Reviewer's report

Title: Fasting insulin sensitivity indices are not better than routine clinical variables at predicting insulin sensitivity among Black Africans: A clamp study in sub-Saharan Africans

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Reviewer: Chris Frampton

Reviewer's report:

While this study reports an interesting comparison of standard insulin indices with a clamp derived measure, the presentation and analyses approach makes the paper excessively complicated. As a consequence a clear interpretation of a relatively simple study is not possible. I believe if the authors simplify the methods and tables then the results and conclusions from this study will be much more tractable. As the manuscript currently stands I don't believe it will be amenable to the readership.

Many of the comments below are of a statistical nature so I will include all comments here:

1: There are many non-standard statistical approaches used in the paper which will not be familiar to the readership. These approaches are unlikely to be necessary for this data and they are not robustly justified. The authors should look closely at the use of the following and if they are still deemed necessary then they should be justified and the potential implications of these approaches discussed. a) The Box-cox power transformation was applied to this data 'to improve the shape of the distribution', b) the covariance estimation for multivariate t-distribution to calculate correlations, c) Bland-Altman plots when 'agreement' between common scales is not the objective, these should be removed.

2. A Mixture of parametric/non-parametric approaches, the Kruskal-Wallis test and yet the Gender interactions were presumably tested with parametric general linear models.

3. Given that none of the interactions with gender are significant and by chance one or two should be, there is no need to show all the correlations separately for each gender and for the sample as a whole.

4. Additionally, the correlations among the indices (as distinct from the those with M-value) and among the BMI, WC measures are not directly pertinent to the objective and could also be removed. the key results here could be summarised in a general manner in the results text. In this manner the M-value and its role amongst all these variables can be highlighted.

5. The models for the multiple regression are unnecessarily complicated. Clearly there is much co-linearity here so why not take the best of BMI, WC, WHtR in terms of the relationship with M and see if any of the standard glucose indices
add to this model. The current layout of table 3 does not reflect a clear hypothesis with analysis that focusses on that hypothesis.

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

**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.