

# Lymphedema and Breast Cancer

## What is lymphedema?

Lymphedema is swelling caused by fluid that collects in tissue under the skin. This fluid is called “lymph.”

## What causes lymphedema?

Both surgery and radiation to the lymph nodes can block the flow of lymph. This causes the mild swelling that often happens after surgery and radiation, which usually gets better as you heal. The swelling that does not go away or increases may be lymphedema.

## When does lymphedema develop?

Though breast cancer-related lymphedema may develop weeks, months, or even years after lymph node surgery or regional lymph node radiation, most occurs within three years of surgery.

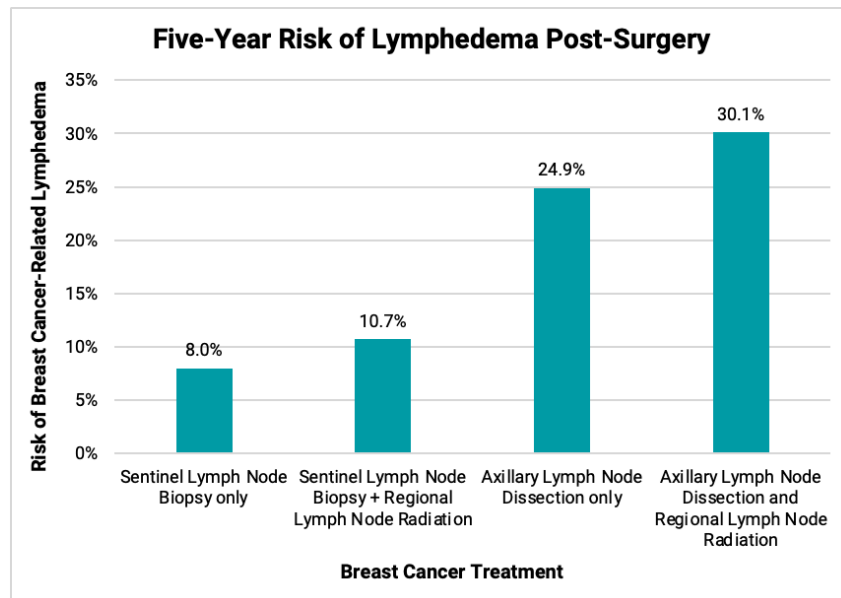
## What is my risk of developing lymphedema?

Not everyone who undergoes breast cancer treatment will develop lymphedema. The graph on the next page shows risk for developing lymphedema based on treatment type.

Risk factors for lymphedema include skin infections (cellulitis) and being very overweight (obese) at the time of breast cancer diagnosis further the risk for breast cancer-related lymphedema.

- **Sentinel lymph node biopsy (SLNB)** is a biopsy taken of the sentinel node(s). These are the first lymph nodes which drain lymph from the breast tissue.
- **Axillary lymph node dissection (ALND)** is when the surgeon removes additional lymph nodes and tissue under the arm after a sentinel node biopsy has found cancer in some nodes. This is done to see the extent of the cancer in that region. The surgeon does not remove all of the lymph nodes under the arm during this procedure.
- **Regional lymph node radiation (RLNR)** is radiation to the lymph nodes around the breast, including the supraclavicular nodes (above collar bone), ±axillary nodes (under the arm), and ±internal mammary nodes (near the center of your chest). Radiation to the breast ALONE does NOT increase risk of lymphedema.

Below is a graph summarizing the risk of developing lymphedema within five years after surgery, according to the type of breast cancer treatment received:



Naoum GE, Roberts S, Brunelle CL, Shui AM, Salama L, Daniell K, Gillespie T, Bucci L, Smith BL, Ho AY, Taghian AG. Quantifying the Impact of Axillary Surgery and Nodal Irradiation on Breast Cancer-Related Lymphedema and Local Tumor Control: Long-Term Results from a Prospective Screening Trial. *J Clin Oncol*. 2020 Oct 10;38(29):3430-3438.

In addition to surgery and radiation to the lymph nodes, other factors can increase risk of lymphedema, although we do not know exactly how much:

- Skin infections in the axilla (cellulitis)
- Being overweight at the time of breast cancer diagnosis (body mass index >25 kg/m<sup>2</sup>)
- Patients who report they have cording (a line or cord down the arm which can happen after surgery and can be painful or limit your arm movement). Talk to your team if you feel you may have cording.

### When am I at highest risk of developing lymphedema?

- Timing of lymphedema often depends on the surgery you had for lymph node removal.
- Patients who had axillary lymph node dissection are at highest risk within the first year after surgery.
- Patients who have had sentinel lymph node biopsy are at highest risk later on and can often develop lymphedema 3-4 years post-surgery.
- Lymphedema can occur at any time, however, most patients who develop lymphedema do so within the first 5 years post-surgery.
- It is important to continue lymphedema screening for 5 years so we can identify lymphedema early.

### How will I know if I have lymphedema?

Lymphedema after breast cancer treatment can occur on your chest, breast, arm, hand or back on the side of your body that was treated for breast cancer, also known as your affected side. If you had removal of lymph nodes from the axilla (armpit) on both sides, lymphedema can occur on either, or both, sides.

