

Reviewer's report

Title: Soy foods have low glycemic and insulin response indices in normal weight subjects

Version: 1 **Date:** 18 April 2006

Reviewer: Paolo Colombani

Reviewer's report:

The main aim of the study described in the present manuscript was to measure the glycemic index (GI) and insulin index of selected soy food products. The aim is, therefore, in agreement with the FAO/WHO expert consultation report on carbohydrates in human nutrition, which recommends adopting the concept of glycemic carbohydrates.

However, there are several major and minor points that need to be addressed before publication of the current manuscript can be considered.

Major Compulsory Revisions

The title of the manuscript ("Soy foods have low glycemic and insulin response indices") suggests that the results obtained in the study can be attributed to the soy content of the food tested. However, in table 1 and 2 no information about the soy content of the food is provided.

1. The amount of soy used to manufacture the food tested in this study should be provided (?Method section). Otherwise it is not possible to judge if or to what extent the results obtained can be attributed to the soy component of the food.

According to the Instructions for Nutrition Journal authors "Reports of clinical research should, where appropriate, include a summary of a search of the literature to indicate why this study was necessary and what it aimed to contribute to the field". This should be done avoiding excessive referencing.

2. The use of 69 references with an original research report is pretty excessive. It is not necessary to quote most of the original research articles to provide a summary of the relevant literature. This can be done by referencing some of the recent reviews on the topic. The references used in the current manuscript should be reduced to a total of about 20 of the most relevant articles (see also comment no 7).

In order to obtain reliable GI values of carbohydrate containing foods, it is necessary to use a standardized methodology for the GI measurement. The FAO/WHO expert consultation has, therefore, recommended a standard GI methodology in their report published in 1998, and recently this recommendation has been updated by Brouns et al (Nutr.Res.Rev. 18:145-171, 2005).

3. It is stated on page 5 (Methods) that the current study was conducted using internationally recognized methodology (referencing the FAO/WHO report), validated among others by a large multicenter study (referencing Wolever et al. Eur.J.Clin.Nutr. 57:475-482, 2003). In the FAO/WHO report it is recommended to use the incremental area under the curve (IAUC) for the calculation of the GI and the GI was calculated accordingly in the interlaboratory study by Wolever et al. However, on page 7 last line it is stated that the area under the curve (AUC) was used for GI calculation in present manuscript, which is not in accordance with the recognized methodology.

Furthermore, the methodology validated by the interlaboratory study refers to an amount of 50 g available carbohydrates with the reference and test food. In the present study portions were served containing 10 g net carbohydrates (Exp. 1) and 25 g (Exp. 2).

Thus, it is 1) not correct to use the term GI for the glycemic responses obtained in the present study and 2) not correct to state that the study was conducted using internationally recognized

methodology. The term "glycemic index" used to describe the glycemic response measurement with this study can, therefore, not be used as long as the AUC calculations are not replaced by IAUC calculations.

The GI methodology review by Brouns et al (Nutr.Res.Rev. 18:145-171, 2005) recommends to use portions containing 50 g of available carbohydrates for GI measurements and states that for foods with low carbohydrate it is justified to lower this amount to 25 g. In Experiment 1 of present study a portion was used that contained only 10 g net carbohydrates. Since an amount of 10 g of available carbohydrates is neither recommended by the FAO/WHO report nor by the GI methodology review, the authors need to provide evidence that such a low carbohydrate amount is suitable to reliably measure the glycemic response/GI. If no evidence can be provided, the results of Experiment 1 can not be reported under the term "glycemic index".

4. On page 7 line 1 it is stated that the experimental method used in the current study has been previously described (referencing Chan et al Eur.J.Clin.Nutr. 55:1076-1083, 2001). However, since Chan et al used portions that contained 50 g available carbohydrates (in contrast to 10 g or 25 g used in current study), which represents an important part of the experimental method, it is not correct to state that the current study was done as described by Chan et al.

According to the GI methodology review by Brouns et al, glucose analysis methods with a CV > 3% should not be used for scientific purpose. Accordingly, information about the glucose determination is crucial to judge its feasibility for the GI assessment.

