Reviewer’s report

Title: Poor ability to resist tempting calorie rich food is linked to altered balance between neural systems involved in urge and self-control

Version: 2
Date: 11 June 2014
Reviewer: deniz atalayer

Reviewer’s report:

MAJOR REVISIONS
1) RESULTS
Table 1 (last paragraph)
“However, there was a significant gender difference in consumption of low calorie food per 1000 kcal (t(28) = 2.76, p < .01), with females reporting more consumption of low calorie food per 1000 kcal (3.0 ± 1.6) than males (1.6 ± 1.1).”

If this is the case, this either means that the females practice the “cognitive restraint” more than males or simply female’s energy needs are significantly lower than males. In any case, this possesses a problem for the interpretation of your data if we combine these two intrinsically two groups together in the analysis. They should control for gender.

Controlling for age, and explaining why they controlled for age, is not any more important than controlling for gender and explaining it. If anything, it could be more important factor regarding the brain activation, and energy metabolism and eating habits. In fact it does not even necessary for any protocol to explain why they controlled for gender regarding energy homeostasis related neural activation.

MINOR REVISIONS
1) If the authors are planning to make a whole story regarding the gender differences from their data base and make it a separate manuscript, that is understandable, however then they must mention not controlling for or analyzing for gender albeit reporting a behavioral difference (and known established sexually dimorphic aspects of the brain) as a limitation and also insert their planned future directions.

2) Abstract:
“…(right striatum) was more activated in response to high calorie foods during the “go” trials than low calorie food “go” trials, and its activity…”

In here they should rephrase the term “high calorie foods” and “low calorie foods” to “high calorie food cues (or pictures or visual cues)” and “low calorie food cues (or pictures or visual cues), or something they can come up with to make it clear that subjects did not actually responded to the “foods” but cues of food. Thus,
their neural activation in response to cues versus actual food would be different. This should be modified throughout the manuscript if there are more.

3) Methods
It would be better if they spell out that this was a fMRI BOLD study at some point in the manuscript.

4) Results
Page 15- 1st paragraph
Further, of particular interest to us, the activation in the ACC region (Figure 3A, MNI = 4, 44, 4) was negatively correlated with BMI (Figure 3B; r = -.71, p < .01) and high calorie food consumption as measured by the 24-hour recall/NDSR (Figure 3C; r = -.69, p < .01).

In this paragraph, the authors should spell out in response to what exactly that “the activation in the ACC region” negatively correlated with BMI. In response to no-go versus go tasks or other way around? I can infer it from the first sentence of that paragraph but it would be better that it is spelled out in that sentence also.

DISCRETIONARY REVISION
1) It would be really informative to in fact to look at the gender differences in these fMRI paradigms either gender as a main factor or at least they should control for it. It would be specifically making it a stronger work, if they also look at the ROI for the reflective system for gender differences. I understand to make it more than 2 contrast is difficult. High vs low calorie, go versus no go and females versus males. However, if they solely pick the no-go trials, since we are interested in the restraint system here specifically, they can compare the genders in terms of their fmri responses in the reflective system (or whole brain) to the high vs low calorie food cues on the no-go trials.

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.