



POSITION STATEMENT on VITAMIN D
(Approved by the Board of Directors November 1, 2008)
(Amended by the Board of Directors June 19, 2009)

The American Academy of Dermatology recommends that an adequate amount of vitamin D should be obtained from a healthy diet that includes foods naturally rich in vitamin D, foods/beverages fortified with vitamin D, and/or vitamin D supplements. Vitamin D should not be obtained from unprotected exposure to ultraviolet (UV) radiation.

- Unprotected UV exposure to the sun or indoor tanning devices is a known risk factor for the development of skin cancer.¹
 - Studies have shown that UV radiation from both the sun and tanning devices can cause oncogenic mutations in skin cells.^{2,3} Use of sunbeds has also been associated with increased risk for melanoma and squamous cell carcinoma.⁴
- There is no scientifically validated, safe threshold level of UV exposure from the sun that allows for maximal vitamin D synthesis without increasing skin cancer risk.
- To protect against skin cancer, a comprehensive photoprotective regimen, including the regular use and proper use of a broad-spectrum sunscreen, is recommended.⁵

The Academy also recommends that physicians should provide information on options for obtaining sufficient dietary or supplementary sources of vitamin D to their patients who are at high risk for vitamin D insufficiency.

- Many epidemiological studies suggest an association between low serum vitamin D levels and increased risk of certain types of cancers, neurologic disease, autoimmune disease and cardiovascular disease.⁷⁻¹⁵
 - It should be emphasized that the causal relationship of vitamin D to these diseases has yet to be demonstrated with clinical trials.
- A blood test to measure serum vitamin D level, expressed as the 25-hydroxyvitamin D [25(OH)D], is widely available.¹⁶
 - Further research is needed to determine the appropriate serum concentration of vitamin D required for overall good health.¹⁷
- The National Academy of Sciences Institute of Medicine (IOM) guidelines for vitamin D are a standard reference for advising patients on proper minimal intake levels.¹⁸

- The IOM is currently reviewing the recommended adequate intake levels, and these guidelines may be revised upward due to evolving research on the increasing clinical benefit of vitamin D.

Current IOM Adequate Intake (AI) Recommendations for Vitamin D¹⁸

Age	Children	Men	Women	Pregnancy	Lactation
Birth to 13 years	5 mcg (200 IU)				
14-50 years		5 mcg (200 IU)	5 mcg (200 IU)	5 mcg (200 IU)	5 mcg (200 IU)
51-70 years		10 mcg (400 IU)	10 mcg (400 IU)		
71+ years		15 mcg (600 IU)	15 mcg (600 IU)		

- A higher dose of vitamin D intake, through a combination of diet and supplementation, may be necessary for individuals with known risk factors for vitamin D insufficiency (e.g. dark skin individuals, elderly persons, photosensitive individuals, people with limited sun exposure, obese individuals or those with fat malabsorption).¹⁹⁻²⁰
 - A daily total dose of 1000 IU (International Units) of vitamin D for these at-risk groups has been discussed in the current US Department of Agriculture (USDA) Dietary Guidelines.²¹
 - The American Academy of Pediatrics (AAP) current recommendation of 400 IU/day for children age 0-18 years should be considered.²²
 - For vitamin D supplementation, vitamin D3, the natural form of vitamin D, is preferable over vitamin D2.²³
- Adults who regularly and properly practice photoprotection may also be at risk for vitamin D insufficiency, and may be considered for a daily total dose of 1000 IU vitamin D.

¹ U.S. Department of Health and Human Services, Public Health Service, National Toxicology Program. Report on carcinogens, 11th ed: Exposure to sunlamps or sunbeds.

² Melnikova VO, Ananthaswamy HN. Cellular and molecular events leading to the development of skin cancer. *Mutat Res* 2005; 571(1-2):91-106.

³ Whitmore SE, Morison WL, Potten CS, Chadwick C. Tanning salon exposure and molecular alterations. *J Am Acad Dermatol* 2001; 44:775-80.