5. Information about the glucose analysis should be extended on page 7. The CV of the method used should be mentioned and information about the differences of the duplicate measurement should be given. When measuring many blood samples the glucose values of duplicate measurements sometimes diverge greatly (more than the CV of the assay). With how many duplicates did this happen? What was the procedure with these cases? Third measurement? The extensive discussion of the literature related to a particular topic represents a necessary part of a review article. However, in an original research article the discussion should focus on the interpretation of the results obtained by comparing them with relevant data from the literature. An extensive review of the literature has to be omitted.

6. The discussion from page 11 last paragraph until and including page 14 first paragraph should be reduced to maximum one paragraph shortly discussing the pros and cons of the GI and GL concept. Since the article is concerned about the health effects of soy, both the potential positive and negative effects of soy consumption should be discussed. This is only very briefly done on page 14.

7. The second paragraph on page 14 could be somewhat extended by discussing the potential positive but also potential negative health effects, such as the catabolic effect of soy protein on nitrogen balance (Bos et al J.Nutr. 133:1308-1315, 2003), which is usually omitted when discussing the health effects of soy.

Minor Essential Revisions

8. On page 4 the second paragraph starts with the statement that high GI/GL diets have negative health effects. However, in the following two sentences it is stated that the risk for diseases might be increased. This inconsistency should be clarified.

9. Page 5 1st paragraph: the abbreviation II for insulin index is used although it has not been previously defined (definition is on page 8).

10. Page 5 1st paragraph: the information about the market is missing (US market?)

11. Page 5: the country name of the Ethics Committee is missing.

12. Page 5 1st line of Study Subjects: no capital E with Experiments.

13. Same line on page 5: What denotes the age range mentioned (18-45 y)? Absolute age range or 95 % CI range? The age ranges of the subjects in the two experiments (19.9-25.7 y; 20.3-26.9 y) are not in agreement with the age range of 18-45 y. This should be clarified.

14. Page 5 somewhere under Study Subjects: the information about the informed consent of the subjects is missing (see Editorial Policies of the Instructions for Nutrition Journal authors).
15. Page 6 1st paragraph: no indication is given about the BMI range. Absolute range?
16. On page 6 2nd paragraph net carbohydrates are defined as total carbohydrates-other carbohydrates-fibre. Since neither 'net carbohydrates' nor 'other carbohydrates' are commonly used terms, the authors should provide a definition of these terms.
17. Page 6 2nd paragraph: the country name of the company providing the glucose powder is missing.
18. Page 6 2nd paragraph: "Weights and nutrient contents..." should be changed into "Mass and nutrient contents...", since weight denotes a force with the unit Newton. The measure with the unit kg is 'mass'.
19. Page 6 2nd paragraph: The composition of the test food in table 1 & 2 should be also given in nutrient per 100 g of product to allow for a general comparison among the different foods tested and with foods in general.
20. Page 6 last paragraph: it is stated that reference and test foods were served with 250 g water. However, in table 1 and 2 the amounts of water range from 0 to 500 g. This inconsistency should be clarified.
21. Page 7 2nd paragraph: the abbreviation after the company name should be GmbH with capital H at the end.
22. Page 8 2nd paragraph: AUC was already defined in the 1st paragraph of page 8.
23. Page 9 last paragraph: How was the correlation between the insulin and glucose response curves calculated? No information about correlation analyses is given in the Statistical Analyses section and the curves on figure 1 do not look particularly 'correlated' to the curves on figure 2.
24. Page 9: The term 'Non-low-carbohydrate' looks pretty odd. It is suggested to change it into high carbohydrate or medium carbohydrate, according to what is more appropriate.
25. Page 30&31, Figures: Information about the significant differences between the foods should be provided with the figures.
26. Page 32&33: The term weights should be changed into mass.
27. Page 34: Information should be given about the amount of carbohydrates used in the portion to assess the glycemetic response.
SEM is not defined in the footnote of the table.
A reference for the GI & GL categories is missing.
28. Figure 2 & 3 & 4: "...Shakes" with no final s.

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

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.