

# Vitamin D: A single initial dose is not bogus if followed by an appropriate maintenance intake

## To the Editor:

We read the review by Mazess and colleagues<sup>(1)</sup> in *JBMR Plus* with interest. We have several points for comment and discussion.

First, a bolus dose is a single dose of a substance given over a short period, also called a loading dose.<sup>(2)</sup> However, in the review,<sup>(1)</sup> the term “bolus” dose refers to the nutrient cholecalciferol, vitamin D<sub>3</sub> supplement as a longer-term micronutrient, in larger quantities than accepted daily doses with intervals of over a month duration between intakes.

Second, although the authors rightly critique overly long intervals between vitamin D<sub>3</sub> supplementation intakes (ie, >1-month intervals), they were mistaken to refer to these as “bolus doses” and so mischaracterize bolus dosing as “bogus.”

In those with coronavirus disease(s) (e.g., COVID-19), sepsis or other medical emergencies, achieving and maintaining serum 25-hydroxyvitamin D [25(OH)D] concentration of above 50 ng/mL is crucial for achieving proper immune function<sup>(3)</sup> (also to replete body stores) within days with a single bolus dose of vitamin D<sub>3</sub>, such as 5 to 10 mg (200,000 to 400,000 IU), or within 4 hours using a single, 0.5-mg to 1-mg oral dose of calcifediol (0.014 mg/kg body weight).<sup>(4)</sup> However, to maintain the boosted serum 25(OH)D concentrations, D<sub>3</sub> supplements should be taken daily or once a week in larger quantities (taking less frequently than this, is less effective).<sup>(5)</sup>

Third, the review's critique of the Murai study should not be considered a general critique of bolus D<sub>3</sub> dosing. This trial resulted in poor clinical outcomes due to the faulty study design of using a bolus dose of D<sub>3</sub> in seriously ill patients. Earlier administration of vitamin D<sub>3</sub> and/or the use of rapidly acting calcifediol, would have been more effective in patients with advanced COVID-19 and in sepsis.<sup>(6)</sup>

Finally, the circulatory 1,25-dihydroxyvitamin D [1,25-(OH)<sub>2</sub>D; calcitriol] levels and 24-hydroxylase enzyme activity used in this review as indicators of immune system functions are not relevant to vitamin D status or to the critical, autocrine and paracrine signaling system of immune cells.

## Conflict of Interest

The authors declares no conflicts of interest.

## Peer Review

The peer review history for this article is available at <https://publons.com/publon/10.1002/jbm4.10606>.

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Received in original form November 22, 2021; revised form December 14, 2021; accepted January 15, 2022.

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JBMR<sup>®</sup> Plus (WOA), Vol. 6, No. 3, March 2022, e10606.

DOI: 10.1002/jbm4.10606

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