

Study examines obesity in relation to breast cancer related lymphedema

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Each year, about 1.38 million women worldwide are diagnosed with breast cancer. Advances in treatment have facilitated a 90% five-year survival rate among those treated. Given the increased rate and length of survival following breast cancer, more and more survivors are facing life-time risk of developing late effects of cancer treatment that negatively impact long-term survival. In particular, breast cancer-related lymphedema is one of the most distressing and feared late effects.

Lymphedema, characterized by the abnormal swelling of one or more limbs, is most often the result of an obstruction or disruption of the lymphatic system over the course of the cancer [treatment](#). Lymphedema usually manifests after a latent period of one to five, or even twenty years, after treatment. Consequently, lymphedema remains a major health problem affecting many [breast cancer](#) survivors and exerting a tremendous negative impact on survivors' quality of life. Although at present, no surgery or medication can cure lymphedema, this condition can be managed with early and appropriate treatment.

"Obesity is an established risk factor not only for breast-cancer related lymphedema but also for breast cancer occurrence, recurrence, and fatality," says Mei R. Fu, PhD, RN, ACNS-BC, FAAN, associate professor of Chronic Disease Management at the New York University College of Nursing (NYUCN). "Accordingly, we believe [obesity](#) is a significant, but modifiable risk factor for lymphedema."

However, Dr. Fu notes existing research has produced conflicting

findings. For example, some studies suggest that obesity is a risk factor when defined as having a body mass index (BMI) of 30 kg/m² or more, while others posit the risk is posed with as low of a BMI as 25 kg/m².

Such discrepancies are in part due to study limitations, such as retrospective assessments, small sample sizes, and self-reports. To bridge the gap, a team of NYUCN researchers, led by Dr. Fu conducted a study, "Patterns of Obesity and Lymph Fluid Level during the First Year of Breast Cancer Treatment: A Prospective Study," designed to prospectively investigate patterns of obesity as it relates to lymphedema. The team's findings were published in the Journal of Personalized Medicine.

"We determined the best way to quantify the relationship between obesity and lymphedema, was to first examine obesity as it relates to lymph fluid level," said Dr. Fu. "Patterns of Obesity and Lymph Fluid Level during the First Year of Breast Cancer Treatment: A Prospective Study," followed 140 [women](#) through their first year of [cancer treatment](#), measuring their [lymph fluid](#) levels—known as L-Dex values—and weight before their surgeries, four to eight weeks and a year post-op.

General instructions were given to participants on maintaining pre-surgery weight. Among the 140 participants, 136 completed the study. More than 60% of the participants were obese (30.8%) or overweight (32.4%), while only two participants were underweight and about 35% measured at normal weight. This pattern of obesity and overweight was consistent at four to eight weeks and twelve months post-surgery. At twelve months post-surgery, the majority of the women (72.1%) maintained pre-surgery weight and 15.4% had lost more than 5% of their weight; 12.5% of the women experienced more than a 5% increase in weight. L-Dex values consistent with lymphedema were particularly prevalent in patients with a BMI greater than 30 kg/m², this trend was observed throughout the study.

Obesity and overweight remain among women at the time of cancer diagnosis and the patterns of obesity and overweight continue during the first year of treatment.

"General instructions on having nutrition-balanced and portion-appropriate diet and physical activities daily or weekly can be effective to maintain pre-surgery weight," says Dr. Fu. "Such general instructions may create less burden and stress to women when facing the diagnosis and treatment of breast cancer."

More information: Mei Fu et al. Patterns of Obesity and Lymph Fluid Level during the First Year of Breast Cancer Treatment: A Prospective Study, *Journal of Personalized Medicine* (2015). [DOI: 10.3390/jpm5030326](https://doi.org/10.3390/jpm5030326)

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