Intermittent fasting found to increase cognitive functions in mice

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(Medical Xpress)—The Daily Mail spoke with the leader of a team of researchers with the National Institute on Aging in the U.S. and reports that they have found that putting mice on a diet consisting of eating

nothing every other day for a period of time day resulted in improved cognitive functioning. The research was led by Dr. Mark Mattson who runs a neuroscience lab at the institute.

Mattson reported that the team put 40 mice on a fasting regimen—one day on, one day off—for a period of time, and recorded brain activity throughout. He claims the mice were more alert, and that the parts of their brains involved in memory and learning were more active. The team also found that the mice had on average a 50 percent increase in a brain chemical called brain derived neurotrophic factor (BDNF), a protein encoded by the BDNF gene. Prior research has suggested that it plays a role in prolonging the life of nerve cells, promotes the growth of new ones, and improves overall cognitive functioning.

Mattson explained that when the body goes without nutrition for 10 to 14 hours, it stops living off energy stored in the liver and turns to fat stores as a replacement. That, of course, leads to weight loss, which, he notes, is the science behind the 5:2 diet, in which people fast for two days each week. He further explains that for the body to use fat stores, it must first convert them to ketones. Ketones, he adds, act directly on nerve cells, causing them to produce BDNF, and that would explain why the mice showed improved cognitive functioning.

Mattson notes that in their study, they used other mice as a control—they ate every day. But all the mice, whether fasting or eating every day, consumed the same number of calories each week. But it was only those mice fasting every other day that reaped the cognitive benefits. He suggests the same would likely be true for people. Eating a small amount every day will not confer the same benefits as fasting a couple of times a week. He notes also that the improved cognitive results were observed between fasting periods, but suggested the brains of the mice saw benefits during fasting, as well. He theorized that mice and humans, too, would benefit from being able to think more clearly in the distant past

during times when food was scarce because it would be needed to survive.