Reviewer’s report

Title: Birth weight and blood lipid levels in Spanish adolescents: Influence of selected APOE, APOC3 and PPAR-gamma-2 gene polymorphisms. The AVENA Study

Version: 1 Date: 4 September 2008

Reviewer: Barbara Heude

Reviewer’s report:

Major compulsory revisions
None

Minor essential revisions
1. There are already several papers published on the AVENA study that could be developed further in the introduction and the discussion, in order to state more clearly what has already been found in this study in relation to the topic and to see more straightforwardly the new insights provided by this one.

2. The choice of the candidate genes could be better justified. What are the hypotheses for those genes to interact with birth weight on later lipid levels? This remark also fits with the discussion where there is too little interpretation of the interactions found. It would be of great interest for the reader to have some ideas of hypothesis for the mechanisms explaining those interactions, and also the implication of those results.

Some results concerning this study are displayed in the “Method” instead of the “Results” section. Especially:

3. The description of the population: a descriptive table could be provided or at least those data presented in the results section

4. The presence or not of the gene-birthweight interaction: this is an important result of this paper and not a statistical method. A table displaying the p-values for the test of interaction could be provided, or these p-values could be added in the respective tables (4 and 5, and provided in the text for PPARg).

5. I am surprised by some results on Table 1. In particular, the level of significativity of the coefficient for TC/HDLc in males is the same before and after adjustment, whereas the value of the parameter decreases drastically. It could be due to a gain in precision of the estimation, but the reader cannot know since the standard errors are not provided. Please check the numbers and maybe provide the standard errors for the estimations.

6. The unadjusted values in table 1 do not seem very informative and the authors themselves acknowledge in the text that the results are quite similar before and after adjustment. Moreover, they are redundant with the numbers in the Figure 1.
Discretionary Revisions

7. There is a typo mistake in the head line of table 5 (Males, S/1S2 instead of S1/S2)

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

**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