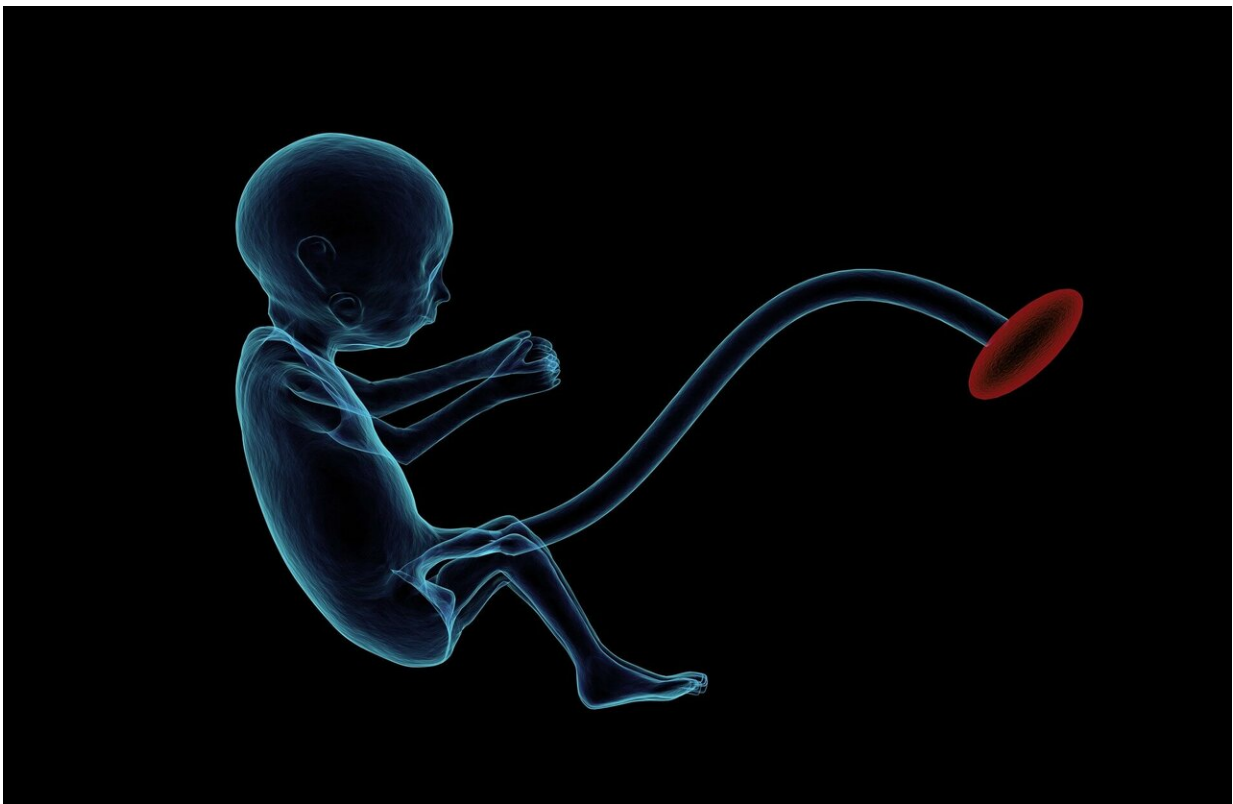


Study suggests link between higher prenatal PFAS exposures and offspring obesity risk in adolescence

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A new Project Viva study demonstrates the impact of prenatal per- and polyfluoroalkyl substance (PFAS) exposures on children. The study,

[published](#) in the December 6 issue of *Environmental Health Perspectives*, observed a strong link between higher prenatal PFAS exposure and increased rates of obesity and body fat in adolescent offspring, further defining and adding depth to their colloquial name: "forever chemicals."

The study, "Associations of prenatal per- and polyfluoroalkyl substance (PFAS) exposures with offspring adiposity and body composition at 16-20 years of age: Project Viva," was led by researchers at the Harvard Pilgrim Health Care Institute.

PFAS are commonly found in drinking water and [consumer products](#) such as non-stick cookware, food packaging, and waterproof clothing and are notorious for their persistent nature in the environment. While it is well-documented that PFAS exposure can cause various health concerns such as cardiovascular issues, little is known about how prenatal exposure may impact offspring, and how long those impacts may follow them into adolescence and beyond.

The researchers studied 545 mother-offspring pairs from Project Viva, a Boston-based cohort now entering its 25th year. Using PFAS chemical measurements in the mothers' blood samples collected during pregnancy and weight and body composition measurements of their offspring (now 16–20 years old), the team used novel statistical methods to examine how PFAS chemicals interacted with each other and how PFAS chemicals in combination increased the risk of obesity and affected the children's body composition.

"Utilizing the trove of data from Project Viva, one of the largest and longest-running pediatric cohorts in the U.S., we were able to include a longer follow-up time than prior studies on this topic and also measure adolescent offspring [body composition](#)," said senior author Marie-France Hivert, Harvard Medical School associate professor of population medicine at the Harvard Pilgrim Health Care Institute. "We

also analyzed PFAS mixtures, adding to the clear associations found in single pollutant models of other studies."

The study team found that for higher levels of certain PFAS in maternal blood, the risk of obesity in the children increased notably—13% to 59%. Children with higher prenatal PFAS exposures demonstrated more rapid BMI increases beginning around 9-11 years old, during puberty. This link, the authors say, filled a critical gap in illustrating the long-term consequences of PFAS for developmental health, especially in the realm of the obesity epidemic.

"Preventing and treating [childhood obesity](#) is notoriously difficult; identifying and targeting novel early-life environmental factors that may cause it are especially important. PFAS are referred to as 'forever chemicals' because they are 'forever' persistent in the environment. Our study showed that their prenatal health effects may also have a lasting impact," says Mingyu Zhang, a former research fellow at the Harvard Pilgrim Health Care Institute and lead author of the study.

Dr. Zhang, now a Harvard Medical School faculty member at Beth Israel Deaconess Medical Center, adds, "Our findings have significant public [health](#) implications, and highlight the need for stricter regulations on PFAS usage and further research into best practices for mitigating their impact—especially on vulnerable populations."

More information: Associations of Prenatal Per- and Polyfluoroalkyl Substance (PFAS) Exposures with Offspring Adiposity and Body Composition at 16–20 Years of Age: Project Viva, *Environmental Health Perspectives* (2023). [DOI: 10.1289/EHP12597](https://doi.org/10.1289/EHP12597).
ehp.niehs.nih.gov/doi/10.1289/ehp12597

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