

# A Patient Guide to Understanding and Managing Chronic Swelling



**Tactile**  
MEDICAL™

# WHAT IS LYMPHEDEMA?

Most of us know the circulatory system pumps blood from the heart to the rest of the body. But many people are not aware that the body has a second transport system—the **lymphatic system**. The lymphatic system consists of the tissues and organs that produce and store cells that fight disease and infection. They include the bone marrow, thymus and spleen, as well as the nodes and vessels that carry protein-rich fluid called lymph.

Lymphedema is a chronic, progressive condition in which excessive protein-rich fluids accumulate in the interstitium, the space between the cells. The condition occurs from impairment of the lymphatic system's ability to drain fluids and proteins from the spaces in between cells and transport this fluid, known as lymph, back to the circulatory system. A compromised or non-functioning lymphatic system places the patient at risk of medical complications including recurrent skin infections known as cellulitis.

*“UNTREATED LYMPHEDEMA MAKES LIFE MISERABLE FOR THOSE IT AFFECTS. WHEN PATIENTS RECEIVE A TIMELY DIAGNOSIS AND EFFECTIVE TREATMENT, HEALTH IMPROVES AND HIGHER HEALTHCARE COSTS CAN BE AVOIDED.”*

— DR. ALAN T. HIRSCH

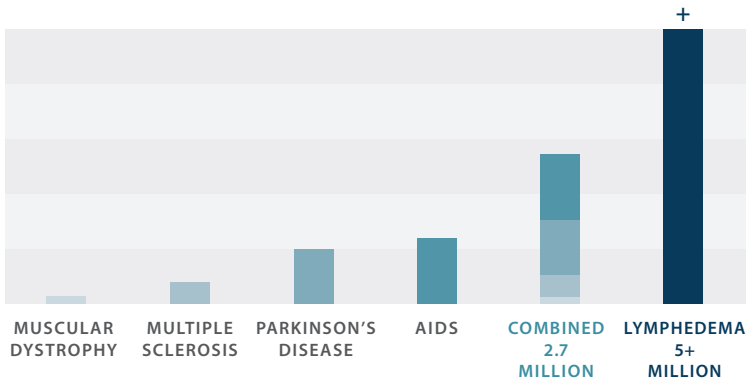
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# WHAT IS CHRONIC SWELLING?

As a normal part of your blood circulation, your vascular system leaks fluid into the surrounding tissues. Your body's lymphatic system is responsible for collection of this fluid. Edema, or swelling, occurs when an abnormal buildup of fluid occurs in the body. Mild, temporary edema can be caused by many factors, but lasting edema may be a sign of a more serious underlying medical condition. Diseases that may cause lasting or chronic edema include congestive heart failure, kidney and liver disease, chronic venous insufficiency, and lymphedema.



## LYMPHEDEMA: IT'S MORE COMMON THAN YOU THINK



LYMPHEDEMA AFFECTS MORE THAN 5 MILLION AMERICANS.  
THAT'S MORE THAN MUSCULAR DYSTROPHY,  
MULTIPLE SCLEROSIS, PARKINSON'S DISEASE  
AND AIDS—COMBINED.

# TYPES OF LYMPHEDEMA

## PRIMARY LYMPHEDEMA

Primary lymphedema is often called congenital lymphedema, as it may be caused by congenital (hereditary) malformations of the lymphatic system.

Although primary lymphedema is largely attributed to genetic causes, lymphedema is also classified as primary when no known cause can be identified. Some specific forms of primary lymphedema are:

- **Milroy's disease** (*congenital lymphedema*). This disorder begins in infancy and causes lymph nodes to form abnormally.
- **Meige's disease** (*lymphedema praecox*). This disorder often causes lymphedema around puberty or during pregnancy, though it can occur until age 35.

- **Late-onset lymphedema**

(*lymphedema tarda*). Seen in patients with under developed lymphatics. Usually begins after age 35 as existing lymphatics lose the ability to compensate over time.

