Author's response to reviews

Title: The Effects of Dietary Fasting on Physical Balance among Healthy Young Women

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Author's response to reviews: see over
Response to Review Comments

Please find attached our response to how we have addressed the review comments on our manuscript entitled "The Effects of Dietary Fasting on Physical Balance." In this letter, we have responded to the comments of the reviewer in sequence. The reviewer’s comments are numbered and italicized to address all issues adequately and clearly. We thank you for the opportunity to revise our manuscript. We hope it is now suitable for publication in the Nutrition Journal. My co-author and I look forward to hearing from you.

Sincerely,

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Response to Review Comments

1. The abstract should be written according to instructions of the journal.
Response: Revised according to journal guidelines.

2. Last sentence: I do not believe that authors can draw conclusions and implications regarding falls prevention among the elderly from the results of the present study (it may however be included in the discussion section, in relation to suggested further work). I therefore believe that “and falls prevention to the elderly individuals” should be deleted here.
Response: Done.

BACKGROUND

3. The background section is just over 3 pages long. I believe it needs to be shortened and kept more to the point. Both the rational for doing the study, and what this study adds to current knowledge, need to be made clearer to the reader. For example, on page 4, second paragraph, the authors state that there are few studies on nutrition and balance and 4 references are given. The authors then state that more research is needed in examining the effects of fasting on balance. It is not clear why more research is needed in this field, and it is not clear why young women, specifically, need to be studied. Please include the rational for including young healthy women (to some extent this is mentioned in the method section, i.e., skipping breakfast) and also point out the differences between the present study and previous ones, and why the methods that you use are important (compared to other studies).
Response: We have weaved the rationale throughout the intro and consolidated again in the last paragraph to provide more clarity. As we have indicated, sex difference in balance is reported in the literature. However, studies examining fasting and balance have only involved men who are elite athletes or soldiers. Also, in the nutritional literature, studies have shown that fasting/skipping breakfast is common among young women. While the
The impact of fasting on cognition has been examined widely, there has been no other study examining the association between fasting and balance among young women.

4. Page 5, paragraph 2: “Although nutrition imbalance has not been identified as a risk factor related to balance impairments...” – isn’t the opposite stated on the previous page (“decrease in dietary intake negatively affects one’s ability to maintain balance”). Please clarify.

Response: We agree that nutritional imbalance has been shown to be related to balance impairments but not falls. We have now clarified this.

METHODS
5. Page 9, “static balance”: From the description here, it seems like subjects stood on one leg on the floor, keeping their balance as long as possible (seconds). The position (other leg in 90 degrees of flexion in the hip and knee joints) seems to be the same as reference no 1. However, in that study (1) a force platform was used, single-limb balance was measured for 25 seconds, and center of pressure variables were analyzed. Please re-write and refer to correctly.

Response: We have revised the text and added reference as suggested. Given the variability in the time element of the single limb stance test in the literature (e.g., 10, 25, 45 seconds, max to exhaustion), lack of studies research comparing the psychometric properties of these different time approaches, and the involvement of healthy young participants in our study who might achieve ceiling scores in the timed measure, we chose to do maximal single limb stance to exhaustion or termination as per study protocol to avoid ceiling effect possible with the limited timed assessment.

6. Page 9, “static balance, termination”: The authors state that “consistent with the test termination criteria reported in the literature...” but no references or reliability data are given. Please include this here, as this information is important to the reader.

Response: We have stated only the termination criteria established and used for this project.

RESULTS
7. Page 11: Please indicate (provide references if appropriate) whether “financial status”, “perceived health status”, and “physical activity” are methods that have been previously used and evaluated. Also, regarding regular physical activity, it would be of value to know whether this refers to sedentary or strenuous activities. Also, how can an average be “four to six days per week”? Please clarify and re-write.

Response: Regular physical activity was subjectively assessed based on participants self perception and was used only for descriptive purposes. We did not provide not obtain information on the intensity of the activities. The level of participation ranged from four to six days per week reflective of healthy and active participants. We have now shorted the information and clarified this in the text.

8. Page 13, postural response: A whole paragraph on postural responses, related to test termination criteria, is provided here and also in the discussion section. However, no data is given, which is essential. This data is required (see also comment above on the method for measuring postural responses).

Response: An additional table (Table 3) has now been added.
DISCUSSION
9. Page 14, first paragraph, last sentence: Again, from this statement, the rational for doing the study and what this study adds to current knowledge is not clear to the reader (see comment above in the background section).
Response: Rationale is reiterated.

10. Page 14, paragraph 2: Data regarding postural responses are required (see comment above). Also, “stopped due to sore leg” is introduced here, but not given in the method section. Please clarify.
Response: In the methods section, we have stated that we stopped the test when the participant voluntarily asked to stop for any reason such as sore leg. We have now clarified this in the methods section.

11. Page 17, line 2: From the design of the present study, and the subjects included, I do not believe that the authors can state that their study has implications for falls prevention in the elderly. This may, however, be a subject for further study.
Response: yes, we have suggested that future research examine the implications of fasting on falls among the elderly.

Minor compulsory revisions

TITLE
12. To better reflect the study I believe that “among young healthy women” can be added in the title, followed by the study design.
Response: Added as suggested.

ABSTRACT
13. Please include SD after mean age
Response: SD has been included.

