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## Reconstructive Liposuction of Leg Lymphedema - Long Term Follow-Up

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*Published in:*  
Plastic and reconstructive surgery. Global open

*DOI:*  
[10.1097/01.GOX.0001114192.89498.41](https://doi.org/10.1097/01.GOX.0001114192.89498.41)

2025

*Document Version:*  
Other version

[Link to publication](#)

*Citation for published version (APA):*  
Brorson, H. (2025). Reconstructive Liposuction of Leg Lymphedema - Long Term Follow-Up. *Plastic and reconstructive surgery. Global open*, 13(S2), 43-44. <https://doi.org/10.1097/01.GOX.0001114192.89498.41>

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1

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**PURPOSE:** The use of nonsteroidal anti-inflammatory drugs (NSAIDs) versus opioids for perioperative pain management remains controversial in plastic surgery. While previous research has been limited to animal studies and small human trials, this comprehensive analysis provides robust data on NSAID safety in breast reduction surgery, examining both broad NSAID use and specific ketorolac outcomes while establishing temporal patterns of risk.

**METHODS:** We conducted three complementary retrospective cohort analyses of breast reduction patients using TriNetX data (2019-2023): (1) all NSAID classes within one week of surgery (n=12,537 matched pairs), (2) ketorolac-specific administration (n=5,813 matched pairs), and (3) time-specific NSAID administration at postoperative day 1 (n=2,202 matched pairs) and day 2 (n=1,176 matched pairs). Propensity score matching accounted for age, ethnicity, race, sex, tobacco use, nicotine dependence, and hemoglobin A1C. Primary outcome was hematoma formation.

**RESULTS:** Patients receiving NSAIDs on day 1 showed minimal but significant increased hematoma risk compared to non-NSAID patients (RD=0.007%, p=0.033). By day 2, there was no significant difference in hematoma risk (RD=0.003%, p=0.574). Early general NSAID use showed modest risk increase (RD=0.425%, p=0.001), while ketorolac demonstrated no significant increase in complications.

**CONCLUSION:** This analysis suggests that delaying NSAID administration until postoperative day 2 minimizes hematoma risk, while ketorolac appears safe for earlier use. Though early NSAID use shows statistically significant risks, these modest increases (<1/2%) should be weighed against the substantial risks of opioid use, including significant dependency risk. Clinical judgment and patient-specific risk stratification can further reduce risk when considering NSAID administration before day 2.

### **SO29. IMMEDIATE LYMPHATIC RECONSTRUCTION FOR PREVENTION OF LYMPHEDEMA IN PATIENTS WITH BREAST CANCER: A NATIONAL OUTCOMES AND REGIONAL TRENDS ANALYSIS**

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**PURPOSE:** Over the past two decades, microsurgical techniques to address lymphedema have demonstrated promising results. One popular strategy is the Lymphatic Microsurgical Preventive Healing Approach (LYMPHA), in which lymphovenous anastomosis (LVA) is performed at the time of axillary lymph node dissection (ALND) to reduce the risk of future lymphedema. While early evidence supports a protective effect of LYMPHA, most studies have been small, single-center trials. In this study, we leveraged a large insurance claims database to better characterize outcomes of immediate lymphatic reconstruction (ILR) and describe national trends related to LYMPHA adoption.

**METHODS:** Adult female patients with a diagnosis of breast cancer who underwent ALND between 2007 and 2022 were identified within the Merative™ MarketScan® Research Databases. Adjusted odds of undergoing ILR, both overall and regionally, and of experiencing post-mastectomy lymphedema were calculated.

**RESULTS:** Of all patients treated with mastectomy and ALND, 1.3% underwent ILR. ILR was associated with decreased odds of developing lymphedema (OR 0.83; p=0.04). The frequency of ILR procedures increased in all regions between 2017 and 2022, most dramatically in the Midwest and Eastern U.S. More recent surgery year, younger age, complete mastectomy, and delayed ALND elevated odds of undergoing ILR (p≤0.01).

**CONCLUSION:** The popularity of ILR has grown rapidly since 2017, with significant regional variability. Patients with breast cancer who undergo ILR at the time of ALND are less likely to develop lymphedema.

### **SO30. RECONSTRUCTIVE LIPOSUCTION OF LEG LYMPHEDEMA - LONG TERM FOLLOW-UP**

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**PURPOSE:** Chronic lymphedema leads to local chronic inflammation that upregulates genes responsible for adipose tissue deposition. Liposuction is therefore an effective for treatment of chronic lymphedema in patients who do not fully respond to conservative treatment. Removal of the hypertrophied adipose tissue leads to complete reduction.

**METHODS:** Inclusion criteria: Unilateral lymphedema with 10% excess volume, minimal pitting (6-7 mm) following decongestive treatment, no wounds, no ongoing infection and no active cancer. 147 patients with a mean $\pm$ SEM age of 49 $\pm$ 1.3 years and with a duration of leg swelling of 13 $\pm$ 0.9 years underwent liposuction using a combination of tumescence and tourniquet. There were 69 primary and 78 secondary lymphedemas following cancer therapy. Age at cancer treatment, interval between cancer treatment and lymphedema start, and duration of lymphedema were

42 $\pm$ 1.7 years, 3.0 $\pm$ 0.7 years, and 10 $\pm$ 0.8 years respectively. Age at onset and duration of primary lymphedema was 28 $\pm$ 1.8 years and 15 $\pm$ 1.5 years respectively. Use of compression garments continued after surgery.

**RESULTS:** Preoperative excess volume was 3397 $\pm$ 149 ml. Total aspirated volume was 3410 $\pm$ 130 ml whereof 94 $\pm$ 0.9% adipose tissue. Postoperative reduction was 83% $\pm$ 2.3% at 3 months and 101 $\pm$ 2.3% at 1 year, and more than 100% during 25 years' follow-up. No complications such as skin necrosis or nerve damage occurred. Postoperative decreased skin sensitivity disappeared within 1-3 months.

**CONCLUSION:** Liposuction is effective for treatment of chronic lymphedema in patients who do not respond to conservative treatment. Removal of the hypertrophied adipose tissue leads to complete reduction without recurrence. Constant use of compression garments maintains the outcome.