

Study Links Cleaner Air to Longer Life

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Reducing air pollution has extended average life expectancy by five months for urban residents in dozens of U.S. cities over the past two decades, researchers found.

A team from [Brigham Young](#) and [Harvard](#) universities reached that conclusion based on data on changes in air quality and life expectancy between 1980 and 2000 in 51 cities, including Washington. After taking into account the life-extending effects of other factors, including changes in population, income, education, migration, demographics and smoking, they calculated that cleaner air had lengthened urban dwellers' life spans significantly -- the first time researchers have been able to document an effect of improved air quality on longevity.

The researchers found that nationally, urban dwellers' life expectancy rose by an average of 2.72 years from 1980 to 2000, and five months of that increase was attributed to breathing cleaner air.

People in and around the District benefited more than most because the region has enjoyed a greater reduction in airborne fine particulate matter, or soot, which is linked to heart and respiratory diseases, than many other metropolitan areas. Overall, D.C. area residents were living roughly three years longer in 2000 than in 1980, and more than seven months of that improvement was attributed to the drop in airborne soot.

Between 1980 and 2000, levels of this type of pollution fell by more than 10 micrograms per cubic meter of air in the metropolitan region, the study found. It was only 15 years ago that other researchers discovered the link between airborne particles smaller than 2.5 microns in diameter (less than 4/100 the width of a human hair) and lung and heart disease.

C. Arden Pope III, lead author of the study published in today's [New England Journal of Medicine](#), called the increase in life expectancy due to better air quality "remarkable."

"We are getting a return on our investment," said Pope, an epidemiologist and economics professor at Brigham Young University, adding that cutting air pollutants in major cities amounted to "a large, nationwide, natural experiment."

Between 1980 and 2000, federal regulations on power plants, including the acid rain program, helped reduce smog ingredients such as sulfur dioxide significantly, while the installation of catalytic converters on vehicles cut nitrogen oxide pollution across the country.

Every five years the government evaluates whether it should tighten the standards for fine particulates. In September 2006, the [Environmental Protection Agency](#) decided to keep the limit unchanged at 15 micrograms per cubic meter averaged over an entire year, but it tightened the maximum permissible in any one 24-hour period from 65 to 35 micrograms. Both the EPA's scientific advisory panel and independent researchers urged the agency to impose a more stringent annual standard.

Janice Nolen, assistant vice president of policy and advocacy for the [American Lung Association](#), said she hoped the new findings would spur policymakers to tighten federal soot standards the next time they issue new regulations, scheduled for 2011.

"Air pollution shortens life, and when we reduce air pollution, it actually adds months to our life," she said. "While it's hard for people to see the connection, we can document it, and we know that the connection exists."

Pope added that one of the encouraging aspects of the study, which was co-authored by Douglas Dockery and Majid Ezzati at the [Harvard School of Public Health](#), is that further reductions in particulate matter continue to produce health benefits.

"There is room to improve," Pope said, noting that even relatively clean cities can experience the benefits of cutting down more on airborne particulates. Furthermore, he said, "there's a lot of room to improve in Chinese cities, and Indian cities, and cities throughout the world."

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