Reviewer’s report

**Title:** EFFECT OF VITAMIN D FORTIFIED FOODS ON BONE MARKERS AND MUSCLE STRENGTH IN WOMEN OF PAKISTANI AND DANISH ORIGIN LIVING IN DENMARK: A RANDOMISED CONTROLLED TRIAL

**Version:** 0  **Date:** 12 Jun 2019

**Reviewer:** Lena Granlund

**Reviewer's report:**

Comments to the Author:

The paper do not follow the author instructions for Nutrition research. Both the abstract and the paper are too long and the paper is not structured with numbered sections. There are too many keywords and some of the keywords are not compatible with Index Medicus MeSHTerms. The abstract do not include the hypothesis for the study. The authors hypothesis for the research is not clear in the paper. The terminology used in the paper is not correct, measurement of 25(OH)D result in 25(OH)D concentrations, not levels. Vitamin D status can be deficient but it should not be described as "low".

Abstract

Line 3 Vitamin d status can not be "low".

Line 7 Specify the placebo-controlled line, was it the same food but without vitamin D content?

Line 9 Specify the method of vitamin D analyses.

Line 20 Study of ethnic differences in knee extension strength was not the aim of the study and do not need to be discussed in the abstract.

Line 26-27 This can be removed.

Introduction

Line 32-35 References are studies of associations between vitamin D status and muscular symptoms, they are no proof of causality, the word consequences is not appropriate.

Methods
Please add a detailed description of the recruitment of participants including a flow diagram. How many women of Danish and Pakistani origin ages 18-50 years live in the recruitment area? How many were invited? What was the participation rate? How did you define "Pakistani women"? Were they born in Pakistan? This is of importance when analyzing the results. Add a flow diagram of the recruitment process and the study design.

Line 121 Add a subheading; Blood procurement procedures.

Line 123-125 Add chosen measurement units.

Line 127 Specify how physical activity was measured and classified. Add a reference for the questions regarding general health.

Line 172 Add a reference for the 30-second chair stand test.

Line 194 Why did you not adjust for length in analyses of grip strength?

Results

The result section do not need to repeat all results shown in the tables.

Line 204 Add the flow diagram or remove this information.

Line 219-221 This should be moved to methods.

Line 230-231, 233 This should be moved to methods.

Line 238-240 This should be moved to methods.

Line 246-247 This is the main result and should be in the beginning of the result section.

Line 248-252 This can be removed. The participation rate is unknown, the study groups are very small and the aim of the study was not to detect ethnic differences in muscle strength.

Discussion

This section is too long and needs to be reworked.

Focus on 1) The main result. 2) Strengths and limitations - Social selection bias? Low power.

The study was not designed for evaluation of the effect of vitamin D treatment on bone markers and muscle strength. There is a problem with low power and social selection bias and this is not sufficiently taken into account in the analyses, results and discussion. Mean 25(OH)D
concentrations in the participants were high, just below the concentration recommended by the Institute of Medicine in the USA, which might have been crucial for the negative results.

Line 274-275 An alternative explanation might be that the high mean 25(OH)D concentrations in the Pakistani group was a result of social selection in recruitment of the Pakistani female participants. The results of 25(OH)D concentrations in 72 Pakistani women selected from all Pakistani women living in Copenhagen and surrounding suburbs should be read with caution and is no proof of improvement of vitamin D status in the total group of Pakistani women in Denmark.

Conclusion

Conclude only that the results of the study were negative.

References

References are a bit old, need to be updated.

Tables

Table 6 Add length as a variable in hand grip strength analyses.

Level of interest

Please indicate how interesting you found the manuscript:

An article whose findings are important to those with closely related research interests

Quality of written English

Please indicate the quality of language in the manuscript:

Acceptable

Declaration of competing interests

Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?
3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

I declare that I have no competing interests.

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal.