

Do frequent colds increase your risk for dementia? Mouse study finds link

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Credit: Unsplash/CC0 Public Domain

Getting sick often may impact how quickly the brain ages and increase the risk of dementia or other forms of cognitive decline.

These are the findings of a Tulane University study conducted in partnership with West Virginia University and the National Institutes of Occupational Safety and Health and published in the journal *Brain, Behavior and Immunity*. The study examined aging [male mice](#) and found that repeated, intermittent experiences with moderate inflammation, such as that caused by the flu or a seasonal head cold, caused impaired cognition and disrupted communication between neurons in those [mice](#).

"We were interested in asking whether differences in [infection](#) experience could account, at least in part, for the differences in rates of dementia we see in the population," said lead author Elizabeth Engler-Chiurazzi, Ph.D., assistant professor of neurosurgery at Tulane University School of Medicine. "The mice we were studying were adults approaching middle age that had intact faculties, and yet, when exposed to intermittent inflammation, they remembered less and their neurons functioned more poorly."

This study is the first to model repeated, intermittent infections in mice and examine the long-term consequences for [brain function](#) and health.

Humans often experience infections and inflammation at substantially higher rates than [laboratory mice](#). But given that impairments were observed in mice after only five intermittent inflammatory treatments, the cognitive change in humans may be more robust.

"Our mice only experienced intermittent sickness-like [inflammation](#) a handful of times, so the fact that we observed impairments at all was surprising," Engler-Chiurazzi said. "The effects were subtle, but that's why I find these results meaningful: In a human, cognitive impairments from a similar number of inflammatory experiences might not be noticeable in their daily lives but could have cumulative effects that negatively impact the aging brain."

The findings may have important implications for standard of care around how infections are handled among the elderly and those at risk for dementia. And they are perhaps more relevant in light of the COVID-19 pandemic and ongoing research around the effects of long-COVID syndrome.

Going forward, Engler-Chiurazzi said more work needs to be done to understand why infections impact the [brain](#) and how to mitigate those effects. In addition, she hopes follow-up studies will investigate whether more vulnerable populations impacted by health disparities face a higher burden of neurological effects.

"The biggest take away from this research, in our opinion, is the importance of staying as healthy and infection-free as possible," she said.

More information: E.B. Engler-Chiurazzi et al, Intermittent systemic exposure to lipopolysaccharide-induced inflammation disrupts hippocampal long-term potentiation and impairs cognition in aging male mice, *Brain, Behavior, and Immunity* (2022). [DOI: 10.1016/j.bbi.2022.12.013](#)

Provided by Tulane University

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