Reviewer’s report

Title: Seasonal variance of 25-(OH) vitamin D in the general population of Estonia, a Northern European country

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Reviewer: Magritt Brustad

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Title: Seasonal variance of 25-(OH) vitamin D in the general population of Estonia, a Northern European country.
Reviewer: Dr. Magritt Brustad

General
The paper presents data on vitamin D status from a random selected sample aged 25-70 years living in Estonia. Blood drawn during winter from 367 subjects and a repeated blood collection in September from 316 individuals were analyzed for 25-hydroxy vitamin D. Vitamin D status and its association with body mass index (BMI), gender, age, sun bathing habits, season, and parathyroid hormone (PTH) were assessed. The paper provides important data on summer and winter vitamin D status in the Estonian population. It is well written and interesting to read, however some issues needs to be considered by the authors before publication.

Major Compulsory Revisions

Figure 3 - Confidence interval for the two curves needs to be added as an illustration of the uncertainty in the relationship estimate and the PTH cut-off values. This uncertainty should also be reflected on in the interpretation of the results, page 10, second paragraph.

Discretionary Revisions

Background
– page 3, last sentence: The optimal level at 75nmol/l has not reached consensus among experts. The word “show” should be substituted by “suggest”
– page 4, line 8: reference should be added to population-based studies looking at seasonal differences in vitamin D concentrations

Statistics
- page 5, fist sentence in paragraph: add which variable(s) that were transformed.
- Page 5, second sentence in paragraph: should be rephrased into e.g. : “A 5% probability for type I error was allowed (p<0.05).”
Discussion
- page 10, last sentence in first paragraph: A casual relationship between vitamin D and the mentioned diseases has not been established yet. They are all interesting hypothesis, which have gained increased attention. E.g for cancer, the latest report from The World Cancer Research Fund concludes that the relationship between vitamin D and colon cancer (for which there is the “strongest evidence” for a relationship between vitamin D and cancer) can be classified as “limited-suggestive decreased risk”. The sentence needs to be moderated. Vitamin D has been suggested to be related to the listed diseases, but a consensus on a causal relationship has not been established.

Tables
- Table 1. – Height and weight should be deleted. There is no reason to includethem when BMI is included. Men are higher and heavier than women so that does not need to be tested.
- Sun bating habits should be included in the table

Minor Essential Revisions
Discussion
- page 10, last paragraph, second sentence: about the gender difference – could it be that more men that women are working outdoor and therefore get more sun and thus vitamin D during summer?

Level of interest: An article of importance in its field

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 interests