β-glucan attenuates cognitive impairment via the gut-brain axis in mice

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Abstract

The 'Western' diet is often associated with highly processed foods rich in fat and low in fiber, which can be bad for our metabolism. But unhealthy food choices can also affect our brain, resulting in neuroinflammation and cognitive impairment. In a new study using a mouse model of obesity, researchers evaluated the effect of fiber on cognition and brain function via the gut-brain axis. β-glucan, the major soluble fiber in oat and barley grains, was fed to the mice for 15 weeks. The addition of this fiber prevented diet-induced cognitive impairment in the obese mice and counteracted diet-induced activation of inflammatory cells called microglia in the brain. β-glucan also promoted signaling to create new synapses in the brain and reversed gut barrier dysfunction in the colon. These results highlight the impact that the Western diet has on the gut-brain axis and suggests that increasing consumption of β-glucan-rich foods may help attenuate diet-induced cognitive decline.