

Lymphedema

Management and Prevention

Cancer Rehab Inc.

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What is Lymphedema?

An accumulation of lymph fluid causing swelling in the arms and legs. When vessels responsible for containing the fluid become impaired, the lymphatic transport capacity is exceeded causing the protein rich fluid to collect in the extremities.

What is the Role of the Lymphatic System?

A system of small organs (nodes) and vessels through which lymph fluid flows, the lymphatic system functions in cooperation with the circulatory system (which carries blood throughout the body). Impurities are removed from the circulatory system by the lymphatics and are broken down by cells important in fighting bacteria and viruses that are produced. The lymphatic system also plays a role in maintaining fluid balance throughout the body.

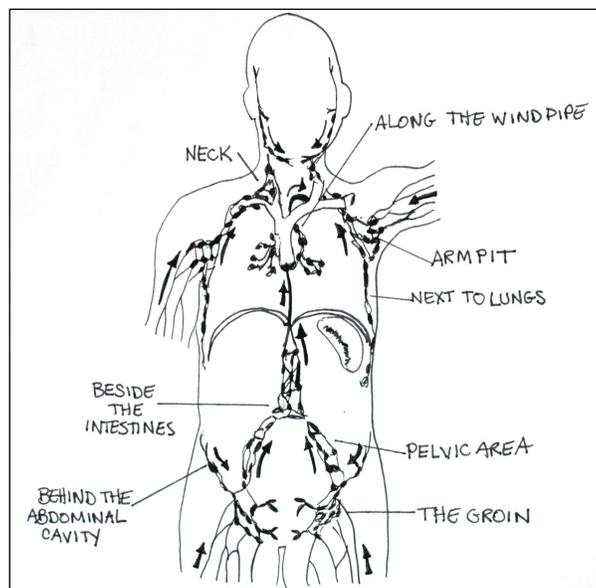
How Does Lymph Move Through the Body?

- Changes in external pressure
- Contraction of the vessel walls
- Muscular activity
- Respiration

The networks of vessels, and nodes are situated in several areas of the body:

- the neck
- the armpits
- along the windpipe
- beside the lungs
- near the gut
- behind the abdominal cavity
- the pelvic area
- the groin

Lymph tissue is also found in other areas of the body, such as in the tonsils, spleen and bone marrow.



Lymphatic pathways in the body

Components of the system

1. *Initial lymphatics:*

- beginning point of system
- outer bits of the vessel walls are attached to all surrounding tissues
- pressure changes are required to function

2. *Collecting vessels:*

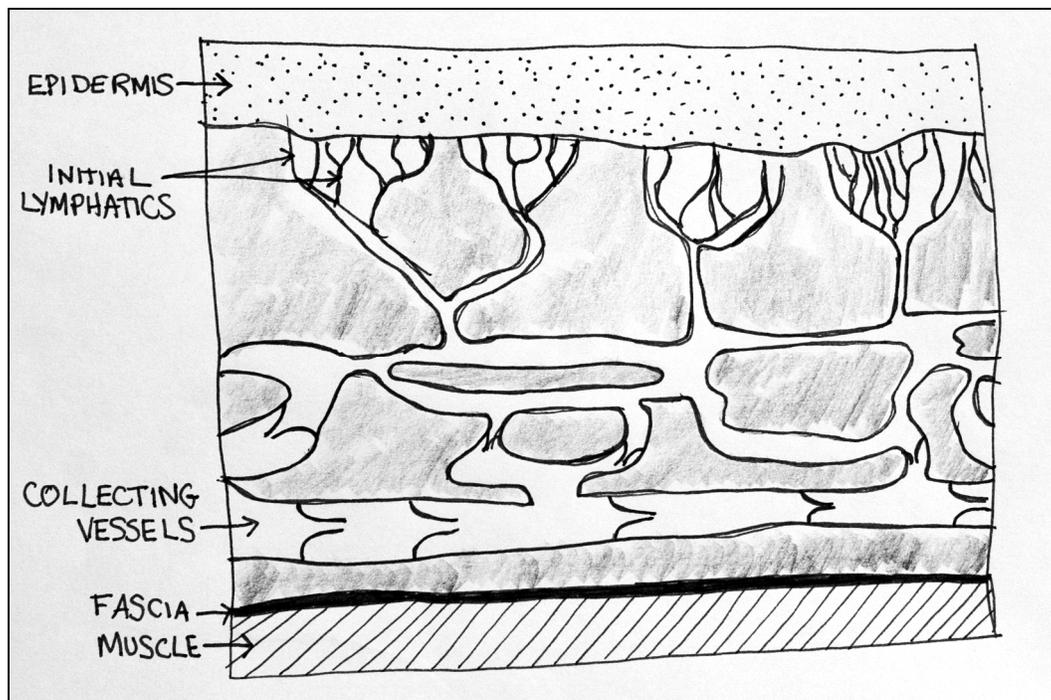
- receive drainage from the initial lymphatics
- contain one-way valves which keep the fluid flowing in one direction

