Bioelectrical impedance and body composition assessment

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Bioelectrical impedance (BIA) has become increasingly popular in recent years in the assessment of body composition and body fluid status. The level of interest in this technique is related to the following advantages: it is non-invasive, inexpensive, portable and requires minimal subject compliance. However, as with all indirect methods, the ability of BIA to accurately assess body composition is dependent upon a number of technical and biological assumptions. Most BIA research to date has utilised instrumentation capable of measurement at a single frequency, commonly 50kHz. More recently, significant improvements in the prediction of body water characteristics have been cited when multiple frequency bioelectrical impedance analyses (MFBIA) are employed. MFBIA may provide a more effective means of monitoring hydration levels in studies of nutrition and physical activity. This paper provides an overview of the strengths and weaknesses of the BIA method with specific reference to assessment protocols for experimental and clinical situations following a number of studies undertaken in the authors' laboratory. (HKJSMSS 2001;12:81-86)