

Female smokers face greatest risk for brain bleeds

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Credit: Vera Kratochvil/public domain

Bleeding inside the lining of the brain (subarachnoid hemorrhage) is significantly more common among smokers, especially female smokers, than among people who do not smoke, according to new research in the American Heart Association's journal *Stroke*.

Subarachnoid [hemorrhage](#) results from bleeding into the lining between the brain's surface and underlying brain tissue. Although these are more common among women than they are among men, the reasons for this difference were unclear. While smoking is the main risk factor, this study examined the association between smoking habits and [subarachnoid hemorrhage](#) in a large prospective study.

"Female sex has been described as an [independent risk factor](#) for subarachnoid hemorrhage, but we found strong evidence that the elevated risk in women is explained by vulnerability to smoking," said lead study author Joni Valdemar Lindbohm, M.D., a physician in neurosurgery and public health at the University of Helsinki in Finland. "Our results suggest that age, sex and

[lifestyle risk factors](#) play a critical role in predicting which patients are at risk for subarachnoid hemorrhage and emphasize the importance of effective smoking cessation strategies."

Although cigarette smoking was linked to an increased risk of subarachnoid hemorrhage among both sexes, women faced the highest risk. Specifically, researchers found:

- Among light smokers (1 to 10 cigarettes per day), women were 2.95 times more likely to have subarachnoid hemorrhage compared to non-smokers, while men who smoked comparable amounts of cigarettes were 1.93 times more likely.
- Women who smoked 11 to 20 cigarettes per day were 3.89 times more likely to have subarachnoid hemorrhage compared to non-smokers, while men who smoked comparable amounts of cigarettes were 2.13 times more likely.
- Women who smoked 21 to 30 cigarettes per day were more than 8.35 times likely to have subarachnoid hemorrhage compared to non-smokers, while men who smoked comparable amounts of cigarettes were 2.76 times more likely.

The good news is that subarachnoid hemorrhage risk significantly decreased among former smokers. Women and men that quit smoking more than six months earlier had comparable risk to non-smokers.

"There is no safe level of smoking," Lindbohm said. "Naturally the best option is never to start. Quitting smoking, however, can reduce the risk for subarachnoid hemorrhage in both sexes."

Study participants included 65,521 adults in Finnish national surveys. Since 1972, this study has obtained health information from randomly selected participants through questionnaires and physical

examinations. Slightly more than half of participants were women, and their average age was 45 years. Average follow-up was 21 years from study enrollment until first stroke, death or study completion on December 31, 2011.

Authors note that participants' [smoking](#) behavior could have changed after study enrollment and that alcohol consumption, medication for high blood pressure, or high cholesterol are factors that could have affected results.

According to the American Heart Association, subarachnoid hemorrhage accounts for three percent of all strokes. Smoking is perhaps the most important modifiable risk factor in preventing subarachnoid hemorrhage, with the highest population attributable risk of any subarachnoid hemorrhage risk factor.

Provided by American Heart Association

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