

Study: Flu vaccination linked to 40% reduced risk of Alzheimer's disease

June 24 2022



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People who received at least one influenza vaccine were 40% less likely than their non-vaccinated peers to develop Alzheimer's disease over the course of four years, according to a new study from UTHealth Houston.

Research led by first author Avram S. Bukhbinder, MD, a recent alumnus of McGovern Medical School at UTHealth Houston, and senior author Paul. E. Schulz, MD, the Rick McCord Professor in Neurology at McGovern Medical School, compared the risk of Alzheimer's disease incidence between patients with and without prior [flu vaccination](#) in a large nationwide sample of U.S. adults aged 65 and older.

An early online version of the paper detailing the findings is available in advance of its publication in the Aug. 2 issue of the *Journal of Alzheimer's Disease*.

"We found that flu vaccination in older adults reduces the risk of developing Alzheimer's disease for several years. The strength of this protective effect increased with the number of years that a person received an annual [flu vaccine](#)—in other words, the rate of developing Alzheimer's was lowest among those who consistently received the flu [vaccine](#) every year," said Bukhbinder, who is still part of Schulz's research team while in his first year of residency with the Division of Child Neurology at Massachusetts General Hospital. "Future research should assess whether flu vaccination is also associated with the rate of symptom progression in patients who already have Alzheimer's dementia."

The study—which comes two years after UTHealth Houston researchers found [a possible link](#) between the flu vaccine and reduced risk of Alzheimer's disease—analyzed a much larger sample than previous research, including 935,887 flu-vaccinated patients and 935,887 non-vaccinated patients.

During four-year follow-up appointments, about 5.1% of flu-vaccinated patients were found to have developed Alzheimer's disease. Meanwhile, 8.5% of non-vaccinated patients had developed Alzheimer's disease during follow-up.

These results underscore the strong protective effect of the flu vaccine against Alzheimer's disease, according to Bukhbinder and Schulz. However, the underlying mechanisms behind this process require further study.

"Since there is evidence that several vaccines may protect from Alzheimer's disease, we are thinking that it isn't a specific effect of the flu vaccine," said Schulz, who is also the Umphrey Family Professor in Neurodegenerative Diseases and director of the Neurocognitive Disorders Center at McGovern Medical School. "Instead, we believe that the immune system is complex, and some alterations, such as pneumonia, may activate it in a way that makes Alzheimer's disease worse. But other things that activate the immune system may do so in a different way—one that protects from Alzheimer's disease. Clearly, we have more to learn about how the [immune system](#) worsens or improves outcomes in this disease."

Alzheimer's disease affects more than 6 million people living in the U.S., with the number of affected individuals growing due to the nation's aging population. Past studies have found a decreased risk of dementia associated with prior exposure to various adulthood vaccinations, including those for tetanus, polio, and herpes, in addition to the flu vaccine and others.

Additionally, as more time passes since the introduction of the COVID-19 vaccine and longer follow-up data becomes available, Bukhbinder said it will be worth investigating whether a similar association exists between COVID-19 vaccination and the risk of Alzheimer's disease.

More information: Avram S. Bukhbinder et al, Risk of Alzheimer's Disease Following Influenza Vaccination: A Claims-Based Cohort Study Using Propensity Score Matching, *Journal of Alzheimer's Disease*

(2022). [DOI: 10.3233/JAD-220361](https://doi.org/10.3233/JAD-220361)

Provided by University of Texas Health Science Center at Houston

Citation: Study: Flu vaccination linked to 40% reduced risk of Alzheimer's disease (2022, June 24) retrieved 8 May 2024 from <https://medicalxpress.com/news/2022-06-flu-vaccination-linked-alzheimer-disease.html>

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