

# Pregnancy weight gain may increase a woman's risk of gestational diabetes

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Women who gain excessive weight during pregnancy, especially in the first trimester, may increase their risk of developing diabetes later in their pregnancy, according to a study by the Kaiser Permanente Division of Research that appears online in the current issue of *Obstetrics and Gynecology*.

The three-year study of 1,145 pregnant women from an ethnically diverse population found that women who gained more weight than is recommended by the Institute of Medicine had a 50 percent increased risk of developing [gestational diabetes](#) mellitus, also known as GDM. The association between [pregnancy weight gain](#) and gestational diabetes risk was more pronounced among overweight and non-white women. The study included 345 pregnant women with gestational diabetes and 800 pregnant women without gestational diabetes.

Gestational diabetes is defined as glucose intolerance that typically occurs during the second or third trimester of pregnancy. It causes complications in as much as seven percent of pregnancies in the United States. It can lead to early delivery, C-sections and [type 2 diabetes](#), and can increase the child's risk of developing diabetes and obesity later in life.

This study is among the first to support a direct link between pregnancy weight gain and gestational diabetes risk. Previous research has shown that weight gain before pregnancy and being overweight or obese at the start of pregnancy are risk factors for gestational diabetes. This study

was funded by the American Diabetes Association and the National Institute of Diabetes and Digestive and Kidney Diseases.

The study followed women members of Kaiser Permanente Northern California region and examined their overall rate of pregnancy weight gain up to the time of screening for gestational diabetes (typically between 24-28 gestational weeks), as well as the trimester-specific rates of weight gain compared to the Institute of Medicine's 2009 guidelines for recommended pregnancy weight gain. Based on a woman's pre-pregnancy body mass index, the IOM developed the 2009 guidelines for obstetricians to counsel pregnant women on suggested weight gain during pregnancy.

After adjusting for age at delivery, race/ethnicity, previous births, and pre-pregnancy body mass index, the risk of gestational diabetes increased with increasing rates of pregnancy weight gain. Women who exceeded the IOM guidelines for weight gain had a 50 percent increase in the risk of gestational diabetes compared to women who gained within or below the IOM recommendations.

"Health care providers should talk to their patients early in their pregnancy about the appropriate gestational weight gain, especially during the first trimester, and help women monitor their weight gain. Our research shows that weight gain in early pregnancy is a modifiable risk factor for gestational diabetes," said the study's lead author Monique Hedderson, PhD, a scientist at the Kaiser Permanente Division of Research. "Randomized studies are needed to determine the feasibility of this early intervention and the best methods to help women meet the IOM recommendations."

Though the exact mechanism for how excessive weight gain may contribute to gestational diabetes is not known, researchers hypothesize that rapid weight gain early in pregnancy may result in an early increase

in insulin resistance that leads to the "exhaustion" of the beta-cells in the pancreas that make and release insulin, which controls the level of glucose in the blood. This could reduce beta-cells' capacity to secrete adequate levels of insulin to compensate for the insulin resistance induced by the progression of pregnancy and therefore lead to the development of gestational diabetes, researchers said.

A strength of the study is its representative and ethnically diverse population. However, some limitations should be considered. Pre-pregnancy weights were self-reported for most women. However, researchers have no reason to believe that the women who developed gestational diabetes would have misreported their pre-pregnancy weight more than control women and results were similar when looking at the sub-group of women who had a measured pre-pregnancy weight.

This study is part of ongoing research at Kaiser Permanente to understand, prevent and treat gestational diabetes. A recent published Kaiser Permanente study of 16,000 women in Hawaii found that more than 10 percent of women of Chinese and Korean heritage may be at risk for developing gestational diabetes. Another published Kaiser Permanente study of 10,000 mother-child pairs showed that treating gestational diabetes during pregnancy can break the link between gestational diabetes and childhood obesity. That study showed, for the first time, that by treating women with gestational diabetes, the child's risk of becoming obese years later is significantly reduced.

The study follows other research at Kaiser Permanente regarding healthy weight gain during pregnancy. A recent published Kaiser Permanente study found that obese women who gain more than the recommended amount during pregnancy are much more likely to retain a portion of that weight one year after they give birth. Another published Kaiser Permanente study of 40,000 mother and baby pairs found that [women](#) who gained more than 40 pounds during their pregnancies were nearly

twice as likely to have a heavy baby.

**More information:** The Institute of Medicine guidelines on pregnancy weight gain can be found here: [www.iom.edu/Reports/2009/Weight-Gain-the-Guidelines.aspx](http://www.iom.edu/Reports/2009/Weight-Gain-the-Guidelines.aspx)

Provided by GolinHarris International

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