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## **Buildup of Fluid or Lymphedema** [1]

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Lymphedema is the abnormal buildup of fluid in soft tissue due to a blockage in the lymphatic system. The lymphatic system helps fight [infection](#) [3] and other diseases by carrying lymph, a colorless fluid containing white blood cells, throughout the body using a network of thin tubes called vessels. Small glands called lymph nodes filter bacteria and other harmful substances out of this fluid. However, when the lymph nodes are removed or damaged, lymphatic fluid collects in the surrounding tissues, causing them to swell.

Most often, lymphedema affects the arms and legs, particularly in people who have received treatment for breast cancer or cancers that affect the urinary tract, bladder, kidneys, prostate, testicles, and penis (genitourinary cancers). However, lymphedema can also occur in other parts of the body, including the head and neck. For people receiving cancer treatment to the head and neck region, the neck is the most common site of lymphedema, but it may also develop below the chin, in the face, and, less often, inside the mouth. Lymphedema may develop immediately after surgery or radiation therapy, or it may occur months or even years after cancer treatment has ended.

### **Symptoms**

People with lymphedema in an arm or leg may experience the following symptoms:

- Swelling that begins in the arm or leg matching the quarter of the body treated for cancer
- "Heavy" feeling in the arm or leg
- Weakness or decreased flexibility
- Rings, watches, or clothes that become too tight
- Discomfort or pain, although often there is no pain
- Tight, shiny, warm, or red skin
- Skin that does not indent at all when pressed, or hardened skin
- Thicker skin (hyperkeratosis)
- Skin that may look like an orange peel (swollen with small indentations)
- The development of small warts or blisters that leak clear fluid

Symptoms of head and neck lymphedema include:

- Swelling of the eyes, face, lips, neck, or area below the chin
- Discomfort or tightness in any of the affected areas
- Difficulty moving the neck, jaw, or shoulders
- Scarring (fibrosis) of the neck and facial skin
- Decreased vision because of swollen eyelids
- Difficulty swallowing, speaking, or breathing
- Drooling or loss of food from the mouth while eating
- Nasal congestion or long-lasting middle ear pain, if swelling is severe

Symptoms of lymphedema may begin very gradually and are not always easy to detect. Sometimes the only symptoms may be heaviness or aching in an arm or leg. However, sometimes lymphedema may begin more suddenly. If you develop any symptoms of lymphedema, you should talk with your doctor as soon as possible to learn how they can be managed so the lymphedema does not get worse. Because swelling may be a sign of cancer, it is also important to see your doctor to be sure the cancer has not come back (recurred).

## Causes

Lymphedema is usually a predictable long-term side effect [4] of some cancer treatments. The most common causes of lymphedema in cancer survivors include:

- Blockage of the lymph nodes and/or vessels by the cancer itself, cancer treatment, or biopsies
- Surgery in which lymph nodes were removed. For example, surgery for breast cancer often involves the removal of one or more nearby lymph nodes to check for cancer, which can cause lymphedema to develop in the arm.
- Radiation therapy or other causes of inflammation or scarring in the lymph nodes and vessels
- Metastatic cancer, which is cancer that has spread from where it began to another part of the body

The risk of lymphedema increases with the number of lymph nodes and vessels that were removed or damaged during cancer treatment or biopsies. Sometimes, lymphedema is not related to cancer or its treatment. For instance, a bacterial or fungal infection or another disease involving the lymphatic system may cause this problem.

## Diagnosis

A doctor is often able to identify lymphedema by performing an examination of the affected area. However, additional tests may be sometimes recommended to confirm a diagnosis, plan treatment, or rule out other causes of lymphedema. These tests may include:

- Measuring the affected part of the body with a tape measure to monitor swelling
- Placing the affected arm or leg into a water tank to calculate the volume of fluid that has built up
- Creating a picture of the lymphatic system with lymphoscintigraphy. This is a reliable test for confirming a diagnosis of lymphedema; however, it is not commonly used.
- Monitoring the flow of fluid through the lymph system using an ultrasound [5], an imaging test that uses sound waves to create a picture of the inside of the body
- Having a computed tomography (CT or CAT) scan [6] (imaging test that creates a three-

dimensional picture of the inside of the body with an x-ray machine) or magnetic resonance imaging [7] (MRI, test that uses a magnetic field instead of x-rays to produce detailed images of the body). These tests show the placement and pattern of lymph drainage and whether a tumor or other mass is blocking the flow of the lymphatic system. However, CT and MRI scans are not usually needed to diagnose lymphedema unless the doctor is concerned about a potential cancer recurrence.

