

Air Pollution and Diabetes: What Is the Evidence?



Diabetes and Environmental Hazards

Information for Older Adults and Their Caregivers

Environmental Factors Can Affect the Health of Persons with Diabetes

Air Quality

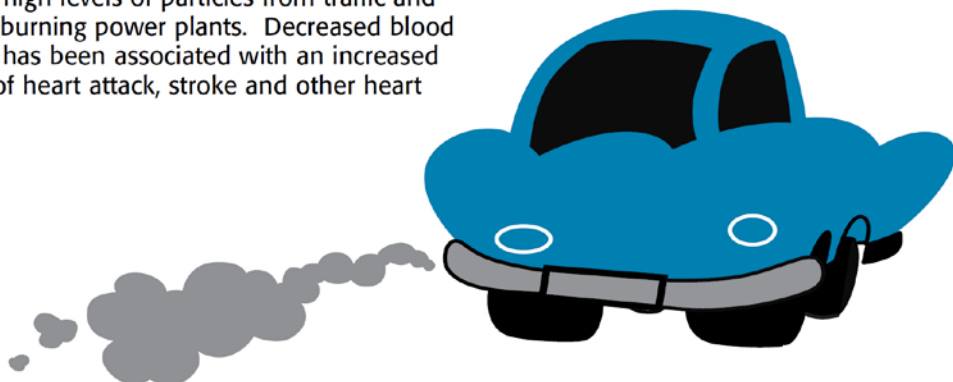
People living with diabetes are considered at high risk for adverse health effects from exposure to harmful particles, or air pollution found both indoors and outdoors. Breathing in harmful particles from air pollutants (for example, smoke, vehicle exhaust, industrial emissions and haze from burning fossil fuels) may increase your risk of heart attack and stroke.

A recent study found that in adults living with diabetes the ability of their blood vessels to control blood flow was decreased on days with high levels of particles from traffic and coal-burning power plants. Decreased blood flow has been associated with an increased risk of heart attack, stroke and other heart

problems. Other studies have shown that when air pollution levels are high, people with diabetes have higher rates of hospitalization and death related to cardiovascular problems^{5,6}.

Extreme Heat

Exposure to temperatures above 90 degrees Fahrenheit can be very dangerous, especially when humidity is also high. Having diabetes can make it more difficult for your body to regulate its temperature⁷ during extreme heat. If you're living with diabetes, you should take precautions during periods of extreme heat. Avoiding exposure to extreme temperatures is the best defense. Air-conditioning is one of the best ways to protect against heat-related illness and death⁸.



What Can You Do to Minimize Exposure to Environmental Hazards?

LIMIT CONTACT WITH ENVIRONMENTAL FACTORS

■ Reduce exposure to traffic and outdoor air pollution

Pay attention to Air Quality Index (AQI) forecasts to learn when the air is unhealthy for sensitive groups. Check with your healthcare provider about lowering your activity level when the AQI is high. If there is smoke outside of your home from forest or other types of fires, or if you live in a multi-family building and there is cooking smoke or fumes in the building, put your air conditioning on the re-circulate mode and keep windows closed until the smoke has cleared. Reduce your time in traffic. Avoid physical activity. Limit exercise near busy roads.

- Goldberg et al. The association between daily mortality and ambient air particle pollution in Montreal, Quebec, 2: cause-specific mortality. *Environ Res.* 2001; 86(1): 26–36.
- Zanobetti and Schwartz. Cardiovascular damage by airborne particles: are diabetics more susceptible? *Epidemiology* 2002; 13(5): 588–92.



10:50 AM Overview of Evidence of a Link Between Air Pollution and Diabetes

Barbara Hoffmann, MPH, PhD

Professor of Environmental Epidemiology at the University of Düsseldorf, Germany

11:10 AM Mechanistic Insights into Air Pollution and Type 2 Diabetes

Sanjay Rajagopalan, MD, FACC, FAHA

Chief of Cardiovascular Medicine and Director of Case Cardiovascular Research Institute at Case Western Reserve School of Medicine, Cleveland, OH

11:30 AM Long-Term Exposure to Air Pollution and Type 2 Diabetes in Adults

Robin Puett, PhD

Associate Professor, Maryland Institute for Applied Environmental Health at the University of Maryland School of Public Health, College Park, MD

11:50 AM Early-Life Exposure to Air Pollution and Diabetes in Childhood

Abby Fleisch, MD, MPH

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