

A recent study has found that pregnant women who are vitamin D deficient are twice as likely to give birth to children who are “small for gestational age.”

## Maternal vitamin D is linked with birth weight in new born babies

Vitamin D is essential for growth and development, and maintenance of a healthy body throughout the lifespan. It has been the topic of much research in recent years with many studies focusing on the role of vitamin D in the prevention and treatment of numerous diseases and in reducing risk of pregnancy complications and adverse outcomes.

Previous smaller studies have shown mixed results in the correlation between maternal vitamin D status and infant birth weight. This study set out to get a larger sample size and use more consistent methodologies to determine what correlation, if any, exists.

Data for this observational study was collected from the Collaborative Perinatal Project, which was conducted in the United States from 1959 to 1965. While the data is older, this study was used because it already had the necessary elements, including blood samples, to carry out a thorough analysis. The final sample size, after eliminating for stillbirths, preterm births, and the pregnancies where vitamin D measurements were unsuitable, was 2146 pregnant women. The blood samples that were used to test for vitamin D status had been stored for a long period of time (> 40yrs), however they were stored at -20 C and research shows that 25(OH)D is not likely to degrade over time under these conditions. The reported birth weight was recorded just after birth, to provide consistent measurements.

Analysis of these data showed a positive correlation between vitamin D status and birth weight, and found that women who were vitamin D deficient in the first trimester were twice as likely to give birth to babies who were born “small for gestational age” (lower 10th percentile for weight). Babies small for gestational age are at greater risk for death in the first month after birth, and for heart disease, hypertension, and type 2 diabetes. Some notable differences between this population and a typical modern sample are that “today women smoke less, weigh more, have less sun-exposure and get more vitamin D in their foods” all of which are factors that could affect vitamin D status.

“Our study is an important contribution to the epidemiologic evidence that maternal vitamin D status, especially in early pregnancy, may contribute to both pathological and physiological fetal growth,” noted Lisa Bodnar, PhD, MPH, RD, of the University of Pittsburgh and senior author of the study. While this study provides further evidence of the important health benefits of vitamin D during fetal development, the researchers recommend that more large randomized studies be done on a current maternal population.

Gernand AD, Simhan HN, Klebanoff MA, Bodnar LM. Maternal serum 25-hydroxyvitamin d and measures of newborn and placental weight in a U.S. Multicenter cohort study. J Clin Endocrinol Metab. 2013 Jan;98(1):398-404.



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