3. *Lymph nodes*

- filtering station for cleansing of lymphatic fluid
- centres for growth and storage of 'lymphocytes' (cell housekeepers)
- ~35-45 in each arm pit
- slow down the fluid and protein

4. *Major lymphatic ducts*

- Originating in the cisterna chyli in the tummy region, the thoracic duct is largest lymph vessel
- Right lymphatic duct is at the root of the neck



Lymphatic vessels in the skin

What Causes Lymphedema?

Lymphedema commonly occurs secondary to an infection, or a trauma that interrupts the normal function of the lymphatic pathways. It often occurs following surgery and radiation treatment for cancer in the breast or groin area. The surgical removal of lymph nodes in the areas adjacent to a tumor may block the flow of lymph through the system. Radiation therapy may damage otherwise healthy lymph nodes causing scar tissue to form and again interrupting the flow of lymph through the system.

Risk Factors for Developing Lymphedema

- extent of surgery (amount of tissue and lymph nodes removed)
- radiation
- obesity

What Happens if I Have Lymphedema?

You will notice swelling and a perhaps a sense of heaviness in your hand and arm or your leg and feet. If left untreated, the limb will become more swollen. It could also lead to infection and further complications.

3 Stages of Lymphedema

Stage 1:

- May spontaneously reverse
- No significant tissue changes

Stage 2:

- Irreversible
- Protein build up
- Low-grade inflammation
- Laying down of scar tissue

Stage 3:

- Skin changes (elephantitis)
- Thickening of the skin tissues

How Can I Prevent Lymphedema?

If you have had lymph nodes removed or have been treated with radiation therapy you should protect your limb closest to the area of treatment. A minor burn or hang nail can be enough to trigger lymphedema.

Tips:

- maintain good hygiene
- wear gloves when gardening, doing housework etc.
- do not allow injections or blood to be drawn from that limb
- have blood pressure checked on the opposite extremity
- treat minor cuts and scrapes with antibiotic ointment to avoid infection
- avoid extreme temperature changes

Managing Lymphedema

1. Bandaging and compression: Increases extracellular tissue pressure- improves fluid uptake, and provide support for tissues-prevents emptied spaces from refilling.
2. Lymph Massage: Stimulates the flow of stagnant fluid out of the affected limb.
3. Exercise: The pumping action of muscular contraction helps to move the fluid along the lymphatic channels.
4. Skin Care: Maintains good hygiene and decreases risk of infection. (See prevention tips above)

Bandaging techniques

General tips:

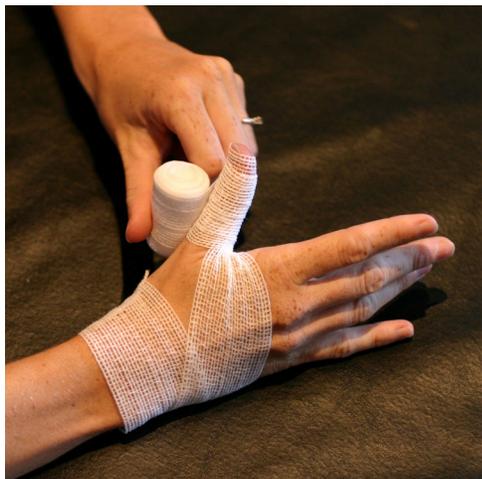
- Always wrap from from the end of the limb towards the body (distal to proximal).
- Start with more tension further from the body and decrease as you wrap towards the body.
- Never leave an empty space between bandages
- Try to keep the bandages flat while wrapping (avoid wrinkles)
- Use **tape** to secure bandage. Do NOT use bandage clips.
- Position the roll of bandage so that it peels off the bottom as you wrap
- Wear your bandages at night and during exercise
- Whenever possible elevate your limb
- Avoid using tensor bandages, they do not provide enough pressure. A compression bandage (short stretch, 100% cotton) like Comprilan is most effective.

Bandaging the hand

1. Using the cling bandage (the small white one), loosely anchor at the wrist finishing on the back side of the hand.
2. Pull the bandage across the back of the hand and around the tip of the thumb (leave the very tip exposed).



3. Wrap around the thumb three times, moving towards the base of the thumb with each wrap.



4. Wrap around the wrist loosely.



5. Pull the bandage across the back of the hand to the tip of the 2nd finger.



6. Wrap around the finger three times, moving towards the base of the finger with each wrap and finishing at the back of the hand.



