Author’s response to reviews

Title: Potassium intake, skeletal muscle mass, and effect modification by sex: data from the 2008–2011 KNHANES

Authors:
Yuji Lee (yuji.lee@samsung.com)
Mirae Lee (mirae.lee@samsung.com)
Yu Mi Wi (bassara1000@naver.com)
Seong Cho (basara1000@gmail.com)
Sung Rok Kim (sungrok2.kim@samsung.com)

Version: 1 Date: 10 Jun 2020

Author’s response to reviews:

Re: Revised manuscript submission NUTJ-D-20-00144: “Potassium intake, skeletal muscle mass, and effect modification by sex: data from the 2008–2011 KNHANES”

Dear Olivia Wright,

Thank you very much for your email on May 31st, 2020, indicating that our manuscript should be revised and resubmitted for further evaluation in Nutrition Journal.

We are thankful for reviewers’ and your comments and suggestions. Enclosed you will also find the point-by-point reply to the review. We have made alterations in the text in order to appropriately address the concerns of the editors and reviewers. The changes that have been made are highlighted using yellow highlighted text in the revised manuscript.

We hope that our manuscript, in its current revised format, is significantly improved and hope that it is now suitable for publication in Nutrition Journal.

We look forward to hearing your decision.
Thank you for your consideration.

Sincerely,

Yuji Lee, MD, PhD
Authorship:

Please note, if your manuscript is accepted, you will not be able to change the authors or the order in which they are listed. If you wish to make changes to authorship before you submit your revisions, please reply to this email and ask for a 'Request for change in authorship' form. This form should be completed by all authors (including those to be removed) and returned to this email address. Please ensure that any changes in authorship fulfil the criteria for authorship as outlined in BioMed Central's editorial policies (http://www.biomedcentral.com/about/editorialpolicies#authorship). Once you have completed and returned the form, your request will be considered and you will be advised whether the requested changes will be allowed.

By resubmitting your manuscript you confirm that all author details on the revised version are correct, that all authors have agreed to authorship and order of authorship for this manuscript and that all authors have the appropriate permissions and rights to the reported data.

Please be aware that we may investigate, or ask your institute to investigate, any unauthorised attempts to change authorship or discrepancies in authorship between the submitted and revised versions of your manuscript.

OUR RESPONSE: Thank you for letting us know the rules about the authorship. All of us confirmed and agreed with the above rules.

Reviewer reports:

Reviewer #1

1. Please update references and ensure you are referring to the most recent evidence, as most of the cited articles and books were published before 2015 (including as much as 27/50 before 2010).

OUR RESPONSE: Thank you for your opinion. We updated references. However, some of the references could not be updated because we could not find adequate recent evidence. We hope you understand this.

2. Please ensure your introductory section adequately introduces your study and the reasoning behind inclusion of variables – there appears to be no reasoning given for variables presented in the work e.g. BMI, smoking status, number of days of weight training per week, physical activity, protein intake, total energy intake:

OUR RESPONSE: Thank you for your suggestion. The proposed methods to prevent a loss of muscle mass in the elderly are mainly protein intake and exercise. However, there have been little evidence of the effectiveness of other dietary approaches on muscle mass. Given any association between factors that may be associated with muscle loss, such as insulin resistance or mild metabolic acidosis, and the beneficial effects of
potassium on these factors, we sought to examine the association between dietary potassium intake and muscle mass. Furthermore, given that loss of muscle mass is different between men and women, we sought to evaluate the association of dietary potassium intake with loss of muscle mass according to sex.

We slightly modified introduction section.

For Table 1, we chose variables, given basic demographic data as well as a priori factors known to be associated with muscle mass loss and/or potassium intake including body size, physical activities, inflammation, smoking status, anemia, renal function, and intake. We don’t think that the reasoning behind inclusion of these variables should be explained in the introduction section because these variables are not main exposure or outcome variable. Instead, we cited some references that show the association between muscle mass loss and variables in the introduction section. They are reference 11–16.

3. In the methods section, it is important to indicate how your variables were measured, e.g. it should be emphasized how body height and weight were measured (e.g. objective measurement: height -&gt; stadiometer (or self-reported data?), weight -&gt; body analysis composition)?

OUR RESPONSE: Thank you for your suggestion.

Height and weight were measured directly by a trained investigator using a stadiometer and scale while the participants were wearing light clothing without shoes.

We added this in the method section as follows.

“Height and weight were measured directly by a trained investigator using a stadiometer and scale while the participants were wearing light clothing without shoes.”

4. Table 1 does not provide sufficient evidence for the study conclusions (e.g. see "Diabetes"). - &gt; "Subjects with higher potassium intakes tended to be men. Subjects with higher potassium intakes also had a larger SMI, higher protein intake, and lower prevalence of hypertension and diabetes."

OUR RESPONSE: Thank you for your opinion.

We performed the nonparametric test for trend across ordered groups by Cuzick. P for trend of diabetes across the groups was &lt; 0.001. However, as in your opinion, the difference in trend does not seem clear. Therefore, we omitted “diabetes” in that sentence.

“Subjects with higher potassium intakes also had a larger SMI, higher protein intake, and lower prevalence of hypertension”

5. Please discuss the limitations with self-report of physical activity.

OUR RESPONSE: Thank you for your suggestion.

Although the questionnaire was validated, the assessment of physical activity by self-reporting can lead to response bias, thus overestimating actual activity. However, even after the effect of physical activity as a confounding variable was adjusted in our study, the association between primary exposure and outcome was not affected.

We added this to the limitation section.
6. Further discussion about the implications of the results for future research is warranted.

OUR RESPONSE: Thank you for your opinion. We briefly added the recommendation for future research to the conclusion section as follows.

“We demonstrated a positive association of higher potassium intake with lower odds of low muscle mass for men but not for women. Based on our findings, future clinical trials are needed to establish not only a causal relationship between potassium intake and preservation of muscle mass and function, but also an effect modification on that association by sex. Moreover, in further studies, the use of more objective tools for assessment of variables such as potassium intake, muscle mass and function, and physical activity may be more helpful in proving the results of the study.”