

■ CNE Article

# Pilates for Breast Cancer Survivors: Impact on Physical Parameters and Quality of Life After Mastectomy

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Pilates has been advocated for rehabilitation of breast cancer survivors despite little scientific evidence. The authors of this article have examined the feasibility of a Pilates program in postmastectomy breast cancer survivors and the impact on physical and psychological parameters. Fifteen breast cancer survivors were recruited in a one-arm study of 12 weeks of Pilates exercises. The authors assessed recruitment, adherence, and attrition, and measured changes in shoulder and neck range of motion, posture, height, arm volume, quality of life, mood, and body image from pre- to postintervention. Of 26 eligible patients, 15 enrolled, 13 completed the study, and 10 performed more than 50% of the recommended sessions. Statistically significant improvements emerged for shoulder abduction and internal rotation on the affected side, neck rotation toward the unaffected side, and neck flexion. The affected side arm volume and the interlimb volume discrepancy increased. Significant improvements were reported in quality of life, mood, and body image. The improvements in physical and psychological outcomes are promising and deserve further evaluation in a randomized, controlled study. The increase in affected arm volume also warrants additional investigation.

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**F**or women in the United States, breast cancer is the leading cancer diagnosis and second most frequent cause of cancer-related deaths. Despite increasing survival rates, the disease and its treatment continue to burden survivors with adverse sequelae such as upper extremity impairment, lymphedema, fatigue, depression, weight gain, and immune system dysfunction (Cheville & Tchou, 2007; Demark-Wahnefried et al., 2001; Karki, Simonen, Malkia, & Selfe, 2005; Rietman et al., 2003). Some studies have indicated that patients who undergo mastectomy experience a lower quality of life (QOL) and more shoulder morbidity compared to patients who undergo lumpectomy (Engel, Kerr, Schlesinger-Raab, Sauer, & Holzel, 2004; Nesvold, Dahl, Lok-

kevik, Mengshoel, & Fossa, 2008; Skrzypulec, Tobor, Drosdzol, & Nowosielski, 2009).

Evidence shows that physical activity in general improves QOL, mood, fatigue, body image, and fitness (Courneya et al., 2007; Galvao & Newton, 2005; Knols, Aaronson, Uebelhart, Fransen, & Aufdemkampe, 2005; McCausland, 2010; McNeely et al., 2006; Ohira, Schmitz, Ahmed, & Yee, 2006; Pinto et al., 2008; Stevinson, Lawlor, & Fox, 2004) and may contribute to primary and secondary breast cancer prevention (Friedenreich, Gregory, Kopciuk, Mackey, & Courneya, 2009; Holmes, Chen, Feskanich, Kroenke, & Colditz, 2005; Peters et al., 2009). Despite this, a structured approach to physical exercise after breast cancer treatment is neither routinely recommended by