Reviewer’s report

**Title:** Effect of External Airflow Resistive Load on Postural and Exercise-associated Cardiovascular and Pulmonary Responses in Pregnancy

**Version:** 1  **Date:** 9 December 2014

**Reviewer:** Michail Keramidas

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**Major Compulsory Revisions**

The present study examined the effects of the N95 filtering facepiece respirators (EARL) on the haemodynamic responses measured with the Finometer in a group of pregnant and no-pregnant women during light exercise, and standing and sitting positions. The authors concluded that the EARL caused increases in the diastolic and mean arterial pressures, but the responses were not aggravated in the pregnant women.

The practical value of the study is clear. However, there are a few major concerns that need to be addressed, mainly including the poor development of the study rationale and the lack of a testable hypothesis. In fact, there is a lack of strong physiological clarity in the introduction: did the authors expect any different response in the pregnant women? If yes, why?

Moreover, the data presentation is somewhat “puzzling”, and the reader has difficulties to follow them. Namely, it is unclear whether the reported P values are referred to the main effects or to the post-hoc analyses – the authors need to be specific. In this context, the statistical significances should be clearly depicted in the graphs as well. There is no need to repeat the P values in the discussion.

The authors report in the results section that “pregnancy was not associated with a significant effect on any of the measured variables compared with values for non-pregnant subjects”; however, HR, SV, CO and TPR were different, as it is reported in the discussion section and is outlined in the graphs.

**Minor comments**

I recommend that the authors should replace “blood pressure” with “arterial pressure”.

The continuous measure of arterial pressure is based on the venous-clamp method. However, an indication of the stroke volume, and hence the cardiac output, is provided by the Modeflow method, which computes an aortic flow waveform from the finger by simulating a non-linear three-element model of the aortic input impedance. This needs to be clarified in the methodology section. In this context, all the Modeflow-derived variables should be referred as indexes (i.e. index of cardiac output, index of stroke volume etc).
I suggest that the changes in systolic arterial pressure (p = 0.06) should not be reported as not significant, but perhaps as a “statistical tendency for a higher SAP”.

The standard deviations should be added in the graphs.

In the limitation section, I do not understand the sentence “Due to not having pre-study data, it is possible that the SBP and DBP reported are higher than the subjects’ normal baseline due to the effects of relatively prolonged wear of the FinoMeter on the finger”. Please, clarify it.

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.