

Early puberty associated with gestational diabetes

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Women who began having menstrual cycles at a younger age are at greater risk of developing gestational diabetes, a disease affecting up to 7 percent of pregnant women that can cause babies to develop type 2 diabetes and other complications, new research shows.

Previous research has shown an association between beginning [menstrual cycles](#), or [menarche](#), at a young age and the development of type 2 diabetes. However, the new study, published in *Diabetes Care*, a peer-reviewed journal of the American Diabetes Association, looked specifically at menarche and [gestational diabetes](#), a type of diabetes that begins or is first recognized during pregnancy.

The study followed more than 27,000 women enrolled in the Nurses' Health Study II and observed that when menarche began at age 11 compared to age 14, women had a 39 percent higher risk of developing gestational diabetes. An increased risk, although lower, also occurred when menarche began at 12 and 13.

"This new finding could mean that doctors will begin asking women when they had their first period to determine their risk of developing gestational diabetes. They may represent a high-risk population and should be targeted for prevention programs," said the study's lead author, Dr. Liwei Chen, an assistant professor in [public health](#) sciences at Clemson University. The study was a collaboration between Clemson, the Eunice Kennedy Shriver National Institute of Child Health, the Indiana University School of Medicine and Frank Hu from the Harvard

School of Public Health.

"Good weight control before pregnancy might help to reduce the gestational diabetes risk among those women," Chen said.

Early menarche is also associated with obesity in adulthood, and previous research has pointed to pre-pregnancy obesity as a risk factor for gestational diabetes, "but obesity doesn't explain all the association between menarche and gestational diabetes," Chen said.

Researchers made adjustments for [women](#) who reported being obese in adolescence and at age 18, as well as such lifestyle choices as smoking, drinking alcohol, total physical activity and healthy eating, but the results were the same.

Menarche marks the beginning of puberty and myriad hormonal changes in the body. Some of those changes could be related to developing gestational diabetes later in life, Chen said. For instance, early menarche is also associated with higher levels of estrogen in adulthood, and other hormone imbalances are associated with an increased risk of gestational diabetes.

"Early [age](#) of menarche may represent a novel risk factor of gestational diabetes. Future studies to investigate the underlying molecular mechanisms are warranted," said Dr. Cuilin Zhang, the senior author and a senior investigator of the Division of Intramural Population Health Research at the Eunice Kennedy Shriver National Institute of Child Health.

Further research in a more racially diverse group is also warranted because 92 percent of the subjects were white, Chen said.

Provided by Clemson University

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