

Compression therapy effectively prevents and maintains post-surgical breast cancer-related lymphedema

This One-Pager presents the benefits of compression therapy in the maintenance and prevention of post-surgical BCRL



Breast cancer-related lymphedema (BCRL): Background¹⁻¹⁷

Definition BCRL is a swelling of the arm, chest wall, and breast on the surgical side, and is one of the most frequent complications of breast cancer treatment. It results from a disruption of the lymphatic system, causing fluid to accumulate in the interstitial space.

Risk factors These include, among others, axillary lymph node dissection (ALND), sentinel lymph node biopsy and radiation therapy of the axilla.

Incidence 20% at one year, 40% at ten years, cumulative incidence of 28%.

Symptoms Can include swelling, pain, numbness, heaviness, tightness, stiffness, decreased coordination and mobility, limb fatigue or weakness, recurrent infections in the limb, negative changes in self-image, increased anxiety, and poorer quality of life.

BCRL management Education, skin care, exercise, compression therapy and manual lymphatic drainage. Early detection and treatment of subclinical BCRL can prevent progression to its chronic stage and decrease the need for costly treatments.



Compression & prevention¹

Paramanandam et al., 2022

Aim To determine whether compression sleeves reduce the incidence of arm swelling in women having undergone ALND for breast cancer surgery.

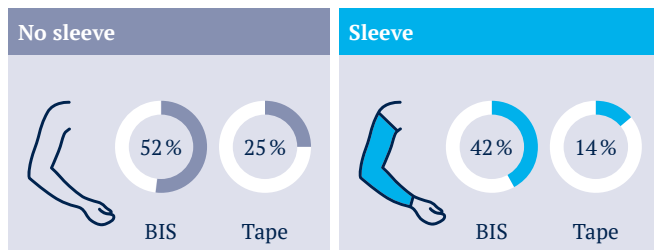
Experimental procedure

No sleeve	Sleeve
 <p>n = 149 Usual care* No compression</p>	 <p>n = 152 Usual care* Post-surgical compression**</p>

Primary endpoint: arm swelling (bioimpedance spectroscopy, BIS****)
Secondary endpoints: arm swelling (tape measurement), quality of life

Results

BCRL incidence after one year



- Significantly lower BCRL incidence in the sleeve group. (As BIS quantifies extracellular fluid, a higher incidence of swelling detected by BIS is expected.)
- No significant differences between treatment groups for quality of life

Take-home message



Compression sleeves combined with education on arm care and exercise substantially reduce the incidence of BCRL in patients having undergone axillary lymph node dissection.

Compression & prevention²

Ochalek et al., 2017

Aim To determine whether compression sleeves reduce the incidence of arm swelling in women having undergone ALND for breast cancer surgery.

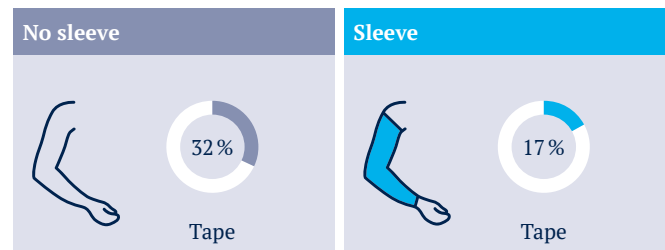
Experimental procedure

No sleeve	Sleeve
 <p>n = 22 Physical exercise No compression</p>	 <p>n = 23 Physical exercise Post-surgical compression***</p>

Primary endpoint: arm volume (tape measurement)
Secondary endpoint: quality of life

Results

BCRL incidence after one year



- Significantly less edema in the sleeve group
- High sleeve compliance (10+h/d in 22 out of 23 patients)
- No sleeve discomfort, no donning and doffing difficulties
- Significant improvement in quality of life with sleeves after two years⁴

Take-home message

In patients having undergone axillary lymph node dissection, compression sleeves prevent postsurgical arm swelling, reduce the incidence of BCRL and have a positive impact on quality of life.

