

# Pregnancy weight gain tilts the scales for child becoming obese

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Unhealthy weight gain in pregnancy has been linked with infant size and body composition but until now little was known about its long-term association with childhood obesity among low-income and multi-ethnic youth. For the first time, researchers at Columbia University's Mailman School of Public Health studied the effects of gestational weight gain on childhood obesity risk among a multi-ethnic urban population. The researchers determined that excessive pregnancy weight gain was associated with greater overall and abdominal body fat in children and obesity at age seven. Excessive pre-pregnancy weight gain was associated with an increased risk of childhood obesity of approximately 300 percent. Findings are published online in the journal *Maternal & Child Nutrition*.

Before pregnancy for this population of African-American and Dominican women, 45 percent were overweight or obese, and 64 percent of mothers gained more weight during pregnancy than recommended by the 2009 Institute of Medicine Guidelines. At age seven, 22 percent of the children born to the women studied were obese, and on average, 24 percent of their body mass was comprised of fat tissue. The 2009 Institute of Medicine Guidelines for weight gain during pregnancy were set to optimize prenatal, birth, and possibly longer-term health outcomes, and recommended that pregnant women gain weight within set ranges according to their pre-pregnancy body mass index. For example, it recommends that women in a normal weight range gain 25-35 lbs and approximately 1 lb per week in the 2nd and 3rd trimester. These guidelines should be used in conjunction with clinical judgment by

healthcare providers.

"This is the first study to evaluate the long-term effects of gestational weight gain in a contemporary low-income multi-ethnic urban population, characterized by a high risk of obesity," noted Elizabeth Widen, PhD, RD, postdoctoral fellow at the Mailman School Department of Epidemiology, the Institute of Human Nutrition, and the New York Obesity Research Center.

Findings were based on data from the Columbia Center for Children's Environmental Health Mothers and Newborns Study in Northern Manhattan and the South Bronx from 1998 to 2013. There were 727 mothers who self-identified as African-American or Dominican.

Most studies examining longer term effects of pregnancy weight gain on childhood body size typically only have measures of height and weight rather than estimates of body fat. Further, there has been little research on the long-term effects of gestational weight gain on [childhood obesity](#) risk in vulnerable populations.

"Our findings suggest that weight gain in pregnancy above the Institute's recommendations is strongly associated with obesity in childhood," said Andrew Rundle, DrPH, associate professor of Epidemiology. "A stronger focus on helping pregnant women meet the Institute of Medicine's targets for healthy weight gain during pregnancy is needed."

The researchers controlled for pre-pregnancy body mass index, maternal education, receipt of public assistance, ability to afford food in pregnancy, and previous pregnancies. Women were also excluded from the analysis if the first prenatal visit was after 20 weeks gestation or if the mother self-reported diabetes, hypertension, known human immunodeficiency virus status, or use of illicit drugs or cigarettes during pregnancy. Marital status and infant sex had no effect on outcomes.

"Some weight gain during pregnancy is normal, but women need to know that gaining too much weight can put their child at risk for being obese in childhood and as they get older, which places them at higher risk for future chronic disease. Because pregnancy [weight gain](#) has lasting implications for childhood health, we need to determine how to support women to gain a healthy amount of weight in [pregnancy](#)," said Widen.

**More information:** A symposium titled "A Smart Start: Preventing Childhood Obesity," sponsored by the Mailman School of Public Health's Obesity Prevention Initiative will take place on April 16th.

Provided by Columbia University's Mailman School of Public Health

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