Linking the microbiome to memory

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Abstract

The phrase “you are what you eat” is becoming increasingly true. Tiny residents of our GI tracts – gut microbes – affect more than just our digestion. Gut microbiota have recently been linked to host health and behavior through a connection called the “gut-brain axis,” but exactly how our gut microbes affect our brain function remains unclear. A recent study examined the links between host genetics, the gut microbiome, and memory. Using specialized mice, researchers performed genome-wide association analysis to identify variations in DNA that were linked to short-term memory. They then performed association analyses between memory and the gut microbial community in the same mice. The results showed that specific microorganisms, in particular Lactobacillus, were correlated with better memory retention, and inoculating germ-free mice with Lactobacillus species improved their memory compared to controls. Treatment with a Lactobacillus metabolite, lactate, also boosted memory on its own. Although more research is needed to translate these findings to humans, the results provide evidence for a link between Lactobacillus species and memory, opening new avenues for treating memory impairment disorders.