

Mom's weight gain during pregnancy tied to childhood obesity

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A study of 41,133 mothers and their children in Arkansas has shown that high pregnancy weight gain increases the risk of obesity in those children through age 12. The findings, published Oct. 1 in *PLoS Medicine*, suggest pregnancy may be an especially important time to prevent obesity in the next generation.

"From the public health perspective, excessive weight gain during pregnancy may have a potentially significant influence on propagation of the [obesity epidemic](#)," says the study's senior author David S. Ludwig, MD, PhD, director of the New Balance Foundation Obesity Prevention Center at Boston Children's Hospital.

Programs to limit pregnancy weight gain could help prevent some cases of [childhood obesity](#). "Pregnancy presents an attractive target for [obesity prevention](#) programs, because women tend to be particularly motivated to change behavior during this time," says Ludwig.

Researchers have previously observed a familial tendency toward obesity. Children with mothers who are obese, or gain too much weight during pregnancy, are more likely to be obese themselves. However, this relationship may be due to confounding factors such as shared genes, common environmental influences and socioeconomic and demographic considerations, rather than any direct biological effects of maternal overnutrition.

Ludwig, together with coauthors Janet Currie, PhD, director of the

Center for Health and Well Being, Princeton University and Heather Rouse, PhD, of Arkansas Center for Health Improvement (ACHI), used a novel study design to examine other causes of childhood obesity. They linked the birth records of mothers with two or more [children](#) to school records that included the child's body mass index (BMI) at an average age of 11.9 years, and then made statistical comparisons between siblings.

Comparing siblings minimizes the conventional sources of confounding, because on average siblings have the same relative distribution of obesity genes, the same home environment and same socioeconomic and demographic influences.

The current study extends results of an earlier study that Ludwig led, which showed that [excessive weight gain](#) in pregnancy increased the birth weight of the infant. The effect of maternal weight gain apparently continues through childhood and accounts for half a BMI unit, or about 2 to 3 lbs., between children of women with the least to the most pregnancy weight gain.

"Excessive pregnancy [weight gain](#) may make a significant contribution to the obesity epidemic," says Ludwig. "Children born to women who gained excessive amounts of weight—40 lbs. or more-during pregnancy had an 8 percent increased risk of obesity," says Ludwig. This risk, though relatively small on an individual basis, could translate into several hundred thousand cases of excess childhood [obesity](#) worldwide each year.

More information: Ludwig DS, Rouse HL, Currie J (2013) Pregnancy Weight Gain and Childhood Body Weight: A Within-Family Comparison. PLoS Med 10(10): e1001521. [DOI: 10.1371/journal.pmed.1001521](#)

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