

A risk of northern climate!

Early in March, a 16-month-old Canadian-born Somali boy is brought to your office with failure to thrive and bowing of his legs. The child was exclusively breastfed for 12 months without vitamin supplementation, until diluted whole milk was occasionally given. Because of the cold weather, outings were rare. Growth delay, bowing of the legs and flaring of the

wrists were evident on physical examination. Laboratory results showed slight decreased calcium and phosphorus levels, increased alkaline phosphatase and parathyroid hormone levels, and decreased vitamin D 25-hydroxy levels. Wrist x-rays were consistent with rickets, and the patient improved with vitamin D supplementation.

LEARNING POINTS

- The incidence of vitamin D deficiency rickets diminished in Canada after vitamin D fortification of fluid dairy products was implemented in the late 1960s to early 1970s as a public health measure.
- Rickets occurs more frequently in winter months secondary to reduced intensity and duration of sunlight combined with infrequent outdoor activities.
- Dark-skinned children are more at risk for rickets because melanin acts as a natural sunscreen and competes with provitamin D₃ for solar ultraviolet B photons.
- Calcium intake is ineffective unless coupled with sufficient intake of vitamin D.
- Sunscreen use and protective clothing not only decrease the risk of skin cancer, but also inhibit photosynthesis of vitamin D.
- Because human breast milk has a low vitamin D concentration, 400 IU/day supplementation is recommended for nursing mothers, especially during winter months.
- Because aboriginal infants living north of 55° latitude are at an even higher risk for vitamin D deficiency from October to April, supplementation may be increased to 400 IU/day for bottle-fed and to 800 IU/day for breast-fed infants.

The Canadian Paediatric Surveillance Program (CPSP) is a joint project of the Canadian Paediatric Society and Health Canada's Centre for Infectious Disease Prevention and Control that undertakes the surveillance of rare diseases and conditions in children. For more information visit our Web site at <www.cps.ca/english/cpsp> or <www.cps.ca/francais/pcsp>.