

Vitamin D status: sunshine is nice but other factors prevail

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We welcome the letter by Ameri et al. which offers us an opportunity to emphasise the role of factors important for vitamin D status. Ameri et al. [1] point out that our paper “Is a daily supplementation with 40 microgram vitamin D₃ sufficient? A randomized controlled trial” is lacking a discussion on the role of location and latitude in vitamin D status. The amount of solar UV-B radiation is definitely of importance for the endogenous vitamin D synthesis; however, the issue about vitamin D status is far more complex

than latitude and sunshine hours. Surprisingly, there seem to be a North–South gradient with significantly higher 25-hydroxyvitamin D (25(OH)D) values in the Northern parts of Europe (Fig. 1) and North America in comparison with the more Southern parts of the continents, recently reviewed by van Schoor and Lips [2]. In Europe, low 25(OH)D values are found in Greece, Italy and Spain, while Norway and Sweden have higher average values [2–4]. High levels in Scandinavia may in part be due to a high intake of fatty fish, while the lower levels in Mediterranean countries may be due to sunshine avoiding behavior including covering clothes and staying indoors when the sun is high. Furthermore, the vitamin D status at one defined location may differ significantly between people of different ethnic origin [5].

Factors of importance for vitamin D status are gender, age, obesity, malabsorption, ethnicity, pigmentation, genetics, latitude, total ozone, altitude, cloud thickness, season, time of the day, clothing habits, outdoor habits, use of sun screen, dietary intake, dietary fortification and vitamin D supplementation, which recently was extensively reviewed by the Institute of Medicine [6, 7]. In addition, studies should standardize their assays to one gold standard, that is, liquid chromatography tandem mass spectrometry (LC–MS/MS) in order to enhance comparability.

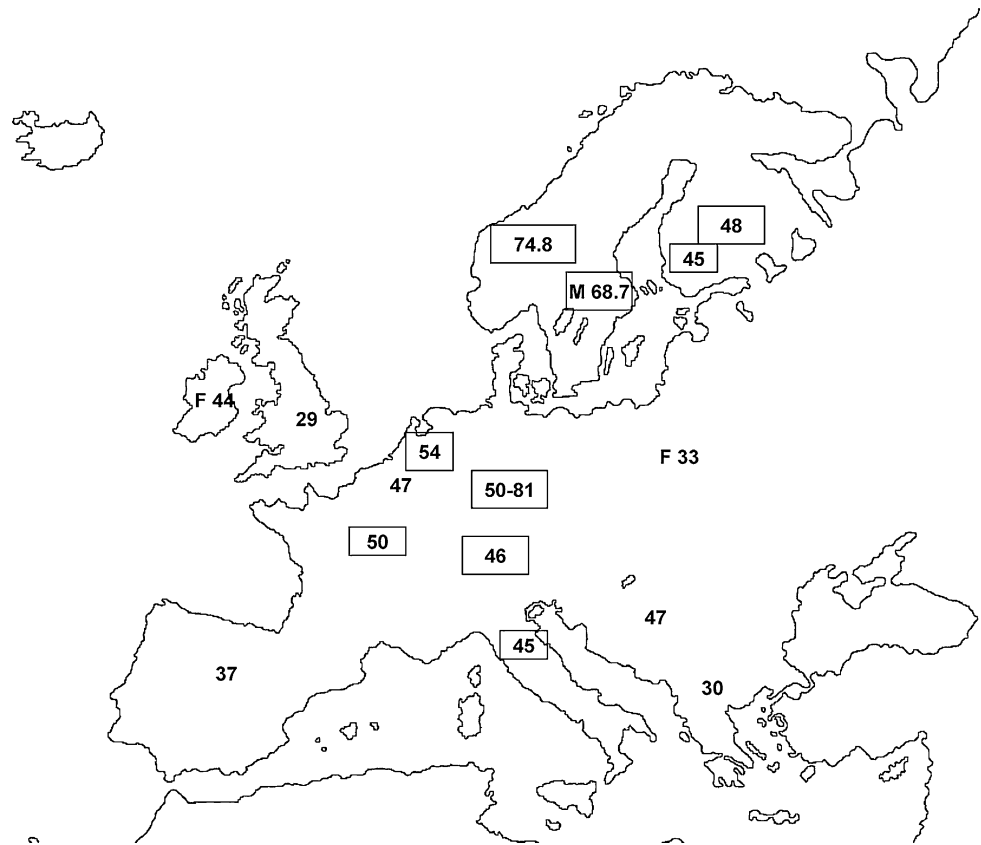
Our study was a double-blind randomized controlled intervention trial continuing over 12 months [1]. The results support the view that 40 µg per day of vitamin D₃ is sufficient for obtaining circulating 25(OH)D levels above 50 nmol/L in community-dwelling elderly people in Sweden at 58° North latitude. We welcome initiatives for initiating worldwide studies comparing the role of different factors for vitamin D status in a standardized fashion.

Conflict of interest The authors declare no conflict of interest.

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Fig. 1 Mean serum 25(OH)D levels in Europe. A *rectangle* around the *number* indicates that it is a population-based study. Reprinted from Best Practice & Research Clinical Endocrinology & Metabolism, vol. 25, van Schoor and Lips, Worldwide vitamin D status, 671–680, Copyright (2011), with permission from Elsevier [2]



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