Reviewer's report

Title: Comparison of air displacement plethysmography to hydrostatic weighing for estimating total body density in children

Version: 4 Date: 2 August 2005

Reviewer: Jonathan C Wells

Reviewer's report:

General

The MS is much improved. However, there is still a misunderstanding in the discussion as to appropriate reference method for evaluating ADP.

The authors state, in the discussion, that the 4C model is better as a reference method for ADP than the 2C model. This is not true. What the 4C model does is provide more accurate body composition data than the 2C model. However, when assessing ADP, it is necessary to distinguish ADP as a measurement technique (measuring volume, or density), and the Bodpod as a 2C technique which combines these raw data with some theory, i.e., assumed values for the density of FFM. Your study is not providing any information about FFM density, so your evaluation of ADP should not address this issue. The best method to assess accuracy of ADP is another technique measuring the same outcome, i.e., HW, which is what you have used. Thus, you can see whether ADP does indeed measure what it purports to. If you were to compare ADP against the 4C model, and found disagreement, you would have no idea if this was because (1) ADP measured volume accurately but the FFM density assumption was wrong, or (2) ADP measured volume with error, whereas the FFM density was correct. For this reason, the 4C model is a poor reference method for assessing ADP, and your study has used the better one.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

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Discretionary Revisions (which the author can choose to ignore)

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What next?: Accept after minor essential revisions

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

Quality of written English: Acceptable

Statistical review: No
Declaration of competing interests:

I have received free equipment from Tanita UK, a company producing BIA instrumentation. This has had no effect on my review.