Reviewer's report

Title: The Role of Meal Viscosity and oat beta-glucan Characteristics in Human Appetite Control: A Randomized Crossover Trial

Version: Date: 8 April 2014

Reviewer: Sabine Ibrügger

Reviewer's report:

- Major Compulsory Revisions

- The trial is registered at ClinicalTrials.gov under the number NCT1666574. However, the registration describes another trial comparing the effect of two different oat-based cereals (250 kcal) on subjective appetite and ad libitum energy lunch. The correct clinical trials registration number should be stated and clinical trials registration should be updated.

- Introduction

  o In the manuscript a previous study (in review) is cited in which the same breakfast cereals are compared, merely in a slightly larger portion size (+100 kcal). The authors may refer to the rationale of testing the same products in two slightly different portion sizes and publish this separately. This should be addressed more clearly in the objectives of the introduction.

  o The rational for using the selected products is not completely made clear. Is RTEC thought as a control product? Why was a smaller amount of beta-glucan administered than in the other two products? This renders the results a consequence of a combination of beta-glucan characteristics and content, rather than comparing only beta-glucan characteristics. It might have been sensible to compare products containing equal amounts of beta-glucan and achieving iso-caloric meals by adding another food ingredient to the SO and IO meals. In the introduction the rationale for using RTEC should be stated, rather than merely noting that it was also used in another study.

- Methods: Subjects

  o Prior to study start participants were screened for a number of criteria. What was the reason for this comprehensive screening as most of these data are not presented in the manuscript?

  o No detailed description of inclusion criteria of participants is given. Please state the precise inclusion criteria (e.g. BMI, age (was there an upper limit), etc.), similarly as done with the exclusion criteria.

  o Please describe the recruitment procedure of participants.

- Methods: Study Design

  o Please add the location of study conduction.
Please refer to instructions regarding liquid consumption before and during the examinations. Were there any restrictions?

Please refer to whether alcohol consumption was restricted the day prior to examinations.

In the results section it is stated that no adverse events were observed. However, assessment of adverse events is not described in the methods section. Please include this in the methods description.

- Methods: Statistical analyses

Did authors attempt to adjust statistical analyses for gender, BMI (large SD) and age as well as possible symptoms of cold/ allergies? If so, please state in the statistics paragraph. If not, please state the reasons for not including these co-variables and covariates.

Study participants were a mixed population regarding BMI, including normal and overweight participants. Appetite sensation may differ between normal weight and overweight individuals. It may be sensible to conduct sub-analyses looking at the two groups separately.

- Results: A description of the proportion of normal weight and overweight participants may be interesting.

- Results: Meal viscosities

It is referred to “initial” and “subsequent” viscosity. Please define this (which time points).

Figure 2 and 3 may benefit by being displayed as either bar plot or boxplot, rather than a combination of the two. Further, in figure 2 it should be made clear which scale (low and high viscosity values on y-axis) refers to which condition (initial and subsequent viscosity).

- Discussion:

In the discussion a lot of focus is put on the content of sugars and protein contained in the treatment products. Although relevant, this should be shortened and more focus should be put on discussion of beta-glucan content and properties. Compare also in more detail to the existing literature on beta-glucan and appetite.

As breakfasts were different in beta-glucan content, it is difficult to conclude that differences in effects are due to physicochemical properties. Address more differences in beta-glucan content between the oatmeal treatments and RTEC.

Authors may refer to possible reasons for the greater initial viscosity found for IO compared to SO.

- Minor Essential Revisions

Table 1: In the description of table 1 “race” is named, but not listed in the table. Please add this information to the table or delete it in the description. Further,
a footnote standard deviation is noted with an asterisk, without using this in the table. Please remove the footnote.

- Table 2: It may be sensible to present description of product composition (table 2) in the methods section rather than the results part.

- Figure 1 should include units. Furthermore, “Time point” should be spelled in a consequent manner.

- Discretionary Revisions

- It might have added to the study also to assess ad libitum energy intake after 4h following the breakfast meal, in order to support findings from visual analogue scales.

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests.