

Non-O blood type may increase stroke risk among women who smoke, take oral contraceptives

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Non-O blood type may increase the risk of stroke among women who smoke and take oral contraceptives, according to preliminary research to

be presented at the American Stroke Association's International Stroke Conference 2021.

According to the most recent comprehensive data (January 2020) from the Centers for Disease Control and Prevention (CDC), [stroke](#) is the fifth leading cause of death in the United States and a major contributor to long-term disability. Some [risk factors](#) for stroke, such as older age and family history, cannot be controlled. Fortunately, several risk factors can be controlled, including not smoking, maintaining a healthy body weight, eating a healthy diet, being physically active, controlling high cholesterol and diabetes, and avoiding [excessive alcohol use](#).

Oral contraceptives can also increase stroke risk in some [women](#), especially those who smoke. Due to this risk, women who smoke and are older than 35 should not take [oral contraceptives](#). Previous research has shown that blood types, specifically non-O, (A, B, or AB) also may increase the risk of stroke.

"We sought to determine whether blood group, specifically non-O blood group, increases the risk for stroke among oral contraceptive users," said study lead author Steven J. Kittner, M.D., professor of neurology at the University of Maryland School of Medicine in Baltimore, Maryland. "The results of our small study suggest that this might be the case, but more data from other studies are needed to support or refute our findings. We did find that smoking markedly increased the risk of stroke in [young women](#), regardless of oral contraceptive use, and this finding has been supported by numerous other studies."

Using information from another study of early-onset stroke, researchers compared the risk of stroke among women who smoked and used oral contraceptives, alongside a second analysis of women who only smoked or only took contraceptives. Study participants included 347 women who had experienced a stroke before the age of 50, and a comparison group

of 383 women without a stroke. The average age in both groups was 42, and about half of the patients were African American, and half were white. All participants lived in the Baltimore-Washington, D.C., area and were enrolled in the Genetics of Early-onset Stroke study conducted at the University of Maryland School of Medicine between 1992-1996 or 2001-2003.

Researchers found:

- Women who both smoked and took oral contraceptives were nearly five times as likely to have a stroke compared to women who did not smoke or take oral contraceptives.
- Non-O [blood type](#) further increased the risk of early-onset stroke among women who both smoked and took oral contraceptives: compared to women with O type blood who did not smoke and did not take oral contraceptives, those with non-O type blood who did both were nearly twice as likely to have a stroke.
- The findings persisted after adjusting for other factors, including race, age, high blood pressure, diabetes and migraine headaches.

Blood type did not significantly affect stroke risk among women who either smoked only or took oral contraceptives only:

- Women who smoked only were three times more likely to have a stroke than those who did not smoke; and
- women who took oral contraceptives only were nearly four times more likely to have a stroke compared to those who did not.

"Women should follow established safety guidelines for the use of oral contraceptives, which recommend caution or non-use for women at higher risk for blood-vessel disease," Kittner said. "Our study is intended to provide preliminary evidence for a hypothesis related to non-O [blood group](#) that will need to be confirmed; it does not present a finding that

should be acted upon now."

Provided by American Heart Association

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