

Reviewer's report

Title: Plasma micronutrient status is improved after a 3-month dietary intervention with 5 daily portions of fruits and vegetables: implications for optimal antioxidant levels

Version: 1 **Date:** 18 July 2008

Reviewer: H B Bueno-de-Mesquita

Reviewer's report:

- Major Compulsory Revisions

(1) Abstract: contrary to what is stated, according to your table 2, there was NO statistically significant difference between plasma levels of zeaxanthin, #-cryptoxanthin, retinol, and #-tocopherol at T0 and T3 !?!

(2) Abstract: given that the majority of eligible participants were women (86%), you can not generalize your findings to "a health-conscious population", thus to both men and women.

(3) Methods: strictly spoken, participants were not randomly assigned to the targeted dietary counseling of interest or, for instance, to a more general healthy lifestyle advice (placebo), but all participants were subjected to a single intervention strategy. Thus one can not be sure that the observed changes in blood levels of markers of interest were due to the dietary intervention of interest as a control group was lacking.

(4) Methods: although 112 subjects were recruited in the study and were said to have complete datasets, numbers in each of the 3 cells in table 1 add up to 100 only!?! . Does this mean that 12 subjects were lost to follow-up? What were the reasons for lost to follow-up? How many of these were male and how many female?

(5) Methods: the meaning of the dynamic migration model for assessing compliance is unknown to me and needs further clarification.

(6) Statistical analyses: should contain a paragraph on exact definition of confounders, eg. age in 1-year categories and exact definition of smoking status (see also point 8).

(7) Results: fruit intake has improved considerably, while #-Cryptoxanthin is a good marker of fruits, why then are concentrations of this carotenoid not increased, but even show a suggestive decline in table 2??

(8) Results: the footnote of table 2 reads that concentration differences over calendar time were corrected for age, gender and smoking status. Wondered how well smoking was taken into account since improvement in smoking behaviour may partially explain the observed changes in micronutrient levels. For instance, did you assess changes in smoking intensity? And did the 12% smokers change their smoking habits, eg. did they quit or change their number of

cigarettes? Thus, you need to better define your variable smoking status and provide evidence that smoking does not underly the observed changes in carotenoid levels.

- Minor Essential Revisions

(1) General: the lay out of this brief scientific report lacks the customary division into Introduction, Material and Methods, Results and Discussion.

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.