



1 IN 50 people will develop
a brain aneurysm

Family Guide to Aneurysm Screening

1 IN 50

people will develop a brain aneurysm
~ 6% to 20% occur in families



1 in 50 may seem like small odds. However, when that 1 in 50 could be a family member — or you — would you want to know the risk? Research has confirmed many of the major risk factors for developing a brain aneurysm, which can rupture and bleed.

What is a brain aneurysm?

An aneurysm is a balloon-like bulge or weakening of an artery wall. As the bulge grows it becomes thinner and weaker. It can become so thin that the blood pressure within can make it leak or burst open, causing life-threatening bleeding in the brain (a subarachnoid hemorrhage).

Brain aneurysms are common. About 2.3% of the general population has or will develop one.

Fortunately, not every aneurysm is at high risk of rupturing. Most people who have an aneurysm will live a full life and die of something else.

Unfortunately, most aneurysms are silent, meaning they cause no symptoms until they rupture. It is impossible to predict if and when an aneurysm may burst open, but when it does, it can be fatal 50% of the time.

Are brain aneurysms inherited?

Most aneurysms are **not hereditary**. But research has confirmed many of the risk factors for developing a brain aneurysm.

Genetic conditions that weaken artery walls:

- Polycystic kidney disease
- Marfan syndrome
- Fibromuscular dysplasia
- Ehlers-Danlos syndrome IV
- Hereditary hemorrhagic telangiectasia
- Pseudoxanthoma elasticum
- Multiple endocrine neoplasia (MEN1)
- Neurofibromatosis NF1

Aneurysms that occur in two or more first-degree relatives (a sibling, parent, or child) are called **familial aneurysms**.

Use the Aneurysm Risk Checklist on the next page to see if any risks apply to your family.

BRAIN ANEURYSM RISK CHECKLIST

Check all that apply to know your aneurysm risk.

HIGH ANEURYSM RISK — SCREENING RECOMMENDED

You have 2 or more immediate family members with a brain aneurysm.

Research from the Familial Intracranial Aneurysm Study¹ shows a 6% to 20% incidence of aneurysms in first-degree relatives of people with a brain aneurysm. First-degree relatives include your biological:

- sister or brother
- mother or father
- son or daughter

You have autosomal dominant polycystic kidney disease (ADPKD) and 1 or more immediate family members with a brain aneurysm.

About 3% to 7% of people with ADPKD may have brain aneurysms, and the frequency increases to 12% to 15% if someone else in the family has a brain aneurysm². People with ADPKD have 5X the risk of developing an aneurysm as the general population.

MODERATE ANEURYSM RISK — STROKE PREVENTION RECOMMENDED

You have 1 or more immediate family members with a brain aneurysm and at least 1 of the gender/lifestyle risks listed at right.

You have autosomal dominant polycystic kidney disease and at least 1 of the gender/lifestyle risks listed at right.

Gender/lifestyle risks

- You are a woman over age 40
- You smoke or use nicotine
- You have high blood pressure
- You consume 12 or more alcoholic drinks a week
- You use cocaine

LOW ANEURYSM RISK, BUT STROKE RISK — PREVENTION RECOMMENDED

You are a woman with at least 1 of the lifestyle risks listed above.

A smoker is 4.5 times more likely to suffer a bleeding stroke than a nonsmoker. Women who are post-menopausal have a higher risk of aneurysm rupture.

¹Journal of Neurosurgery 108(6):1132-38, 2008 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4190025/>

²<https://www.uptodate.com/contents/polycystic-kidney-disease-beyond-the-basics>

³American Family Physician 66(4):601-609, 2002 <https://www.aafp.org/afp/2002/0815/p601.html>

⁴Neurosurgical Focus 31(6):E8, 2011 <https://thejns.org/focus/view/journals/neurosurg-focus/31/6/2011.9.focus11210.xml>

Aneurysm Screening

If you checked any of the boxes in the RED area, your strong family history is an indication for screening to find out whether you may have an aneurysm that should be monitored or treated. This recommendation is based on results from the Familial Intracranial Aneurysm Study¹ and follows guidelines outlined by the Brain Aneurysm Foundation and the American Academy of Family Physicians.³

The screening test we recommend is called a magnetic resonance angiogram, or MRA. It allows us to see the blood vessels in your brain and to determine whether you have an aneurysm. Screening with MR angiography or CT angiography is 90% effective for aneurysms of 2 millimeters and 100% effective for aneurysms larger than 5 millimeters, with the risk of false positives extremely low.

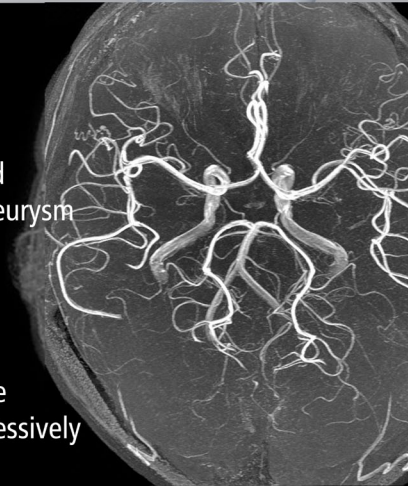
The prevalence of brain aneurysms is 4% in people with 1 affected first-degree relative, and 8% in those with 2 affected first-degree relatives. However, the rate can be as high as 19% in first-degree relatives who are older than 30 years and have a history of smoking and hypertension. Familial aneurysms also rupture more frequently and tend to have a worse prognosis than non-familial aneurysms. Depending on your family history and risk factors, screening with MRA is usually done every 5 years.⁴

Should You Be Screened?

- 2 or more first-degree family members with an aneurysm
- Polycystic kidney disease and 1 family member with an aneurysm

Increased Risk of Rupture:

- you smoke
- you are a woman
- you have high blood pressure
- you use cocaine or drink excessively



Next Steps

Your next step is to discuss this information with your primary care physician. Feel free to print this checklist and take it with you. Your physician can review your family history and potential risk factors and prescribe an MRA scan if he or she thinks it is appropriate.

Once you have an MRA, Mayfield, or a neurosurgery provider of your choice, can interpret the scan and provide you and your doctor with guidance. Your neurosurgeon can advise you on what actions, if any, you can take to minimize your risk and can recommend preventive treatment if medically advisable.

We wish you well as you take the next step toward preserving your long-term brain health.

Learn more about aneurysms

<https://MayfieldClinic.com/neurovascular-care.htm>

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