



- HOME
- ABOUT
- RISK FACTORS
  - High Blood Pressure
  - Diabetes
  - Atrial Fibrillation
  - High Cholesterol
  - Physical Inactivity
  - Poor Diet
  - Alcohol
  - Obesity
  - Smoking
  - Stress and Depression
- RESOURCES
  - Videos
  - Blog
  - Podcast
  - Useful links
  - Additional Reading
  - Media Releases

- News
-  English
  -  English
  -  Português
  -  Русский
  -  Español
  -  Français
  -  Polski

- CONTACT

DONATE

## How Smoking Leads to Stroke



Studies suggest smoking increases the risk of stroke (1). But how exactly does smoking affect the structure and function of the brain to potentially cause a fatal stroke? Here are a few facts to explain:

## **1. Smoking changes the function of the brain**

Long-term exposure to nicotine has many negative health effects. Some, such as a persistent cough, are noticeable. Whereas the hidden damage that happens within the brain is not often apparent until it's too late. Research shows that the parts of a smoker's brain that control everyday tasks, such as hand-to-eye coordination, are reduced in volume, which can impair its function (2).

## **2. Smoking reduces grey matter**

You've probably heard of the term "grey matter" when it comes to talking about brains. This includes the regions of the brain that are responsible for seeing, hearing, memory and speech. It's been suggested that a reduction in volume and density of grey matter may also be present in smokers (2) which can lead to problems with blood flow to the brain and, ultimately, stroke (3).

## **3. Smoking can cause blood clots**

Smoking has long been associated with atherosclerosis or hardening of the arteries. This is when plaque builds up on the artery walls and, if it breaks off, can lead to blood clots. Any clots that restrict the blood flow to your brain are responsible for stroke. And, it seems, popular e-cigarettes present just as big a risk as conventional ones, because 'vaping' has also been shown to impact the integrity of the blood-brain barrier, which is the protective membrane surrounding the brain (4).

## **4. Smoking affects memory**

Most people know that stroke can affect your memory. So, it's worrying to learn that smoking may already be setting off this chain of events. One study found that cognitive performance in a working memory task was affected in smokers, both in the strategies they used to complete it and how well their brains functioned overall (2).

## 5. Smoking increases inflammation in the brain

Regular cigarette smoking has also been shown to increase inflammation and oxidative stress (an imbalance of chemicals in the brain, which can lead to damage) on the brain. Oxidative stress is known to play a role in the development of ischaemic stroke, which is described by medical professionals as “the disruption of blood flow to the brain and lack of oxygen to the affected area” (5).

It’s important to remember that stroke is a brain attack. The more damage you do to your brain through smoking, the higher the chance of stroke. Although it can be very hard to give up, you can seek help from your doctor or pharmacist, and make sure you receive plenty of support from family and friends.

### References

1. <https://www.webmd.com/smoking-cessation/what-happens-body-quit-smoking> Medically Reviewed by Carol DerSarkissian, MD on June 13, 2020.
2. Timothy C Durazzo, Dieter J Meyerhoff, Karmen K Yoder, Donna E Murray. Cigarette smoking is associated with amplified age-related volume loss in subcortical brain regions. *Affiliations* expand PMID: 28622625. PMCID: PMC6602081 DOI: 10.1016/j.drugalcdep.201.
3. Pan, Biqi BSa; Jin, Xiao PhDb; Jun, Liu MDc; Qiu, Shaohong MDa; Zheng, Qiuping BSa; Pan, Mingwo PhDa,\* The relationship between smoking and stroke: A meta-analysis. March 2019 - Volume 98 - Issue 12 - p e14872 doi: 10.1097/MD.00000000000014872.
4. Adam P Klein, Karen Yarbrough, and John W Cole. Stroke, Smoking and Vaping: The No-Good, the Bad and the Ugly. *Ann Public Health Res.* 2021; 8(1): 1104. Published online 2021 Feb 18.
5. Kaisar, M. A., Villalba, H., Prasad, S., Liles, T., Sifat, A. E., Sajja, R. K., ... & Cucullo, L. (2017). Offsetting the impact of smoking and e-cigarette vaping on the cerebrovascular system and stroke injury: Is Metformin a viable countermeasure?. *Redox b.*

Next review 2024



**Developed by**



**SAFE retains full editorial control over the content of this website.**

**Supported by an educational grant from**



## **Links**

- [Terms Of Use](#)
- [Privacy Policy](#)
- [Cookie Policy](#)
- [Contact](#)
  
- [Facebook](#)
- [X](#)
- [RSS](#)