

Air Pollution Increases Risk of Non-Lung Cancers in Older Adults

Outdoor air pollution is a risk factor for prostate, colorectal, breast and endometrial cancers in some older adults.

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It's no surprise that air pollution is linked to a higher risk for lung cancer. But few studies focus on the association between [air pollution](#) and the risk of developing non-lung cancers, such as [breast](#), [prostate](#), [colorectal](#) and [endometrial cancer](#).

A study led by Harvard T.H. Chan School of Public Health found that chronic exposure to fine particulate air pollutants (PM_{2.5}) and nitrogen dioxide (NO₂) may increase the risk for non-lung cancers in adults ages 65 and older.

PM_{2.5} can be dangerous because they're small enough to settle in the lungs. NO₂ and similar pollutants form when fossil fuels, including gas and oil, are burned.

Published in [Environmental Epidemiology](#), the cohort study found that exposure to PM_{2.5} and NO₂ over a 10-year period increased the risk of developing colorectal and prostate cancers, according to a [Harvard news release](#). What's more, even low levels of air pollution increased the risk of developing these cancers as well as breast and endometrial cancers.

"Our findings uncover the biological plausibility of air pollution as a crucial risk factor in the development of specific cancers, bringing us one step closer to understanding the impact of air pollution on human health," Yaguang Wei, PhD, a research fellow in the Department of Environmental Health, said in the news release. "To ensure equitable access to clean air for all populations, we must fully define the effects of air pollution and then work toward reducing it."

For this study, researchers analyzed data on national Medicare beneficiaries ages 65 and older. During a 10-year period, researchers created separate cohorts for breast, colorectal, endometrial and prostate cancers. Each cohort consisted of between 2.2 million and 6.5 million adults.

Findings showed that chronic PM_{2.5} and NO₂ exposure increased one's risk of developing colorectal and prostate cancers but not endometrial cancer. NO₂ exposure was associated with an increased risk for breast cancer but the association between PM_{2.5} and breast cancer was

inconclusive. According to the researchers, inconclusive results may be the result of the complex mixture of solid and liquid particles that make up PM2.5.

In addition, researchers found that subjects with a higher body mass index (BMI, a measurement of a person's weight to height) had a higher risk for all four cancers when exposed to NO₂.

Even communities with seemingly clean air were not immune to [cancer risk](#), according to researchers.

"The key message here is that U.S. air pollution standards are inadequate in protecting public health," said senior author [Joel Schwartz](#), PhD, a professor of environmental epidemiology. "The Environmental Protection Agency recently proposed stricter standards for PM2.5, but their proposal doesn't go far enough in regulating this pollutant. Current NO₂ standards are also woefully inadequate. Unless all of these standards become much, much stricter, air pollution will continue to result in thousands of unnecessary cases of multiple cancers each year."

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