

**Tanning and vitamin D status**

DeAnn Lazovich

Dear Sir:

We read with concern the article by Tangpricha et al (1) on tanning and vitamin D status in a recent issue of the Journal. They concluded, on the basis of their study, that “tanning beds may also provide some medical benefit.” Our concern is based on several factors.

First, Tangpricha et al recruited a convenience sample via an online bulletin board and newspaper advertisement. Hence, their study population was likely not representative of the general population. As a consequence, their results could be biased by the self-selected nature of their study participants. Furthermore, their comparison of vitamin D concentrations in tanners and nontanners may have been biased by their failure to account for differences in ethnic group, multivitamin consumption, or sunlight exposure between the 2 groups—factors that may have led to spuriously low vitamin D concentrations in nontanners relative to tanners.

Second, patrons of commercial tanning parlors are unable to distinguish whether the lamps to which they are exposed emit pure ultraviolet (UV) A radiation (ie, wavelengths between 320 and 400 nm), which will not result in the photosynthesis of vitamin D in human skin, or emit a mixture of UV B (ie, wavelengths between 280 and 320 nm) and UVA radiation, which will result in the photosynthesis of vitamin D in human skin, nor can they tell how much UVB radiation is emitted by these lamps.

Third, the investigators imply that artificial tanning lamps may be useful for improving vitamin D status, but they downplay their carcinogenicity. Artificial tanning has been linked to multiple types of skin cancers. Oral vitamin supplements are a safer, much less expensive, and more convenient method for improving vitamin D status.

Fourth, the authors of the article acknowledge having received support from the UV Foundation for their work, and the senior author is a consultant for this foundation. However, the authors failed to note the close connection between the UV Foundation and the commercial tanning industry. Were the readers aware of this close connection, they might infer that the implicit endorsement of tanning parlors in this article is related to the authors’ financial connections with the commercial tanning industry.

MAW is a member of the American Academy of Dermatology, which has supported more rigorous controls on tanning parlors. Neither MAW nor DL had a conflict of interest to declare.

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REFERENCE

1. Tangpricha V, Turner A, Spina C, Decastro S, Chen TC, Holick MF. Tanning is associated with optimal vitamin D status (serum 25-hydroxyvitamin D concentration) and higher bone mineral density. *Am J Clin Nutr* 2004;80:1645–9.

Reply to MA Weinstock and D Lazovich

Dear Sir:

It is remarkable that some persons in the dermatology community, including Weinstock and Lazovich, are oblivious to the multitude of publications that have clearly shown vitamin D deficiency to be epidemic in the US population (1–4). The major reason for this is that most children and adults are unable to satisfy their vitamin D requirement from dietary sources (5). Sensible sun exposure is the major source of vitamin D for both children and adults (6). The suggestion that there may have been bias by our failure to account for differences between tanners and nontanners, which may have led to spuriously low concentrations of vitamin D in nontanners, is unfounded. However, because Weinstock and Lazovich apparently consider this to be important, we observed that 40% of the control group was vitamin D deficient at the end of the winter. This observation is consistent with what was previously published by us and others regarding the prevalence of vitamin D deficiency in the adult population in Boston. No statistically significant difference in the use of multivitamins was observed between tanners and nontanners (40% compared with 54%, respectively). When we compared only white nontanners with white tanners, the mean (\pm SEM) 25-hydroxyvitamin [25(OH)D] concentration was 26.9 ± 2.0 ng/mL in the nontanners and 48.5 ± 3.0 ng/mL in the tanners ($P < 0.0001$).

Most tanning beds in the United States use lamps that emit between 2% and 5% ultraviolet (UV) B radiation. This is the reason why most subjects who frequented a tanning salon had robust concentrations of 25(OH)D and why 25(OH)D concentrations did not increase in one of the subjects, ie, the subject may have been exposed to a tanning bed that emitted only UVA radiation. We and other investigators previously reported that UVB-emitting lamp sources are very effective at producing vitamin D₃ in the skin and increasing blood concentrations of 25(OH)D (7–9).

One million adults frequent a tanning salon daily in the United States (10) for a variety of reasons, one of which is that it makes them

feel better about themselves. Although we do not advocate tanning nor do we advocate frequenting a tanning salon for the sole purpose of enhancing vitamin D status, one of the benefits that tanners obtain from their activity is that they have healthy concentrations of 25(OH)D. Because vitamin D deficiency has been linked to an increased risk of many common deadly cancers, autoimmune diseases, and cardiovascular disease, tanners may benefit from their tanning experience by decreasing their risk of many serious chronic diseases (1). Patients with vitamin D deficiency are encouraged to take pharmacologic doses of vitamin D. Typically, these patients receive 50 000 units of vitamin D once a week for 8 wk and then once every 2 wk to maintain a healthy vitamin D status (11). However, there are more than a million children and adults with various intestinal fat malabsorption syndromes who are unable to obtain their vitamin D requirement from dietary or supplemental oral sources (12). These patients clearly benefit from sensible exposure to sunlight or a lamp source that emits UVB radiation (7).

The New Zealand Bone and Mineral Society and the Australian College of Dermatologists and the Cancer Council of Australia recommend that balance is required between avoiding an increased risk of skin cancer and achieving enough UV radiation to maintain adequate vitamin D concentrations. This sensible recommendation should serve as a model for the American Academy of Dermatology, which advocates abstinence from all sun exposure. Vitamin D deficiency is a major health problem in the United States. The American Academy of Dermatology's recommendation that no one should ever be exposed to direct sunlight is putting the American public at great health risk.

MFH's laboratory received a nonrestricted gift from the nonprofit UV Foundation to support research on the biologic effects of ultraviolet radiation on human health. MFH has not received any compensation from the UV Foundation as a consultant nor has he ever received financial compensation from the Indoor Tanning Association. VT had no conflict of interest.

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High thyroid volume in children with excess dietary iodine intakes

Dear Sir:

The recent article titled “High thyroid volume in children with excess dietary iodine intakes” by Zimmermann et al (1) made interesting reading. The authors highlighted one of the possible risks (2) associated with excess dietary intake of iodine. The eventuality of adverse effects due to dietary excess of iodine is plausible in the current scenario of universal salt iodization, particularly so when monitoring is poor (3).

The main finding of the close correlation between increase in thyroid volume and high iodine intake in children documented by Zimmerman et al is based mainly on data from coastal Hokkaido. This association is not entirely new; endemic goiter due to dietary excess of iodine was recognized decades ago in coastal Hokkaido (4, 5). However, despite the excessively high intake of iodine universally in coastal Hokkaido, the prevalence of goiter has never been documented to be >25% (6). Other factors may play a role in the etiology of goiter in this region, and the drawing of conclusions based on data from this region may not be appropriate. In the same context, it would be of interest to know the goiter prevalence rates in the subsample from coastal Hokkaido in study by Zimmerman et al.

Whatever may be the deliberations to the issues raised above, it is hoped that the interest and research generated by this study are directed toward strengthening the monitoring system of salt iodization programs rather than creating doubts in the minds of health policy makers and thereby derailing successful programs such as universal salt iodization, particularly in developing countries.

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Erratum

Dahlman I, Linder K, Arvidsson Nordström E, Andersson I, Lidén J, Verdich C, Sørensen TIA, Arner P, NUGENOB. Changes in adipose tissue gene expression by energy-restricted diets in obese women. *Am J Clin Nutr* 2005;81:1275–85.

The website given for NUGENOB in the footnotes to the title on page 1275 and at the top of page 1276 should be www.nugenob.com (rather than .org).

