Reviewer’s report

Title: Twenty-four hour metabolic rate utilized as a reference to evaluate several prediction equations for calculating energy requirements in healthy infants

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Reviewer: mario siervo

Reviewer’s report:

This secondary analysis sounds interesting and it may add value to the current evidence on assessment of energy requirements in infancy. However, I have a few Major Compulsory Revisions which may need clarifications by the authors:

1) The authors have already validated the same equations in their first study (2002) and then confirmed the validity of short term measurement of TEE compared to 24-hr assessment of TEE in 2003. It seems to me that this analytical exercise could be considered as slightly redundant based on the fact that 1) the equations have been already validated against measured energy expenditure using the same technique and 2) the short term measurements were not different from the 24hr measurements.

2) Although I still consider the study interesting, I believe that the manuscript should be presented as a short communication and not as a full manuscript. Most of the results in the graphs and in the tables are basically reporting the same results and they can be probably summarize in one, large table and move the description of the prediction equations to an online supplementary material. The justification for a short communication is also given by the very small sample size of this study. A sample size calculation should be presented based on their previous data should be performed to justify that such a small sample of infants could provide enough power to detect a significant difference between measured EE and predicted EE.

3) Final comments are on the BA graph. The graph does not look that impressive to me as a similar differential bias in both equations is present as differences are directly associated with body weight. In fact, at lower body weights (only three data points!!!) the two equations perform very similarly in terms of magnitude of deviations from the zero line of no difference with the only difference that the WHO underestimates (???) and the EMTA overestimates. The authors stated in their results that the WHO overestimates REE but the REE is clearly underestimated if I look at Figure 2. This brings up another concern which relates to the application of the BA method. This is simply given by plotting the difference between the measured and predicted variables on the Y axis against the mean of the same two variables on the X axis. If I am correct, this does not correspond to what has been applied to the data reported in the paper. Please clarify in your methods.
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests