

# Chilly, smoggy days may be hazardous for some women's hearts

May 9 2018, by Serena Gordon, Healthday Reporter

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(HealthDay)—Air pollution coupled with colder temperatures may

deliver a double whammy to women's hearts, making them more prone to sudden cardiac death, a new study suggests.

The researchers found that when air [pollution](#) rose and temperatures fell to 40 to 55 degrees Fahrenheit, the odds of sudden cardiac death more than doubled. Sudden cardiac death can occur after the heart stops due to a glitch in the heart's electrical system.

"We found that air pollution was associated with a small increased risk of sudden cardiac death, but the association was much stronger when it was colder—under 55 degrees," said study author Jaime Hart, an associate professor of medicine at Brigham and Women's Hospital in Boston.

But Hart pointed out that these findings shouldn't make women panic. The study included more than 112,000 women from 1999 to 2011, and only 221 sudden cardiac deaths occurred in that time frame.

"The risk of this outcome is extremely low for an individual woman. It's on a population level where we're concerned," she said, adding these findings occurred under current standards from the U.S. Environmental Protection Agency (EPA).

"So, this means the current standards aren't protective enough," Hart said. The Trump administration is planning to roll back some of the EPA's regulations, such as fuel economy standards and measures to lower greenhouse gas emissions from cars. Such changes might lead to an increase in air pollution, according to published reports.

For the study, the researchers looked to see how much exposure to air pollution the women who died of [sudden cardiac arrest](#) had on the day they died, compared to another day during the same month.

They looked at a measure of particulate matter less than 2.5 microns (PM2.5) in size. The diameter of a human hair is 30 times larger than 2.5 microns. Because these particles are so tiny, they can get deep into your lungs and even into your bloodstream, according to the EPA.

The researchers also looked at the temperature on the day the sudden cardiac death occurred.

Increasing levels of PM2.5 were associated with 22 percent higher odds of sudden cardiac death with each incremental increase.

But when the temperature dropped below 55 degrees, the odds of sudden cardiac death were 2.6 times higher. When the [temperature](#) dropped below 39 degrees, the risk leveled off a bit, to twice as high. There was no increase in the risk of sudden cardiac death at temperatures above 55 degrees, the study found.

Hart said underlying heart disease didn't seem to play a role. The researchers also found that age, weight and smoking status didn't seem to affect a woman's risk of sudden cardiac death.

As to how a chilly, smoggy day might trigger sudden cardiac [death](#), Hart said it's not yet clear. This study was only designed to find an association, not cause and effect. But she said colder temperatures are associated with a lot of cardiovascular problems on their own, and the addition of the air pollution might just add to those problems.

Dr. Kevin Marzo, chief of cardiology at NYU Winthrop Hospital in Mineola, N.Y., said it's possible that exposure to air pollution coupled with colder weather might cause more inflammation or lead to an impaired blood supply as blood vessels constrict in the cold.

"Air pollution and low temperatures could create a perfect storm, and

this study highlights that even a healthy population of women exposed to air pollution and cold experienced an increased risk of [sudden cardiac death](#)," said Marzo, who wasn't involved with the study.

Like Hart suggested, he said it's important to improve air quality with better regulations to cut down on car fumes.

On an individual level, Marzo said it's a good idea not to exercise near roads with a lot of traffic, and to cut down on indoor [air pollution](#) from burning fires and gas stoves.

Hart said the study didn't look at men, but she suspects the findings would be similar.

Hart is to present the findings Wednesday at the Heart Rhythm Society meeting, in Boston. Findings from meetings are typically viewed as preliminary until they've been published in a peer-reviewed journal.

**More information:** Jaime Hart, Sc.D., associate professor, medicine, Brigham and Women's Hospital, Boston; Kevin Marzo, M.D., chief, division of cardiology, NYU Winthrop Hospital, Mineola, N.Y.; May 9, 2018, presentation, Heart Rhythm Society meeting, Boston

Learn more about your risk of sudden cardiac arrest from the [Heart Rhythm Society](#).

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Citation: Chilly, smoggy days may be hazardous for some women's hearts (2018, May 9) retrieved 24 April 2024 from <https://medicalxpress.com/news/2018-05-chilly-smoggy-days-hazardous-women.html>

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