Reviewer's report

Title: Metabolically healthy obese and metabolic syndrome of the lean: the importance of diet quality. Analysis of MAGNETIC cohort

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Reviewer: Edyta Adamska-Patruno

Reviewer's report:

I appreciate this invitation to review manuscript by Osadnik K. et al. entitled: "Metabolically healthy obese and metabolic syndrome of the lean. Diet quality is more important than energy load. Analysis of MAGNETIC cohort." submitted to Nutrition Journal.

Osadnik K. et al. investigated the link between diet quality and metabolic syndrome (MS) in 797 young adults, regardless of their adiposity status. The diet quality was measured with data-driven dietary patterns and diet quality scores. Authors noted that in the MS group 31% individuals were of normal weight, while in the MH (Metabolically Healthy) group 27% of participants were overweight or obese. Authors found that individuals with MS were more likely to adhere to the western dietary pattern, and have a poor diet quality when compared to metabolically healthy subjects, independently of BMI and WHR. Moreover, Authors identified the non-modifiable factors independently associated with metabolic health risks, such as male gender and age.

The article is well written, and study shows very interesting new findings, with possible practical implications.

I have some major concern regarding this paper:

1. In the title and text (line 52; lines 78 and 286- unless it is a citation of other results, then please add reference; line 328), authors mentioned few times that "diet quality is more important than energy load" or "diet composition, not energy load, plays a pivotal role…” etc.

In my opinion authors should not conclude this way, because it has not been compared in the presented study, and authors even have not discussed results of other studies comparing energy load vs. diet quality effects. Therefore authors should rewrite and reconstruct text to avoid such a comparison, and such a conclusion. It should reconstructed underlying that diet quality can be an important, independent risk factor, etc.
2. In Results a high physical activity has been presented as associated with MS, and it must be explained and discussed, since it is not an expected observation.

3. Line 279-281- "Based on these findings, it can be concluded that body weight management may not be a sufficient intervention in adults with metabolic abnormalities, and more specific lifestyle modifications are required.". In my opinion it is a wrong conclusion, because based on many studies weight management is an effective intervention, and in this study it was not compared to. Therefore the mentioned sentence must be reconstructed, in a way: "Based on these findings, it can be concluded that in adults with metabolic abnormalities, not only body weight management, but more specific lifestyle modifications are required" etc.

4. Lines 296, because this field is already under investigation, with isocaloric meals but different compositions, also some other articles should be referenced here.

5. Limitations are missed- please provide them. In my opinion, the lack of measuring visceral tissue is the main limitation of this study.

I have also some suggestions for minor changes:

1. In line 58- "despite" is repeated two times,

2. Lines 290-292 the reference is missed

3. Line 304-306, "Some evidence suggests that high-sugar foods (…)"- the references are missed

**Level of interest**

Please indicate how interesting you found the manuscript:

An article of importance in its field

**Quality of written English**

Please indicate the quality of language in the manuscript:

Acceptable

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