

Vitamin D and human health: more than just bone

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In their Perspective article ([Common misconceptions about vitamin D—implications for clinicians. *Nat Rev Endocrinol*. doi:10.1038/nrendo.2013.75](#)),¹ Rosen and Taylor have provided a primer on the state of vitamin D research. However, the analyses presented of the current literature are not balanced. The conclusions of the authors largely reflect those of the 2011 Institute of Medicine (IOM) report,² which immediately created a controversy, leading to published rebuttals.³ The IOM report was controversial in part because of its very conservative recommendations for dietary intakes, its conclusions of insufficient evidence for any role of vitamin D in nonbone health, and the way it presented evidence for the potential harm associated with circulating 25-hydroxyvitamin D levels.

Notably, considerable debate surrounds potential roles of vitamin D in nonbone indications including cancer prevention and control of immune system function. The authors conclude that “effects of vitamin D on nonbone disorders is currently best described as consisting of hypotheses of emerging interest”.¹ They also claim that vitamin D supplementation has not been shown to prevent infections. In fact, several randomized placebo-controlled trials have been published providing evidence for vitamin D supplementation of deficient populations in preventing a variety of infections. In addition to the (highly cited) results of a trial published in 2010 concluding that

vitamin D supplementation reduced the risk of seasonal influenza infections in a paediatric population,⁴ recent studies have provided evidence for a beneficial role of vitamin D supplementation of populations at risk for upper respiratory tract or ear infections, either because of severe vitamin D deficiency or a history of recurrent infections.^{5,6} By contrast, one study that produced a negative result involved a healthy population with baseline 25-hydroxyvitamin D levels of 73 nmol/l.⁷ The authors also discuss the emerging evidence for a U-shaped curve of risk associated with 25-hydroxyvitamin D levels and focus largely on the potential risks associated with excessive vitamin D intake, an area that should not be ignored. They cite a recent review⁸ suggesting that there may be an increase in prevalence of certain cancers associated with high serum 25-hydroxyvitamin D levels (>75 nmol/l). However, U-shaped curves have two sides, and the IOM recommends that the vitamin D needs of ~50% of the population can be met with 25-hydroxyvitamin D levels of 30–40 nmol/l, whereas those of most of the remainder require 40–50 nmol/l. If followed, these recommendations would place the entire population solidly within the left-hand side of the U-shaped curve of cancer risk. It can therefore be argued that one of the misconceptions arising from conservative estimates of recommended vitamin D intake in the IOM report is that less vitamin D does no harm.

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Competing interests

The author declares no competing interests.

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