

Does high CRP increase the risk of stroke in women?

Several studies have shown that even a small elevation of CRP in the blood of apparently healthy individuals is a strong predictor of future cardiovascular events, including stroke. In one study of 1400 people (60% women) with an average age of 70 years, having high CRP levels tripled the risk of stroke in women and doubled it in men, even after other stroke risk factors were taken into account.¹

Another study involving nearly 28,000 women showed that CRP is a stronger predictor than LDL cholesterol of cardiovascular events including stroke, and high CRP levels increase postmenopausal women's risk of stroke even in cases where their LDL (bad) cholesterol levels are normal (below 130 mg/dL). Women with the highest CRP levels (greater than 2.09 mg/L) had double the risk of a first cardiovascular event compared with women with the lowest CRP levels, even after accounting for other risk factors such as age, smoking, diabetes and high blood pressure. Even in women with low LDL cholesterol, those with high CRP levels were 50% more likely to have a first cardiovascular event than women with low CRP.²

See our section on [cholesterol](#) to learn more about LDL cholesterol and your risk for stroke.

High CRP levels have also been strongly linked with 30-day outcome following a procedure in which a stent is implanted in the carotid artery (the main artery leading to the brain) to open a blockage, restoring blood flow to the brain and preventing strokes. Slightly more than 22% of patients with CRP greater than 5 mg/L had another stroke or died within 30 days of the procedure, compared with only 3% of patients with lower CRP. You may want to speak with your doctor about your CRP levels if you are considering [carotid stenting](#).³

How does CRP influence stroke risk?

CRP is produced in response to inflammation somewhere in the body. This inflammation can be caused by many things—for example, CRP levels temporarily increase when you are fighting an infection. It is thought that high long-term levels of CRP are caused by the same inflammation and damage to your blood vessels as [atherosclerosis](#), and that the presence of plaque in your

arteries stimulates more production of CRP. In this way, CRP acts like a barometer of the damage occurring to your blood vessels—the higher your CRP level, the more damage is occurring, and the higher your risk of cardiovascular events such as stroke.

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In addition to being a marker of inflammation, CRP may itself contribute to vessel injury. Researchers say that CRP may stimulate the formation of plaque on the interior walls of blood vessels, and reduce the vessel's ability to heal itself. CRP does this by causing the proliferation of immune cells that help to create a blockage on the inside of a blood vessel, at the same time reducing the vessel's ability to create new healthy cells to counteract the injury.⁵

Is high CRP a stronger risk factor for stroke for women?

High levels of CRP are a strong predictor of stroke in both men and women. A large study showed that CRP levels were higher in women of all ethnic groups compared with men, even after accounting for higher body mass index and other variables. However, it is not clear if women are consistently at higher risk of stroke than men because of their comparatively high levels of CRP.⁶

Should I have a CRP test?

According to the AHA, if a person's cardiovascular risk score is low (the possibility of developing cardiovascular disease is less than 10% in 10 years), then no test is needed. If the risk score is in the intermediate range (10% to 20% in 10 years), the test can help predict a cardiovascular or stroke event and help the patient take immediate, preventive action. However, a person with a high risk score (greater than 20% in 10 years) or established heart disease or stroke should be treated intensively regardless of CRP levels and does not need CRP testing. [Click Here](#) to calculate your own 10-year risk, and see our

[CRP Test article](#)

to learn more about the test itself.

There is an ongoing debate about how useful CRP really is. A review of the scientific literature prompted some researchers to conclude there is not sufficient evidence to recommend measurement of CRP in people who have never had a stroke, because it is not known whether

early detection, or intervention based on detection, improves health outcomes. However, since CRP levels also serve as an indicator of risk of cardiovascular disease, testing is probably valuable. For prevention of additional strokes in those who have had one already, elevated CRP adds to existing information, but there are currently no specific treatments based on CRP levels alone that are known to prevent recurrent stroke.⁷

[Next: Treatment for High CRP](#)

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