Reviewer's report

Title: Application of Bioelectrical Impedance in large epidemiological studies

Version: 3 Date: 1 July 2008

Reviewer: Duncan J Macfarlane

Reviewer's report:

The authors have made considerable steps to addressing the issues/concerns raised in the first review and have predominantly succeeded in making adequate changes. The change in title helped, but the refocusing on the more recent BIA technologies was more important and they have made significant changes (although some small improvements could still be made and the article still focuses a bit too much on factors that impact on BIA, but this is more relevant with the new title). There is some data on validity/reliability of BIA devices (although this is not comprehensive, yet it gives a brief overview, but could be extended slightly) and the conclusions now reflect more accurately the body of the main text.

Minor essential revisions:

Page 9 – the section on Exercise needs to be further modified to state clearly that not only does acute exercise prior to BIA measurement affect the result, but importantly, that chronic exercise (habitual activity or athletic status – ie. trained v untrained) will also change the measurement substantially. This later point is not stressed significantly, nor does it appear in Table 2 as a separate item, which it should as it can change %BF by 2-3%. I would suggest adding the second reference pertaining to this area that was suggested in the first review as it not only specifically examined this issue of athletic status (and in an relatively understudied sample of ethnic Chinese), but the study also has data on the validity and reliability of several BIA devices that could be added to Page 7 to make it more substantial.

Table 2: remove the first two points, they are no longer relevant to the revised paper and add a statement that athletic status (level of habitual physical activity) can also impact BIA (ie. it is not just exercise in the acute 2-3 hr before measurement that can effect BIA). This point is mentioned in the Conclusions (Page 15 Line 9) but needs more supporting data in the main body of the text and in Table 2, and the extra suggested reference mentioned above from the first review.

Suggested discretionary changes (syntax/grammatical changes):

Page 5 Line 8: change to: the lipid component contained within the membrane of the Body Cell Mass

Page 6 Line12-13: delete the sentence starting “The developed predictive equations ....” As this effectively repeats exactly what the final sentence of the
paragraph states.
Page 7 Line 12: looks like an accidental new sentence had been added by Autoformat. Suggest “sample of 50 Japanese men aged 18 to 27 years, validated hand-to-hand.”

**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.