

Study finds daily fiber supplement improves older adults' brain function in just 12 weeks

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A daily fiber supplement improved brain function in people over 60 in just 12 weeks. The study, [published](#) recently in *Nature Communications* by researchers from the School of Life Course & Population Sciences

showed that this simple and cheap addition to diet can improve performance in memory tests associated with early signs of Alzheimer's disease.

However, the prebiotic supplements inulin and FOS were found to have no effect on muscle strength over this period.

"We are excited to see these changes in just 12 weeks. This holds huge promise for enhancing brain health and memory in our aging population. Unlocking the secrets of the gut-brain axis could offer new approaches for living more healthily for longer," says first author Dr. Mary Ni Lochlainn from the Department of Twin Research.

As populations age globally, the prevalence of age-related conditions such as [cognitive decline](#) and muscle loss is on the rise. Researchers at TwinsUK, the U.K.'s largest adult twin registry based at King's College London, sought to understand how targeting the microbiota, the diverse community of microorganisms residing in our intestines, using two cheap, commercially available plant fiber supplements inulin and FOS, could impact both muscle health and [brain function](#).

Researchers assigned 36 twin pairs—72 individuals—over 60 years old to receive either a placebo or the [supplement](#) every day for 12 weeks. Neither the analysis team, nor the participants knew which they received until the analysis was complete (double-blind). Alongside this, all study participants did resistance exercises and ate a protein supplement which was aimed at improving muscle function.

Researchers monitored participants remotely via video, online questionnaires and cognitive tests. They found the fiber supplement led to significant changes in the participants' gut microbiome composition, particularly an increase in the numbers of beneficial bacteria such as Bifidobacterium.

While there was no significant difference in [muscle strength](#) between the groups, the group receiving the fiber supplement performed better in tests assessing brain function, including the Paired Associates Learning test which is an early marker for Alzheimer's disease, together with tests of reaction time and processing speed. These measures are important for daily living—for example reacting to traffic or stopping a simple trip-up turning into a fall.

"These plant fibers, which are cheap and available over the counter, could benefit a wide group of people in these cash-strapped times. They are safe and acceptable too. Our next task is to see whether these effects are sustained over longer periods and in larger groups of people," says senior author Professor Claire Steves, professor of aging and health.

Another novel aspect of the study was its remote design which demonstrated the feasibility of conducting trials in older adults without the need for extensive travel or hospital visits, which could be delivered in many settings globally. Challenges such as digital literacy and access to the necessary technology were acknowledged and will be addressed in future larger scale projects with the aim to enhance the quality of life for aging populations worldwide.

More information: Mary Ni Lochlainn et al, Effect of gut microbiome modulation on muscle function and cognition: the PROMOTe randomised controlled trial, *Nature Communications* (2024). [DOI: 10.1038/s41467-024-46116-y](https://doi.org/10.1038/s41467-024-46116-y)

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