

Body Composition Methods: Comparisons and Interpretation

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Abstract

The incidence of obesity in the United States and other developed countries is epidemic. Because the prevalence of comorbidities to obesity, such as type 2 diabetes, has also increased, it is clear there is a great need to monitor and treat obesity and its comorbidities. Body composition assessments vary in precision and in the target tissue of interest. The most common assessments are anthropometric and include weight, stature, abdominal circumference, and skinfold measurements. More complex methods include bioelectrical impedance, dual-energy X-ray absorptiometry, body density, and total body water estimates. There is no single universally recommended method for body composition assessment in the obese, but each modality has benefits and drawbacks. We present here the most common methods and provide guidelines by way of examples to assist the clinician/researcher in choosing methods appropriate to their situation.

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Abbreviations: (BIA) bioelectrical impedance analysis, (BMI) body mass index, (CDC) Centers for Disease Control and Prevention, (CT) computed tomography, (DXA) dual-energy X-ray absorptiometry, (FFM) fat-free mass, (MRI) magnetic resonance imaging, (NCHS) National Center for Health Statistics, (NHANES) National Health and Nutrition Examination Survey, (TBW) total body water

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