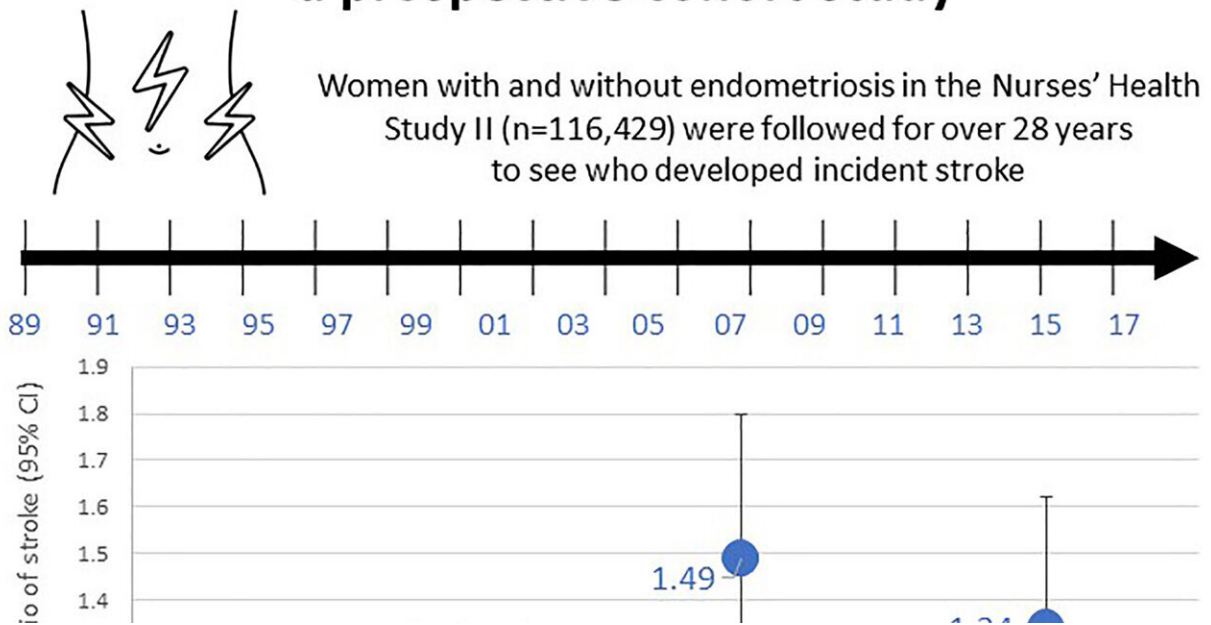


# Women with endometriosis may have higher risk of stroke

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## Laparoscopically confirmed endometriosis and risk of incident stroke: a prospective cohort study



Graphical abstract. Credit: *Stroke* (2022). DOI: 10.1161/STROKEAHA.122.039250

A large, prospective study found that women with endometriosis may have a higher risk of stroke compared to women without the chronic

inflammatory condition, according to new research published today in *Stroke*.

Endometriosis (abnormal growth of endometrial-like tissue outside the uterus) is estimated to affect approximately 10% of reproductive aged women in the U.S., according to study authors. Previous research found that women with endometriosis are at greater risk of cardiovascular diseases such as heart attack, high [blood pressure](#) and high cholesterol.

"These findings suggest that women with a history of endometriosis may be at higher risk of stroke," said Stacey A. Missmer, Sc.D., study senior author and professor of obstetrics, gynecology and reproductive biology at Michigan State University College of Human Medicine in Grand Rapids, Michigan. "Clinicians should look at the health of the whole woman, including elevated blood pressure, high cholesterol and other new stroke risk factors, not only symptoms specifically associated with endometriosis, such as pelvic pain or infertility."

In this study, researchers led by first author, Leslie V. Farland, Sc.D., assistant professor of epidemiology and biostatistics at University of Arizona, in Tucson, examined the association between endometriosis and the development of ischemic stroke (caused by [blood clots](#) blocking blood flow) or [hemorrhagic stroke](#) (caused by bleeding in the brain) among women enrolled in the Nurses' Health Study II. The analysis involved 112,056 women who were nurses between the ages of 25 and 42 years old from 14 U.S. states at the start of the study in 1989. The current study ended in 2017. A laparoscopy ([surgical procedure](#) in which a fiber-optic instrument is inserted through the abdominal wall to view the organs in the abdomen or to permit a surgical procedure) was used to make the diagnosis of endometriosis. Endometriosis was reported in 5,244 women and most of the participants (93%), including those diagnosed with endometriosis, were white women.

Researchers analyzed data collected every two years for many possible confounders or risk factors, including alcohol intake, current body mass index, menstrual cycle pattern in adolescence, current oral contraceptive and postmenopausal hormone exposure, smoking history, diet, physical activity, aspirin use, race/ethnicity and income. Additionally, researchers investigated if the link between endometriosis and risk of stroke could be explained by other mediating factors such as [high blood pressure](#), high cholesterol, hysterectomy (removal of the uterus), oophorectomy (removal of the ovaries) and postmenopausal hormone therapy. During the 28 years of follow-up including medical record confirmations, researchers documented 893 strokes.

The analysis found:

- Women with endometriosis (5,244) had a 34% greater risk of stroke, compared to those without the condition (106,812).
- The largest proportion of the stroke risk associated with endometriosis was linked to hysterectomy and/or oophorectomy (39%) and postmenopausal hormone therapy (16%).
- No significant differences were seen in the relationship between endometriosis and stroke across multiple factors—such as age, infertility history, body mass index or menopausal status.

"There are circumstances when a hysterectomy and/or oophorectomy is the best choice for a woman, however, we also need to make sure that patients are aware of the [potential health risks](#) associated with these procedures," Missmer said. "Other research also suggests that hysterectomy is associated with elevated stroke risk even if there is no history of endometriosis."

"These results do not indicate that women who have endometriosis will have a stroke. Instead, these findings signify only an association of moderate relative risk. The absolute risk of stroke in women is low,"

Missmer said. "Women with endometriosis should pay attention to their whole body and discuss added risks and preventive options with their health care team."

"While we know that adverse pregnancy outcomes are associated with increased risk of premature cardiovascular disease, this study sheds light on the association of gynecological issues such as endometriosis with [stroke](#), which could impact both patients and clinicians," said American Heart Association Go Red for Women volunteer Garima Sharma, M.B.B.S., who is director of cardio-obstetrics and assistant director of medicine at Johns Hopkins Cardiology in Baltimore. "Most importantly, this study underscores the importance of understanding reproductive and gynecological history."

The study had several limitations. Data detailing subtypes of strokes was not available. As a result, the relationship between subtypes of strokes and endometriosis could not be evaluated. Another limitation of the study is that researchers were unable to determine the impact of time from endometriosis-associated symptom onset and age at [endometriosis](#) diagnosis.

**More information:** Leslie V. Farland et al, Laparoscopically Confirmed Endometriosis and Risk of Incident Stroke: A Prospective Cohort Study, *Stroke* (2022). [DOI: 10.1161/STROKEAHA.122.039250](https://doi.org/10.1161/STROKEAHA.122.039250)

Provided by American Heart Association

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