Reviewer's report

Title: Effect of fruit and vegetable concentrates on endothelial function in metabolic syndrome: A randomized controlled trial

Version: 1 Date: 18 May 2011

Reviewer: Jayne Woodside

Reviewer’s report:

This study appears to have been well conducted, is of interest, and merits publication. However, the statistical analysis and subsequent interpretation must be revised before resubmission.

Major Compulsory Revisions

1) An explanation is required as to why two different blends were used - did the authors expect the effects would be different and why? A total dose per day would be a useful addition. Table 1 would benefit from describing the blends more clearly, i.e. just summarising content of the actual interventions rather than original product blends were created from.

2) The main issue with the paper is with the statistical analysis - this alternates between repeated measures ANOVA and comparing changes between intervention groups (correct) and paired samples t-tests, examining within group changes. To use a paired t-test ignores the presence of a control group, and this becomes a single arm intervention study - this therefore must be removed, and interpretation and conclusions based on the correct analysis only. At the moment the conclusion suggests an effect of one of the concentrates on endothelial function, but this is not significant, and does not stand when between group analyses are conducted.

Minor Essential Revisions

1) describe different concentrate blends in the Abstract
2) Sentence beginning "Dark berries..." in 2nd paragraph of Background does not fit - rewrite.
3) Fourth paragraph of Background - Aims - first and last sentence repetitive - rewrite.
4) Within methods, inclusion and exclusion criteria should be stated clearly - often repetitive as it stands (e.g. smoking, dietary supplements mentioned as exclusions twice)
5) reproducibility data on the FMD measurement needs to be added
6) from methods it is unclear when the acute effects were tested - this needs to be more clearly stated.
7) The authors correctly highlight a weakness of the study being a lack of objective markers of compliance - I would like to see this developed i.e. describe
the potential impact of this on the study results

8) There are typographical and grammatical errors within the text that should be corrected.

Discretionary Revisions
1) mention fruit and vegetable meta-analyses in intro (Dauchet/He)

Level of interest: An article of importance in its field

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

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:
I declare that I have no competing interests