Reviewer’s report

Title: High potency fish oil supplement improves omega-3 fatty acid status in healthy adults: an open-label study.

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Reviewer: Chantal Matar

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High potency fish oil supplement improves omega-3 fatty acid status in healthy adults: an open-label study.

This is an interesting manuscript indicating that high potency fish oil supplement may further improve omega-3 status in a healthy population regularly consuming an omega-3 supplement. The authors conducted the research by using a novel tool of virtual clinical research organization where recruited subjects (healthy subjects working at health food stores that had been previously taking fish oil supplement) received supplement of 1,100 mg of Omega-3s and an Omega-3 Index test kit (finger prick blood test) along with a web completion of the compliance assessment, medical review, SF-12 Health Survey and adverse event questionnaire. The study lasted for 120 days with a two weeks wash-out period. The authors concluded that the supplement did indeed significantly improve blood EPA and DHA status and mental health scores in this particular population.

The finding of this study may have limited by selection data and outcomes analysis:

1) It is unclear why the authors decided on a single dose of 1,1 mg of Omega-3 regardless if the subject is male or female, as usually RDA recommendation are slightly increased for omega-3 uptake in males.

2) The inclusion of placebo experiment would gain some quality in data interpretation, without affecting ethical consideration. One could argue that placebo populations could be chosen among healthy subjects that usually do not consume supplement and omega blood values adjusted to the subjects taking the supplements after the pre-wash period.

3) The selection of health store subjects may add another bias in the design of the study, as this particular population is health oriented and Complementary and Alternatives Medicine (CAM) users and could be expected to likely respond positively to health intervention. The authors need to clarify more the rationale behind targeting this population in particular and those already known for supplement consumption too.

4) The geographically widespread population and status of vitamin D (localization-dependent) could also add another level of complexity and bias to
the study. The authors mentioned that intake of supplement was forbidden for the pre-wash period. No indication was given if subjects were allowed to continue supplementation afterward. This issue along with geographically/sun/exposure is particularly important for vitamin D status as few papers have pointing out to concomitant and potentiating effect of vitamin D and bioavailability of omega-3 (An et al., 2012, Nut. Res. And Park et al., 2011, Br. J. Nutr.)

5) The study could also benefit from an inclusion of a Seafood Index and seafood FFQ as a tool to assess seafood consumption and discriminate between seafood and supplement intakes.

6) Minor errors in page 4 and 9.

In summary, this exploratory study increases our knowledge about the significance of omega-3 supplementation in healthy cohort and their potential use for a wide range of inflammatory disease. The study relies on a novel tool of virtual assessment which include biomarkers testing and questionnaire. This approach is novel and subscribes well in line with major ongoing lifestyle initiative studies across Europe and North America. Based on these observations, this reviewer recommends its publication after minor revisions.

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests.