Reviewer's report

Title: No evidence of differential effects of SFA, MUFA or PUFA on post-ingestive satiety and energy intake: a randomised trial of fatty acid saturation

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Reviewer: David Levitsky

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There are two major problems with the manuscript submitted by Strik et al., the most serious of which is that the study failed to find any effect in any measure reported. This is a serious concern because the study’s purpose was to examine whether the kind of fat consumed has a differential effect on subsequent spontaneous food intake in humans. Although the authors are very careful in the language of their conclusion, “There was no evidence of a difference in post-ingestive satiety between high fat meals which differed in saturation profile in this group of lean, healthy men.”, the scientific method does not allow any conclusion to be made from no effects other than a failure to find an effect. Consequently, after reading the paper, the reader does not know whether the degree of saturation of fat does affect food intake in humans.

Although it appears that the study was very well executed, it was not designed properly to allow the investigators to answer the question posed. Indeed, it appears that this study had another purpose. Why else was a “venous cannula” inserted as part of the protocol (page 7, line 13-14) or why were the subjects required to drink 200 ml of water as soon as they arrived in the laboratory for testing (page 7, line 11)? If the study was designed for another purpose, for the sake of honesty and transparency in science, it should be stated.

The experiment was not designed properly because it did not provide the groups to enable it to deal with the case that no difference between the three treatments might result. In studies of potential toxicological effects, a “positive control group” is used to demonstrate that the measures and procedures used were sufficiently sensitive to detect a potential effect if one were there. For examples, in studies of potential teratological effects of food additives, high doses are vitamin A are used, a treatment well known to produce such effects.

In the present study, no such positive control group was used. An easy group that could have been included would be a non-fat group either by using a non-caloric fat substitute in the muffins or not offering the muffin at all. If all the fat groups showed a suppression in the intake at lunch relative to the no muffin group, then a conclusion could be reached that the kind of fat had no effect. But without a demonstration that an effect could be observed, the only conclusion that can be raised is the failure to reject the null hypothesis.

The second problem with the paper is that no hypothesis is given as to why the authors believed that the kind of fat would make a difference in human food
intake. Merely stating that a “lack of consensus” exists (page 5, line 5) in insufficient as a reason to do an experiment. The literature should have been organized and analyzed in such a way as to provide an hypothesis as to the possible reasons that some researchers find an effect of fat saturation on food intake while others do not.

This same kind of inadequate evaluation of the literature is also evident in a very poorly written discussion section. Many aspects of the studies reviewed are so confusingly described and that reader is merely left with a sense of chaos, not understanding. Some studies used appetite measures while others used intake. Some studies used preloading techniques, others used intake at subsequent meals. Some studies were epidemiological and others experimental. No pattern emerged or was even suggested.

**Level of interest:** An article whose findings are important to those with closely related research interests

**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