



ISSUE BRIEF

Breastfeeding and Rickets

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Breastfeeding is very good for babies, but a recent report released by the American Academy of Pediatrics has recommended that breastfeeding babies be given vitamin D supplements to prevent them from developing rickets or vitamin D deficiency.¹ Other kids might need vitamin D supplements, too, depending upon how much milk they drink and their exposure to sunlight.

Rickets is a bone disorder caused by low levels of vitamin D in the body.² Vitamin D helps to control the levels of calcium and phosphate in the bones – the important minerals that give bones their strength. Low levels of vitamin D lead to a loss of calcium and phosphate from the bones, causing bones to grow softer and weaker over time. Rickets is most likely to occur during periods when children's bones grow rapidly, and is most often found in children 6 months to 2 years of age.

Rickets was once a major public health problem in the United States. Fortunately, when cow's milk was fortified with vitamin D in the early 1930s, rickets was almost completely eradicated.³

Although rickets is rarely found in the United States, some researchers have reported that rickets is making a comeback, particularly among African American infants.⁴ Possible explanations for this increase include an increase in the breastfeeding of infants, fewer parents giving their children vitamin D supplements, and parents being more careful to keep their infants out of the sun. African Americans are more at risk because people with dark skin absorb less vitamin D through sunlight.

In an attempt to reduce the number of cases of rickets, the American Academy of Pediatrics has issued new recommendations for using vitamin D to prevent rickets and vitamin D deficiency in children.

The Academy recommends that children consume 200 International Units (IU) of vitamin D per day. This is the amount children would get from drinking more than two cups of milk or formula a day. According to the Academy, all infant formula sold in the United States are vitamin D-fortified, so 500 milliliters (16.9 ounces) is enough to give infants their daily dose of vitamin D.

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An alternative would be liquid multivitamin drops or tablets. Liquid multivitamin drops with vitamin D are available for infants. Parents should give their infants the amount recommended on the bottle. Multivitamin tablets containing 400 IU of vitamin D per milliliter are widely available for older children and adults. However, the

Academy notes that tablets containing only vitamin D, which contain up to 8000 IU per milliliter, are too strong for safe use for parents or children.

The Academy recommends supplements of 200 IU of vitamin D for the following groups:

- ◆ Infants who are breastfed and do not receive adequate sunlight exposure. These infants are at risk of developing vitamin D deficiency and rickets. Parents should start giving these infants a supplement within the first 2 months of their lives.
- ◆ Infants who are not breastfed, but who drink less than 500 milliliters of vitamin D-fortified formula or milk per day. Parents should start giving these infants a supplement within the first 2 months of their lives.
- ◆ Children and adolescents who are not regularly exposed to sunlight and who do not ingest at least 500 milliliters of vitamin D-fortified milk per day.

People with darker skin or who do not get much sunlight are also at increased risk for developing rickets and vitamin

D deficiencies and should consider taking vitamin D supplements.

While exposure to direct sunlight can increase levels of vitamin D in the body, the Academy does not recommend using sunlight to prevent vitamin D deficiencies or rickets. Exposure to sunlight can cause skin cancer, and the use of sunscreen (which can protect the skin from the sun) prevents the sun from increasing vitamin D levels.

The Academy based their information on studies of infants in the U.S., Norway, and China. While they note that less research is available on older children and adolescents, they reached the same conclusion for these older groups as for infants.

Note: The American Academy of Pediatrics guidelines are available at www.aap.org/policy/s010116.html, and a webpage addressing parents' questions about vitamin D supplements can be found at www.aap.org/family/vitdpatients.htm.

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References:

- 1** Gartner, L.M., M.D; Greer, F.R., MD and the Section on Breastfeeding and Committee on Nutrition. (2003). Prevention of Rickets and Vitamin D Deficiency: New guidelines for vitamin D intake. *Pediatrics*, 111(4), pgs. 908-910. Available: www.aap.org/policy/s010116.html
- 2** See "Rickets" in Medline Plus encyclopedia, available: www.nlm.nih.gov/medlineplus/ency/article/000344.htm
- 3** American Council on Science and Health (1999, 2nd edition). *Much Ado About Milk*. New York. Available: www.acsh.org/publications/reports/milk99.pdf
- 4** For example: Rowe, P.M. (2001). Why is rickets resurgent in the USA? *Lancet*, 357(9262), pg. 1100; Kreiter S.R., Schwartz R.P., Kirkman H.N., Jr, Charlton P.A., Calikoglu A.S., & Davenport, M.L. (2000). Nutritional rickets in African American breast-fed infants. *Journal of Pediatrics*, 137(2), pgs. 153-7.

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