Reviewer’s report

Title: A 7-day high-PUFA diet reduces angiopoietin-like protein 3 and 8 responses and postprandial triglyceride levels in healthy females but not males: a randomized control trial.

Version: 0 Date: 09 Aug 2018

Reviewer: Yosuke Yamada

Reviewer's report:

The authors examined the effect of 7-day PUFA-diet on ANGPTLs in young and healthy men and women. The authors had reported the effect of 7-day PUFA-diet on fat oxidation following saturated fat-rich meal previously (Eur J Nutr 2017). The current manuscript tried to investigate its mechanisms through ANGPTLs. The study design is novel and interesting, and thus, I think the manuscript has merit to readers of BMC Nutrition. The manuscript is well-written, and the study design was generally well-organized, although the percentage of drop-out (6 of 16 = 37.5%) in control group was high compared with PUFA group (0%).

There is several comments to improve the manuscript.

1) Because sample size of each sex is small (8 PUFA vs 5 control), the statistical power is may be low to discuss the sex difference. At first, they should examine the interaction of sex and diet treatment using two-way ANOVA, and then if the significant interaction was observed they should examine t-test or ANOVA in men and women. If the significant interaction was not observed, please consider to attenuate emphasizing the sex difference of the effect of PUFA-diet in the title, abstract, and conclusion. If the authors already conducted the two-way ANOVA, please state it in statistical analysis section.

2) Please clarify how to define the sample size (Effect size (d) = ?, α error probability = 0.05, Power (1-β error probability) = ?, allocation ratio 1:1). A priori or posteriori? It is important if they try to discuss the result in men and women separately. Did the author resister the analysis plan in any official or local clinical trial registration.

3) Visual pictures (by camera) of the typical examples of one day meals for PUFA diet and control diet encourage the readers understanding. Would you please consider to insert the pictures of typical one-day diets of each group? And please state the reasons and timings of six drop out participants in control groups.

4) State the reason of decreasing body weight in control diet group. Combining high dropout rate and decreasing body weight in control diet group, there may be adverse event
particularly in control group. Or the negative energy balance was observed. Could you state it.

5) Please add the methods for anthropometrical measurement and % body fat measurement.

6) Both groups improved cholesterol, non-HDL, LDL at post 7-day diet in men. However, in women, those parameters improved only in PUFA-diet. Do you think why the sex difference were occurred? Do you think such sex difference induce sex differences of ANGPTLs.

7) The habitual diet affects the current intervention. Did you examine the diet habit of the participants? Please include their daily diet before intervention.

8) The physical activity level also affects the intervention. Dis you examine the physical activity level (not only exercise but also NEAT or sedentary time)?

9) Please check the correspondence between statistical analysis description and result description. In addition, the sample size is small in men (8 vs 5) or women (8 vs 5), I wonder if t-test or ANOVA is suitable method.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

Yes

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I recommend additional statistical review
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