Reviewer's report

Title: Efficacy of Aerobic Exercise and a Prudent Diet for Improving Selected Lipids and Lipoproteins in Adults: A Meta-Analysis of Randomized Controlled Trials

Version: 1 Date: 19 January 2011

Reviewer: Paul Williams

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Major Compulsory Revisions

I am pleased to see these analyses, but in my opinion the manuscript is too long (maybe this doesn't matter too much because it's online only). It contains endless details about how the small number of studies differed from each other, but it never explains why any of this is important. This information may be better suited for supplementary information.

There are in fact three separate interventions: prudent diet, physical activity, and weight loss by calorie restriction. There is much work on exercise as an independent intervention, dietary fat reduction as an independent intervention, and weight loss as an independent intervention. It would seem that the relevant question is to provide some quantitative assessment of the effect of combining these interventions over their separate effects. There is not much quantitative discussion of this.

The Stanford studies may be the only ones sufficiently long enough for exercise to have an effect on HDL-cholesterol. HDL may not have increased because: 1) exercise studies in women have not been as successful in achieving HDL-C increases than in men; 2) the studies were not long enough. The heterogeneity in designs makes it difficult to conclude HDL does not increase, although it is reasonable that it didn’t given the percent fat decreased.

The analyses treat the study differences as a random effects model, yet these are not identically sampled studies, rather they differ from each other as fixed effects; i.e.: male vs. female, weight loss vs. non-weight loss, selection for low HDL-C. So then what is the purpose of the meta-analyses? What is gained? Are the authors claiming that these finding represent the expected effects regardless of the differences between studies? Are the authors really arguing that the HDL- and triglyceride response in men reported by Wood et al can be ignored? That pooling is in anyway superior that this individual result.

Some mention should be given to the fact that one of the studies specifically selected subjects with low HDL-chol and persons with low HDL-C are known to respond less to exercise than those with high HDL-C.

To summarize, whereas most of the papers needs to be considerably shortened,
the discussion needs to deal with the much harder question as to whether the basis of meta-analyses is justified for studies if such diverse samples and intervention, and what contribution does the meta-analyses make.

Minor:

Page 16; “For in ml.kg-1.min-1, statistically significant….“ I assume this is referring to VO2max, missing something

**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' below