*Education, skin, drain care, shoulder exercises; **Sigvaris compression sleeve (20-25mmHg, min. 8h/day), until three months after completion of adjuvant treatments
compression sleeve (15-21mmHg, 8-10h/day); *BIS measures extracellular fluid within the arm



Compression & maintenance³

McNeely et al., 2021

Aim To determine the efficacy of nighttime compression (compression bandages or wraps) on arm lymphedema volume maintenance in women with post-surgical BCRL.

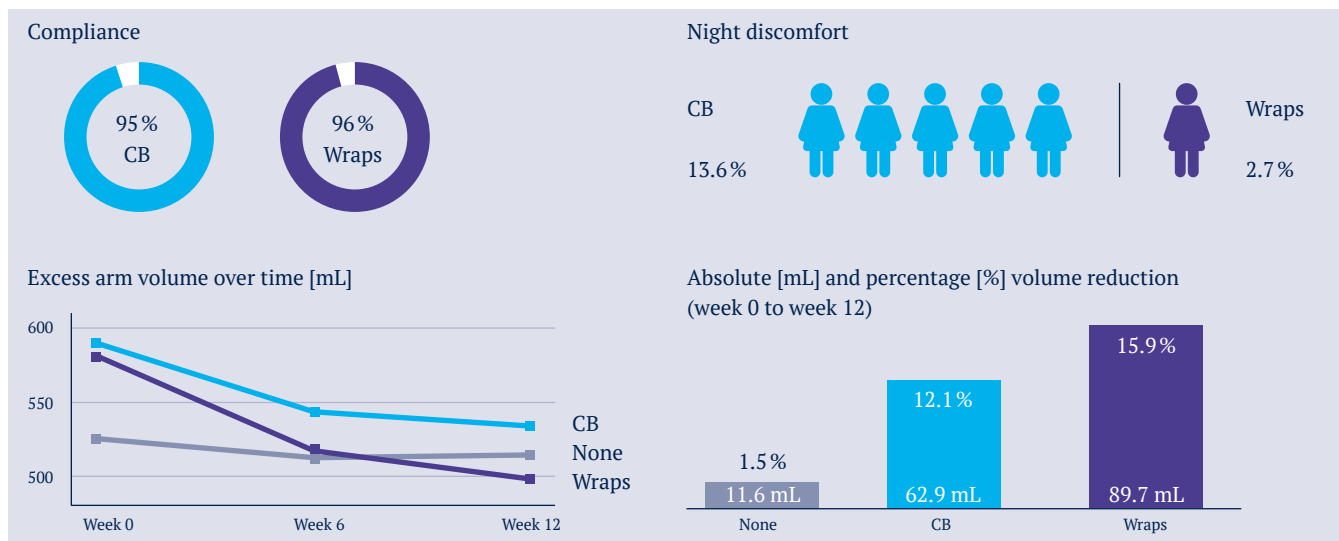
Experimental procedure Patients had completed all primary and adjuvant cancer treatments for at least one month before they were randomized into the following groups:



Primary endpoint: arm volume measured with a perometer****

Secondary endpoint: quality of life

Results



- With nighttime compression (CB or wraps): significant volume reduction over time
- With nighttime compression (CB or wraps): significantly more volume reduction than without compression
- Improvement in quality of life across all groups
- At week 12, cross-over of all patients to the nighttime wrap group: patients from the "no compression group" benefited the most and showed a significant decrease in arm volume at week 24.

Take-home message

Nighttime compression is beneficial as a self-management strategy for chronic BCRL. These results are in accordance with a study showing that nighttime use of wraps offers benefits to patients during the maintenance phase of lymphedema treatment and enhances patients' autonomy¹⁶. This seems to be especially true in patients that have no previous experience in bandaging³.

