Reviewer's report

Title: A pilot placebo-controlled, double-blind, and randomized study on the cognition-enhancing and anti-stress benefits of a proprietary chicken meat ingredient in healthy subjects

Version: 1 Date: 23 March 2013

Reviewer: Justin Karr

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Major Compulsory Revisions

1. The introduction reads well, leading the reader into a discussion on stress in relation to cognition. The background evidence on EOC appears relatively limited, emphasizing the importance of the current study; however, the authors should explain the active ingredient of EOC that may lead to these hypothesized cognitive gains or anti-stress mechanisms. Just as fish oil contains omega-2 for heart health, what does EOC contain to benefit cognition and stress? For example, if EOC modulates GC levels, what component of EOC (e.g., specific biomolecule) does this modulation?

2. The authors should give a rationale as to why predominantly memory-related tasks were included in the cognitive battery. Is there a reason to think EOC will specifically benefit memory? Same for BAI, BDI and overall functioning (this is explained in the psychological profiles, but should be described earlier in the text for the reader to understand the rationale). The selection of these dependent variables is unclear.

3. The Digit Span Forward does not effectively involve a working memory component. It is sometime considered a task of rote recall or could be termed a measure of “short-term memory storage capacity.” The Digit Span Backwards however involves the manipulation of information within the phonological buffer, and the authors can call it a measure of working memory. The RAVLT is not a measure of episodic declarative memory, but instead a measure of verbal memory and learning. This should be re-worded in the text. The results section contains a better explanation of each task, and the authors should move these descriptions into their measurement section.

4. For statistics, explain the factorial composition of the two-way ANOVA design. Also, the data is repeated, nested within individuals. Was a repeated measures ANOVA used? If so, was sphericity met? Not using RMANOVA would make the results unreliable, which would be a fundamental flaw in the analysis.

5. Also, in the results section, the authors should clarify where all the reported p-values are coming from. Are they based on pairwise comparisons? Were the F-tests significant for the interactions? Through its current presentation, the reader does not know the results of all important analyses. Although the figures help, consider a table with means and SDs along with F-values, t-values, and
p-values for each respective test and measure. This type of presentation makes reading far clearer and assists meta-analysts if they review your study later on.

6. Explain why baseline (day 0) testing scores were not included in the design?

7. The beginning of the discussion focuses in extensive detail on mechanisms of stress and cognition; however, the results say very little about stress in relation to cognition. This focus on stress in the conclusions should be reduced, remaining within the scope of the observed results. Although the participants had stress-related concerns, the authors do not know if their baseline performances were impaired due to stress. In turn, cognitive improvement may be a function of the EOC improving normal cognitive functioning rather than stress-impaired functioning.

8. On Page 14 of the manuscript, the authors essentially repeat their design in full. This is unneeded and should be removed, as the reader would have already read through the full design.

9. In the conclusion, the authors claim that EOC bears anti-stress effects. There is no evidence of this, as no DV measured stress and saw any improvement.

Minor Essential Revisions

1. For the study design, did the participants self-administer the supplement? Please clarify.

2. Also, why six weeks and a two week follow-up? Explain the rationale for this time sampling.

3. For the sample characteristics, explain whether concealed allocation occurred (i.e., the person ruling participants eligible for the trial did not know their group allocation when determining eligibility).

Quality of written English: Needs some language corrections before being published

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