Results showed that about half the patients had experienced a 50 percent reduction in the frequency of their seizures by the first clinic visit. About a third of the patients halved the frequency of seizures by three months. Side effects linked with the diet, such as a rise in cholesterol or triglycerides, were mild. A third of the patients dropped out by the third month, unable to comply with the restrictions.

Fourteen patients who stuck with the diet until the six-month mark chose to continue, even after the study ended-a testament to how effective the

diet worked to treat their epilepsy, Kossoff notes.

Though the modified Atkins diet won't be a good fit for all patients, says Kossoff, "it opens up another therapeutic option for adults trying to decide between medication, surgery and electrical stimulation to treat intractable seizures." A second study to examine the diet's effects on adults with intractable seizures is under way.

Source: Johns Hopkins Medical Institutions

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