

Strength in Motion: Intense Resistance Training Helps Power Breast Cancer Patients Along the Road to Recovery

New study demonstrates strenuous exercise leads to significant functional gains.

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Seattle, WA — An intensive resistance exercise program significantly accelerated gains in strength, mobility and balance in post-operative breast cancer patients, however extensive their surgical treatment, supporting an earlier return to daily living activities and an improved quality of life.

These were the results of a new study presented this week at The American Society of Breast Surgeons (ASBrS) Annual Meeting in Seattle that examined the benefits of a structured, three-month total body resistance training regime for recent breast cancer survivors who had been treated with mastectomy (complete removal of breast tissue) or lumpectomy (partial breast tissue removal) and axillary lymph node dissection (ALND) as needed.

“Traditional guidelines question how soon women treated for breast cancer can exercise and how much weight they can safely lift, particularly in mastectomy and ALND patients who have had extensive surgery,” says Colin Champ, MD, Associate Professor at Allegheny Health Network and a Certified Strength and Conditioning Specialist. “However, by the third week, most women in our program could deadlift—raise from floor to hip level—100-pound weights and by the program’s conclusion many were lifting 200-pound loads. The gains on all program parameters remained similar across lumpectomy, mastectomy and ALND status as the program demands intensified.”

He notes while a handful of studies have examined resistance exercise in these patient populations, generally the programs have been far less demanding. This regimen addressed a full range of motion with rapidly intensifying requirements similar to early training for professional athletes.

“Women treated for breast cancer may have been subjected to more than a year of physically and psychologically traumatic therapies,” comments Dr. Champ. “They lose range of motion and muscle mass. This study demonstrates that even those treated with extensive surgeries can make enormous gains in a few months and achieve the same or greater strength, motion and muscle mass than prior to surgery. They do not have to wait years to improve function and lifestyle.”

Investigators analyzed pooled data from three prior studies examining the safety of the exercise program for breast cancer survivors, including one with an added nutritional component. All studies were conducted at the Allegheny Health Network Exercise Oncology and Resiliency Center in Pittsburgh, founded and directed by Dr. Champ, which routinely delivers the same program to all cancer patients.

Researchers focused on 197 recent breast cancer survivors who completed the program. Of these, 85 were treated with mastectomy and 112 with lumpectomy, while 26 underwent ALND and 171 did not. The latter included both women who underwent no axillary staging or sentinel lymph node biopsy (SLNB).

Prior to the program, patient physical parameters were measured through ultrasound and bioimpedance analysis to determine muscle mass and overall body composition. Physical performance and functional fitness were assessed through a range of comprehensive standardized tools, including functional movement screening (FMS), balance screening and weight-lifting evaluations.

The results were compared across pre-exercise intervention groups using statistical Welch's t-test, chisquare and Mann-Whitney U tests. No significant differences were observed in body composition or functional parameters. Pre- to post-regimen changes were assessed using paired t-tests.

The study found that all women had significant improvement in body composition and function. Women treated with mastectomy and lumpectomy without ALND experienced similar significant pre- to postintervention gains on all study measurements, including body mass index, muscle mass and FMS as well as composite weight loads lifted and loads lifted in various movement patterns. Those treated with ALND trended lower only on the functional Y-balance test.

While across all surgical groups, patients who were older or were treated with radiation therapy had lower pre-exercise FMS scores (18.5%), these factors accounted for less variation in post-program improvement (6.7%). Investigators suggest this indicates that gains resulted primarily from the exercise program.

"Based on this study and training conducted at the Exercise Oncology and Resiliency Center, we believe that the benefits of high-level exercise and resistance training and the ability of breast cancer survivors to perform well should not be underestimated," says Dr. Champ. "In fact, we champion the belief that exercise should be not only a component of survivorship, but part of the standard of care.

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