

Pre-pregnancy hormone testing may indicate gestational diabetes risk

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Overweight women with low levels of the hormone adiponectin prior to pregnancy are nearly seven times more likely to develop gestational diabetes, according to a Kaiser Permanente study published today in the journal *Diabetes Care*. Adiponectin protects against insulin resistance, inflammation and heart disease.

Using Kaiser Permanente HealthConnect®, an [electronic health records](#) system, the researchers retrospectively identified about 4,000 women who gave voluntary [blood samples](#) between 1985 and 1996 during routine care and subsequently delivered an infant. Among that group, 256 women developed [gestational diabetes](#) during pregnancy and 497 did not. Researchers found that normal-weight women with low levels of adiponectin were 3.5 times more likely to develop gestational diabetes than their normal-weight peers with normal levels of the hormone. Additionally, [overweight women](#) with high levels of adiponectin were 1.7 times as likely to develop gestational diabetes during pregnancy, while those with the lowest levels were 6.8 times more likely.

"Our findings indicate important pregnancy interventions may be possible before a woman even conceives," said Monique M. Hedderson, PhD, principal investigator of the study and research scientist with the Kaiser Permanente Division of Research in Oakland, Calif. "Adiponectin levels are easy and inexpensive to measure and could potentially be used to identify women who are at risk for gestational diabetes."

The relationship between low adiponectin levels prior to pregnancy and the risk of diabetes was highly significant among the study group, according to the researchers, and it increased among women with higher body mass indexes (BMI), even after the data was adjusted for confounding factors such as family history of diabetes, race, smoking and [blood glucose](#) and [insulin levels](#). This study included women who

volunteered to participate in Kaiser Permanente's multiphasic health check up exam, therefore the population may be more health conscious than the general population. However, the study cohort was very diverse in terms of race-ethnicity and education level.

Gestational diabetes, or glucose intolerance during pregnancy, is common and can lead to adverse outcomes including larger-than-normal babies and subsequent delivery complications. Women with gestational diabetes are seven times more likely to develop type 2 diabetes later in life, and their children are at greater risk of becoming obese and developing diabetes themselves.

"Low adiponectin levels were linked with gestational diabetes even for women without traditional diabetes risk factors such as being overweight, so this could be an important clinical marker for women who may become pregnant. Adiponectin testing early in pregnancy may also help identify high-risk women who would benefit from early diagnosis and treatment of gestational diabetes." Hedderson said. "Future research is needed to determine whether lifestyle interventions targeting diet and physical activity can increase adiponectin levels."

Provided by Kaiser Permanente

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