Reviewer's report

Title: New perspectives on vitamin D food fortification based on a modeling of 25(OH)D concentrations

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Reviewer: Veronica Mocanu

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In this paper, Brown, Sandmann et al. developed a vitamin D fortification model, taking into account all vitamin D sources with the goal to fulfill requirements of intake recommendations or preferable 25(OH)D serum concentrations. The aim was to assess the suitability of different carriers and associated risks. The results showed that in Germany 100g bread has to be constantly fortified with 6.5µg in order to provide someone who is an average bread (“mean carrier intake”) and an average vitamin D consumer (“mean”) with 15µg a day (“IOM”). To raise 25(OH)D serum concentration to 75nmol/L, e.g. 100g bread has to be fortified with 11.3µg during winter and . Bread seems to be a suitable carrier for base supply.

The authors say that “The conversion factor (cf) was derived from O’Donnell’s review on efficacy of food fortification on serum 25-hydroxyvitamin D concentrations” and “We used these 7 trials for conversion factor calculation for fortified food.” Is the conversion factor the same with “Conversion rate fortified food to 25(OH)D serum increase” from table 1 (2.32nmol/L per 1µg ?). It is not very clear why this conversion factor was obtained and chose. Other authors say that 1 µg (40 IU) vitamin D/day increased the mean serum 25(OH)D concentration by 0.5–1.5 nmol/L (Vieth 2011, The pharmacology of Vitamin D. In: Feldman PA, editor. Vitamin D. 3rd ed. New York: Elsevier; 2011).

In abstract section: the results are obtained using values for Germany and it must be clearly stated in the abstract

It should also be noted that the 25(OH)D concentrations of 75 nmol/L is reached only by 50% of adults receiving 23.7 µg vitamin D / day (11.3 µg/100 g bread) ; the vitamin D intake should be much higher if the goal is that more than 90% of adults have optimal 25(OH)D concentrations.

In table 1 reference number does not correspond to the reference list.

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I declare that I have no competing interest.