

# Study: Having Alzheimer's genes may increase your risk of epilepsy

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People with a genetic predisposition for Alzheimer's disease may have an increased risk of epilepsy and people with a certain type of epilepsy may have an increased risk of developing Alzheimer's disease, according

to a study published in the May 24, 2023, online issue of *Neurology*.

"Our research found that not only are people with Alzheimer's disease more likely to develop epilepsy, but also that those with [focal epilepsy](#), which accounts for more than half of all cases of epilepsy, were more likely to develop Alzheimer's disease," said study author Jiali Pu, Ph.D., of Zhejiang University School of Medicine in Hangzhou, China.

For the study, researchers looked at [gene variation](#) throughout the human genomes of 111,326 people with Alzheimer's disease, and 677,663 people without the disease through what's known as a [genome-wide association study](#). Such studies involve looking at long stretches of DNA to identify small differences in the genetic sequence between people with and without Alzheimer's disease.

Researchers used a [study design](#) called Mendelian randomization to determine if there was cause and effect between the genetic variations and the risk of epilepsy.

Researchers found having Alzheimer's was linked to a 5.3% increased risk of generalized epilepsy, which involves seizures that occur from both halves of the brain.

Researchers also found a 1.3% increased risk of focal epilepsy with hippocampal sclerosis. Focal epilepsy involves recurring seizures that affect one half of the brain.

Researchers then looked at the genes of 15,212 people with epilepsy, matched to the genes of 29,677 people without epilepsy.

People who had focal epilepsy with hippocampal sclerosis had nearly four times the risk of developing Alzheimer's disease compared to people without epilepsy.

Researchers also analyzed the genes of 13,116 people who had data on the levels of a biomarker for Alzheimer's disease called amyloid in their cerebrospinal fluid. Lower amounts of the biomarker indicate an increased deposition of amyloid plaques in the brain. The researchers found that genes that predicted a lower amount of the biomarker were linked to an increased risk of generalized epilepsy.

"More effort should be made to screen for seizures in people with Alzheimer's disease and to understand the impact of seizures on those facing these two challenging neurologic conditions," Pu added.

A limitation of the study was that participants were of European ancestry, so the results may not be generalizable to people living in other countries and of different ethnicities.

Provided by American Academy of Neurology

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