Comparison of Body Composition Assessment Methods in Breast Cancer Survivors

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Accurate and reliable assessment of body composition often is an integral component in the identification of clinically high-risk populations and is used in an attempt to prevent and manage certain chronic diseases (Heyward, 2006). Breast cancer survivors are a clinical population who frequently experience extremely altered body composition (e.g., changes in body fat [BF] percentage, muscle mass, bone mineral density) after diagnosis and treatment. Because of these alterations, it can be beneficial and clinically appropriate for body composition monitoring to be conducted during and after treatment in breast cancer survivors.

At-Risk Population

Breast cancer survivors have been reported to experience sarcopenic obesity, defined as increased weight without concomitant gain in lean tissue (Herber et al., 1996). Sarcopenic obesity often is a side effect of adjuvant chemotherapy and is associated with reduced energy and physical activity levels, although controversy remains whether this outcome is in some part related to adjuvant endocrine hormone therapy such as tamoxifen and aromatase inhibitors (Denmark-Wahnefried, Rimer, & Winer, 1997; Denmark-Wahnefried, Winer, & Rimer, 1993; Kroenke, Chen, Rosner, & Holmes, 2002). Such weight gain has important long-term health implications for breast cancer survivors, particularly because it usually occurs with concomitant increases in BF that have been associated with disease recurrence (Rooney & Wald, 2007). A systematic review by Rock and Denmark-Wahnefried (2002) determined that increased body mass index (BMI) was a significant risk factor for breast cancer recurrence and was associated with poorer survival rates. An increased BF percentage in breast cancer survivors is associated with increased risks of other comorbidities, including hypertension, diabetes, osteoarthritis, and cardiovascular disease (Denmark-Wahnefried et al., 1997). Other adverse consequences associated with weight gain include psychological distress, loss of self-esteem, anxiety concerning appearance, body image concerns, and anxiety.