- Other tests that can be used in the diagnosis of lymphedema include perometry, which uses infrared light beams, and bioimpedance spectroscopy, which measures electrical currents flowing through body tissues. However, neither test is widely available.

It is also important to make sure another illness is not causing the swelling. Therefore, the doctor may perform other tests to rule out heart disease, blood clots, infection, liver or kidney failure, or an allergic reaction.

## Stages

Doctors describe lymphedema according to its stage, a system that classifies the lymphedema from mild to severe.

**Stage 0.** This means that swelling is not yet visible even though damage to the lymphatic system has already occurred. Most people do not have any symptoms, and Stage 0 lymphedema may exist months or even years before swelling occurs.

**Stage I.** This means that the skin indents when it is pressed and there is no visible evidence of scarring. Elevating the affected limb often helps reduce the swelling.

**Stage II.** This means that the skin does not indent when it is pressed and there is moderate to severe scarring. Elevating the affected limb does not help the swelling.

**Stage III.** This means the skin has hardened, the affected body part has swollen in size and volume, and the skin has changed texture. Stage III lymphedema is permanent.

## Management and treatment

Relieving side effects [8], also called symptom management, palliative care, or supportive care, is an important part of cancer care and treatment. Talk with a member of your health care team about any lymphedema symptoms you experience, including any new symptoms or a change in symptoms, so that treatment can begin as soon as possible.

Treatments for lymphedema are designed to reduce swelling, prevent it from getting worse, prevent infection, improve the appearance of the affected body part, and improve the person's ability to function. Although treatment is able to control lymphedema, there is currently no cure. You may want to ask your doctor to recommend a therapist who specializes in managing lymphedema. Lymphedema therapists are physical therapists, occupational therapists, or other health professionals who specialize in helping people manage lymphedema. The therapist can assess your condition and develop a treatment plan, which may include:

**Manual lymphatic drainage (MLD).** MLD is a specialized technique that involves a type of

gentle skin massage to help blocked lymphatic fluid drain properly into the bloodstream. This may help reduce swelling. For best results, you should begin MLD treatments as close to the start of lymphedema as possible. A member of your health care team can refer you to a lymphedema therapist trained in this technique.

**Exercise.** Exercising usually improves the flow of the lymphatic system and strengthens muscles. A lymphedema therapist can show you specific exercises that will improve your range of motion. Ask your doctor or therapist when you can start exercising, which exercises are right for you, and whether you should wear a compression garment during exercise (see below).

**Compression.** Non-elastic bandages and compression garments, such as elastic sleeves, place gentle pressure on the affected area. This helps prevent fluid from refilling and swelling after decongestive therapy (see below). There are several options, depending on the location of the lymphedema. All compression devices apply the most pressure farthest from the center of the body and less pressure closer to the center of the body. It is important that compression garments fit properly and that they are replaced every three to six months.

**Complete decongestive therapy (CDT).** CDT, also known as complex decongestive therapy, combines skin care, manual lymphatic drainage, exercise, and compression. A clinician or therapist who specializes in lymphedema should perform CDT. The therapist will also teach you how to perform the necessary techniques yourself at home and will tell you how often to do them. Ask your doctor for a referral.

**Skin care.** Because lymphedema can increase the risk of infection, it is important to keep the affected area clean, moisturized, and healthy. Apply moisturizer each day to prevent chapped skin. Avoid cuts, burns, needle sticks, or other injury to the affected area. If you shave, use an electric razor to reduce the chance of cutting the skin. When you are outside, wear a broad spectrum sunscreen that protects against both UVA and UVB radiation and has a sun protection factor (SPF) of at least 30. If you do cut or burn yourself, wash the injured area with soap and water and use an antibiotic cream as directed by your doctor or nurse.

