Author’s response to reviews

Title: Characterization, dietary habits and nutritional intake of omnivorous, lacto-ovo-vegetarian and vegan runners – a pilot study

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Author’s response to reviews:

Point-by-point response to the comments made by the reviewers

We thank the reviewers for their kind comments and the opportunity to revise our paper. The comments and suggestions have helped to improve the manuscript substantially. In the following, each comment is addressed separately.

Reviewers’ comments:

Reviewer 1:

MAJOR REVISION [Ref: Line 159] - Please identify the additional software/ research undertaken for analysing the food items reported in the diet diary which were unavailable on the PRODI6.4 software. This is crucial to draw reliable and accurate conclusions from the analysis.

Thank you for this comment. Additional data on nutrient values of specific food items were requested from the manufacturers and integrated into the software. We have described this in more detail in the methods section.

[Ref: Line 121] - Include participant characteristics (height, age, body mass, BMI etc.) and differentiate between the number of male and female participants included in the overall total of 81 participants for the study.

We have complemented the subject characteristics.
No need to disseminate that values are reported as 3 decimal points.

The sentence has been removed.

Please include BMI calculation formula.

We included the formula.

RESULTS

Please provide clarification of significance between carbohydrate intakes between the three groups.

The sentence has been revised to clarify any uncertainties. We now included

“pOMN-LOV” to present significant differences between omnivores and lacto-ovo-vegetarians, “pLOV-VEG” to present significant differences between lacto-ovo-vegetarians and vegans and “pOMN-VEG” to present differences between omnivores and vegans.

These terms have been included in the entire manuscript to give clear results.

Please provide clarification of significance between fat intakes between the three groups.

Please see our response to the previous comment.

Include absolute values and statistical significance values for dietary fibre content between group differences.

We complemented the absolute fiber intake values and p values for differences between the groups.

DISCUSSION

Written English inappropriate. Alternative phrase for "undersupply", please use term "insufficient".

We have exchanged the words.
[Ref: Line 389] - Written English inappropriate. Alternative phrase for "supply situation", please use phrase "Additionally, LOV was insufficient, especially for males...".

We corrected the sentence.

[Ref: Line 210 & multiple others] - Inappropriate use of the term "athlete" to describe subject population. Please refer to subjects as either "subjects" or "participants" since the volunteers in the study were recreationally active.

We adjusted the term in the whole manuscript.

Reviewer 2:

Characterization, dietary habits 1 and nutritional intake of omnivorous, lacto-ovo-vegetarian and vegan runners - a pilot study.

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The study was designed to compare nutrient intake of omnivorous, lacto-ovo-vegetarian and vegan recreational runners with energy and nutrient intake recommendations for general population from the German, Austrian and Swiss Nutrition Societies. Since many people is switching to a plant-based diet it is of interest to know whether vegetarian and/or vegan athletes are covering their nutritional needs. The authors’ main findings highlight that more than half of each group was not reaching the recommended energy intake, carbohydrate intake was below of that recommended in the omnivorous population whereas it was adequate in lacto-ovo-vegetarians and vegans, protein recommended intake was exceeded in all the groups, vitamin D and cobalamin intake in lacto-ovo-vegetarians and vegans depended on supplement use and that surprisingly for some nutrients as iron, the recommended intake was covered through food in female vegans while it was covered via supplements in female omnivorous and lacto-ovo-vegetarians. This study conclusion is supported by the data presented. Please refer to some general and specific comments below, that, in my opinion, would further improve the manuscript.

We appreciate your kind comments.

General Comments:

In my opinion, improvements in grammar and writing style are required. Please proof-read the document several times throughout before re-submitting.

The manuscript has been edited by a native speaker.
Specific Comments:

Abstract
L36: training sessions might sound better that training alone
Thank you for this hint. We complemented the sentence.

L41: include absolute values and p-values (when significant) relating to every result included
Absolute and p-values are added when significant.

L50: be specific when referring to the results regarding VEG
We have formulated the sentence more specifically.

L57: keywords should not include words included in the title
We have removed the key words that appear in the title and replaced them with: Recreational endurance athletes, plant-based diets, nutrient supply, vegetarianism, veganism, nutrient survey.

Background
L61: check writing style and grammar throughout this paragraph
The paragraph has been edited by a native speaker.

L62: nutritional form might not be the best wording
We removed “alternative nutritional form” to “alternative diet”.

L65: add "of the population" or similar after 10%
We complemented the sentence.

L72: associations with instead associations on
Thank you for this comment. We corrected the sentence.

L96: practice might not be the best word, consider change it (example: follow)
We have replaced “practice” with “follow”.

Methods
L125: no need to start with a capital letter after colon (:)  
Capital letters were replaced with small letters.

