

Extreme weather is bad for your heart

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A study conducted as part of the EXHAUSTION project has found an adverse connection between extreme temperatures and heart health, drawing attention to yet another consequence of climate change. The

research has linked cold weather to excess deaths (the difference between expected and observed deaths) from heart disease, and hot weather to excess deaths from heart disease and stroke in patients with heart conditions. The research results were presented at the European Society of Cardiology (ESC) Congress held in August 2022.

"Climate change is leading to a rise in the average global temperature but also extreme cold in some regions," said study author Prof. Stefan Agewall of EXHAUSTION project partner University of Oslo, Norway, in a press release published on the ESC website. "More than 70,000 excess deaths occurred across Europe during the summer of 2003 due to intense heat waves. Cold weather also accounts for excess deaths and hospital admissions. Previously, studies on the cardiovascular effects of heat and cold mainly used aggregated data, such as daily deaths in a city. The EXHAUSTION project used individual data, enabling us to identify vulnerable subgroups for protective interventions, thereby increasing resilience for future weather events."

The analysis used data from five cohort studies conducted in Germany, Italy, Norway, Sweden and the United Kingdom between 1994 and 2010. It included close to 2.3 million adults with and without [cardiovascular disease](#) at baseline whose average age in the studies ranged from 49.7 to 71.7 years. Women made up 36% to 54.5% of the studied populations.

The cold is to blame

The researchers discovered that [cold weather](#) increased the risk of dying from cardiovascular disease overall and ischemic heart disease in particular. It was also associated with a higher risk of new-onset ischemic heart disease. Temperature drops of 10 °C—from 5 °C to -5 °C—increased the risk of dying from cardiovascular disease by 19% and from ischemic heart disease by 22 %. With an 11 °C temperature drop,

from 2 °C to -9 °C, the risk of new-onset ischemic heart disease rose by 4 %.

"The relationships between cold temperatures and deaths were more pronounced in men and people living in neighborhoods with a low socioeconomic status," noted Prof. Agewall. "The links between cold and new-onset ischemic heart disease were stronger among women and people older than 65 years."

The case of heat

The researchers found no association between [hot weather](#) and adverse effects in the overall study population. However, in people with [heart disease](#) at baseline, temperature rises of 15 °C to 24 °C were associated with a 25% increase in the risk of dying from cardiovascular disease and a 30% higher risk of death from stroke.

According to Prof. Agewall, the EXHAUSTION (Exposure to heat and air pollution in Europe—cardiopulmonary impacts and benefits of mitigation and adaptation) project's analysis could help clinicians "provide tailored advice to those most at risk of adverse health outcomes during hot and cold days." He concludes, "Patients with heart conditions should stay hydrated in hot weather and adhere to advice from their cardiologist on medication use. We can all check the news for [extreme heat](#) and cold alerts and follow safety tips from local authorities."

More information: EXHAUSTION project website:
www.exhaustion.eu/

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