

Scientific Facts Concerning Vitamin D

Scientific Fact

There are only 2 sources of vitamin D. Vitamin D3 (cholecalciferol) can be synthesized by humans in the skin upon exposure to ultraviolet-B (UVB) radiation from sunlight, or it can be obtained from the diet.

Scientific Fact

It has been estimated that nearly 95% of our vitamin D requirement comes from casual exposure to sunlight. Very few foods contain vitamin D, therefore less than 5% of vitamin D levels actually comes from our diet.

Scientific Fact

Any process that either decreases the number of UVB photons (sunlight) entering the epidermis or decreases the amount of 7-dehydrocholesterol in the skin will result in a significant reduction in or the complete elimination of vitamin D3 production in the skin.

Scientific Fact

The elderly at risk for vitamin D deficiency. Aging decreases the amount of 7-dehydrocholesterol produced in the skin by as much as 75% by the age of 70.

Scientific Fact

Older people who are institutionalized or housebound are at a particularly high risk of vitamin D deficiency. For example, up to 80% of women and 70% of men living in hostels or nursing homes in Victoria, New South Wales and Western Australia were frankly deficient in vitamin D, and 97% had a 25-OHD level below the median value of the healthy reference range.

Scientific Fact

Because the zenith angle (of the sun) is dependent on time of day, season of the year, and latitude, those factors have a dramatic effect on the cutaneous production of vitamin D3.

Scientific Fact

Latitude dictates the level of year round exposure to UVB photons which dictates vitamin-d levels. Below 35°, the zenith angle is more direct, and therefore previtamin D3 synthesis can occur in the skin year-round. Above 35° latitude, the angle of the sun is so oblique during the winter months that most, if not all, of the UVB photons below 315 nm are absorbed by the ozone layer, thereby either reducing or completely preventing the production of previtamin D3 in the skin.

Scientific Fact

At latitudes greater than 40 N or S there is little conversion occurring from October to March, which is sometimes referred to as the 'vitamin D winter.'

Scientific Fact

Vitamin D levels in the northern states are lower than southern states. Cancer rates in northern states are higher than cancer rates in southern states.

Scientific Fact

Melanin blocks vitamin D production. Melanin is a natural sunscreen that evolved to protect humans from blistering solar radiation as they evolved in equatorial regions of the world. This skin pigment is an extremely effective sunscreen with absorption properties from the ultraviolet C (200-280 nm) into the visible range (> 700 nm), and it competes quite well with 7-dehydrocholesterol for UVB photons. Thus, people of color who have greater amounts of melanin in their epidermis than do whites are less efficient in producing vitamin D₃ than are whites. A person with skin type 5/6 (dark skin, never develops a sunburn) requires 10-50 times the exposure to sunlight to produce the same amount of vitamin D₃ in their skin as does a white person with skin type 2 or 3.

Scientific Fact

There are effects on cancer rates that are due to changing geographical residence. In 1968 an epidemiological study indicated that dietary habits and environmental influences are the chief determinants of the world's varying cancer rates and not genetic factors. Data showed that in the course of three generations, Japanese migrants in the United States contracted colon cancer at the same rates as the general American population. In contrast, the regular colon cancer rate in Japan remained about one-fourth the American incidence.

Scientific Fact

Vitamin D deficiency is widespread among the U.S. population. Expectant mothers are deficient and giving birth to deficient infants. Vitamin D levels are passed from the mother to the infant. The infant will maintain 1/2 of the vitamin D level of the mother. Therefore, if the mother is vitamin D deficient, this deficiency will be past onto the child.

Scientific Fact

Recent studies have found that women who cover most of their body for religious reasons, such as Muslims and Orthodox Jews, risk vitamin D deficiencies. As one example, Turkish researchers reported that veiled Muslim women had lower levels of vitamin D compared with nonveiled women. Recent studies show a prevalence of Vitamin D deficiency in Muslim women, and children born to Muslim women.

Scientific Fact

"We absolutely have a huge problem with vitamin D deficiency," said Dr. Bess Dawson-Hughes, director of the Bone Metabolism Laboratory at Tufts University.

Scientific Fact

"If everyone had adequate vitamin D levels in their bloodstreams, it would be equivalent to eliminating a big portion of cancer." Harvard School of Public Health

Scientific Fact

The most common autoimmune diseases, including type 1 diabetes, rheumatoid arthritis, and multiple sclerosis, have all been successfully prevented in models using mice that were prone to these diseases if they received vitamin D early in life.

Scientific Fact

Infants and young children who are vitamin D deficient may be imprinted for the rest of their lives with increased risks of type 1 diabetes, multiple sclerosis, rheumatoid arthritis, and many common cancers.

Scientific Fact

Vitamin D deficiency is often misdiagnosed as fibromyalgia.