Reviewer's report

Title: The effects of four hypocaloric diets containing different levels of sucrose or high fructose corn syrup on weight loss and related parameters.

Version: 1 Date: 5 February 2012

Reviewer: Stijn Soenen

Reviewer's report:

The manuscript describes a study comparing either sucrose or HFCS at ‘normal’ population levels, i.e. 25th and 50th percentile population fructose intake levels, on potential effects on body weight and body composition before and after 12 week hypocaloric diets including prescribed exercise, i.e. fitness walking program, in a free living environment, with a control group receiving prescribed exercise only.

Major Compulsory Revisions

Introduction

1 There are more animal studies described in the literature that compare HFCS with other carbohydrates.

2 Lines 34-35: It is still under considerable debate in the literature if a specific macronutrient composition of a diet during a negative energy balance has beneficial effects, e.g. there are several studies presented in the literature that indicate the importance of protein over carbohydrate and fat in an energy restricted diet to achieve successful weight loss and weight maintenance thereafter.

3 Line 66: Why was chosen to compare HFCS and sucrose at intake levels of the lower 50% of population fructose intake? If HFCS and/or sucrose are hypothesised by researchers to have a role in the obesity epidemic, is it not expected that obese individuals’ fructose intake is at the higher level of population fructose intake?

Methods

4 Line 73: Please describe the double blinding procedure, e.g. did subjects of the control group have a possibility to talk to subjects of other groups?

5 Line 85: Please describe how physical activity level (amount of exercise) was measured.

6 Lines 100-101 and 103-105: Please insert the references. Against what technique has the methodology been validated and what was the outcome.

7 Line 116 and 154: Why did the control group not receive a similar energy restriction as the intervention groups? What is the scientific novelty of comparing four intervention groups receiving a hypocaloric diet + prescribed exercise against a control group of prescribed exercise alone? So why is there not a
control group with the same energy restriction and why is the possible increase in energy expenditure (exercise) not measured when body weight and body composition are the primary outcomes, especially when other forms of exercise besides the prescribed ones where not prohibited. How where data of the ‘record information on daily physical activity’ used to calculate a physical activity index or energy expenditure, and was this recording method validated and against which technique? Line 159: Was this progressing of exercise from 3 to 5 days a week consistent for all individuals or all groups? If not exercise prescription was not standardized between groups which could have influenced the primary outcomes body weight and body composition.

8 Line 118: How was the amount of 10% or 20% of HFCS or sucrose calculated per individual?

9 Line 136: If energy intake was individualized and fructose amount was standardized between groups at two levels, how can all subjects consume a comparable amount of fructose if there is arrange in baseline body weight, height and age? Please present the mean and SD and range of fructose intake between all groups. Was actual fructose intake measured during the intervention? The control group consumed their usual diet, how much fructose did they consume? Line 180: How was milk compliance measured? What were other sources of Vitamin D and Ca in the prescribed diet? Was ‘compliance’ to the protocol only measured at the end of the study at 12 weeks?

10 Lines 164-170: Were data corrected for multiple tests, which post-hoc analysis has been used? Why where baseline values not used as covariates in the between group analysis?

Results:

11 Line 176: How was compliance measured?

12 Line 177: Please present drop-out rates in more detail, how many after what moment in time, baseline BMI, body composition, ... What are the results of an intention to treat analysis? Please discuss the possible reasons for this high amount of 85 (35%) drop-outs.

13 Line 184-185: Please present the decrease in energy intake for all groups as average of individual changes. How can this decrease in energy intake be consistent for all 5 groups if the 5th group did not receive energy intake prescription and the other four a prescription of a decrease of 500 kcal!? Does this indicate that there is no effect of the prescribed energy restriction because all groups decreased food intake at a similar rate, due to the other prescriptions that were the same in all groups, e.g. exercise?

14 Line 189: Please describe in detail which groups differed in which outcome measures in the post-hoc analysis, e.g. group X had a larger decrease in body weight compared to group Y after 12 weeks!

15 Line 199: Please describe the background of these outcome measures in the introduction.

Discussion
A lot of the discussion belongs into the introduction, e.g. Lines 221-262.

Line 212: How much fructose has been consumed from sources other than the added HFCS or added sucrose in the prescribed diets?

Lines 214-215: ‘...normal population intake levels of added sugars...' compared to?

Line 216: ‘...well designed...' The choice of the control group to answer the research question is questionable, it is not clear which method/biomarker has been used to measure compliance of the prescribed diet/prescribed exercise/consumed HFCS or sucrose in the diet and in the supplements, the study has a lot of drop-outs without intention to treat analysis, the results are briefly presented, e.g. post-hoc analysis is not clearly described and presented.

Author Contributions:

Please describe the scientific input of authors DK, SP, VN and ZY.

Figure 1:

Why is the control group not depicted? The symbol '*' is not visible in the figure. The legend and axis titles are unreadable.

Table 1:

Were all measurements measured at an accuracy level of 0.01?

Table 2 and 3:

Post hoc analyses are not presented. The time effect (different than baseline) presented with ‘*’ is of lower interest than the time x group interaction including post-hoc group differences.

Level of interest: An article whose findings are important to those with closely related research interests

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