

Air pollution tips the scale for obesity in women

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Obesity has been a major global health issue in recent decades as more people eat unhealthy diets and fail to exercise regularly.

A new University of Michigan study suggests there is another factor that tips the scale in women's weight, body mass index, waist circumference and [body fat](#)—[air pollution](#).

Women in their late 40s and early 50s exposed long-term to air pollution—specifically, higher levels of fine particles, nitrogen dioxide and ozone—saw increases in their [body size](#) and composition measures, said Xin Wang, epidemiology research investigator at the U-M School of Public Health and the study's first author.

Data came from 1,654 white, Black, Chinese, and Japanese women from the Study of Women's Health Across the Nation. These women, whose baseline median age was nearly 50 years, were tracked from 2000 to 2008.

Annual air pollution exposures were assigned by linking residential addresses with hybrid estimates of air pollutant concentrations. The researchers examined the associations between the pollution and the participants' body size and composition measures. One question they sought to answer was whether these associations differed by physical activity.

Exposure to air pollution was linked with higher body fat, higher proportion fat and lower lean mass among midlife women. For instance, body fat increased by 4.5%, or about 2.6 pounds.

Researchers explored the interaction between air pollution and physical activity on body composition. High levels of [physical activity](#)—which had been based on the frequency, duration and perceived [physical exertion](#) of more than 60 exercises—was an effective way to mitigate and offset exposure to air pollution, the research showed.

Since the study focused on midlife women, the findings can't be

generalized to men or women in other age ranges, Wang said.

The findings appear in *Diabetes Care*.

More information: Xin Wang et al, Longitudinal Associations of Air Pollution With Body Size and Composition in Midlife Women: The Study of Women's Health Across the Nation, *Diabetes Care* (2022). [DOI: 10.2337/dc22-0963](https://doi.org/10.2337/dc22-0963)

Provided by University of Michigan

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