**Elevation.** Keeping an affected limb elevated often helps reduce swelling and encourages fluid drainage through the lymphatic system. However, it is often not practical to maintain an elevated position for a long time.

**Low level laser treatments (LLLT).** A small number of clinical trials, which are research studies involving volunteers, have found LLLT could provide some relief of lymphedema after a removal of the breast (mastectomy), particularly in the arms.

**Medications.** Your doctor may prescribe antibiotics to treat infections or drugs to relieve pain when necessary. Medicines called diuretics that reduce the amount of water in the body are not usually recommended.

**Physical therapy.** If you have trouble swallowing or other issues that result from lymphedema of the head and neck, you may need physical therapy.

**Reducing your risk**

Research continues to look into what factors cause lymphedema and what people can do to lower their personal risk. There is no proven way to completely prevent this condition, but there may be steps you can take to lower your risk. Talk with your doctor if you have concerns about your personal risk of developing lymphedema.

**Maintain a healthy weight [9].** If you are overweight, taking positive steps to manage your weight after a cancer diagnosis may help lower your risk of developing lymphedema.

**Change your position.** Avoid standing or sitting for a long time. While sitting, do not cross your legs. Prop yourself up with pillows in bed. An upright position improves lymph drainage.

**Wear loose fitting clothes.** If you are at risk for developing head and neck lymphedema, don't wear tops with a tight neckline. For those at risk for developing leg lymphedema, avoid tight shoes and socks, and protect your feet by wearing closed shoes, not flip-flops or sandals. For those at risk for arm lymphedema, wear clothing and jewelry that is loose and does not pinch or squeeze your arm or hand, like a tight sleeve or bracelet does, because this can cause the fluid to build up.

**Limit time in extreme heat or cold.** Avoid hot tubs or saunas, and limit hot showers to less than 15 minutes. Also, don't apply a heating pad or ice to swollen areas.

**Have vaccinations, other injections, and IVs given in your unaffected arm.** You should also avoid having blood drawn and your blood pressure taken in your affected arm. Tell your doctor or nurse you are at risk for developing lymphedema.

**Know when to seek medical care [10].** Call your doctor or nurse if you have any signs of infection: a fever (temperature higher than 100.5 degrees F or 38 degrees C); skin that is hot to the touch; or skin redness, swelling, or pain.

## More Information

[Survivorship \[11\]](#)

[Coping With the Fear of Treatment-Related Side Effects \[12\]](#)

[Podcast: After Breast Cancer? Preventing Lymphedema \[13\]](#)

[Podcast: Leg Swelling After Cancer Treatment \[14\]](#)

[Side Effects of Surgery \[15\]](#)

## Related Resources

[LIVESTRONG: Lymphedema \[16\]](#)

[National Cancer Institute: Lymphedema \[17\]](#)

[The National Lymphedema Network \[18\]](#)

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**Links:**

- [1] <http://www.cancer.net/navigating-cancer-care/side-effects/buildup-fluid-or-lymphedema>
- [2] <http://www.cancer.net/about-us>
- [3] <http://www.cancer.net/node/25256>
- [4] <http://www.cancer.net/node/25396>
- [5] <http://www.cancer.net/node/24714>
- [6] <http://www.cancer.net/node/24486>
- [7] <http://www.cancer.net/node/24578>
- [8] <http://www.cancer.net/node/25282>
- [9] <http://www.cancer.net/node/31046>
- [10] <http://www.cancer.net/node/26366>
- [11] <http://www.cancer.net/node/22>
- [12] <http://www.cancer.net/node/24492>
- [13] <http://www.cancer.net/blog/podcasts/after-breast-cancer-preventing-lymphedema>
- [14] <http://www.cancer.net/blog/podcasts/leg-swelling-after-cancer-treatment>
- [15] <http://www.cancer.net/node/24675>
- [16] <http://www.livestrong.org/Get-Help/Learn-About-Cancer/Cancer-Support-Topics/Physical-Effects-of-Cancer/Lymphedema>
- [17] <http://www.cancer.gov/cancertopics/pdq/supportivecare/lymphedema>
- [18] <http://www.lymphnet.org/>