

**Abstract:** Predictors of Lymphedema for Patients Undergoing Breast Cancer Surgery

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**Purpose:** Breast cancer surgery includes removal of breast tumors and axillary lymph nodes. Unfortunately, a relatively common side effect following axillary lymph node dissection (ALND) is lymphedema. The study purpose was to identify risk factors for lymphedema after breast cancer surgery.

**Design/Research Approach:** Multi-site case-control study

**Setting:** Lymphedema clinics in Upper Midwestern region of the US

**Sample:** Ninety-four lymphedema cases and 94 controls without lymphedema, matched on type of axillary surgery and surgery date, were identified.

**Methods:** Measure of Arm Symptom Survey (MASS), a patient-completed survey, assessed potential risk factors for lymphedema. Severity of lymphedema was measured by arm circumference, and disease/treatment factors were collected with chart review.

**Main Research Variable:** Identification of risk factors for lymphedema after breast cancer surgery

**Findings:** On univariate analysis, lymphedema cases were more likely than controls to be overweight ( $BMI \geq 25$ ) ( $p=.0099$ ). Cases were also more likely to have had axillary radiation ( $p=.011$ ), mastectomy versus lumpectomy ( $p=.008$ ), chemotherapy ( $p=.033$ ), more positive nodes ( $p=.009$ ), fluid aspirations after surgery ( $p=.005$ ), and active cancer status ( $p=.008$ ). Strength training ( $p=.014$ ) and air travel ( $p=.0005$ ) were associated with

less lymphedema occurrence. On multivariate analysis, the only factor significantly associated with lymphedema was being overweight ( $p=.022$ ).

**Conclusion:** Being overweight is an important modifiable risk factor for lymphedema. Axillary radiation, more extensive surgery, chemotherapy, and having an active cancer status were also predictive of lymphedema.

**Implications for Nursing:** This study provides evidence that excess BMI contributes to lymphedema, while strength training and airline travel do not contribute to lymphedema.