⁴ International Agency for Research on Cancer, Working Group on artificial ultraviolet (UV) light and skin cancer. The association of use of sunbeds with cutaneous malignant melanoma and other skin cancer: A systematic review. *Int J Cancer* 2007; 120(5):1116-22.

⁵ van der Pols JC, Williams GM, Pandeya N, Logan V, Green AC. Prolonged prevention of squamous cell carcinoma of the skin by regular sunscreen use. *Cancer Epidemiol Biomarkers Prev* 2006; 15(12):2546-8.

- ⁷ Gorham ED, Garland CF, Garland FC, Grant WB, Mohr SB, Lipkin M, et al. Optimal vitamin D status for colorectal cancer prevention: a quantitative meta-analysis. *Am J Prev Med* 2007; 32:210-6.
- ⁸ Feskanich D, Ma J, Fuchs CS, Kirkner GJ, Hankinson SE, Hollis BW, Giovannucci EL. Plasma vitamin D metabolites and risk of colorectal cancer in women. *Cancer Epidemiol Biomarkers Prev* 2004; 13(9):1502-8.
- ⁹ Garland CF, Gorham ED, Mohr SB, Grant WB, Giovannucci EL, Lipkin M, et al. Vitamin D and prevention of breast cancer: pooled analysis. *J Steroid Biochem Mol Biol* 2007;103(3-5):708-11.
- ¹⁰ Munger KL, Levin LI, Hollis BW, Howard NS, Ascherio A. Serum 25-hydroxyvitamin D levels and risk of multiple sclerosis. *JAMA* 2006; 296(23): 2832-8.
- ¹¹ Scragg R, Sowers M, Bell C. Serum 25-hydroxyvitamin D, diabetes, and ethnicity in the Third National Health and Nutrition Examination Survey. *Diabetes Care* 2004; 27(12): 2813-8.
- ¹² Hypponen E, Laara E, Reunanen A, Jarvelin MR, Virtanen SM. Intake of vitamin D and risk of type I diabetes: a birth cohort study. *Lancet* 2001; 358(9292): 1500-3.
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- ¹⁴ Scragg R, Sowers M, Bell C. Serum 25-hydroxyvitamin D, ethnicity, and blood pressure in the Third National Health and Nutrition Examination Survey. *Am J Hypertens* 2007; 20(7): 713-9.
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- ¹⁶ Prentice A, Goldberg GR, Schoenmakers I. Vitamin D across the lifecycle: physiology and biomarkers. *Am J Clin Nutr* 2008; 88(suppl):500S-06S.
- ¹⁷ Brannon PM, Yetley EA, Bailey RL, Picciano MF. Summary of roundtable discussion on vitamin D research needs. *Am J Clin Nutr* 2008; 88(suppl):587S-92S.
- ¹⁸ 1997 RDA Standing Committee on the Scientific Evaluation of Dietary Reference Intakes. Dietary reference intakes: calcium, phosphorus, magnesium, vitamin D, and fluoride. Washington, DC:National Academy Press; 1997. pp.250-87.
- ¹⁹ Yetley, EA. Assessing the vitamin D status of the US population. *Am J Clin Nutr* 2008; 88(suppl):558S-64S.
- ²⁰ Wolpowitz D, Gilchrist BA. The vitamin D questions: How much do you need and how should you get it? *J Am Acad Dermatol* 2006; 54:301-17.
- ²¹ U.S. Department of Health and Human Services and U.S. Department of Agriculture. Dietary Guidelines for Americans, 2005. 6th Edition, Washington, DC: U.S. Government Printing Office, January 2005.
- ²² Wagner CL, Greer FR, American Academy of Pediatrics Section on Breastfeeding, American Academy of Pediatrics Committee on Nutrition. Prevention of rickets and vitamin D deficiency in infants, children, and adolescents. *Pediatrics*. 2008; 122(5):1142-52.
- ²³ Houghton LA, Vieth R. The case against ergocalciferol (vitamin D2) as a vitamin supplement. *Am J Clin Nutr* 2006; 84(4):694-7.

This statement reflects the best available data at the time the report was prepared. However, caution should be exercised in interpreting the data. The results of future studies may require alteration of the conclusions or recommendations in this report.