

VITAMIN D FACT SHEET



WHAT IS VITAMIN D?

Vitamins are nutrients that the body needs to function properly. Vitamin D, which strengthens bones, muscles and teeth, is a fat-soluble vitamin that can be stored in the body until needed. It exists in two forms D₂ and D₃, which are equally effective.¹ D₂ occurs naturally in yeast, whereas D₃ is produced by lanolin and is synthesized in the skin upon exposure to UV rays. In other words, vitamin D can be obtained naturally in the human body through exposure to sunlight or through the ingestion of specific food sources.

WHY DO WE NEED VITAMIN D?

Scientists recognize that vitamin D does much more than build strong bones. Growing evidence suggests that vitamin D also helps boost our immune system, reduce inflammation, and maintain muscle strength. Furthermore some studies suggest that vitamin D may help in the prevention of several chronic diseases such as cancer (especially breast and colorectal cancer), diabetes, multiple sclerosis, hypertension, arthritis, heart diseases and even infectious diseases such as influenza.

VITAMIN D DEFICIENCY

Most vitamins can be obtained from a balanced diet, yet vitamin D, unlike other vitamins, can also be obtained from exposure to the sun. Several factors will however limit the amount of vitamin D that the body absorbs, such as the use of sun block with a SPF factor higher than 8, age, people with darker skin pigmentation, the distance from the equator, the time of day, the season, a person's weight etc. Due to the growing concern about the sunlight as well as the limited consumption of vitamin D rich food sources, vitamin D deficiency has been increasing in countries around the world. In Canada, almost 97% of the population lacks adequate levels of vitamin D during the winter or spring. The elderly are also experiencing deficiencies, as their bodies become less able to absorb vitamin D, causing 50% of those aged 70 and 80% of those aged 90 to be deficient. In addition, studies reveal that about 50% of women have sub-optimal vitamin D levels, despite supplementation.

DIETARY SOURCES OF VITAMIN D

Vitamin D is contained in a limited number of foods, either naturally or added. Natural food sources of vitamin D include fish oils, fatty fish (mackerel, salmon, sardines, tuna and herring) and egg yolks.

Dietary Source of Vitamin D	Quantity	IUs per Quantity	% DV (200 IU)
Cod liver oil	15 ml	1,360	680
Mushrooms, shiitake, dried	10 pcs.	597	298
Salmon, cooked	30 g	103	51
Milk, nonfat, reduced fat, and whole, vitamin D-fortified	1 cup (250 ml)	100	50
Soya milk or enriched rice	250 ml	80	40
Orange juice fortified calcium & vitamin D	125 ml	50	25
Bread made with 1% dry,3% compressed or 5% cream yeast	100 g	25	12.5
Yogurt, made with fortified milk	100 g	25	12.5
Egg yolk	1 whole	25	12.5
Margarine	5 ml	25	12.5

Data Derived from Health LinkBC Nutrition Series 2007 and Isabelle Germain "La vitamine D" 2009.

Bread and baked goods made with Lallemand baker's yeast is now also a natural and vegetarian source of vitamin D. Depending on the level of yeast usage in the recipe they can even become 'good' or 'excellent' sources. Adding Lallemand's 'VitaD Plus' baker's yeast, containing an especially high natural concentration of vitamin D, all breads and baked goods can become "good" and even "excellent" source of vitamin D.

The Canadian Food Inspection Agency regulations permit a claim, which deals with calcium, vitamin D and the reduction of risk of osteoporosis. For example a claim could be formulated in the following way: "A healthy diet with adequate calcium and vitamin D, and regular physical activity, help to achieve strong bones and may reduce the risk of osteoporosis. "Bread" is an excellent source of calcium and vitamin D". In order to be able to say an excellent source of vitamin D, the product must contain 25% or more of the DV per serving.

RECOMMENDED DAILY INTAKE OF VITAMIN D

The vitamin D recommendations have increased over the years, yet both US and Canadian governments (US National Institutes of Health and Health Canada) are reviewing the current recommended dietary intakes of vitamin D, and are likely to increase them in spring 2010 due to the evolving research on the increasing benefits of vitamin D.

Age	1975-1983 IU	1990 IU	1997 IU	Health Canada	2009 IU/ Day
0-12 months	100	200	200	200 IU	400*
1-13 years	100	200	200	200 IU	200
14-50 years	100	200	200	200 IU	200
51-70 years	100	200	400	400 IU	800+
>71 years	100	200	600	600 IU	800 ⁺

Data Derived from Committee for the Revision of Dietary Standards in Canada, Scientific Review Committee, and Institute Medicine.

*Recommended by the Canadian Pediatric Society

+ Recommended by the Canadian Osteoporosis Society for patients at risk of osteoporosis.

Furthermore, the USDA Dietary Guidelines for Americans recommend to people exposed to insufficient ultraviolet light for the production of vitamin D substantially higher daily intakes of vitamin D, i.e. 1,000 IU of vitamin D per day.

CAN I HAVE TOO MUCH VITAMIN D?

Too much exposure to sunlight does not lead to higher vitamin D levels in the body. However, some studies suggest that the consistent ingestion of quantities greater than 80,000 IU per day may have a harmful effect on the body. The current upper safe limits set by IOM (Institute of Medicine) for vitamin D consumption for infants is 1,000 IU per day and 2000 IU per day for children and adults, yet this number is likely to increase as further research develops. Current estimate is that the upper limit could be increased to 10,000 IU/ day.

ⁱ Holick MF et al. Vitamin D2 is as effective as vitamin D3 in maintaining circulating concentrations of 25-hydroxyvitamin D, Dec. 2007.