Vitamin D Status of Breast-Fed Infants and Their Mothers

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We studied the relation of the vitamin D status between mothers and their breast-fed infants by measuring serum and milk 25-hydroxy vitamin D [25-(OH)D]. Milk vitamin D concentrations were also measured during various types of vitamin D supplementation of mothers, particularly during the Finnish winter, when no natural light for endogenous synthesis of vitamin D is available.

The results show that mothers and their breast-fed infants without any supplementation have very low 25-(OH)D serum levels during winter. The infants are certainly at risk with regard to rickets. When the mothers were supplemented, clear increments of serum 25-(OH)D concentrations were evident, but as much as 2,000 IU/day of vitamin D had to be given before serum levels in infants increased to the satisfactory levels seen during summer or achieved by direct supplementation of the infants themselves with 400 IU/day vitamin D.

The calculated antirachitic activity of human milk (measured milk 25-(OH)D + vitamin D) corresponds closely to increasing supplementation of mothers. The serum 25-(OH)D concentration of breast-fed infants without sources of vitamin D in food other than in breast milk, and without significant exposure to sunlight, reached normal levels when the antirachitic activity of breast milk was around 100 IU/L.