Reviewer's report

Title: Addressing overweight and obesity: a review of the biological models underpinning recent public health interventions

Version: 3 Date: 18 August 2012

Reviewer: Thorkild Sørensen

Reviewer's report:

General comments

I completely agree with the authors about the observation that a lot of studies in the area of treatment and prevention of obesity still is based on a naive interpretation of the energy balance equation as derived from the 1st thermodynamic law about energy conservation. It could be claimed that it is unethical and waste of time, resources and opportunities to go on trying to treat and prevent obesity on this basis. However, I do think the conclusion of the paper can be better substantiated than it is by now.

Major comments

1. I think the paper needs to expand on how our current understanding is of body weight and energy balance regulation, not only in terms of the biology and physiology, but also in terms of the quantitative aspects as thoroughly explored by for example Kevin Hall's group at NIH in the US. Reflections about the lack of utility of the simple interpretation of the energy balance equation may be found in this paper: Sørensen TI. Challenges in the study of causation of obesity. Proc Nutr Soc. 2009 Feb;68(1):43-54.


3. The paper should be expanded on proposals about how research on treatment and prevention of obesity could be improved by adopting the knowledge about our current understanding of obesity, its causes as well as its effects on the regulatory systems of the body weight and energy balance.

4. In the review of the current literature reporting on testing various approaches to treatment, I think it is necessary to make a clear distinction between the studies testing the weight loss as such over shorter periods of time from studies that assess the long term effects, which also implies the abilities of the program to maintain the lower body weight. In the review of the current literature on prevention, I think it is necessary to make a distinction between effects on lifestyle presumed to be of importance to later development of obesity and the...
actual development of obesity.

5. It would be of great interest to know if any of the reviewed papers did in fact consider to go beyond the simple interpretation of the energy balance equation and how this influenced their justification of the study or the interpretation of the results. This aspect deserves a separate table or a decent expansion of the current table 1.

Minor comment

6. Although I of course appreciate the citation of our old paper on weight loss and mortality (Ref #42), it may be reasonable to replace this reference by a recently published meta-analysis: Harrington M, Gibson S, Cottrell RC. A review and meta-analysis of the effect of weight loss on all-cause mortality risk. Nutr Res Rev 2009;22:93-108. In view of the controversy of the observations of increased mortality by weight loss, even intended weight loss, it may be considered to add arguments why this may happen as expanded on in this paper: Berentzen T, Sørensen TIA. Effects of intended weight loss on morbidity and mortality: possible explanations of controversial results. Nutr Rev 2006;64:502-507.

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