Bone up on new vitamin D recommendations: All infants, children, adolescents should get at least 400 IU a day

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In light of mounting research showing many children are vitamin D deficient, the Academy is releasing revised guidelines on vitamin D supplements in infants, children and adolescents.

“What we’re finding is vitamin D deficiency is in epidemic proportions in the United States,” said Carol L. Wagner, M.D., FAAP, lead author of the revised clinical report, “Prevention of Rickets and Vitamin D Deficiency in Infants, Children and Adolescents,” scheduled for publication in the November issue of Pediatrics.

“Vitamin D deficiency is real, it has serious consequences beyond bone health and it is treatable,” she said.

“Basically, all infants, children and adolescents should have an intake of 400 IU per day of vitamin D as a minimum,” said Frank R. Greer, M.D., FAAP, co-author of the report and chair of the AAP Committee on Nutrition. “They can typically get this from two to three 8-ounce glasses of milk or from a multivitamin containing 400 IU of vitamin D.”

Because of concerns about maternal vitamin D deficiency, the revised guidelines recommend breastfed and partially breastfed infants be supplemented with 400 IU per day of vitamin D starting within the first few days of life. These guidelines replace a previous recommendation that called for a minimum daily intake of 200 IU of vitamin D beginning in the first two months of life and continuing through adolescence.

The new recommendations mark a shift in thinking about vitamin D and breastmilk, said Dr. Wagner, a member of the AAP Section on Breastfeeding executive committee.

“We had the assumption that vitamin D deficiency was a matter of the past,” Dr. Wagner said. Reports of episodes of rickets primarily in African-American breastfed babies made some conclude that breastmilk is deficient in vitamin D, she said.

“We’ve shown that breastmilk is deficient because mom is deficient, not because there’s something wrong with her milk. Vitamin D status in the milk reflects the mother, and we’re still trying to figure out how much is necessary to safely provide for mother and baby,” Dr. Wagner said.

**Effects of lifestyle changes**

Despite the widespread availability of vitamin D-fortified milk and dairy products, lifestyle changes involving outdoor activities are believed to contribute to decreased vitamin D levels in all age groups. The main source of vitamin D historically has been through skin exposure to UVB light. With Americans becoming increasingly sun smart, opportunities to generate vitamin D through the skin have plummeted.

“While sunscreen is effective in preventing sunburn and photoaging, it does block the synthesis of vitamin D in the skin,” Dr. Wagner said.

AAP recommendations to avoid and limit direct sun exposure make oral vitamin D supplements even more important for preventing vitamin deficiency, according to the report.

Other variables also impact the body’s ability to synthesize vitamin D from UVB light. Skin pigmentation, body mass, latitude, season, cloud cover and air pollution, and the amount of skin exposed all affect vitamin D levels.

The major dietary source of vitamin D for most children and adolescents is fortified milk products. As milk has waned in popularity, in particular with adolescents, it’s clear that most don’t come close to drinking the 32 ounces of milk needed to provide 400 IU of vitamin D.

While rickets, an example of extreme vitamin D deficiency, has a peak incidence between 3 and 18 months, there also are cases in adolescents caused by nutritional vitamin D deficiency, the clinical report noted.

**Ask about diet, milk consumption**

Pediatricians should ask about diet and milk consumption during check-ups, Dr. Wagner said. Any infant, child or adolescent not drinking about a quart of fortified milk or formula each day should take a supplement. When in doubt about the adequacy of a child’s diet, Dr. Wagner said, recommending a daily 400 IU vitamin D supplement is appropriate. “Our recommendations are conservative and safe, as well as time-honored,” she said.

Ensuring all kids get enough vitamin D from either food or supplements helps establish nutritional habits that can improve all areas of health, Dr. Wagner said.
New data on other benefits

Vitamin D is not just important for maintaining bone health and preventing rickets, the report found. New data indicate that vitamin D may play a role in maintaining innate immunity and preventing long-latency diseases. Research in adults shows that vitamin D contributes to the prevention of diseases, including infection, autoimmune diseases, certain forms of cancer and type 2 diabetes.

Certain children are at an increased risk for vitamin D deficiency, including those with chronic fat malabsorption and those who take anti-seizure medications. These patients may need higher doses of vitamin D supplementation, according to the report. This patient population should be monitored closely, with vitamin D levels tested regularly.

“If in doubt about a child’s vitamin D status, measure that child’s total circulating 25-OH-D level and aim for a level above 50 nmol/L (nanomoles per liter),” Dr. Wagner said. Levels at or above 80 nmol/L are associated with less disease in adults, she said.

While several vitamin D supplements are available as multivitamins and D drops, the availability of vitamin D supplements through the federal WIC program varies by state, Dr. Wagner said. She encourages pediatricians to contact their local WIC office and ask that vitamin D supplements be offered for infants and children.
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