

# Nutrition News

Department of Human Nutrition

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## Vitamin D deficiency in pregnancy affects mother, baby

Research surrounding vitamin D examines its effects from infancy to advanced old age. Scientists are currently looking beyond infancy – actually, *before* birth to the role vitamin D plays on fetal and maternal health during pregnancy. These new studies bring cultural practice and accepted medical belief into consideration, as the science surrounding vitamin D rapidly expands.

Since the beginning of civilization, humans have relied upon exposure to the sun to provide most of the vitamin D needed for health. Now a new study reveals that the extremely low exposure to sunlight Arab women experience, due to their outdoor dress, results in a high prevalence of vitamin D deficiency during their pregnancies. The study, conducted by staff at the Cincinnati Children's Hospital Medical Center, notes that the health concern goes well beyond rickets, the childhood disease of soft bones long known to result from vitamin D deficiency. The authors encourage vitamin D supplementation or consideration of modest sun exposure, as in private

courtyards, to boost the women's vitamin D production.

Vitamin D is now known to play a key role in many health conditions. Current research has identified a wide array of illnesses linked to the lack of the "sunshine vitamin," with researchers believing the vitamin affects 2000 genes in the human body. Vitamin D deficiency is being studied for its role in innate immunity – the frontline protection against widespread, nonspecific pathogens. Vitamin D deficiency not only affects the mother's health, but could persist into the baby's later life, especially if the infant is breastfed.

While the softening of the infant's skull bones –called craniotabes – in normal-appearing babies may reflect vitamin D deficiency during pregnancy, a Japanese study determined that breastfeeding that same child without vitamin D supplementation could prolong the deficiency and in turn lead to serious health risks later in life. Breast milk mirrors the mother's vitamin D status, and so is commonly found to be low in vitamin D itself. For this reason, all children, including breastfed infants, are recommended to receive 400 IU a day of vitamin D, beginning in the first few days

of life.

In babies with vitamin D deficiency, the phenotype (or observable traits) may be corrected with vitamin D supplements, but the fear is the deficiency's effect on the genotype (the genetic pattern established in the deficient infant), according to Bruce Hollis, PhD, renowned vitamin D research scientist. Hollis is presently working to determine the efficacy, effectiveness and safety of maternal and infant vitamin D supplementation as a function of maternal vitamin D status, lactation status, ethnicity and geographic latitude in the prevention of vitamin D deficiency. New recommendations for vitamin D are expected to be announced in late 2010.

### Sources:

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