Vitamin D Supplements Are Underused

In 2003, the American Academy of Pediatrics recommended a minimum vitamin D supplement of 200 IU daily for all infants, due to concerns about a rising number of cases of vitamin D deficiency. Although most pediatricians may follow these guidelines, we at Johns Hopkins continue to see cases of severe vitamin D deficiency in children.

One of the biggest risk groups for vitamin D deficiency is infants who are solely breast-fed. Infants who are breast-fed and do not receive supplemental vitamin D are at increased risk of developing a deficiency. Those breast-fed infants who are dark-skinned are at an even greater risk, since dark skin will decrease the conversion of active vitamin D in the skin secondary to sunlight.

Another risk factor is decreased sunlight exposure. This is more of a risk factor today because of concerns about skin problems. Of course, you don’t want infants to burn, because their skin is so sensitive—so parents understandably cover them up. But this limits the vitamin D they can process from sunlight.

In addition, solely breast-fed infants who are born during winter tend to go outside less often, so even the minimal amount of sun exposure they might get at other times of the year may not happen.

Although the most striking cases of deficiency are in children who have multiple risk factors, deficiency can occur in a breast-fed infant who does not have any risk factors but who does not receive daily supplemental vitamin D. An additional but rare risk factor is vitamin D deficiency in the mother, which means that the baby’s stores of vitamin D are especially low. This leads to rickets and softening of the bones, among other things.

The reason deficiency occurs in breast-fed infants is that human milk has very small amounts of vitamin D, so it can not give a baby the amount that he or she needs.

If an infant is solely breast-fed, we recommend he or she receive 400 IU of vitamin D, which is easy to get from any over-the-counter children’s vitamin supplement. Likewise, infants who are not solely breast-fed are at risk because formulas in the United States contain 400 IU of vitamin D per liter, and even for an older infant, it would be difficult and not advisable to consume that much formula or milk in a single day.

The official AAP recommendation is that a child needs 200 IU of vitamin D daily, but most endocrinologists recommend 400 IU. We think that 400 IU is better than 200 IU because the literature has shown that consuming 200 IU per day maintains a serum vitamin D level at or above 11 ng/mL, and we prefer to see a serum vitamin D level of at least 20 ng/mL for optimal bone health.

Formula-fed babies are somewhat more protected than breast-fed babies. But we recommend that all children take vitamin D supplementation unless they are receiving 400 IU of vitamin D from a combination of formula and other vitamin D rich foods in their diet. We in the pediatric endocrinology division see no contraindication to giving a vitamin that has 400 IU of vitamin D throughout life for any child without risk for hypercalcemia or hypercalcioria.

Any children or adolescents who do not receive sun exposure because they are bedridden, for example, or children who don’t ingest enough vitamin D fortified milk or cheese products daily due to lactose intolerance or food allergies should receive 400 IU of vitamin D supplementation. Children on certain seizure medications also are at risk for vitamin D deficiency. In addition, all children are candidates for an iron-free multivitamin, even those who go outside and play and are healthy. The decision for iron in the vitamin is up to each child’s pediatrician. If an older healthy child is not compliant with taking a vitamin every day, I am less likely to push for it if an evaluation of the child’s diet shows that he or she consumes a lot of dairy products and spends plenty of time outside—on a sports team, for example.

I believe that vitamin D supplementation is especially important early in life, until the child is consuming vitamin D from food sources other than milk or formula, or through sun exposure. The AAP recommendation is to start vitamin D supplementation within the first 2 months. I see no harm in starting quite early, although I might advise waiting a few weeks so the newborn can adjust to breast-feeding or bottle-feeding. Starting vitamin D supplementation within the first month is ideal, but by the end of the second month of life, my recommendation is that a child should definitely be on a supplement.

Most endocrinologists aim for a vitamin D level above 20 ng/mL, so we recommend more vitamin D than the AAP currently recommends. For information on the AAP’s guidelines and policy statements, visit www.aap.org. There have been many articles written about the risk of vitamin D deficiency specifically in solely breast-fed, dark-skinned infants because they are at especially high risk. However, even fair-skinned individuals are at risk. Physicians must be broad-minded and realize that without supplementation, all infants are at risk for vitamin D deficiency.

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