

# Air pollutants from fireplaces and wood-burning stoves raise health concerns

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With millions of people warding off winter's chill with blazing fireplaces and wood-burning stoves, scientists are raising red flags about the potential health effects of the smoke released from burning wood. Their study, published in the American Chemical Society's (ACS') journal, *Chemical Research in Toxicology*, found that the invisible particles inhaled into the lungs from wood smoke may have several adverse health effects. It is among 39 peer-reviewed scientific journals published by ACS, the world's largest scientific society.

Steffen Loft, Ph.D., and colleagues cite the abundant scientific evidence linking inhalation of fine particles of [air pollution](#) — so-called "[particulate matter](#)" — from motor vehicle exhaust, coal-fired electric power plants, and certain other sources with heart disease, asthma, bronchitis and other health problems. However, relatively little information of that kind exists about the effects of wood smoke particulate matter (WSPM), even though millions of people around the world use wood for home heating and cooking and routinely inhale WSPM.

The scientists analyzed and compared particulate matter in air from the center of a village in Denmark where most residents used wood stoves to a neighboring rural area with few wood stoves, as well as to pure WSPM collected from a wood stove. Airborne particles in the village and pure WSPM tended to be of the most potentially hazardous size — small enough to be inhaled into the deepest parts of the lungs. WSPM contained higher levels of polycyclic aromatic hydrocarbons (PAHs),

which include "probable" human carcinogens. When tested on cultures of human cells, WSPM also caused more damage to the genetic material, DNA; more inflammation; and had greater activity in turning on genes in ways linked to disease.

**More information:** "Oxidative Stress, DNA Damage, and Inflammation Induced by Ambient Air and Wood Smoke Particulate Matter in Human A549 and THP-1 Cell Lines", *Chemical Research in Toxicology*.

Provided by American Chemical Society

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