## SECONDARY LYMPHEDEMA

Secondary lymphedema is more common, affecting more than five million people in the United States. It is an acquired condition caused by a physical disruption to the lymphatic system. Main causes<sup>3</sup> include:

- Chronic venous insufficiency
- Cancer treatments (*removal of lymph nodes and/or radiation therapy*), benign or malignant tumor growth
- Accident, trauma or surgery
- Infection
- Obesity
- Filariasis (*infiltration by insects or parasites*)



PATIENTS SUFFERING FROM LYMPHEDEMA

## SYMPTOMS

- Unusual swelling (*edema*)
- Swelling of dorsum of foot
- Swollen and squared-off toes
- Heaviness or tightness in the affected limb
- Restricted range of motion
- Lymph fluid discharge from the skin (*lymphorrhea*)
- Skin changes such as:
  - “Orange peel” skin appearance
  - Thick, rigid skin (*hyperkeratosis and fibrosis*)
  - Bumpy wrinkling of the skin (*papillomatosis*)
  - Ulcerations of the skin
- “Ski jump” toenails (*hypoplastic and concave*)

### STEMMER’S SIGN: AN INDICATION OF LYMPHEDEMA IN 10 SECONDS OR LESS

The Stemmer’s sign test results in either a positive or negative indicator for lymphedema.

To perform it, simply try to pinch and lift a fold of skin at the base of the second toe or middle finger.

If you can pinch and lift the skin, the Stemmer’s sign is negative.

If you can’t, the sign is positive.

False positives are rare, however, a negative does not always rule out lymphedema.

## TREATMENT

There is currently no cure for lymphedema. Untreated lymphedema can worsen, leading to increased swelling and pain, progressive hardening of affected tissues (*fibrosis*), and recurrent infections (*cellulitis*).

Lymphedema can decrease mobility, dexterity, range of motion and the ability to perform daily activities.

It also may significantly increase the cost of healthcare. However, effective management of symptoms is possible. Proper diagnosis of the condition is often critical to achieving effective treatment.

Management of lymphedema is usually achieved with a combination of therapist-directed in-clinic treatment and at-home self-management with a proven pneumatic compression device like the Tactile Medical Flexitouch® system. With effective treatment, patients can manage their symptoms, minimize infections, improve their health and quality of life, and reduce overall healthcare costs.<sup>1-3</sup>

# SEE HOW WE'RE BRINGING THE FUTURE OF HEALING HOME AT TACTILEMEDICAL.COM

Tactile Medical is a leader in developing and marketing at-home therapy devices that treat chronic swelling conditions such as lymphedema and chronic venous insufficiency. Our mission is to help people suffering from chronic diseases live better and care for themselves at home. Our unique offering includes advanced, clinically proven pneumatic compression devices, as well as continuity of care services provided by a national network of product specialists and trainers, reimbursement experts, patient advocates and clinicians. This combination of products and services ensures that tens of thousands of patients annually receive the at-home treatment necessary to better manage their chronic conditions. Tactile Medical takes pride in the fact that our solutions help increase clinical efficacy, reduce overall healthcare costs and improve the quality of life for patients with chronic conditions.

Individual results may vary.

**Indications/contraindications:** Indications, contraindications, warnings, and instructions for use can be found in the product labeling supplied with each device.

**Caution:** Federal (USA) law restricts these devices to sale by or on the order of a licensed healthcare practitioner.

#### References:

1. Ridner SH, McMahon E, Dietrich MS, Hoy S. Home-Based Lymphedema Treatment in Patients with and Without Cancer-Related Lymphedema. *Oncology Nursing Forum*. July 2008; Vol. 35(4): 671–680.
2. Muluk SC, Hirsch AT, Tafe EC. Pneumatic Compression Device Treatment of Lower Extremity Lymphedema Elicits Improved Limb Volume and Patient-reported Outcomes. *EJVES*. 2013; Vol. 46(4): 480–487.
3. Brayton KM, Hirsch AT, O'Brien PJ, Chevillat A, Karaca-Mandic P, et al. (2014). Lymphedema Prevalence and Treatment Benefits in Cancer: Impact of a Therapeutic Intervention on Health Outcomes and Costs. *PLoS ONE* 9(12): e114597. doi:10.1371/journal.pone.0114597

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