

# Is recovery from stroke worse if you have genes linked to increased risk of smoking?

September 21 2022

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A genetic predisposition for smoking increases a person's risk of worse recovery from an ischemic stroke, according to a study published in the September 21, 2022, online issue of *Neurology*. An ischemic stroke is

caused by a blockage of blood flow to the brain and is the most common type of stroke.

"Stroke recovery can vary widely among people, from full recovery to serious disability or death," said study author Xinfeng Liu, Ph.D., of Nanjing University in China. "While previous studies have found links between smoking and worse stroke recovery, it has been unclear if smoking is a cause. By examining gene variants that increase a person's risk of smoking, we found that smoking does cause worse stroke outcomes."

To evaluate the genetic relationship between smoking and stroke recovery, researchers analyzed the results of a meta-analysis of 12 studies from the United States, Europe and Australia, examining genetics and stroke recovery. The studies included 6,021 people of European genetic ancestry who had an ischemic stroke. Recovery levels were measured three months after stroke.

Recovery was defined in two ways—good and poor—with good meaning people had fully recovered or had slight disability but required no help from others, and poor meaning they had moderate disability requiring assistance, severe disability, or had died. A total of 3,741 people had good stroke recovery and 2,280 had poor recovery.

Researchers used a study design called Mendelian randomization to determine if there was a cause and effect between 373 genetic variations called single nucleotide polymorphisms (SNPs) known to be linked to an increased risk of smoking and poor recovery from stroke. SNPs are common and can act as biological markers, helping locate genes that are associated with disease.

After adjusting for age, sex and stroke severity, researchers found that people who were genetically predisposed to smoke had a 48% greater

risk of worse stroke recovery than those who were not genetically predisposed. The results stayed the same when researchers adjusted further for genetically predicted alcohol consumption.

"Our results provide genetic support for the theory that smoking causes poor recovery after [ischemic stroke](#)," said Liu. "These findings have important implications for [stroke recovery](#). Not only should doctors encourage all people to not smoke, people who have had a stroke should be encouraged to quit [smoking](#)."

A limitation of the study was participants were of European ancestry, so larger studies are needed in other ethnic populations.

Provided by American Academy of Neurology

Citation: Is recovery from stroke worse if you have genes linked to increased risk of smoking? (2022, September 21) retrieved 3 July 2024 from <https://medicalxpress.com/news/2022-09-recovery-worse-genes-linked.html>

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