

Increasing number of Americans have insufficient levels of vitamin D

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Average blood levels of vitamin D appear to have decreased in the United States between 1994 and 2004, according to a report in the March 23 issue of *Archives of Internal Medicine*.

Clinicians previously believed the major [health](#) problems associated with [vitamin D](#) deficiency were rickets in children and reduced [bone mineral content](#) in adults, conditions reduced by fortifying foods with vitamin D, according to background information in the article. More recently, insufficient vitamin D levels have been associated with cancer, heart disease, infection and suboptimal health overall. Evidence suggests that levels of 30 nanograms per milliliter to 40 nanograms per milliliter may be needed for optimum health

"Vitamin D supplementation appears to mitigate the incidence and adverse outcomes of these diseases and may reduce all-cause mortality," the authors write. However, currently recommended levels of supplementation—200 international units per day from birth to age 50, 400 international units per day from age 51 to 70 and 600 international units per day for [adults age](#) 71 and older—focus primarily on improving bone health. In addition, decreases in outdoor physical activities and successful campaigns to reduce sun exposure may have contributed to vitamin D insufficiency, since sunlight exposure is a main determinant of vitamin D status in humans.

Adit A. Ginde, M.D., M.P.H., of the University of Colorado Denver School of Medicine, Aurora, and colleagues compared levels of serum

25-hydroxyvitamin D (25[OH]D, a measure of the amount of vitamin D in the blood) from the Third National Health and Nutrition Examination Survey (NHANES III), collected between 1988 and 1994, to those collected during NHANES 2001-2004. Complete data were available for 18,883 participants in the first survey and 13,369 participants in the second survey.

"Overall, the mean [average] serum 25(OH)D level in the U.S. population was 30 nanograms per milliliter during the 1988-1994 collection and decreased to 24 nanograms per milliliter during the 2001-2004 collection," the authors write. The prevalence of levels lower than 10 nanograms per milliliter increased from 2 percent to 6 percent between the two time periods, and fewer individuals had levels 30 nanograms per milliliter or higher (45 percent vs. 23 percent).

Racial and ethnic differences persisted throughout the surveys; among non-Hispanic blacks, the prevalence of 25(OH)D levels of less than 10 nanograms per milliliter increased from 9 percent to 29 percent and levels of more than 30 nanograms per milliliter or higher decreased from 12 percent to 3 percent.

"These findings have important implications for health disparities and public health," the authors write. "We found that the mean serum 25(OH)D level in the U.S. population dropped by 6 nanograms per milliliter from the 1988-1994 to the 2001-2004 data collections. This drop was associated with an overall increase in vitamin D insufficiency to nearly three of every four adolescent and adult Americans."

"Current recommendations for dosage of vitamin D supplements are inadequate to address this growing epidemic of vitamin D insufficiency," they conclude. "Increased intake of vitamin D (1,000 international units per day or more)—particularly during the winter months and at higher latitudes—and judicious sun exposure would

improve vitamin D status and likely improve the overall health of the U.S. population. Large randomized controlled trials of these higher doses of vitamin D supplementation are needed to evaluate their effect on general health and mortality."

More information: Arch Intern Med. 2009;169[6]:626-632.

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