

## **Reviewer's report**

**Title:** Daily egg consumption in hyperlipidemic adults - Effects on endothelial function and cardiovascular risk

**Version:** 1 **Date:** 23 November 2009

**Reviewer:** silvio buscemi

### **Reviewer's report:**

Review

V.Y. Njike et al

"Daily egg consumption in hyperlipidemic adults....."

This study addresses an interesting nutritional subject concluding that three eggs don't have any acute detrimental effect on endothelial function; similarly, consuming two eggs daily for 6 weeks has no unfavourable effect on both endothelial function and lipidemic pattern in hyperlipidemic subjects. Furthermore, egg substitute had beneficial effects after 6 weeks and sausage/cheese breakfast sandwich had no acute unfavourable effects.

Therefore, the take home message might be that hyperlipidemic subjects have probably not unfavourable consequences from a so frequently eating eggs.

However, a number of methodological problems (or at least the way in which they are presented) heavily limit the strength of the results of this study.

Due to the nature of this study, probably the protocol should have been registered in a public trial registry.

### **Major Compulsory Revisions**

The authors affirm that literature is not univocal eggs consumption, cholesterol levels and CV risk and that, taken as a whole, we have very few evidences for a so strong indication that eggs consumption has detrimental health effects.

However, they should also quote other recent researches that have shown how eggs consumption is associated with increased risk of diabetes (Djoussé L et al, Diabetes Care, 2009), with (# 1 /day) increased mortality and even more in diabetics (Djoussé L et al, AJCN, 2008) or in women (# 2 /day) with a significant correlation with cholesterol concentrations (Nakamura Y et al, AJCN, 2004) and other references.

The authors have to explain why they considered hyperlipidemic adults. This information appears abruptly in the last three words of the section Introduction.

In the section Subjects and Methods it needs to be reported habitual alcohol intake and it should be clearly stated if subjects assumed other drugs (ASA, etc.). These informations may be reported in Table 1.

Despite, the ultrasonographer (only one ultrasonographer ? Please specify) was “strictly blinded” the study design is to be considered randomized ,open, crossover trial, not “single-blind” (page 5, line 7 from the bottom).

It is not described how much time after eggs ingestion was measured the FMD (page 6, paragraph on endothelial function) in both studies (in fasting conditions in the chronic study ?), neither how much time was maintained inflated the sphygmomanometer cuff in order to occlude the brachial artery. The accuracy and reproducibility of FMD measurements for their laboratory is not reported. The authors utilize an old fashion system for FMD measurements that doesn't allow to monitor continuously the brachial artery diameter after deflating the cuff, in consequence of it the 60 seconds post-cuff release value is not always the peak value coinciding with FMD. The “indicator of stimulus stress” (page 6, lines 6-7 from the bottom) it is not a clear procedure, despite it doesn't seem necessary to be reported, it should at least be presented in a better and more comprehensive way, actually it seems not understandable and may be omitted from results and tables.

A major limitation is also the fact (as the authors acknowledge) that FMD was measured only one time after eggs ingestion and not monitored for a prolonged time (i.e. 30', 60', 90', 120' or: 60', 120', 180').

Since hyperlipidemic subjects with an average age of 60yrs old were investigated a significant flaw of this study is the lacking of the endothelium-independent dilation measurements that is obtained after sublingual glyceryl-trinitrate administration (GTN).

About 3-d food diary (page 7), it is not reported how (software, etc...) data were evaluated. From Table 3, we know only data about calories, fat and carbohydrate intakes. The authors should add the data relative to protein and cholesterol intakes. These data are in fact crucial for the interpretation of the study results (protein and cholesterol intakes may influence the FMD), given the fact that cholesterol levels reduced in egg substitute treatment group. However, it is also to be noticed that probably food diary data are inaccurate. In fact, the total calories intake is frankly underreported since the corresponding intake for kg of BW is rather low (about 22 kcal) and body weight is reported stable. Probably it is better to delete the data concerning the 3-d food diary despite this fact underscores the study.

It is really strange that all lipidemic measurements reduced were reduced, significantly or not, whatever the treatment

Page 9, lines 10-11 “While...”: this sentence is not understandable in this context. Why is baseline FMD impaired ?

In general, the authors should report also more recent literature.

Minor Essential Revisions

Abstract, page 2, please specify that results are expressed in terms of “change”

(after minus before)

Page 3, lines 4-6 from the bottom “..eggs are an....”: this paragraph is not necessary.

Page 3, last sentence needs at least one reference.

Page 6-7: methods for lipid profile determination are not reported. Please, add reference for Friedwald equation.

Data are widely duplicated in tables and results section. It should have been useful to show a diagram flow to resume lines 1-6 at page 8.

In no part of the manuscript it is reported if data are expressed in mean +/- DS or SEM.

Please, report a column with ranges in Table 1, report also BMI, clinical characteristics, working activity, and so on (please retype this table).

Please, report body weight and BMI with one decimal in Table 2.

Please, indicate mean +/- ? in tables

Page 7, line 3 from the bottom: is 3.5% in absolute value ?

There are a number of typos some of them are reported in the followings:

page 9, line 12: please replace “egg” with “Egg”.

page 7, line 13: please replace “significance” with “significant”.

page 8, line 12 and 17: please delete “see”.

page 10, line 4 from the bottom: please replace “responses” with “response”.

page 20, Table 2: please replace “student” with “Student’s”

page 20, Table 2: please replace “ttest” with “t-test”

page 20, Table 2: please replace “obtain” with “obtained”

Table 2 and Table 3, please homogenise data relative to “Change”

Table 2 and Table 3: please replace “Repeated Measures ANOVA” with “ANOVA for repeated measurements”

Table 3 captions please remove capital letters.

Table 3, probably it is better to suppress “Stimulus adjusted response measure”

**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.

**Declaration of competing interests:**

I declare that I have no competing interests