

## **Author's response to reviews**

**Title:** Effect of Rye Bread Breakfasts on Subjective Hunger and Satiety: a randomized crossover trial

### **Authors:**

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**Version:** 2 **Date:** 6 August 2009

**Author's response to reviews:** see over

**Reviewer's report**

**Title:** Effect of Rye Bread Breakfasts on Subjective Hunger and Satiety: a randomized crossover trial

**Version:** 1 **Date:** 29 April 2009

**Reviewer:** Jonathan Hodgson

**Reviewer's report:**

This study has been conducted to investigate the effects of rye breakfasts with varying levels of dietary fibre on appetite over 8 h. The results show that rye compared to wheat reduces self-reported ratings of appetite. A high bran rye bread appeared to have the greatest impact. However, it is concluded that there were no differences between any the rye breads (with differing levels of dietary fibre). It is unlikely that the study was powered to detect smaller differences which may be present. To attempt to determine whether there were significant differences between the rye breads, I suggest using a more appropriate and powerful statistical procedure to analyse the data. With multiple treatments in the same individuals and repeated measurements over time, using the mean and comparing using paired t-test is not the most appropriate procedure. Differences in self-reported appetite ratings for each of the time periods after breakfast can be compared using random effects models. In these models participant can be treated as the random effect and treatment (type of breakfast), period and treatment order can be treated as fixed effects. Models can also include a time by treatment interaction term to assess if the slopes of the curves differ. For example, it appears that the greatest impact of rye fibre is early and that this diminishes over time. This reanalysis may alter some of the discussion and conclusions.

**Level of interest:** An article of importance in its field

**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

### **Authors replay - June 2009**

The results have been reanalysed according the suggested model, adding time as a fixed effect. The data is now analysed for the morning and the afternoon, respectively, instead of the different time intervals. This means that previous table 5 and 6 are no longer valid and the new statistical evaluation from milling fractions study is now presented in table 5. The conclusions for the second part of the study remained unchanged. Some supplementary conclusion could be drawn from the first study part, described under results section.

The following explanation of the powering of the study has been added to the manuscript under Materials and Methods:

*A total of eleven participants is the minimum number to detect a difference of 10 mm in hunger ratings over 4.5 h<sup>1</sup>]. Smaller differences in hunger may be less relevant in real life and we chose not to power the study to detect differences much below 10 mm.*

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<sup>1</sup> Flint A, Raben A, Blundell JE, Astrup A: **Reproducibility, power and validity of visual analogue scales in assessment of appetite sensations in single test meal studies.** *Int J Obes Relat Metab Disord* 2000, **24**:38-48.

## Reviewer's report

**Title:** Effect of Rye Bread Breakfasts on Subjective Hunger and Satiety: a randomized crossover trial

**Version:** 1 **Date:** 11 May 2009

**Reviewer:** Anna Linko-Parvinen

### Reviewer's report:

#### Major Compulsory Revisions

**There was some discussion about the differences in the results in the two study parts as well as the results from this study compared to previous studies. However, I would like to see more discussion about the effects of satiating properties of rye at different time points in the two study parts and the differences in hunger, satiety and desire to eat seen in the Milling fractions study.**

- 1. Why were the effects different at the same time points in the two study parts? How do you explain the 1 h difference in the significant effects on satiety in these two parts of the study (significant effects at 8.30-12 in the Milling fractions study and at 8.30-11 in the Dose-response study)?**
- 2. In the Milling fractions study, why there were the significant effects of rye bran on satiety and desire to eat, but not on hunger, seen at 8.30-10 ? And why does the effect of sifted rye flour on desire to eat appear only until 8.30-12 and not previously as is seen with the other fractions?**

### Authors replay -- may 2009

Different results in the appetite parameters are common<sup>2,3,4</sup>, and may be expected in this type of studies.

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<sup>2</sup> Juvonen KR, Purhonen AK, Salmenkallio-Marttila M, Lähteenmäki L, Laaksonen DE, Herzig KH, Uusitupa MI, Poutanen KS, Karhunen LJ. Viscosity of oat bran-enriched beverages influences gastrointestinal hormonal responses in healthy humans. *J Nutr.* 2009 Mar;139(3):461-6. Epub 2009 Jan 28.

<sup>3</sup> Cani PD, Joly E, Horsmans Y, Delzenne NM. Oligofructose promotes satiety in healthy human: a pilot study.

*Eur J Clin Nutr.* 2006 May;60(5):567-72.

<sup>4</sup> Howarth NC, Saltzman E, McCrory MA, Greenberg AS, Dwyer J, Ausman L, Kramer DG, Roberts SB. Fermentable and nonfermentable fiber supplements did not alter hunger, satiety or body weight in a pilot study of men and women consuming self-selected diets. *J Nutr.* 2003 Oct;133(10):3141-4.



## **Minor Essential Revisions**

**1. It would be nice to see the two parts of the study (i.e. The Milling fractions study and Dose-response study) explained in the Abstract Methods part. Now they appear a bit suddenly in the Results part.**

We don't understand this comment. The following description is included in the abstract;

*The study was divided into two parts. The first part (n=16) compared the satiating effect of milling fractions of rye (bran, intermediate fraction (B4) and sifted flour), which were included in iso-caloric bread breakfasts. The second part (n=16) investigated the dose-response effect of rye bran and intermediate rye fraction, each providing 5 or 8 g of dietary fibre per iso-caloric bread breakfast.*

**2. On page 4 I would prefer the whole grain rye dietary fibre components to appear in a descending order (fructan after arabinoxylan).**

The order has been changed in the manuscript according to the suggestion.

**3. It would be better to show participant characteristics (now in Table 4) in Table 1 and to refer to that table in the Materials and methods part where participants are described.**

The change has been made in the manuscript according to the suggestion.

**4. Is it necessary to show Figure 3? I think the data is clearly shown in Table 6 and the figure does not give any additional information.**

After the new statistical evaluation of the results according to reviewer 1s suggestion the data are only presented in figures and the statistical evaluation of the first study in table 5

**5. I think Figure 1 could be removed. All the information shown there is clearly explained in the text in Materials and methods study design.**

We agree and figure 1 has been removed.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**  
I declare that I have no competing interests.