

Use of antibiotics by women in midlife linked to later cognitive decline

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A team of researchers from Massachusetts General Hospital and Harvard Medical School, Harvard T. H. Chan School of Public Health, Rush Medical College and Brigham and Women's Hospital and Harvard

Medical School has found a link between the use of antibiotics by middle-aged women and cognitive decline later in life. The group has published a paper describing their work on the open-access site *PLOS ONE*.

Prior research has suggested that there is a connection between gut microbiome health and [mental health](#)—communication between the gut and the central nervous system has been labeled the gut-brain axis. And some studies have shown an apparent link between problems in the gut and mental diseases, such as depression and schizophrenia. Prior research has also shown that antibiotics use can lead to serious disruptions in the microbiome. This is not surprising, since the microbiome is made up partly of bacteria. In this new effort, the researchers found a link between antibiotics use by women during [middle age](#) and a larger than normal degree of [cognitive decline](#).

To learn more about possible impacts of antibiotics use by middle-aged women, the researchers pulled data from the Nurses' Health Study II, an ongoing project that involves collecting health data from female nurses over multiple years. In their study, the researchers focused on middle-aged female nurses (mean 54.7 years). They analyzed data from 15,129 female nurses describing antibiotics use and the results of cognitive scores collected several years later, comparing those who took antibiotics over different duration periods with those who did not. The [cognitive tests](#) consisted of computerized playing card tasks to measure thinking speed, attention, learning and memory. Each of the nurses was classified into one of four categories depending on their use of antibiotics, from no use to over two months of use.

The researchers found that the nurses who had taken antibiotics for at least two months scored lower on the cognitive tests (taken seven years later) than the nurses who had taken [antibiotics](#) for a shorter period of time, or not at all. The researchers suggest the decline was approximately

equivalent to three to four years of aging.

More information: Raaj S. Mehta et al, Association of midlife antibiotic use with subsequent cognitive function in women, *PLOS ONE* (2022). [DOI: 10.1371/journal.pone.0264649](https://doi.org/10.1371/journal.pone.0264649)

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