

# Having great-grandparents, cousins with Alzheimer's linked to higher risk

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Having a parent with Alzheimer's disease has been known to raise a person's risk of developing the disease, but new research suggests that having second- and third-degree relatives who have had Alzheimer's may also increase risk. The study is published in the March 13, 2019, online issue of *Neurology*, the medical journal of the American Academy of

Neurology.

First-degree relatives include [parents](#) and siblings who share both parents. Second-degree relatives include grandparents, blood-related aunts and uncles, and siblings who share one parent. Third-degree relatives include great-grandparents, great uncles, great aunts and first cousins.

"Family history is an important indicator of risk for Alzheimer's disease, but most research focuses on dementia in immediate [family](#) members, so our study sought to look at the bigger family picture," said study author Lisa A. Cannon-Albright, Ph.D., of the University of Utah School of Medicine in Salt Lake City. "We found that having a broader view of [family history](#) may help better predict risk. These results potentially could lead to better diagnoses and help patients and their families in making health-related decisions."

For the study, researchers looked at the Utah Population Database, which includes the genealogy of Utah pioneers from the 1800s and their descendants up until modern day. The database is linked to Utah death certificates, which show causes of death, and in a majority of cases, contributing causes of death.

In that database, researchers analyzed data from over 270,800 people who had at least three generations of genealogy connected to the original Utah pioneers including genealogy data for both parents, all four grandparents and at least six of eight great-grandparents. Of those, 4,436 have a death certificate that indicates Alzheimer's disease as a cause of death.

Researchers found that people with one first-degree relative with Alzheimer's disease had a 73 percent increased risk of developing the disease. There were 18,494 people in this group; of those, 590 had

Alzheimer's disease when the expected number of cases among the group would have been 341.

People with two first-degree relatives were four times more likely to develop the disease; those with three were two-and-half more times likely; and those with four were nearly 15 times more likely to develop Alzheimer's disease. Of the 21 people in the study with four first-degree relatives with Alzheimer's, six had the disease; researchers would have expected only 0.4 people to develop the disease.

Those with one first-degree relative and one second-degree relative had a 21 times greater risk. Examples of this would be a parent and one grandparent with the disease, or a parent and one aunt or uncle. There were 25 people in this category in the study; four of them had the disease when researchers would have expected 0.2 cases.

Those who had only third-degree relatives, and three such relatives, with Alzheimer's disease had a 43 percent greater risk of developing the disease. An example of this would be two great-grandparents with the disease, along with one great uncle, but no parents or grandparents with the disease. Of the 5,320 people in this category, 148 people had the disease when researchers would have expected 103.

"More and more, people are increasingly seeking an estimate of their own genetic risk for Alzheimer's disease," said Cannon-Albright. "Our findings indicate the importance of clinicians taking a person's full family history that extends beyond their immediate family members."

Cannon-Albright noted that among all of the study participants, 3 percent had a family history that doubled their risk of Alzheimer's disease, and a little over one-half of a percent had a family history that increased their risk by three or more times that of a person without a family history of the disease.

Limitations of the study include that not all individuals dying from Alzheimer's disease may have had a death certificate listing it as cause of death. Cannon-Albright says [death](#) certificates are known to underestimate the prevalence of the disease.

"There are still many unknowns about why a person develops Alzheimer's disease," said Cannon-Albright. "A family history of the disease is not the only possible cause. There may be environmental causes, or both. There is still much more research needed before we can give people a more accurate prediction of their risk of the disease."

Provided by American Academy of Neurology

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