



*Helping Out People with Edema*

**HOPE Lymphedema  
Treatment Center, PLLC**  
*Lymphedema Prevention Programs  
Lymphedema Management Programs*

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# The Lymph System and Lymphedema

## The Lymphatic System

The lymphatic system is made up of lymph (a clear fluid), lymph vessels and lymph nodes. It is responsible for returning excess fluid and proteins from the tissues to the circulation and plays an important role in protecting us against disease and illness.

The lymph fluid is the fluid in-between the cells and in our tissues. It travels from the tissue spaces through vessels to the lymph nodes where the fluid is then filtered and cleaned. From there it continues through the larger lymphatic vessels, the thoracic duct and right lymphatic duct, to the subclavian veins where the fluid joins the blood circulation. The initial lymph vessels called capillaries, are open ended, meaning the fluid can move from the tissues into the capillary and is then moved to the next section of the vessel. Small valves do not allow the lymph fluid to flow back. The lymph fluid moves as our muscles contract and as we breathe.

The lymphatic system also has the ability to absorb excess fluid that is not reabsorbed by the veins. The veins pick up 90% of the fluid in the tissues and the lymph vessels transport the remaining 10%. In times of stress, trauma or edema, the lymphatic system can transport a much larger quantity of fluid.

The lymph fluid is clear and contains protein, fats, waste products, cells, water, chemical and foreign organisms (*viruses and bacteria*). The lymph nodes filter out these foreign substances which are destroyed by macrophages, T-cells and B-cells. This is our immune system and helps keep us healthy.

## Edema

When we have an injury or inflammation there is swelling in that area. If we stand or sit for long periods of time, our legs swell. With edema, there is an excessive accumulation of fluid in the tissues, because of a temporary obstruction or trauma. However, the system is not permanently damaged and will heal. The veins and lymphatics will transport this excess fluid and the swelling will go down.

## Lymphedema

When a person has lymphedema, the ability of the lymphatic system to transport the fluid has been compromised. This results in an accumulation of protein rich fluid in the tissue spaces that cannot move back effectively through the lymph vessels. The excess swelling decreases the oxygenation of the tissues and interferes with normal cell function.

As the lymph stagnates in the tissues, it provides an excellent medium for bacterial growth and thus increases the risk of an infection. Lymph fluid contains proteins and proteins are the building blocks of tissues. As the lymph fluid remains in the tissues, the excess proteins cause the tissues to thicken and become hard (*fibrotic*).

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*“Our goal is to make  
a difference in your life”*

[www.HopeLymphedema.com](http://www.HopeLymphedema.com)

Dr. Vodder internationally certified Manual Lymphatic Drainage Combined Decongestive Therapist

## The Lymph System and Lymphedema *continued*

Swelling in a limb may occur slowly, starting in the shoulder or armpit and not be noticed. You may notice the arm is swollen one day and not the next. This is an early stage of lymphedema and many times, is not diagnosed by the physician.

Sometimes if a person is overweight and the limb(s) start to swell, it is easy to mis-diagnose this condition. As lymphedema progresses and the limb becomes larger you may feel pain or discomfort in the back, shoulder or knees. The enlarged limb can affect your posture and gait.

Once the lymph system is damaged, lymphedema may soon occur at any time. Sometimes it starts at once and lasts for life. Sometimes it appears 20 years after the event. There is no way to predict who will get lymphedema. A very minor injury can trigger the onset of lymphedema - bee sting, sunburn, lifting weights or infection.

### What Does Lymphedema Feel Like?

- You may have no unusual sensations and notice the limb looks larger than the other
- Feeling of tightness and heaviness in the limb
- Aching buttocks (leg lymphedema) or shoulder (arm lymphedema)
- Pins and needles in the limb
- Shooting pains
- Pain in the joints similar to arthritis
- Tenderness in the groin of the affected leg
- Leaking of lymph fluid from the skin

### Causes of Lymphedema - *Two main causes of lymphedema*

#### Primary/Congenital Lymphedema

- Most commonly occurs in females
- Usually one limb is affected
- Lymph vessels are inadequate to transport the fluid
- There can be too few lymph vessels or the vessels are too large and the valves do not function properly
- Condition can appear at birth, at puberty or later in life

#### Secondary Lymphedema - *can result from:*

- Surgery, especially from cancer with lymph node removal
- Chronic venous insufficiency
- Radiation therapy
- Repeated infections in a limb
- Chemotherapy
- Parasites, most common in tropical climates
- Accidental trauma
- Postoperative infection

### Factors That May Contribute to Development of Lymphedema - *in a person at risk:*

- Obesity
- Heavy breast prosthesis
- Infections from an insect bite, cat scratch
- Lifting or pushing heavy objects
- Constrictive clothing or jewelry
- Weight training - especially if you have never lifted weights
- Lengthy airplane travel (*change in cabin pressure*)
- Taking repeated blood pressure & blood from affected arm
- Recurrent trauma to the remaining lymphatic vessels
- Repetitive motions that overstrains the arm

Please remember, at this point in time, there is no clear understanding of all the causes of lymphedema and there is no cure. However, with early intervention, the condition can be managed.