

Maternal obesity linked to childhood cancer

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A new study from the University of Pittsburgh Graduate School of Public Health and UPMC Hillman Cancer Center found that children born to obese mothers were more likely to develop cancer in early childhood.

Using Pennsylvania [birth records](#), the researchers found a correlation

between pre-pregnancy body-mass index (BMI) in mothers and subsequent cancer diagnosis in their offspring, even after correcting for known [risk factors](#), such as newborn size and maternal age. The final version of the paper published online today in the *American Journal of Epidemiology*.

"Right now, we don't know of many avoidable risk factors for childhood cancer," said lead author Shaina Stacy, Ph.D., postdoctoral scholar in the Pitt Public Health Department of Epidemiology and UPMC Hillman Cancer Center. "My hope is that this study can be, in a way, empowering and also motivating for [weight loss](#)."

Stacy and colleagues pored through nearly 2 million birth records and about 3,000 cancer registry records filed in the state of Pennsylvania between 2003 and 2016 and found that children born to severely [obese mothers](#)—BMI above 40—had a 57% [higher risk](#) of developing leukemia before age 5. Weight and height also were individually associated with increased leukemia risk.

Further analysis showed that it wasn't simply that larger women were giving birth to larger babies or that heavier women tended to be older—known risk factors for childhood cancer—but rather, a mother's size independently contributed to her child's risk.

The researchers think the root cause of the effect they're seeing has something to do with insulin levels in the mother's body during fetal development, or possibly changes to the mother's DNA expression that are passed to her offspring.

Importantly, not all levels of obesity carry the same risk. Among the obese women in the study, higher BMI came with higher cancer rates in their children. So, even small amounts of weight loss can translate to a real reduction in risk, Stacy said.

"We are dealing with an obesity epidemic in this country," said senior author Jian-Min Yuan, M.D., Ph.D., professor of epidemiology at Pitt Public Health and co-leader of the cancer epidemiology and [prevention program](#) at UPMC Hillman Cancer Center. "From a prevention point-of-view, maintaining a healthy weight is not only good for the mother, but also for the children, too."

More information: Shaina L Stacy et al, Maternal Obesity, Birth Size, and Risk of Childhood Cancer Development, *American Journal of Epidemiology* (2019). [DOI: 10.1093/aje/kwz118](https://doi.org/10.1093/aje/kwz118)

Provided by University of Pittsburgh

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