

Vitamin D in pregnancy critical for brain development, study says

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Babies whose mothers had adequate levels appeared to do better on mental, motor tests.

(HealthDay)—Vitamin D deficiency during pregnancy could hinder babies' brain development, impeding their mental and motor skills, a new study suggests.

Researchers in Spain measured the level of [vitamin D](#) in the blood of almost 2,000 women in their first or second trimester of pregnancy and evaluated the mental and motor abilities of their babies at about 14 months of age. The investigators found that children of vitamin D-deficient mothers scored lower than those whose mothers had adequate levels of the sunshine vitamin.

"These differences in the mental and psychomotor development scores

do not likely make any difference at the individual level, but might have an important impact at the [population level](#)," said study lead author Dr. Eva Morales, a medical epidemiologist in the Center for Research in Environmental Epidemiology in Barcelona.

Overall, lower scores in these tests could lead to lower IQs among children, Morales added.

The study was published online Sept. 17 and in the October print issue of the journal *Pediatrics*.

Previous research has linked insufficient levels of vitamin D during pregnancy with [language impairment](#) in children at 5 and 10 years of age.

Despite these connections, experts still debate how much vitamin D [pregnant women](#) should receive.

The Institute of Medicine, an independent U.S. group that advises the public, recommends pregnant women get 600 international units (IU) a day of vitamin D and no more than 4,000 IU/day. However, the Endocrine Society says that 600 units does not prevent deficiency and that at least 1,500 to 2,000 units a day may be required.

Bruce Hollis, director of pediatric nutritional sciences at the Medical University of South Carolina in Charleston, said the recommended 600 units per day is probably sufficient to promote good [skeletal health](#) in fetuses, but it "basically does nothing" to prevent other diseases.

Other studies have reported that low prenatal vitamin D levels could weaken a baby's immune system and increase the risk of asthma and other respiratory conditions, and heart disease.

Hollis recommends that women who are pregnant or want to become pregnant get 4,000 units a day of vitamin D.

Women must take supplements or spend 10 or 15 minutes in the sun during the summer if they are fair-skinned to get this level of vitamin D, Hollis added. It would be difficult to get this many units even from foods rich in vitamin D, such as fatty fish and fortified milk.

In the current study, Morales and her colleagues measured vitamin D levels in 1,820 pregnant women living in four areas of Spain. Most were in their second trimester.

The researchers found that 20 percent of the women were vitamin D-deficient and another 32 percent had insufficient levels of the vitamin.

Morales and her colleagues found that the babies of mothers whose prenatal vitamin D level was deficient scored on average 2.6 points lower on a mental test and 2.3 points lower on a psychomotor test at about 14 months of age than babies of women whose prenatal vitamin D level was adequate.

Differences of between four and five points in these types of neuropsychological tests could reduce the number of children with above-average intelligence (IQ scores above 110 points) by over 50 percent, Morales noted.

The authors took into consideration other factors that could influence babies' mental and motor development, including birth weight, maternal age, social class and mother's education level, and whether or not the mother drank alcohol or smoked during pregnancy.

The study found a link between [vitamin D deficiency](#) during pregnancy and babies' brain development, but it did not prove the existence of a

cause-and-effect relationship.

To get a better idea of what these differences in developmental scores mean, the authors should evaluate the children when they are 7 or 8 years old and starting to learn to read and write, said Dr. Ruth Lawrence, medical director of the Breastfeeding and Human Lactation Study Center at the University of Rochester Medical Center in New York.

Also, this study does not address the diet of the babies, Lawrence said. Although vitamin D is in both breast milk and infant formula, cholesterol and the amino acid taurine are only found in breast milk and also affect [brain development](#) after birth, she added.

Lawrence advises pregnant women get a dietary consultation in their first trimester and consider vitamin D supplementation. "We have realized that vitamin D has a lot more impact than to prevent rickets," she said.

Vitamin D may have additional benefits for mothers-to-be. Other research conducted by Hollis and his team found that pregnant women taking vitamin D could lower their risk of pregnancy-related diabetes and high blood pressure.

Early studies suggesting that high levels of vitamin D could lead to birth defects were bogus, Hollis said.

Women can receive up to 50,000 units a day before worrying about having too much vitamin D, Hollis said. Excessive vitamin D can lead to spikes in blood levels of calcium, which can, in turn, lead to kidney and nerve damage and abnormal heart rhythm.

More information: To learn more about vitamin D, visit the Office of Dietary Supplements at the [U.S. National Institutes of Health](#).

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