Reviewer’s report

Title: Insulin resistance (HOMA-IR) and body fat (%) are associated to low intake of fruit and vegetables in Swedish, young adults: The cross-sectional Lifestyle, Biomarkers and Atherosclerosis study

Version: 0 Date: 07 Dec 2018

Reviewer: Marco Mensink

Reviewer’s report:

In this manuscript the association between (healthy) dietary habits and risk factors for future metabolic disease was investigated in young adults in the Swedish LBA study. Reaching dietary recommendation with regard to a.o. fish, fruit and vegetable and sweets consumption was associated to body weight, body composition and HOMA-IR.

The LBA study has an interesting study population, and data collection of the study was done carefully. Cardiovascular risk profile was presented earlier, as well as its association with aerobic capacity. Focus of the present manuscript is metabolic risk and dietary habits.

Although the topic is of interest, the manuscript lacks focus and clarity. The introduction is mainly a description of the LBA study, without setting the scientific background, identifying knowledge gaps and introducing the objective. The aim at the end of the introduction (page 4 line 20-31) is not clearly formulated. Do the researcher aim to highlight the dietary habits of this population, i.e. the fraction meeting or not meeting the recommendations?, or is the focus on the association between dietary habits and metabolic risk markers (body composition and IR).

Along the same line, also the discussion is not focused and way too long for the amount of data presented, with extensive section addressing issues that are rather off topic. The discussion should focus on the result obtained in the present work and contain a clear message.

Main comments:

Methods

How was recruitment done? And how were volunteers selected? How well does this population reflect Swedish young adults, as the sample consisted mostly of students from Örebro University.

The section on questionnaires (page 5/6) should be concise

Why is the VO2max measurement described? As no data are presented on this
Results

The Information on missing data should be added to the method section

It is not clear to me why is 'saturated lipid' presented as a separate section in the results? As no information on other dietary habits is presented, except from the data in table 2. (Is presenting dietary pattern data of this population an aim of the present work?)

I do prefer the words 'saturated fat' instead of saturated lipids

Discussion

In general, the size of the discussion can be much smaller. And should focus in the results of the study. What is the focus of the present work? : dietary factors/recommendations related to HOMA-IR and body composition? Or is also the data on dietary patterns new and important? -> if Yes, make part of aim and describe in results (not only saturated fat)

I would also add the observed associated between fish consumption and HOMA-IR in the first section of the discussion - like for sweets and fruit and vegetables (lines 1-2 page 11, Table 4)

Page 11, line 4-15. This information should be in the results section

Page 11, line 17-29. It is not clear to me how this section is linked to the results of the present study

Page 12. Line 11/12. What is meant by: "Reduced intake of unhealthy food choices..."

Page 12. Again, I don't understand why saturated lipids are highlighted over here? Moreover, the rather long historical introduction on saturated lipids in Sweden is a bit out of scope.

Page 13, line 13-23. I don't see any inflammation data in the results section of the present study. Why is inflammation addressed?

Page 15, line 37 till page 16 line 2: the whole discussion on the Mediterranean diet is a bit off topic i.m.o.

Include a separate section in the strength and limitations of the LBA study (protocol)

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.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
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I am able to assess the statistics

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