

# Role of Exercise in the Prevention and Management of Lymphedema After Breast Cancer

Swelling or lymphedema of the limb, trunk, or breast is considered the most problematic and dreaded concern after treatment for breast cancer and has significant physical, psychological, and social ramifications. Conservative incidence estimates suggest that 20%–30% of breast cancer survivors will experience lymphedema, with the majority of cases (up to 80%) occurring within the first year after surgery. The etiology of secondary lymphedema seems to be multifactorial, with acquired abnormalities as well as preexisting conditions being contributory factors. Moreover, the relationships between the patient, the treatment, and behavioral characteristics, and lymphedema risk are inconsistent. The established associations (e.g., more extensive surgery and radiation therapy) alone are not enough to accurately distinguish the at-risk population (2).

The fear of developing lymphedema is widespread among breast cancer survivors and not surprisingly leads to the question of “How can I reduce my personal risk?” A range of secondary lymphedema prevention guidelines are publicly accessible from a variety of sources. Very few scientific studies inform these guidelines, and as such, they are largely empirically based (2). Specifically, guidelines discourage participation in activities that may increase production of lymph (e.g., vigorous or repetitive use of a limb) and/or restrict lymph flow (e.g., wearing tight clothing). As Kathryn H. Schmitz, Ph.D., M.P.H., FACSM, highlights in this issue of *Exercise and Sport Sciences Reviews* (6), these guidelines are typically risk averse and directly or indirectly encourage lower use (and likely contribute to reductions in overall physical activity levels) and subsequent deconditioning of the affected limb, if not the entire body.

There is, however, some evidence, which suggests that participating in regular physical activity after breast cancer may reduce risk of developing lymphedema (3,1). Furthermore, as outlined in Schmitz’s article, there is a growing body of work addressing the role of exercise in the management of lymphedema after breast cancer. Results suggest that, at worst, participating in regular moderate-intensity exercise, including resistance exercise of the upper limb, neither initiates lymphedema nor exacerbates existing lymphedema. Regular exercise may also reduce lymphedema “flare-ups” for those with existing lymphedema, as well as reduce the

number and severity of associated symptoms. These are important findings because there is an overwhelming body of evidence that demonstrates engaging in regular exercise during and after treatment for breast cancer is an important means of minimizing treatment-related side effects and optimizing recovery (7,4). Adding to this body of evidence are the results from the U.S. Nurses’ Health Study, which link post-breast cancer physical activity with reduced risk of cancer recurrence, cancer deaths, and overall mortality (5).

So, although we still have much to learn with respect to exercise in the prevention and/or management of lymphedema after breast cancer, having lymphedema or being considered at risk of lymphedema is in itself not a contraindication to exercise. It is prudent for exercise physiologists, physical therapist, and other responsible health care givers to remain cautious when dealing with any special population. However, it also is important that caution does not exacerbate treatment-related side effects including lymphedema. Maintaining communication with treating specialists and keeping a clear and updated record of symptoms and changes in symptoms (or lack thereof) with changes in their exercise program will help ensure that the exercise prescribed is safe and appropriate. Finally, helping women, irrespective of whether they have lymphedema, to become and stay active during and after breast cancer treatment will ultimately lead to better health outcomes in the short and longer term.

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