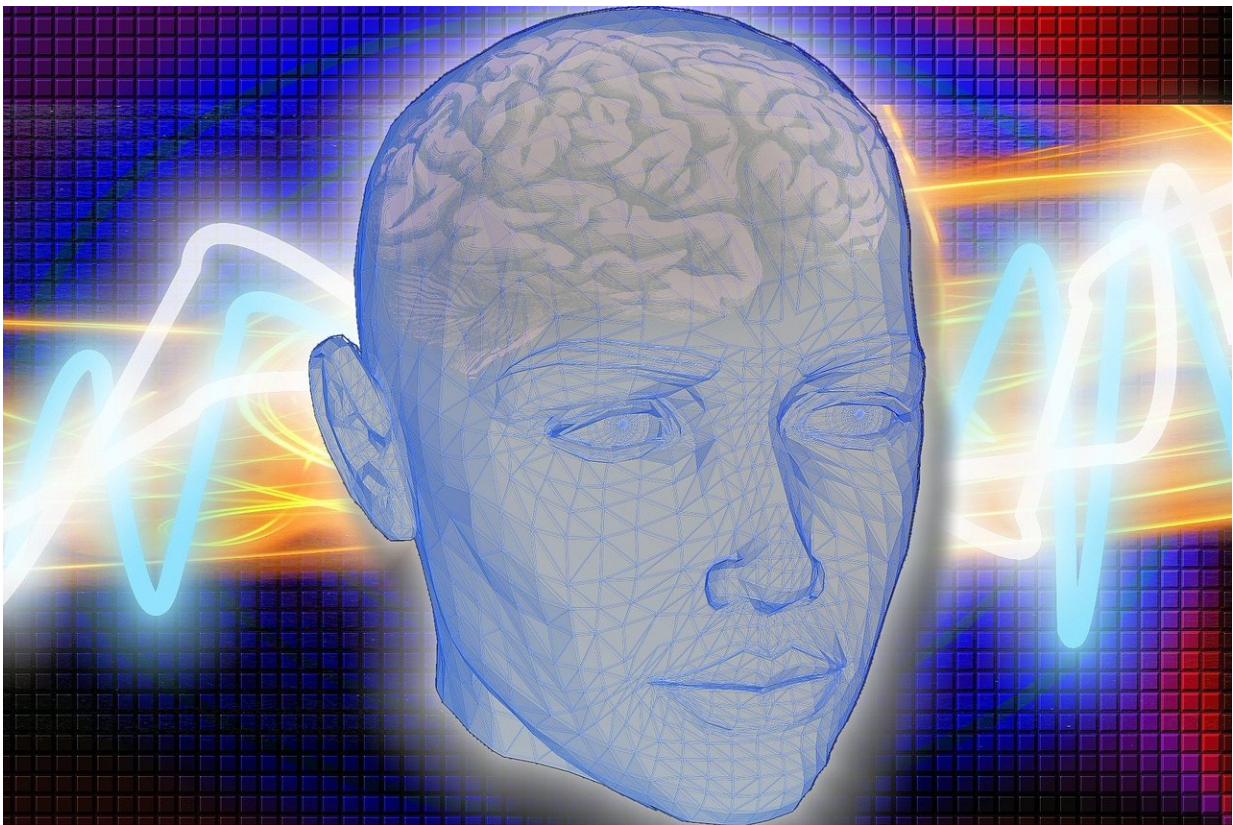


# Preventing seizures after brain injury could stave off dementia

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Credit: CC0 Public Domain

Blocking seizures after a head injury could slow or prevent the onset of dementia, according to new research by University of Alberta biologists.

"Traumatic brain [injury](#) is a major risk factor for [dementia](#), but the reason this is the case has remained mysterious," said Ted Allison, co-author and professor in the Department of Biological Sciences in the Faculty of Science. "Through this research, we have discovered one important way they are linked—namely, post-injury seizures."

"There is currently no treatment for the long-term effects of traumatic brain injury, which includes developing dementia," added lead author Hadeel Alyenbaawi, who recently completed her Ph.D. dissertation on this topic in the Department of Medical Genetics in the Faculty of Medicine & Dentistry.

Traumatic brain injuries are a major risk factor for certain types of dementia, such as Alzheimer's disease and [chronic traumatic encephalopathy](#). Because seizures are common for patients who have suffered these injuries, neurologists often prescribe anti-epileptic treatments to prevent the seizures.

Allison said the new research reveals the potential to refine this approach to treatment with the new goal of preventing dementia.

## **Hadeel Alyenbaawi**

The study's lead author, Hadeel Alyenbaawi, says understanding the link between traumatic brain injury and dementia could help further research into preventive measures.

"Our data suggest that, at least in animal models, blocking these seizures also could have a benefit later in life by slowing or preventing the onset of dementia," he explained. "A prophylactic treatment to prevent dementia is an exciting possibility, though there is much work to be done to develop our concept."

"We are excited to see that our research and the tools we developed resolved some of the mystery around the link between traumatic [brain injury](#) and dementia."

Dementia affects more than 432,000 Canadians over the age of 65, two-thirds of whom are women. The Government of Canada estimates that by 2031, dementia will cost our health-care system \$16.6 billion each year.

"Dementia is devastating for patients and families, and it is growing in prevalence in our aging demographics," added Allison. "These findings open the exciting possibility of refining the anti-epileptic treatments to be a prevention not only of seizures, but also dementia."

"We are excited to see that our research and the tools we developed resolved some of the mystery around the link between [traumatic brain injury](#) and dementia," added Alyenbaawi. "Our data regarding post-traumatic [seizure](#) could also help further investigation into promising preventive measures of these incurable diseases."

**More information:** Hadeel Alyenbaawi et al, Seizures are a druggable mechanistic link between TBI and subsequent tauopathy, *eLife* (2021). [DOI: 10.7554/eLife.58744](https://doi.org/10.7554/eLife.58744)

Provided by University of Alberta

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