

Reviewer's report

Title: Body fat measurement by bioelectrical impedance versus air displacement plethysmography: a validation study to design bioelectrical impedance equations in Mexican adults.

Version: 1 **Date:** 8 December 2006

Reviewer: David Fields

Reviewer's report:

General

My overall response to the paper is positive, but I feel that issues must be addressed and more clearly delineated, please see below.

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

My major issues are:

1. The sample in which the equation was generated is entirely too small, you performed it only in 78. Since this is a type of study that will be generalized to Mexicans the sample must be much larger. And on this note, was any effort made to quantify the amount of Mexican blood quantum (i.e. how much blood is Mexican?) did they have to be 100% Mexican to participate and if so, would they have relevance to Mexicans who are not pure blood? These sorts of questions will arise when using this equation, thus a much larger sample size is warranted and needed.
2. Why did you only use FFM as the predicted variable, why not %fat or even fat mass?
3. I am shocked that only one equation was generated. I would have thought (most every other study shows this) that a regression equation would be generated for males and another equation for females, can you please clarify this issue and explain this -- I was quite surprised to see this.

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

Abstract

page 1 an "a" needs to be added between as standard (line 5)

You state that it is free of bias but you present no statistical data to support this

Manuscript

Page 3 the first line does not make sense to me, can you please clarify?

Page 3 second paragraph first line I think it should be re-written.

Page 3 last sentence. To my knowledge Mexican equations do exist and are published in Vivian Heywards body composition book. Another group (Conlisk 1992 AJCN) generated equations in Hispanic -- would this sample be different than yours?

Page 4 I would try not to say BOD POD -- I would keep it to ADP

Page 4 you say the bathing cap -- actually it is a swimming cap.

Page 4 what is the CV of ADP in your laboratory -- if you have it please add.

Page 10 the last paragraph. You state different studies find different things in %FM between ADP and DEXA etc -- you are correct but it is consistent, that is to say there are gender effects, this is to say it tends to underestimate in males and overestimate in females relative to HW. I think it beneficial you try to more clearly delineate this in that paragraph.

Figure 2 -- I am not sure that is done correctly. In this case you have a criterion method (i.e. ADP) thus technically you would do a plot where on the X axis is ADP and on the Y axis is the difference of the new equation - ADP. A Bland-Altman is used only if you don't have a criterion method, in this case you do.

Discretionary Revisions (which the author can choose to ignore)

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

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, but I do not feel adequately qualified to assess the statistics.