

Lose body weight before gaining baby weight

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A new University of Illinois study contains a warning for obese women who are planning pregnancies. Even if they eat a healthy diet when they are pregnant, their babies will develop in an unhealthy environment that places the infants at risk for future health problems.

"We can see fat sequestered in the placentas of obese mothers when it should be going to the baby to support its growth. The nutrient supply region in the placenta of an obese mother is half the size of that of a normal-weight mother, even when both are eating the same healthy diet," said Yuan-Xiang Pan, a U of I professor of nutrition.

Pan blames what he calls the obesogenic environment of the mother, which includes increased triglycerides, high levels of the [hormone leptin](#), and elevated amounts of non-esterified fatty acids (NEFAs) circulating in the obese expectant mother's body. Triglyceride and NEFA levels are nearly twice as high in obese mothers, even when they consume healthy diets during pregnancy, he said.

"My advice is, lose weight well before you become pregnant," Pan said.

In the study, the scientist compared the placentas of obese rats fed a healthy diet throughout their pregnancies with the placentas of obesity-resistant rats fed the same diet.

"Although the obese females didn't gain much weight on the [healthy diet](#), the obesogenic environment remained, and it affected nutrient transport regulation in the placenta," he said.

As a result, [obese mothers](#) gave birth to babies that were up to 17 percent smaller than they should have been. The consequences for those infants may be lifelong, making them more susceptible to disease, he noted.

Pan, an epigeneticist, was able to demonstrate for the first time that the DKK1 gene regulates certain aspects of [lipid metabolism](#) in the [placenta](#) through the WNT signaling pathway.

"Understanding this process should help us identify some [biomarkers](#) that would allow a potential mother's doctor to say yes, you've lost weight, the chemical conditions that were created by your excess weight are gone, and this is a good time for you to become pregnant," he said.

Biomarkers could also be useful in testing new babies. If doctors can see that the mother's pre-pregnancy and pregnancy diets were deficient, there might be ways to compensate for that poor prenatal environment, he said.

"The point I'd like to get across to women of child-bearing age is that they must pay attention to their weight well before they become pregnant if they want to have a healthy baby. Obesity creates unhealthy conditions in the mother's body that take time to correct. A healthy mother will give birth to a baby that is more resistant to disease," he said.

More information: The study appeared in the March 2012 issue of *Biology of Reproduction*.

Provided by University of Illinois at Urbana-Champaign

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