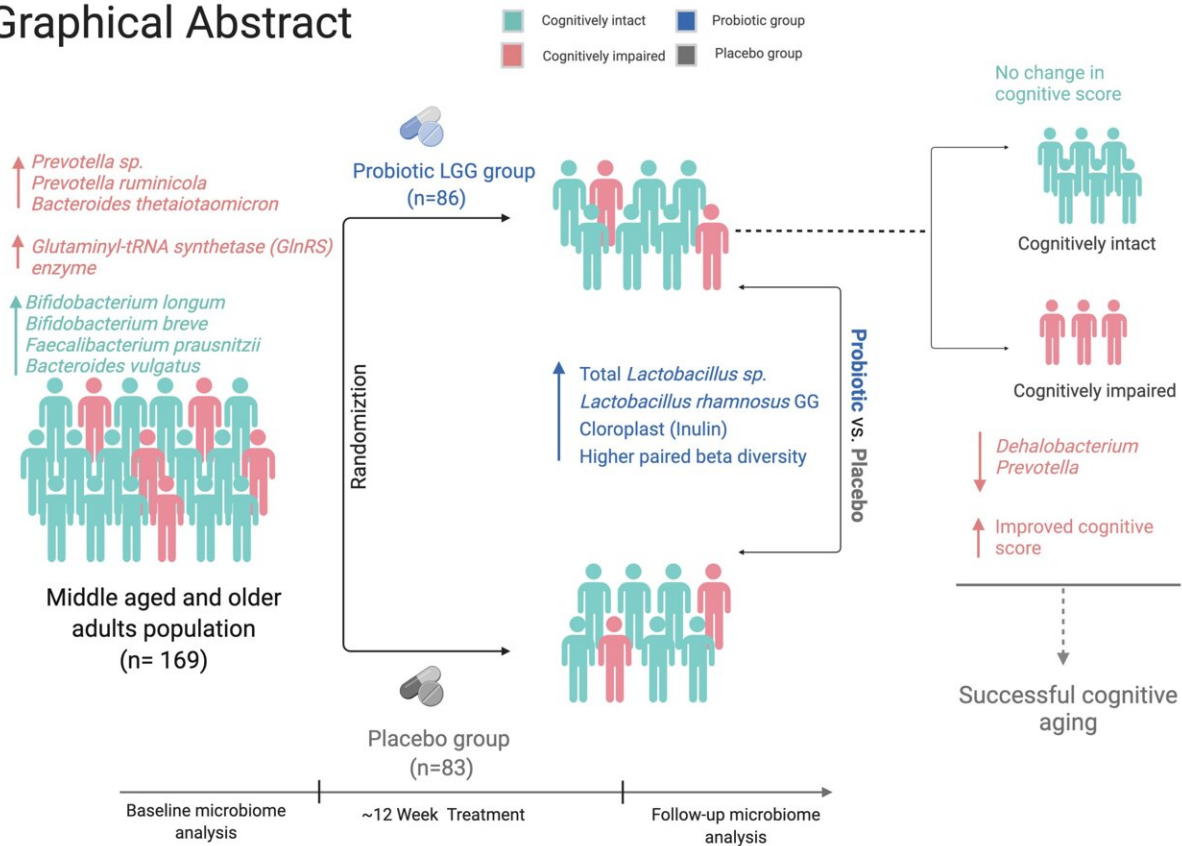


Probiotics may help slow age-related cognitive decline, study finds

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Graphical Abstract



For study participants who had mild cognitive impairment and took the probiotic *Lactobacillus rhamnosus* GG (LGG) for three months, cognitive scores increased. This cognitive improvement was also associated with changes in their gut microbiome. Credit: Mashael Aljumaah, University of North Carolina at Chapel Hill and North Carolina State University

Findings from a new study suggest that taking a probiotic could help prevent the decline in memory and thinking that can accompany aging. This research may pave the way for new, non-invasive treatments that leverage the gut microbiome to mitigate cognitive decline in the aging population.

The researchers found that when study participants with mild cognitive impairment received the [probiotic](#) Lactobacillus rhamnosus GG (LGG) for three months, their cognitive scores increased. This cognitive improvement was also associated with changes in their gut microbiome.

"The implication of this finding is quite exciting, as it means that modifying the gut microbiome through probiotics could potentially be a strategy to improve cognitive performance, particularly in individuals with mild cognitive impairment," said Mashael Aljumaah, a microbiology doctoral candidate at the University of North Carolina at Chapel Hill and North Carolina State University. "This adds a new layer to our understanding of the microbiome brain-gut connection and opens up new avenues for combating cognitive decline associated with aging."

Aljumaah, who is also affiliated with King Saud University in Saudi Arabia, will present the findings at [NUTRITION 2023](#), the annual meeting of the American Society for Nutrition held July 22–25 in Boston.

"Many studies focus on severe forms of cognitive diseases such as Alzheimer's and dementia, but these conditions are more advanced, making them significantly harder to reverse or treat," said Aljumaah. "In contrast, we focused on mild cognitive impairment, which can include problems with memory, language, or judgment. Interventions at this stage of cognitive impairment could slow down or prevent the progression to more severe forms of dementia."

The study involved 169 participants between 52 and 75 years old who were divided into two groups depending on whether they had no neurological issues or mild cognitive impairment. Within each group, participants either received the LGG probiotic or a placebo in a double-blind, randomized clinical trial lasting three months. The researchers selected the LGG probiotic because prior research had shown its potential beneficial effects in animal models.

To investigate the study participants' gut microbiomes, the researchers used 16S rRNA gene sequencing to identify and compare bacteria present in stool samples. They then used whole genome sequencing to gain insights into the functional roles of the bacteria identified.

The analysis revealed that microbes in the genus *Prevotella* were present in a higher relative abundance in participants with mild cognitive impairment than those with no cognitive impairment. This suggests that gut microbiome composition could serve as an early indicator for mild cognitive impairment, offering opportunities for earlier interventions to slow [cognitive decline](#).

For study participants who had mild [cognitive impairment](#) and received the LGG probiotics, the *Prevotella* relative abundance decreased. This change coincided with improved cognitive scores, suggesting that cognitive health in [older adults](#) could be improved by manipulating the [gut microbiota](#).

"By identifying specific shifts in the gut microbiome associated with [mild cognitive impairment](#), we're exploring a new frontier in preventive strategies in cognitive health," said Aljumaah. "If these findings are replicated in future studies, it suggests the feasibility of using [gut microbiome](#)-targeted strategies as a novel approach to support cognitive health."

The researchers are now working to understand the specific mechanisms of how microbes like *Prevotella* influence the gut in a way that improves brain health. Specifically, they are exploring how certain molecules produced by these bacteria modulate the functionality of neuroprotective hormones that can cross the blood-brain barrier.

More information: Aljumaah will present this research at 10:17 a.m. on Monday, July 24 during the Microbiome Poster Theater Flash Session in the Sheraton Boston, Fairfax ([abstract](#); [presentation details](#)).

Provided by American Society for Nutrition

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