

Latest analysis confirms suboptimal vitamin D levels in millions of US children

October 26 2009

Millions of children in the United States between the ages of 1 and 11 may suffer from suboptimal levels of vitamin D, according to a large nationally representative study published in the November issue of *Pediatrics*, accompanied by an editorial.

The study, led by Jonathan Mansbach, MD, at Children's Hospital Boston, is the most up-to-date analysis of vitamin D levels in U.S. children. It builds on the growing evidence that levels have fallen below what's considered healthy, and that black and Hispanic children are at particularly high risk.

Both the optimal amount of vitamin D supplementation and the healthy blood level of vitamin D are under heated debate in the medical community. Currently, the American Academy of Pediatrics recommends children should have vitamin D levels of at least 50 nmol/L (20 ng/ml). However, other studies in adults suggest that vitamin D levels should be at least 75 nmol/L (30 ng/ml), and possibly 100 nmol/L (40 ng/ml), to lower the risk of heart disease and specific cancers.

Mansbach and collaborators from the University of Colorado Denver and Massachusetts General Hospital used data from the National Health and Nutrition Examination Survey (NHANES) to look at vitamin D levels in a nationally representative sample of roughly 5,000 children from 2001-2006. Extrapolating to the entire U.S. population, their analysis suggests that roughly 20 percent of all children fell below the recommended 50 nmol/L. Moreover, more than two-thirds of all

children had levels below 75 nmol/L, including 80 percent of Hispanic children and 92 percent of non-Hispanic black children.

"If 75 nmol/L or higher is eventually demonstrated to be the healthy normal level of vitamin D, then there is much more vitamin D deficiency in the U.S. than people realize," Mansbach says.

Mansbach and his co-authors suggest that all children take vitamin D supplements, because of the generally low levels that they found and the potential health benefits of boosting vitamin D to normal levels. Vitamin D improves bone health and prevents rickets in children, and recent studies suggest that it also may prevent a host of common childhood illnesses, including respiratory infections, childhood wheezing, and winter-related eczema.

Although sun exposure generates healthy doses of vitamin D, it can also cause skin cancer. Dermatologists and the AAP recommend wearing sunblock, but this actually blocks our skin's ability to make vitamin D. Furthermore, children with more highly pigmented skin require much more sun exposure than fair-skinned children to obtain healthy levels of vitamin D. Vitamin D can also be obtained from certain foods, like liver and fatty fish, but almost all children in the U.S. don't consume these foods in high enough quantities to match the vitamin D that could be provided by summer sunshine or vitamin D supplements.

In the study, children taking multi-vitamins that included vitamin D had higher levels overall, but this accounted for less than half of all children. Mansbach recommends that all children take vitamin D supplements, especially those living in high latitudes, where the sun is scarce in the wintertime.

"We need to perform randomized controlled trials to understand if vitamin D actually improves these wide-ranging health outcomes,"

Mansbach says. "At present, however, there are a lot of studies demonstrating associations between low levels of vitamin D and poor health. Therefore, we believe many U.S. children would likely benefit from more vitamin D."

Source: Children's Hospital Boston

Citation: Latest analysis confirms suboptimal vitamin D levels in millions of US children (2009, October 26) retrieved 24 April 2024 from <https://medicalxpress.com/news/2009-10-latest-analysis-suboptimal-vitamin-d.html>

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