

Reviewer's report

Title: Effect of a supplement rich in alkaline minerals on acid-base balance in humans

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Reviewer: Mara Z Vitolins

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Nutrition Journal

Title: Effect of a supplement rich in alkaline minerals on acid-base balance in humans.

Type of paper: Research

This paper describes the effect of a multi-mineral supplement and regulation of acid-base balance utilizing measures of blood, urine, and saliva pH. The research presented by the authors is novel and well defined. Most of the changes suggested are minor.

Below are edits and revisions the authors might consider:

Abstract

Results section, sentence beginning "Following longer-term supplementation" drop the words, " both the"

Results, last sentence, change "nutritional protocols" to "food records" and remove the word " any" from in front of "dietary change".

Background

Page 3, line 3, suggest changing the word, "uptake" to "intake".

Please provide a reference for the statement " Hypercalcuria my have several pathological consequences: amongst others, it have been hypothesized that it contributes to the pathogenesis of osteoporosis."

Page 3, line 10, please add an " s" to provide.

Please provide a reference for the statement "Previous investigations have reported beneficial effects of dietary potassium and potassium-rich foods on bone health.

Page 3, line 13, change the word "uptake" to "intake".

Page 3, line 14, add an "s" to outcome.

Page 3, lines 15-18, consider rewording the sentences slightly... "In animal models, it has been shown that supplementation with alkaline minerals neutralizes diet-induced metabolic acidosis (9) and is associated with higher bone mass. In addition, potassium bicarbonate has been shown to reduce calcium excretion in postmenopausal women in a dose dependent manner (10).

Page 3, line 20, add the word " intake" after "bicarbonate".

Page 3 line 25. add the word “reduce” after the word “thereby” and take off the “s” from the word “diseases”

Page 4, line 2, reword sentence to read “To our knowledge, there is very limited data...”

Page 4, line 5, remove the information about the supplement and place it in the Methods Section.

Page 4, line 6, Suggest the following wording..“chronic regulation of acid-base balance through surrogate markers of blood, urine, and saliva pH (16).

Page 4 lines 8-9, Remove lines 8 and 9 and place them in the Results section.

Page 4 line 10, “Subjects were excluded if they showed (had a history?) of acute or chronic information?” Was a measure of inflammation done to screen out these subjects or was it based on subject self-report? Please clarify. If measures were taken, please describe them.

Page 4 line 13, Suggest the following wording..”Participants were told to maintain their lifestyle behaviors..”

Page 4, line 16, Suggest the following wording ..and all subjects provided written informed consent.

Page 4, line 17, add information about the MMS here (Table 1)

Figure 1, is a bit confusing, if might be less confusing if the experiments were listed or described as study visits, i.e., baseline -SV1, study visit 2-SV2, Close out visit- SV3? Also adding a label above each column may help clarify? Same for Table 2, change Experiment to study visit?

Page 4, line 18, suggest, ..”base excess were measured at baseline (or Study visit 1)..”

Page 4, line 20, suggest....”subjects completed standardized food records”

Page 4, line 23, remove the word “by” and add “with”

To insure standardized data collection were the participants trained for how to test the pH in their urine and saliva? If yes, please include that information or training information here. Did participants have to interpret the color of the pH paper, could there be any error in that participant reported measure?

Page 4, line 24, suggest...”During study visit 2 or SV-2, study participants...

Page 4, line 26, suggest changing “nutrient uptake” to “food intake”.

Page 4, line 26, suggest the following “Again, pH, pCo₂, bicarbonate and base excess were measured hourly...”

Page 5, line 2, suggest changing “nutritional protocols” to” food records”

Page 5 line 8, suggest adding a sub title: “Statistical methods”

Page 5, line 14, suggest changing the word “pathological” with “abnormal”

Page 6 line 17, suggest changing the words “could be” to “were”

Page 6, line 20, add a comma behind “small” and “significant”

Page 6, line 21, suggest the following..”one hour after consumption of the supplement”

Page 7, line 2, suggest..” The data from the food records show ...”

Page 7, line 19, suggest dropping the “s” from minerals and adding the word “supplementation behind the word “mineral”

Page 7 Line 19, suggest the following wording “Of course, change in dietary behaviour, such as adding more fruit and reducing animal protein intake, should always be the first option.

Page 7 line 22-24, suggest the following wording..”However, we believe that the examination of the same measures with and without supplementation and including acute and chronic supplementation with dietary intake staying stable may, along with the unequivocal results, partly compensate for this weakness.

Page 8, line 1, suggest this wording..long term increase in urinary pH after 1 week of supplementation.