**Reviewer's report**

**Title:** Association between changes in body fat and disease progression after breast cancer surgery is moderated by menopausal status

**Version:** 0  **Date:** 08 Feb 2017

**Reviewer:** Cheryl Thompson

**Reviewer's report:**

Overall, this is a sound study of the relationship between body fat and outcomes among breast cancer patients. That said, it does not really add much to the literature. I agree that very few studies have used precise body fat measures, but this study does not use DXA, and impedance measures are only slightly better than BMI, waist circumference or other measures that have been studied extensively. Indeed, in a field where meta-analyses have already been done (Goodwin, JCO, 2015), with significant findings, having more precise data is irrelevant, thus what this study adds to the literature is questionable. The small sample size with barely significant findings also doesn't add much to the significance.

Questions/confusing items:

- Are patients stage 1-3 or 0-3? Article says former, abstract says latter.

- Please put p-values for comparisons between respondents and non-respondents (first paragraph of methods)

- It is concerning that only 131 of 200 had complete data. If using CPH model, why can't use patients with < 7 years of follow-up?

- How was "exercise habit" coded?

- The authors use the term "block" in the statistical analysis. As an epidemiologist/biostatistician, I am not sure what that means. Do you mean a model? I suggest using a more common term to avoid confusion.

Suggested edits:

- Abstract: Tone down the conclusion. The conclusion "Our results provide initial evidence that increased body fat and body fat percentage at 6 months... are important predictors of distant metastasis..." is not really true. First, the tons of other studies looking at this using BMI or other measures provided the initial evidence. Second, the p-values are not terribly strong, and no
adjustment for multiple testing was made, which I think is OK, but really, I would say something like "suggests" or "supports" an association.

-Tables 3 and 4 would be a lot easier to read if they were in a more reader-friendly format. It is standard to put beta coefficients plus/minus the SE. Also standard to put HR with 95% confidence interval together like this HR with 95% CI: 7.9 (3.1-20.6). Lastly, it is standard to put the p-value at the right-most column so it can easily be found.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable
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