14. “Background questionnaire” does not include information related to the questioned posed, but rather subject characteristics. I suggest “background questionnaire” is omitted in “Measures included”.
Response: From all the manuscripts we have published so far, it is typical practice in many journals to require the researchers to collect and report information related to the background characteristics of participants. As such, we have not incorporated this suggestion.

15. Omit “Even among young healthy adults” (line 4 f.b.) since only young healthy adults were included in this study.
Response: This phrase has been omitted.

BACKGROUND
16. Page 4, line 3: reference Tropp et al 1988 (6) is given here. I don’t believe that this is the original article on balance strategies. Please change reference if appropriate.
Response: We have now replaced this reference with a more appropriate reference -- Shumway-Cook and Woollacott (2007)’s book Motor control: translating research into clinical practice.
17. Page 4, paragraph 2, line 4: “… that a sex difference affects in the ability to maintain balance...”. Language not clear here, and some other unclear sentences are also found in the manuscript. I therefore believe some language corrections are needed.

Response: Revised to read as “sex differences in the ability to maintain balance” and “sex differences impact balance” in the two places in this manuscript.

18. Page 4, line 2 f.b.: Please include reference after the sentence on general characterization of fasting.


19. Page 5, paragraph 2: Please include reference(s) after “These symptoms are well-known risk factors for impaired balance and falls in the elderly population”.

Response: Three references have been included.

20. Page 6, line 2: Please include references after “The majority of these studies…”

Response: We have now included references 17-20 here.

21. Page 6, purpose of study: Delete “With the possibility the age and sex differences” as this is not related to the aim of the study (statement also unclear).

Response: We have now stated only the purpose and removed the “possibility of age and sex differences” which was leading up to the purpose.

METHODS
22. Page 6: Please indicate that no power analysis was conducted prior to the study (this is first mentioned in the dicussion section).

Response: yes, included now.

23. Page 7: What is “standard fasting/non-fasting protocol”? Has this been used and evaluated in previous studies so that reference(s) can be given? Please clarify.

Response: The fasting protocol used in the study was similar to the fasting protocol used in fasting blood tests used in the clinical settings. We have now removed the term “standard” from the text.

24. Page 8, “background questionnaire”: As the information here does not provide answers to the questioned posed, this can be moved to the method section, and Table 1 be referred to.

Response: We currently have this information in the methods section as the reviewer has suggested. The age range is included in the results so we have removed the repetition from here in the methods section.

25. Page 10, “data analysis”: “descriptive statistics were used to analyze…” – please re-write.

Response: Revised as requested.

26. Page 10, “data analysis”: “…foods consumed for breakfast was analyzed…” How was foods analyzed?

Response: In the preceding sentence we have indicated that food consumption was analysed using Food Processor. We have added the same information for breakfast analysis as well.
RESULTS
27. Page 10: Were all subjects University students? Seems so from Table 1, please clarify.
Response: Yes, the participants were university students. We have described the participants as university students.

28. Page 11. Information from Table 1 is also given in the text, which is not necessary (i.e., avoid repeating results).
Response: We have condensed this information to only provide key background and health information of the participants.

29. Page 12, paragraph 2: Some results seem to be repeated in the text here, and on the next page. Please see over and shorten.
Response: We have carefully reviewed these paragraphs and feel that we have not repeated the content. In the first paragraph, we have only described the performance of participants in the measures in fasted and non-fasted conditions. In the following paragraphs, we have reported on the postural response or compensatory mechanisms (stumble, use of arms etc.) used by the participants that led to the termination of the tests.

30. Page 13, line 2: Omit “…even among healthy young adults” as only young women were tested.
Response: Done.

DISCUSSION
31. Page 15, first paragraph: A discussion of the clinical relevance of the observed differences would be helpful here.
Response: Some more discussion is provided.

32. Page 17: I believe that the last sentence can be omitted.
Response: This last sentence has been removed.

Reviewer's report #2

1. WRITING STYLE
Response: The manuscript has been carefully proof-read now.

MAJOR COMMENTS
2. In several places throughout the paper, the authors suggest that similar studies should be carried out with elderly subjects (seniors, older adults etc.). It must be pointed out that the static balance test used in the present study, would be difficult and, in fact, dangerous for older adults. It would be necessary to have spotters (at least two per subject) to guarantee the safety of the older subjects. Additionally using the closed-eye tests would also be dangerous for many older subjects who suffer from vertigo or type II diabetes, or even osteoarthritis or osteoporosis.
Response: In present study, participants (young women) were included only if they had no health conditions that could be worsened by fasting or that could affect their ability to balance (diabetes, recent/chronic head injuries and/or lower extremity disabilities, low blood pressure, vestibular and/or inner ear problems). Also, static balance test has been used widely in clinical and research settings without any adverse effects or safety concerns in relatively healthy groups. In the present study, the research assistant who performed the test
was close enough to support any participant who stumbled. The reviewer raises very important safety concerns regarding this test when used with frail older adults and those with compromised balance. This cautionary note will be added in the discussion.

3. *Fasting, and especially missing breakfast can be dangerous for seniors suffering from type II diabetes, and no comment is made about this in the body of the paper and certainly not in the recommendations for further study. If an author recommends that his/her study be duplicated with different subjects, then it is important to point out any serious complications that may result from the methodology.*

**Response:** As indicated earlier, individuals with health problems such as diabetes were excluded in the present study. This exclusion criterion would be important for future research in this area as well.