BODY COMPOSITION ASSESSMENT IN HIV-INFECTED MEN: LIMITS OF AGREEMENT BETWEEN LEAN BODY MASS ESTIMATION BY ANTHROPOMETRY AND BIOELECTRICAL IMPEDANCE

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Severe weight loss and wasting which are common clinical signs in advanced HIV infection contribute to morbidity and mortality. Body composition changes in HIV infection do not necessarily imitate simple starvation and therefore weight *per se* is not a sensitive marker of muscle depletion. As weight loss usually precedes the onset of opportunistic infections and may be a clinical entity in itself, methods for detecting changes in lean body mass are necessary for the implementation of early nutritional support and anti-viral therapy.

Anthropometry is likely to be the main method for assessing body composition in out-patient settings while there is also an increasing use of bioelectrical impedance analysis. A high correlation has been found between the estimation of lean body mass by these two methods and the measurement of total body nitrogen by neutron activation analysis (0.82 to 0.86, $P<0.0001$), suggesting these methods may be interchangeable. However in comparing estimates of the same compartment the use of correlation co-efficients can be misleading. In order to investigate this hypothesis we used the 'limits of agreement' technique (Bland and Altman 1986) to compare estimates of lean body mass by anthropometry (DW - Durnin and Womersley 1974, JP - Jackson and Pollock 1979) and bioelectrical impedance analysis (BIA) (Holtain BC Analyser, Crosswell, Wales) in twenty-seven asymptomatic HIV-positive men.

	DW vs JP	DW vs BI	JP vs BIA
Correlation	0.96*	0.75*	0.76*
Bias	-5.1	-0.3	5.4
95% Confid. Limits	-5.9 to 4.3	-1.4 to 2.0	3.6 to 7.1
Limits of Agreement	-9.4 to -0.8	-6.4 to 12.2	- 4.4 to 15.1
95% Confid. Limits			
Lower limit	-10.8 to -8.0	-13.1 to 0.2	-11.7 to 2.9
Upper limit	-2.2 to 0.6	5.6 to 18.9	7.9 to 22.4

* $P<0.0001$

Whereas correlation coefficients between estimates of lean body mass by anthropometry and bioelectrical impedance are high, the limits of agreement are so broad to indicate that these methods cannot be substituted for one another. In the absence of more sophisticated techniques of validation, serial anthropometric measurements may still provide the best method for determining changes to body composition in an out-patient setting.

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