

# Low vitamin D levels appear common in healthy children

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Many healthy infants and toddlers may have low levels of vitamin D, and about one-third of those appear to have some evidence of reduced bone mineral content on X-rays, according to a report in the June issue of *Archives of Pediatrics & Adolescent Medicine*.

Reports of a resurgence of vitamin D deficiency and rickets, the resulting bone-weakening disease, have emerged in several states, according to background information in the article. Vitamin D deficiency also appears to be high in other countries, including Greece, China, Canada and England.

Catherine M. Gordon, M.D., M.Sc., and colleagues at Children's Hospital Boston, studied 380 healthy children ages 8 months to 24 months who visited a primary care center for a physical examination between 2005 and 2007. Parents filled out a questionnaire regarding their nutritional intake and that of their children, and also reported on the use of vitamin D and other supplements, time spent outdoors, socioeconomic status and education level.

Among the 365 children for whom blood samples were available, 12.1 percent (44) had vitamin D deficiency, defined as 20 nanograms per milliliter of blood or less, and 40 percent (146) had levels below the accepted optimal level of 30 nanograms per milliliter. Breastfed infants who did not receive vitamin D and toddlers who drank less milk were at higher risk of deficiency (for each cup of milk toddlers drank per day, blood vitamin D level increased by 2.9 nanograms per milliliter).

Forty children of the 44 with vitamin D deficiency underwent X-rays of the wrist and knee. Thirteen (32.5 percent) had evidence of bone mineral loss, and three (7.5 percent) exhibited changes to their bones suggestive of rickets.

"Only one child had signs of rickets on physical examination," the authors write. "Thus, these infants and toddlers had a sub-clinical deficiency that could make detection of this issue particularly problematic in routine clinical practice, as a child's vitamin D status is not typically evaluated as part of routine care."

The data suggest that infants should receive vitamin D supplements while breastfeeding and raise the question of whether some children, including those with established risk factors for vitamin D deficiency, should receive regular measurements of blood vitamin D levels. "Given the potential benefits of vitamin D on bone and other tissues, and growing data supporting its immunomodulatory and antiproliferative effects, the current findings support recommendations advocating for vitamin D supplementation for all young children," they conclude.

## **Additional Information Needed About Risks of Low Vitamin D Levels**

"The results of this study suggest that a vitamin D level is not a good screening test for rickets in asymptomatic children; 92.5 percent of those with hypovitaminosis [low levels of] D, as defined by Gordon et al, had no evidence of rickets on radiograph [X-ray]," writes James A. Taylor, M.D., of the University of Washington, Seattle, in an accompanying editorial.

"Future research is needed to determine whether infants and toddlers with vitamin D levels of 20 nanograms per milliliter or lower are at

significant short- or long-term risk for other bone disease or different conditions," Dr. Taylor writes. "Pending this research, the recommendations by Gordon et al that all young children should receive vitamin D supplementation and that children with risk factors should have periodic vitamin D levels obtained may be premature."

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