

Microplastics in the Air May Be Leading to Lung and Colon Cancers

A review of 3,000 studies also suggests these minute plastic air particles may be causing male and female infertility.

January 13, 2025 By Victoria Colliver and UCSF

Tires and degrading garbage shed tiny pieces of plastic into the air, creating a form of air pollution that UC San Francisco researchers suspect may be causing respiratory and other illnesses.

A review of some 3,000 studies implicates these particles in a variety of serious health problems. These include male and female infertility, colon cancer and poor lung function. The particles also may contribute to chronic pulmonary inflammation, which can increase the risk of lung cancer.

“These microplastics are basically particulate matter air pollution, and we know this type of air pollution is harmful,” said [Tracey J. Woodruff, PhD, MPH](#), a professor of obstetrics, gynecology and reproductive sciences at UCSF.

Woodruff directs the [Program on Reproductive Health & the Environment](#) (PRHE) and is the senior author of the study, which appears December 18 in the journal [Environmental Science & Technology](#).

Small particles, big problem

Microplastics are less than 5 millimeters – smaller than a grain of rice – and they are ubiquitous in the environment. Each year, companies around the world produce nearly 460 million metric tons of plastic. That is projected to reach 1.1 billion by 2050.

A major source of plastic in the air is driving. Friction wears down tires along with the road surface, sending plastic fragments into the air.

Major sources of microplastics

Plastic pellets

Pellets are used in the manufacturing of other plastic products.

Personal care products

Products often contain plastic microbeads used for abrasion.

Paint

Paints and resins use polymers that are difficult to recycle.

Synthetic textiles

Fibers from synthetic textiles can be inhaled when they become airborne.

Tires

Wear and tear from tires releases airborne particles that are inhaled.

Macroplastics

Items like plastic bags and single-use containers eventually fragment into microplastics.

The paper is the first systematic review of microplastics using gold standard methods approved by the National Academy of Sciences.

Most of the studies in the review were based on animals. But the researchers said the conclusions likely also apply to humans since they share many of the same exposures.

The study expands on a [report the researchers worked on last year with the California State Policy Evidence Consortium](#) (CalSPEC). The Consortium includes experts across the UC system and provides evidence for policymakers in the California State Legislature.

“We urge regulatory agencies and policy leaders to consider the growing evidence of health harms from microplastics, including colon and lung cancer,” said Nicholas Chartres, PhD.

Chartres, the study’s first author, led the science and policy team at PRHE and is now at the University of Sydney. “We hope state leaders will take immediate action to prevent further exposures.”

[This story](#) was published by UCSF on December 18, 2024. It is republished with permission.