*sleeve (12h/day), skin care, exercise, body weight maintenance; **multi-layered compression bandages; ***Sigvaris Medaform Standard Arm; ****a perometer uses infrared technology to quantify limb volume

References (1) Paramanandam, Vincent, et al. "Effectiveness of compression sleeves in preventing breast cancer-related lymphoedema: a randomised controlled trial." *Journal of Clinical Oncology* (2022): JCO-21. (2) Ochalek, Katarzyna, Tomasz Gradalski, and Hugo Partsch. "Preventing early postoperative arm swelling and lymphedema manifestation by compression sleeves after axillary lymph node interventions in breast cancer patients: a randomized controlled trial." *Journal of pain and symptom management* 54.3 (2017): 346-354. (3) McNeely, Margaret L., et al. "Nighttime compression supports improved self-management of breast cancer-related lymphedema: A multicenter randomized controlled trial." *Cancer* (2021). (4) Ochalek, Katarzyna, et al. "Do compression sleeves reduce the incidence of arm lymphedema and improve quality of life? Two-year results from a prospective randomized trial in breast cancer survivors." *Lymphatic research and biology* 17.1 (2019): 70-77. (5) Klassen, Anne F., et al. "Development and psychometric validation of a patient-reported outcome measure for arm lymphedema: the LYMPH-Q upper extremity module." *Annals of Surgical Oncology* 28.9 (2021): 5166-5182. (6) Pappalardo, Marco, et al. "Breast Cancer-Related Lymphedema: Recent Updates on Diagnosis, Severity and Available Treatments." *Journal of Personalized Medicine* 11.5 (2021): 402. (7) Rebegea, L., et al. "The incidence and risk factors for occurrence of arm lymphedema after treatment of breast cancer." *Chirurgia (Bucur)* 110.1 (2015): 33-7. (8) DiSipio, Tracey, et al. "Incidence of unilateral arm lymphoedema after breast cancer: a systematic review and meta-analysis." *The lancet oncology* 14.6 (2013): 500-515. (9) Campbell, Kristin L., et al. "A prospective model of care for breast cancer rehabilitation: function." *Cancer* 118.S8 (2012): 2300-2311. (10) Paskett, Electra D., et al. "Cancer-related lymphedema risk factors, diagnosis, treatment, and impact: a review." *Journal of Clinical Oncology* 30.30 (2012): 3726-3735. (11) Asdourian, Maria S., et al. "Association between precautionary behaviors and breast cancer-related lymphedema in patients undergoing bilateral surgery." *Journal of Clinical Oncology* 35.35 (2017): 3934. (12) Ezzo, Jeanette, et al. "Manual lymphatic drainage for lymphedema following breast cancer treatment." *Cochrane Database of Systematic Reviews* 5 (2015). (13) Leysen, Laurence, et al. "Risk factors of pain in breast cancer survivors: a systematic review and meta-analysis." *Supportive Care in Cancer* 25.12 (2017): 3607-3643. (14) Wernicke, A. Gabriella, et al. "Complication Rates in patients with negative axillary nodes 10-years after local breast radiotherapy following either sentinel lymph node dissection or axillary clearance." *American journal of clinical oncology* 36.1 (2013): 12. (15) McEvoy, Maureen P., et al. "Prevention of breast cancer-related lymphedema." *Clinical breast cancer* (2021). (16) Mestre, S., et al. "Interest of an auto-adjustable nighttime compression sleeve (MOBIDERM® AutoFit) in maintenance phase of upper limb lymphedema: the MARILYN pilot RCT." *Supportive Care in Cancer* 25.8 (2017): 2455-2462. (17) Chowdhry, Muhammed, Warren Matthew Rozen, and Matthew Griffiths. "Lymphatic mapping and preoperative imaging in the management of post-mastectomy lymphoedema." *Gland surgery* 5.2 (2016): 187.

Arm Lymphedema Self-massage Exercises

