Reviewer’s report

Title: No effect of a whole grain diet on the antioxidant capacity of humans

Version: 1 Date: 11 September 2009

Reviewer: Agneta Andersson

Reviewer’s report:

Major comments
There is today a need to perform randomized controlled trials, investigating the health effects and mechanism possible to explain health effect of whole grain. In addition it is important to publish findings even if they are negative. With this background, the present study is very important with a well defined question. Three methods are used to give a broad picture on antioxidant status which increases the validity of the study. However, there are several limitations in current manuscript. See comments below.

Major Compulsory Revision:
The dietary intervention period seems rather short and do not include any washout period. From my point of view these are shortcomings, not at all discussed by the author. The power of the study needs therefore to be discussed and to emphasize if sufficient. Is there any risk for type II errors or not? In addition, the statistics have to be clarified regarding how possible carry-over effects have been taken care of concerning the cross-over design. Also the size of the group studied needs to be motivated. The intervention includes six to eight servings of whole grain which seems adequate in this kind of study. However, the definition of wholegrain products and servings used has not been specified. Furthermore, the food record used and dietary monitoring is insufficient presented. Finally, the manuscript is a bit disorderly and data, including tables and figures, has some shortcomings (for
more detail see minor comments), making it difficult for the reader to follow the methods and interpret data in an accurate way.

Line 4: The title of the study should include information indicating that this a short intervention period based on young healthy humans. That should give a more accurate first picture to the readers.

Line 53-54: Please state that the figures regarding whole grain consumption (and recommendation) is from US.

Line 93: no washout period – see major comment. May it influence the results? Should be discussed.

Line 96: "six to eight servings of whole grain” Please describe the definition of a serving and support with a reference.

Line 99: Commercial wholegrain products used – what definition was used? Was there any lowest level of whole grain proportion in the products used?

Line 100: “compliance to the diet was monitored throughout the study” How was this done? Please explain.

Line 102: The food record method should be described better in the method section as well as how the nutrient calculations have been done. Some of this is explained in results, should be moved here. (See also comment below regarding line 219).

Line 204: This text explains the reason why lipoprotein levels are measured. While this is the method session, you expect the measurement methods to be described instead or at least give a reference to the method used.

Line 213: Statistical method insufficient described, see major comment above. I suggested you present SD instead of SEM.

Line 219: A detailed diet record for three consecutive days during both diet periods was used. Please specify. Was this a weighed or an estimated food record? Was both week-end days and week days included? Were dietary supplements included or not?
Information of dietary analysis method is expected to be presented in the method section, not in results.

Line 282: Results from serum cholesterols level – Data not shown? If so, this should be stated, or data may be included.

Tables 1-4:
Please explain better in the title exact what you mean by “Diet treatment”.
Suggest you change to: “Mean macronutrient composition in the daily given cereal products” (for table 1 and so on).
If those figures are calculated based on six or eight servings should also be stated.

Figures 1-4: Please state p-values for comparisons made between the groups together with an explanation as subscription.

Line 300-305: Those sentences are difficult to follow, probably because you use the term diet treatment only for the cereal product given in addition or not to the habitual diet. Habitual diet could be misunderstood for being the diet eating before enters the study.
Therefore those terms has to be better clarified. See suggestion below, comments on tables.

Minor Essential Revisions:
Line 28 and Line 50:
Diabetes should be specified as type 2 diabetes.

Line 43: Instead of “antioxidant status” stay consequent to the term “antioxidant measures” as you use in the result (line 42). In the manuscript several different world for antioxidant capacity is used: measures, status, activity, and potential. I suggest being more consequent, and stick to only one term. Decide which you think is most accurate.

Line 74: …grains may be protective and…. Protective against what? May be obvious but should be declared in the text.

Line 247-279 and in discussion: Since you compared measurements at the end of both diet periods, it would be more appropriate to use the term “higher” and “lower” instead
of
“increase” and “decrease”. Is it correct that you have no baseline data and have therefore not
analyzed differences within respectively diet period against each other? Please clarify.

Tables and figures:
Table 1: 309 kJ and 320 kJ seems not correct? Suppose it should be 3090 kJ…
Table 3: 936 kJ and 947 kJ seems not correct. Suppose it should be 9360 kJ…
Table 1-4: Suggest the layout of the tables change in a way that the diets groups “whole
grain” and “refined grain” is at the head of the table, horizontally, and the
macro/micronutrients in columns on the left, vertically. It will make it much easier
to follow.

Discretionary Revisions:
Line 32: I suggest you call it a “dietary intervention study” instead of a “feeding
study”.
It seems more appropriate for this kind of study.
Line 68: Instead of “Whole food research”, I suggest you use “dietary
studies/investigations”.
Line 81: suggest you write “alcohol” instead of “ethanol” when you talk about
drinks, since
this is more of a dietary context instead of chemical context.
Line 315 and 339: “Whole food research”, see comment above line 68.

The statistics have to be clarified regarding how possible carry-over effects have been taken
care of concerning the cross-over design.

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 have no competing interests.