

## Comparative evaluation of the clinical effectiveness of two tubular compression devices for the treatment of edema related to enlarged lower limbs (bilateral or unilateral)

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### Objectives

- To compare the clinical effectiveness of EdemaWear® vs. Tubigrip® for **edema reduction** (measured by leg circumference), **pain** (measured on a 0 to 10 numerical rating scale)
- To assess if greater patient preference is observed for EdemaWear or Tubigrip and particularly, the specific reasons for preferring one product

**EdemaWear®** (Compression Dynamics LLC) is an elastic non-latex material that facilitates longitudinal compression. The circular knit features longitudinal wales (linear fabric) that provides compression without compromising circulation and provide greater flexibility to cover larger legs or irregular contours, while providing comfort and easy application to facilitate patient self-care.

**Tubigrip®** (Mölnlycke Healthcare) is an elasticated tubular latex containing bandage designed to provide circumferential support and compression. It is made of a cotton knit interlaced with latex elastic threads.

### Study Design

A prospective 8-week observational study, with patients serving as their own controls. The study featured two groups, one with patients that had bilateral edema and the other with unilateral edema. Patients were blindly randomized to either EdemaWear or Tubigrip and then switched study products at the follow up visit. n=16 patients.

### Study Results

Average age	72 years (range 48 – 88 years of age)
Gender Males	n=6 (36%), Females n=10 (63%)
Average BMI	38.4 (range 26.1 – 54). Definition of Obesity = BMI > 30
Leg edema	Bilateral leg edema: n=12 (75%), Unilateral leg edema: n=4 (25%)
Pain	The EdemaWear® group reported reduction in bandage associated pain, however, n=5 (31%) reported new leg pain related to other co-morbidities (arthritis, infection, orthopedic surgical interventions)
Product preference	n=15 (94%) reported preference for EdemaWear over Tubigrip

Table 1: Study participants' comments regarding EdemaWear over Tubigrip

Positive feedback	Room for improvement
More breathable	Closed toe option
More comfortable	
Easy to put on	
Less painful	
Cooler when wearing	
Relatively affordable cost wise	
Can be better accommodated in foot wear	

### Conclusions

The tubular longitudinal elastic bandage system (EdemaWear) was preferred by n=15/16 (94%) of participants. Tubular longitudinal elastic bandage system is an alternative to traditional circumferential elastic and inelastic systems for control of leg edema. It is easy to put on and remove providing greater self-sufficiency for patients and reduced facility or home care visits and cost.

## Case study: swollen legs, difficult to treat leg edema

Female, 75 years old retired teacher with a 15-year history of swollen legs. She is obese and has a diagnosis of lipolymphedema and fibromyalgia. There were numerous episodes of cellulitis requiring intravenous antibiotics for prolonged periods especially when the compression was interrupted or discontinued.

- Initially skeptical to try new product given past experiences, using sub-optimal high compression
- Education of the diagnosis and treatment was critical
- Lipedema is best treated with low compression and exercise
- Gaining confidence helped to build a therapeutic relationship, facilitating adherence to treatment
- Discharged to self-care after 13 years of home care

Introduction of this tubular elastic bandage system was key for patient's self-care

- Facilitated independence
- Enabled exercise and weight loss
- Liberated her to return to swimming

### Payers and Health System

Although patient care required an initial 3-hour interprofessional assessment, the exact diagnosis and care plan change led to substantial savings. Treatment cost reduced from an estimated \$10,944 / year to \$280 / year.

Figure 1: Patient wearing tubular elastic bandage system

Figure 2: Presence of wales post-wear – Transient longitudinal furrows indicating drainage



Table 2: Financial impact of interprofessional wound care and a tubular elastic bandage system for the treatment of a patient with bilateral leg edema living in Ontario, Canada

Component	Total cost over 13 years	Average cost per year	Present costs per year
Nursing visits	\$81,449	\$6,265	\$0
Supplies	\$45,799	\$3,523	\$280
IV antibiotic treatment	\$5,050	\$420	\$0
Hospitalization	\$5,314	\$408	N/A
Emergency room visits	\$4,331	\$333	N/A
Physiotherapy	\$326	\$25	N/A
<b>Total</b>	<b>\$142,269</b>	<b>\$10,944</b>	<b>\$280</b>