

Probiotics are good for more than your gut

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Many people turn to probiotics for their digestive woes, but a preliminary study suggests that what's good for gut may also be good for the aging brain.

The study involved older adults with [mild cognitive impairment](#), where memory and other thinking skills are starting to slide but people can still carry out their daily tasks. Researchers found that when those individuals took a particular probiotic for three months, their mental abilities improved. And those improvements correlated with specific changes in their [gut bacteria](#).

Experts cautioned that the study is preliminary and must be backed up by further research.

"I think it's too early to tell if the effects are robust and reproducible," said Robert Vassar, director of the Mesulam Center for Cognitive Neurology and Alzheimer's Disease at Northwestern University Feinberg School of Medicine in Chicago.

Still, the findings are promising, according to Vassar, who was not involved in the study.

"I think this advances our understanding of the [gut microbiome](#) and cognition," he said.

The gut [microbiome](#) refers to the trillions of bacteria that dwell in the gut and play a critical role in digestion and many other [bodily functions](#)—from immune defenses, to producing vitamins, anti-inflammatory compounds and even chemicals that influence the brain.

An explosion of research in recent years has been looking into links between the gut microbiome and various diseases, including Alzheimer's—the most common form of dementia.

The question is whether certain gut microbiome profiles—an abundance of particular "bad" bacteria or short supply of some "good" ones—might contribute to those diseases.

Studies so far have found that people with dementia tend to have a gut microbiome that looks different from that of mentally sharp older adults. And one recent study found that is also true of older people who do not yet have dementia symptoms, but do have early markers of Alzheimer's in the brain (abnormal protein deposits known as "plaques" and "tangles").

The new study is different in two ways: It focused on [older adults](#) with mild cognitive impairment—less serious issues with memory and thinking that may, or may not, progress to dementia. Additionally, researchers tested the effects of changing the gut microbiome, with the probiotic *Lactobacillus rhamnosus* GG, or LGG.

LGG was chosen because published research in mice has hinted at possible benefits, according to researcher Mashael Aljumaah, a doctoral candidate at the University of North Carolina at Chapel Hill and North Carolina State University.

The general thinking, she said, is that if probiotics (or other methods of altering the gut microbiome) are going to slow cognitive decline, it's probably best to intervene early, when symptoms are mild.

First the researchers recruited 169 adults ages 52 to 75 who were either cognitively healthy or met the standard criteria for mild cognitive impairment. They were randomly assigned to take either LGG or a placebo every day for three months.

At the outset, the researchers found, people with cognitive impairment showed certain differences in their gut bacteria—including a greater abundance of a type called *Prevotella*—compared with their unimpaired counterparts.

After three months on the [probiotic](#), the situation changed: Participants

with impairment showed a decrease in *Prevotella*, and that shift correlated with improvements in standard tests of memory and thinking skills.

In contrast, cognitively intact participants showed no such changes.

"Only the group that was cognitively compromised at baseline benefitted," Aljumaah said.

Thomas Biederer is adjunct professor at the Friedman School of Nutrition Science and Policy of Tufts University in Boston, and associate professor at Yale School of Medicine's Department of Neurology.

"This study sheds new light on how the microbiome impacts brain health," said Biederer, who was not part of the study.

"I was intrigued by the possibility of targeting the microbiome through specific probiotics to re-balance it and improve cognitive status," he said. "Mechanistically, it will be exciting to understand better to what extent probiotics impact brain inflammatory processes and connectivity in the aging brain."

Aljumaah presented the findings Monday at the annual meeting of the American Society for Nutrition, in Boston. Studies released at meetings are generally considered preliminary until they are published in a peer-reviewed journal.

She said her team plans to study *Prevotella* further, to try to understand out how it might affect cognition.

Aljumaah and Vassar said that researchers have a lot left to learn about the gut-brain connection. That includes figuring out which interventions

might be most effective at slowing [cognitive decline](#)—a combination of probiotics or prebiotics, for example—and which individuals stand to benefit.

Aljumaah also stressed that the dementia process is complex, and there is no single reason that a person develops the disease.

"The gut microbiome would be just one piece of the puzzle," she said.

For now, Vassar advised striving for a [healthy diet](#) like the traditional Mediterranean one—plenty of vegetables, fruit, fiber-rich grains, fish and olive oil, and low amounts of red meat and processed foods. Diet alters the gut microbiome, and certain healthy eating patterns (including the Mediterranean diet) are associated with a lower risk of developing dementia.

And don't forget regular exercise, which is also linked to lower odds of cognitive impairment and dementia.

"It's probably the strongest protective factor we know of," Vassar said.

More information: The U.S. National Institute on Aging has more on [diet and dementia](#).

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