L128: no need to start with a capital letter after colon (:)  
Capital letters were replaced with small letters.

L130: rephrase last sentence  
We have reworded the sentence.

L139: check reference cited (37) as it's not the appropriate one  
Thank you for this comment. We checked the reference and have inserted the right one.

L155: change word surveyed  
We removed “surveyed” and included the word “examined”.

L156: describe BMI formula  
We included the formula.

L170: why SE? I'd rather see SD values  
In Figure 2 and 3 we previously have indicated standard errors. Since we now use SD values, we excluded SE in the entire manuscript.
L179: P should be p, as that's how it's reported in the results

This “p” is written in capital letters only because it is the beginning of the sentence.

Results

L185: should not be reporting similarity in weight, height or circumferences. In my opinion, it's enough to refer the reader to see the table or just report the mean+SD

That's a good point. We linked the sentence with the previous one.

L204: use was instead of were; males and females instead of male and female. There are more cases in which you should check the use of females/males instead of the singular form: female/male

Thank you for this comment. We replaced “was” for “were”. Since “male” and “female” refers to VEG, we believe that these words are correct. We checked the entire manuscript.

L230: consider changing the term: nutritional form

We exchanged “nutritional form” to “diet”.

L241: men had higher intake…it is not clear higher intake of what…please re-phrase

We complemented the sentence.

L258: it should read "two subjects" instead "two subject". Please check singular and plural forms thorough the manuscript.

Thank you for this hint. We corrected the wording and checked the entire manuscript carefully.

L296: "the" is not needed before zinc

We removed “the” from the sentence.
L300: is there a way to measure how much of that iron consumed came from HEM and not HEM sources? If so, it would be really interesting to see. I would strongly recommend differentiating between iron sources when evaluating iron ingestion from foods.

Thank you for this comment. That is an important point. Since no valid calculation of the iron species from heme and non-heme iron is possible from existing data on animal-derived foods, we have calculated the iron intake from plant- and animal-based foods. This has been supplemented accordingly in the methods and results (Table 4) and discussion. The results show that even omnivores and lacto-ovo vegetarians consume significantly more iron from plant sources (OMN: 7.44±2.79 mg, LOV: 10.7±4.33 mg) than from animal sources (OMN: 4.45±1.99 mg, LOV: 2.02±1.45 mg). We completed in the discussion that plant-based food sources contain non-heme iron which has a poor bioavailability of 1-5% compared to animal-based foods such as fish and meat where a high amount of iron (~70%) is bound as heme iron, which can be absorbed much better with 10-20%. Thus, the lower iron intake in OMN compared to LOV and VEG does not necessarily result in a lower status.

Discussion

L317: for the first time sounds too strong, you could say for the first time in German…
(describe your population)

We inserted “German recreational runners”.

L328: please consider rephrasing this paragraph and avoid the question mark, try to make it a statement

We have reworded the question into a statement.

L331: please add the word levels “athletes with general physical activity levels” or rephrase completely to make it more understandable

We have reworded the sentence.

L342: "source" instead of "sources"

We believe “sources” is correct in this context, since it refers to “carbohydrates”.

L354: "general fitness" instead of "the general fitness"

Done.
L368: "regarding to adequate fat intake" instead of "with regard…"

Done.

L431: if you add the iron sources consumed in the results, please add more discussion about this in the discussion

Since we have included animal and plant sources of iron, we have included this aspect in the discussion.

L446: "…with an intake below the reference range"

Done.

Conclusion

L468: when referring to the surprising advantages in the vegan population, please describe. In general, the conclusion should be rewritten and amplify more on the mean findings (example: information on fat intake, protein and carbohydrates as well as energy)

Thank you for this comment. We overworked our conclusion and included a description of the advantageous intake data of the vegan group.

References - Please check references throughout, in some cases the reference listed in the manuscript corresponds to the reference number on the list (example: the reference for the German, Austrian and Swiss Nutrition Societies [34] it's listed ad [37] several times)

We apologize for this mistake. We checked the entire manuscript on your hint and corrected the references.

Tables - Please refer to p-values the same way you are referring to them throughout the manuscript. Either all with the capital letter (P) or without (p)

We have adjusted all p-values with a small letter.

Figures - Please use SD instead of SE

We now depict figures 2 and 3 with standard deviation.

Additional changes:

Since the presentation of mean ± standard deviation may distort the results, we decided to present the data from Tables 3, 4 and 5 and the Additional files 1 and 2 as mean and 95% confidence intervals.
Since the German, Austrian and Swiss Societies of Nutrition adjusted the recommended intake for vitamin B12 in the meantime [1], we corrected the value from 3 to 4 µg.

References