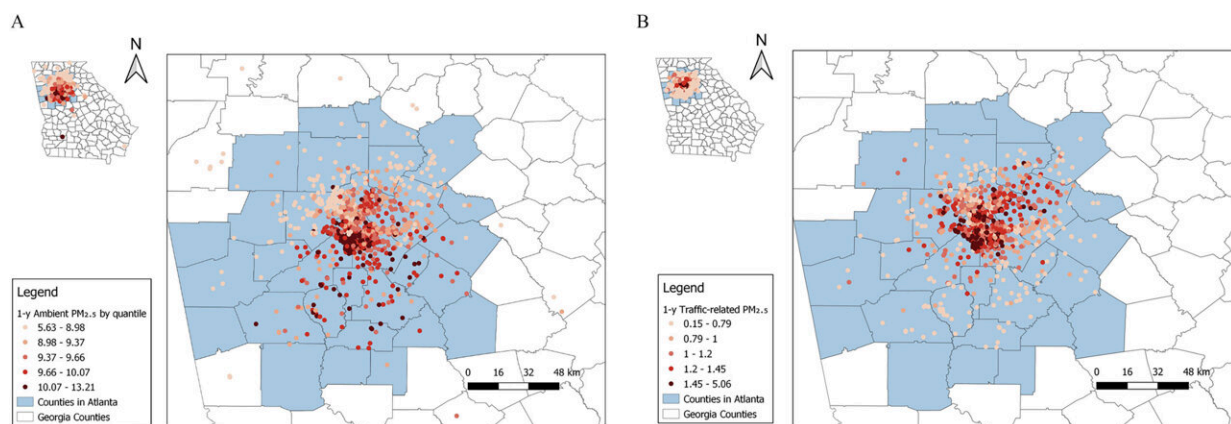


Study shows air pollution is associated with increased risk of developing Alzheimer's disease

April 11 2024, by Rob Spahr



Map of the geographic distribution of the study population and their residential PM_{2.5} exposure concentrations in the year prior to specimen collection. Each dot represents an EHBS participant. Credit: *Environmental Health Perspectives* (2024). DOI: 10.1289/EHP13503

A new Emory University study has found that adults exposed to high levels of air pollution were at an increased risk of developing Alzheimer's disease.

In a study of 1,113 participants between the ages of 45 and 75 from the Emory Healthy Brain Study, all of whom were from the Atlanta [metropolitan area](#), the researchers found positive biomarkers of

Alzheimer's disease—specifically [amyloid plaques](#)—in the cerebrospinal fluid of participants who were exposed to ambient and traffic-related air pollution at their homes.

This study, which was [published](#) in *Environmental Health Perspectives*, was the largest of its kind and adds to the growing body of evidence—including other recent studies from Emory University—that suggests air pollution directly contributes to degeneration in the [brain](#).

What the experts say

"Together, our recent studies represent both ends of the spectrum. In our previous study we showed associations between residential exposure to air pollution and Alzheimer's-related changes in the brain in an autopsy cohort and now, we found similar results in a study of living adults who were on average 15 years younger and cognitively healthy.

"This is important because it shows that residential air pollution can negatively affect our brain even decades before we actually develop Alzheimer's disease. This points to a sensitive time period for both exposure and opportunity, because that is time when prevention strategies and interventions are most effective," says Anke Huels, Ph.D., the study's lead author and an assistant professor in the Department of Epidemiology at Emory's Rollins School of Public Health.

"We know that air pollution is generally bad for human health, including brain health. By showing a relationship to levels of the amyloid protein in the [cerebrospinal fluid](#), this study suggests that air pollution might increase the risk of developing Alzheimer's disease. The flip side of that is that by cleaning up our environment, we might also help reduce the burden of Alzheimer's disease," says James Lah, MD/Ph.D., principal investigator of the Emory Healthy Brain Study and an associate professor in the Department of Neurology at Emory's School of

Medicine.

Ways to reduce air pollution exposure

- Limit time and avoid [physical activity](#) outside on days when your local air quality index reports air quality is poor.
- If you must be outside on poor air quality days, consider wearing a mask, such as an N95 mask.
- Do other things known to help reduce Alzheimer's risk, including these tips from the Centers for Disease Control and Prevention:
 - Practice eating a healthy diet.
 - Engage in regular physical activity.
 - Prevent/manage [high blood pressure](#) and blood sugar.
 - Quit smoking and avoid excessive alcohol consumption.
 - Get plenty of sleep.

More information: Emma Casey et al, Association between Fine Particulate Matter Exposure and Cerebrospinal Fluid Biomarkers of Alzheimer's Disease among a Cognitively Healthy Population-Based Cohort, *Environmental Health Perspectives* (2024). [DOI: 10.1289/EHP13503](#)

Provided by Emory University

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