7. Wrap around the wrist loosely.



8. Continue with each finger until the entire hand is bandaged. Try and avoid pulling the bandage across the palm of the hand.



9. Check to make sure the bandage is not too tight by pinching the tip of your finger. Release and observe how long it takes for the pink tone to return to normal. If it takes longer than your unwrapped side, you should loosen your bandage.



10. Finish by tucking the bandage in at the wrist. If you need to use more than one bandage, begin by anchoring at the wrist again.



Bandaging the hand and forearm

1. Using the 6cm Comprilan bandage, grasp an end between your thumb webspace.
2. Anchor around the back of the hand.
3. Make three wraps in a figure-8 pattern around the thumb webspace and wrist.



4. Begin to wrap up the arm in an even pattern overlapping by 50% with each wrap.
5. Secure the bandage with tape.



Bandaging the arm

1. Using the 8cm Comprilan bandage, begin at the wrist and wrap in an even pattern, overlapping by 50% with each wrap.



2. Secure the end with tape.



3. If needed, begin a 10cm Comprilan bandage at the mid forearm and continue to wrap as above.
4. The bandage should be wrapped as high as possible in the underarm.
5. Secure the end with tape.

Specifically for you:

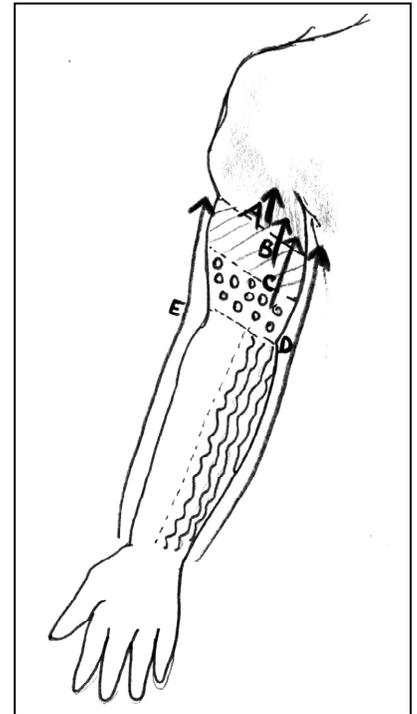
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Lymph Massage techniques:

General tips:

- Always direct massage towards working lymph nodes (ie neck)
- Begin your sweeps closest to the body (proximal) and move outwards along the extremity (distal). See picture below.
- Apply gentle pressure
- Try to elevate the arm while massaging

1. Deep breathing (Belly breaths) X 15 Inhale through your nose, exhale through your mouth
2. Locate the hollow above the collarbone with your fingertips. Gently stretch the skin in a circle toward the neck and release. Repeat 15 times
3. On your unaffected side (if you have not had lymph nodes removed) place your finger tips at the outside edge of your breast (close to your arm pit). Gently stretch the skin in circles and release. Repeat 15 times.
4. On both sides, place your fingertips along your groin crease. Gently stretch the skin in a circular motion and release. Repeat 15 times.
5. Place your full hand in the armpit against the ribcage of your affected side. Using gentle motions, slowly sweep downwards towards your belly. Repeat 15 times.
6. Place your full hand 1/3 of the way down the underside of your upper arm (A). Using gentle motions, sweep up into the arm pit. Repeat 15 times.
7. Move your hand 2/3 of the way down the underside of your upper arm and sweep up into the arm pit (B). Repeat 15 times.
8. Move your hand to the underside of the elbow and continue to sweep up to the armpit (C). Repeat 15 times.
9. From your wrist, sweep up to the armpit 15 times. Repeat on the front (D) and backside (E) of the forearm.



Specifically for you:

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1. Apply Surepress undercoat to protect skin and collect any sweat or leakage.



2. Using the 6cm Comprilan bandage, place the end directly under toes to anchor the bandage.



3. Apply the most pressure (tightest wrapping) at foot and loosen wrap as you work your way up the leg.

4. Use a criss-cross method to ensure all skin is covered at the ankle.



5. The 6cm bandage should end mid shin. Use tape (not clips) to secure.



6. Start the 8cm bandage at the ankle bone. Apply a tighter wrap at ankle and loosen bandage as you work towards the knee.



7. The bandage should cover 50% of the bandage below.



8. The 8cm should end below the knee.



9. Start the 10cm bandage mid shin bone. Apply bandage tighter at beginning and looser as you travel up the leg.



10. You're finished.



- ❖ Ask your therapist for specific instructions to apply Short Stretch bandages to the remainder of the leg.