

# VITAMIN D SUPPLEMENTATION IN INFANTS

## What is Vitamin D?

Vitamin D is a fat-soluble vitamin synthesized mainly in the skin under the effect of the sun. It can be absorbed through diet, but almost 90% of vitamin D comes from exposure to the sun. It's the sun vitamin!

It is essential for healthy bones and teeth and for good neuromuscular function. It is involved in the absorption, setting and elimination of calcium, according to the needs of the body. It allows tissues to grow, renew and solidify.

Rickets, although very rare, is the extreme manifestation of vitamin D deficiency. This disease affects the growth and development of bones. This can lead to stunted growth, lethargy, irritability, convulsions and being prone to respiratory infections (10). Rickets is a preventable and reversible disease with adequate vitamin D intake. Other health problems can be caused by a lack of vitamin D during the fetal period and in the baby, but the focus is usually on the prevention of rickets.

## What are the sources of vitamin D?

The main source (90%) of vitamin D is the sun (1). Vitamin D is produced by direct contact with ultraviolet UVB rays with the skin. According to some studies, thirty minutes of full-body exposure at midday provides 50,000 IU (3) while a 20-minute sunbath during the summer months provides 10,000 IU to 20,000 IU of vitamin D (4). This exposure time is, however, contraindicated for a newborn.

Note that people with darker skin must expose themselves 5 to 10 times longer to receive their daily dose of vitamin D, because of the increased presence of melanin in the skin that acts as a protective screen UVB (5), and are therefore at greater risk of vitamin D deficiency.

Note that pregnant women who have adequate vitamin D intake during pregnancy and breastfeeding

pass it on to the baby through the placenta and breastmilk, which helps them build their own vitamin D reserves.



Diet provides a certain amount of vitamin D. Here are some effective sources of vitamin D:

- 1 teaspoon of cod liver oil: 400 IU
- 100g of salmon: 400 IU
- 100g of tuna: 200 IU
- 3 ½ oz (100g) of trout, herring or walleye: 200 IU
- 1 cup (250 mL) of fortified milk or soy beverage: approximately 100 IU
- 1 egg yolk: 25 IU

## Why give a vitamin D supplement to your baby?

The Canadian Pediatric Society and Health Canada recommend that all healthy, term newborns who are exclusively breastfed receive 10 µg / day (400 IU / day) of vitamin D supplements until their diet includes at least that same amount.

The rationale for this recommendation is based on the following factors: the northern latitude of Canada prevents full advantage of UVB rays representing the main source of vitamin D, the current practices of sun protection, the prevalence of rickets due to vitamin D deficiency and the safety of recommended doses (6).

## Risk factors associated with vitamin D deficiency

- Lack of exposure to the sun
- The latitude
- The pigmentation of the skin (dark skin)
- Mainly indoor living
- Living in a big city where there is not much sun due to buildings
- The systematic use of sunscreen
- Wearing clothes that cover a lot of skin
- Low vitamin D diet

## What do the studies say?

Some studies on the subject conclude that newborns without risk factors who are exposed to enough sunlight, meaning 30 minutes per week (4 min/day) wearing only a diaper or 2 hours (17 min/day) with a bare head only, could maintain a sufficient level of vitamin D (2). The latitude remains however an important factor. Indeed, these studies were conducted at lower latitudes (39th parallel) than the majority of Canadian territories. The Eastern Townships region, for example, is located at the 45th parallel.

That's why Health Canada says it's impossible to get a sufficient vitamin D skin synthesis between October and March. A study on the subject showed that between these months the dermal absorption of vitamin D could decrease by 80% and up to 100% (7). However, the populations looked at in this study came from Newfoundland and Labrador, populations living much further north (60th parallel) than us.

## Various Vitamin D supplements :

There are several vitamin D supplements on the market, but one must be careful, as many of these products contain dyes and sugar.

D-drops vitamin D supplement for baby is from a natural source and of good quality. It is tasteless and odorless, and contains no added preservatives, artificial flavors or colors. It is free of wheat, gluten, soy, corn, sugar, milk and peanuts. A single drop on the breast before feeding allows the infant to receive his daily dose of 400 IU vitamin D.

Breast milk averages 5 to 136 IU / L (11). Note that around 3 weeks of age the baby drinks between

750ml and 1L / day of breast milk. Researchers have shown that a 90-second sun exposure of the entire skin surface of a breastfeeding Caucasian mother can increase her milk's vitamin D level by 10-fold (12). Another good reason to go get some fresh air !!!

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