

Position Statement on Vitamin D

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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 or indoor tanning devices 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
- Many epidemiological studies have shown an association between low serum vitamin D levels and poor bone health. Emerging scientific evidence also suggests vitamin D status may influence certain types of cancers, neurologic disease, infectious disease, autoimmune disease and cardiovascular disease.⁶⁻¹⁵
 - It should be emphasized that a recent review of this topic by the National Academy of Sciences Institute of Medicine (IOM) concluded that the evidence for associating vitamin D status with outcomes not related to bone health was inconsistent, inconclusive as to causality, and insufficient to inform nutritional requirement.¹⁶
- A blood test to measure serum vitamin D level, expressed as the 25-hydroxyvitamin D [25(OH)D], is widely available.¹⁷

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- The IOM has concluded that a level of 20 ng/ml (=50 nmol/liter) should be considered adequate¹⁸; the long term safety of 25(OH)D levels above 50 ng/ml (=125 nmol/liter) is unknown.
- Based on currently available scientific evidence that supports a key role of calcium and vitamin D in skeletal health, the IOM Recommended Dietary Allowance (RDA) for calcium and vitamin D intake is shown in Table 1.
 - It should be noted that the RDA was derived based on minimal or no sun exposure due to inconsistent contributions of sunlight to Vitamin D in the population and the risk of cancer associated with sun exposure

TABLE 1
2011 IOM CALCIUM AND VITAMIN D DIETARY REFERENCE INTAKES¹⁸

Life Stage Group (age and gender)	Calcium		Vitamin D	
	RDA (mg/d) ^a	Upper Limit (UL) (mg/d)	RDA (IU/d)*	Upper Limit (UL) (IU/d)
0-6 mo (M+F)	200 ^b	1000 ^b	400 ^b	1000 ^b
6-12 mo (M+F)	260 ^b	1500 ^b	400 ^b	1500 ^b
1-3yr (M+F)	700	2500	600	2500
4-8yr (M+F)	1000	2500	600	3000
9-13yr (M+F)	1300	3000	600	4000
14-18yr (M+F)^c	1300	3000	600	4000
19-30yr (M+F)^c	1000	2500	600	4000
31-50 yr (M+F)	1000	2500	600	4000
51-70 yr (M)	1000	2000	600	4000
51-70yr (F)	1200	2000	600	4000
71+yr (M+F)	1200	2000	800	4000

^a RDA = intake that covers needs of 97.5% of the healthy normal population.

^b Reflects Adequate Intake (AI) reference value rather than RDA. RDAs have not been established for infants due to insufficient data.

^c Calcium and vitamin D RDAs are the same for pregnant or lactating females in these age groups.

References

- ¹ U.S. Department of Health and Human Services, Public Health Service, National Toxicology Program. 2005. 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.
- ⁶ Chen P, Hu P, Xie D, Qin Y, Wang F, Wang H. Meta-analysis of vitamin D, calcium and the prevention of breast cancer. *Breast Cancer Research and Treatment* 2010;121(2):469-77.
- ⁷ Chung M, Balk EM, Brendel M, Ip S, Lau J, Lee A, et al. 2009. Vitamin D and Calcium: A Systematic Review of Health Outcomes. Evidence Report No. 183. AHRQ Publication No. 09-E015 Rockville, MD: Agency for Healthcare Research and Quality.
- ⁸ Cranney A, Horsley S, O'Donnell HA, Weiler L, Puil DS, Ooi SA, et al. 2007. Effectiveness and safety of vitamin D in relation to bone health. Evidence report/technology assessment No. 158. AHRQ Publication No. 07-E013. Rockville, MD, Agency for Healthcare Research and Quality.
- ⁹ Huncharek M, Muscat J, Kupelnick. Dairy products, dietary calcium and vitamin D intake as risk factors for prostate cancer: a meta-analysis of 26,769 cases for 45 observational studies. *Nutrition and Cancer* 2008;60(4):421-41.
- ¹⁰ IARC (International Agency for Research on Cancer). Vitamin D and Cancer. 2008. IARC Working Group Report Volume 5. Lyon: World Health Organization.
- ¹¹ Nnoham KE, Clarke A. Low serum vitamin D levels and tuberculosis: a systematic review and meta-analysis. *Intl J Epidemiol* 2008;37(1):113-9.
- ¹² Pittas AG, Lau J, Hu B, Dawson-Hughes B. The role of vitamin D and calcium in type 2 diabetes. *J Clin Endocrinol Metab* 2007; 92(6):2017-29.
- ¹³ Wang L, Manson JE, Song Y, Sesso HD. Systematic review: Vitamin D and calcium supplementation in prevention of cardiovascular events. *Ann Intern Med* 2010; 152(5):315-23.
- ¹⁴ Wei MY, Garland CF, Gorham ED, Mohr SB, Giovannucci. Vitamin D and prevention of colorectal adenoma: a meta-analysis. *Cancer Epidemiol Biomark and Preven.* 2008; 17(11):2958-69.
- ¹⁵ Zipitis CS, Akobeng AK. Vitamin D supplementation in early childhood and risk of type I diabetes: a systematic review and meta-analysis. *Arch Dis Childhood* 2008;93(6):512-7.
- ¹⁶ Ross AC, Manson JE, Abrams SA, Aloia JF, Brannon PM, Clinton SK, et al. The 2011 Report on Dietary Reference Intakes for Calcium and Vitamin D from the Institute of

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Medicine: What Clinicians Need to Know. *J Clin Endocrinol Metab* Nov 29 2010 (epub ahead of print)

¹⁷ Prentice A, Goldberg GR, Schoenmakers I. Vitamin D across the lifecycle: physiology and biomarkers. *Am J Clin Nutr* 2008; 88(suppl):500S-06S.

¹⁸ Institute of Medicine. 2011 Dietary Reference Intakes for Calcium and Vitamin D. Washington, DC: The National Academies Press.

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.

This Position Statement is provided for educational and informational purposes only. It is intended to offer physicians guiding principles and policies regarding the practice of dermatology. This Position Statement is not intended to establish a legal or medical standard of care. Physicians should use their personal and professional judgment in interpreting these guidelines and applying them to the particular circumstances of their individual practice arrangements.