Reviewer’s report

Title: Dietary Raisin Intake affects Gut Microbiota Composition in Adult Volunteers

Version: 0 Date: 20 Sep 2018

Reviewer: Dylan Mackay

Reviewer's report:

In this manuscript the authors report the findings of an exploratory study looking at the impact of daily raisin consumption for 14 days on the gut microbiome. The primary outcome measure listed on the clinicaltrials.gov website is a "Change in diversity of gut microbiota 16S rRNA gene sequences with regard to time" without a specific mention of what diversity score will be used. It used a pre-post design and recruited 18 participants who were in good health. In the 13 participants who completed the study no changes were seen in any of the diversity measures of the gut microbiome (Chao1, UniFrac, Shannon-Weaver, and Simpson index), which suggests that raisin consumption may not impact gut microbiome diversity overall, however with only 13 participants and no power calculation we do not know what size difference the study was likely to have been able to detect. Phylum level abundance was also not changed by the raisin consumption. Some individual OTUs changed after raisin consumption, however no correction for multiple comparisons were conducted because of the exploratory nature of the study. The manuscript was well written and clear, however there are numerous issues that should be addressed prior to publication. These are listed below with reference to the page and line number.

Abstract -in the methods it should say the study was a pilot study or an exploratory study
Page 3 line 36 to 39. The referenced papers used a raisin extract and not raisins
Page 5 line 11/12 Bowel excretion is not a term I had read before, would bowel movement or stool sample be more appropriate?
Page 7 line 9, 18 participants were recruited, data from 13 were reported, what happened with the 5 other participants, and explanation and a study flow diagram would be helpful
Page 8 line 14 to 19. Please remove the statement that says raisin consumption increased the relative abundance of Bacteroides etc, you cannot say there was a change if the change did not meet the threshold of significance you have set in your methods.
Page 9 line 45-48 please support the line regarding reduced risk of subclinical enteric inflammation and UTI with references.
Page 10 line 38 to 43, I am unconvinced that the OTU level changes may only be a conservative estimate of the impact of raisins. while the limited number of participants and the factors which contribute to your variability make it harder to detect an effect, it also increases the risk of seeing a difference based on chance, especially given there was no corrections for the multiple comparisons conducted.
Page 10 line 43 to 49. This sentence seems contradictory to me. You say your specific findings (I am assuming the OTU changes) cannot be extrapolated to other populations, but that raisin consumption likely changes microbial composition is generalizable, but none of the composition diversity or phylum level measures were changed in this study.
Page 10 line 49 to 54. I think the suggestion that the data from this study would indicate potential health benefits of raisin consumption is premature and goes beyond what the data support.

Conclusion. Similar to the comment above I am not convinced the results of the study can modify the fecal microbiota towards a more beneficial composition. This is due in part because the changes in the study were very minor if any, and the link between individuals OUT changes and health is also of lower quality.

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