### Areas that could develop lymphedema:

- The area from the center of your chest to your shoulder or breast on the affected side
- Under your affected arm
- Down your affected arm
- Along your affected side
- Your affected hand

Lymphedema can affect just one area (e.g., the arm) or several (e.g. the hand and arm)

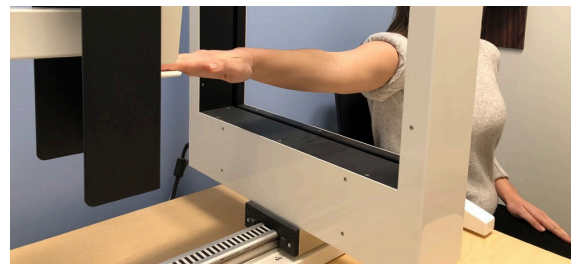
### Early signs of lymphedema include:

- Visible swelling
- A feeling of swelling (even if you cannot see swelling)
- A feeling of heaviness in the breast or arm
- A feeling that the size of your arm has increased
- Clothing, bra, or jewelry feeling tighter than usual
- Clothing, bra, or jewelry leaving a dent or mark on your skin

### How do you screen for lymphedema?

The Mass General Cancer Center (MGCC) has a **Lymphedema Screening Program** where we measure your arm before surgery, after surgery, and throughout follow up care for 5 years. We will also ask you about any symptoms you may have at the time of measurement.

We use a machine called a **Perometer** to measure your arm. It is quick, non-invasive, painless and does not increase your risk of developing lymphedema in any way. This machine is made of a frame of cameras. You sit in a chair next to the machine and we move the frame up and down your arm to measure your arm volume. We measure both arms each time you arrive for a screening visit. Small increases in arm volume of less than 10% may be normal.



A perometer is used to measure this woman's arm volume.

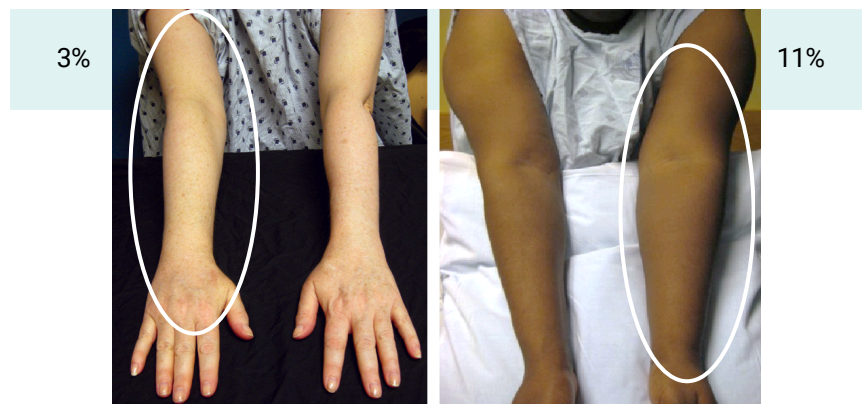
We are also researching newer technologies to help us improve lymphedema screening at MGCC and beyond. You may have an opportunity to take part in further screening in our program. Please ask your team if you are interested.

### How is lymphedema diagnosed?

We will refer you to a certified lymphedema therapist for evaluation if your arm volume increases  $\geq 10\%$  and/or you develop symptoms of lymphedema. We may refer you earlier if you are at high risk of lymphedema. The certified lymphedema therapist will diagnose lymphedema based on your perometry measurement, your symptoms and clinical examination.

Our goal is to diagnose lymphedema early, and offer early treatment to prevent progression of swelling. Early treatment is more successful as the swelling is new and very fluid.

The pictures below show different levels of arm swelling:



## **Can lymphedema be treated?**

Yes, lymphedema can be treated by a Certified Lymphedema Therapist. Treatment can range from wearing a compression sleeve during the day to undergoing manual lymphatic drainage or complete decongestive therapy depending on the level of swelling. Your treatment will always include education and exercise. The goals of treatment are to reduce swelling and symptoms and to help you transition to independently managing your swelling.

## **Can I prevent lymphedema?**

There is no proof that lymphedema can be prevented or that certain behaviors cause it, but there are things you can do to take care of the health of your arm. Below are examples (ask your team about resources available at MGCC):

- Take part in the MGCC Lymphedema Screening Program.
- Practice good skin care (wash and moisturize daily, treat wounds or infections in the area of breast cancer treatment quickly to avoid infection).
- Maintain your body weight. We understand this can be very challenging during treatment.
- Exercise regularly. Recommendations post breast cancer treatment include: 150 minutes per week of moderate aerobic activity (walking, swimming) and resisted exercises 2-3 times weekly. It is best to undergo a supervised program and progress very slowly after treatment.

Be aware of your body's response to any activity or injury. Everyone has different triggers for lymphedema.

### **Things to Keep in Mind**

#### **Lifting heavy objects**

- The amount of weight that is safe to lift is different for each person. It is best to start by lifting lightweight objects. Start with one pound.
- Slowly increase the weight you lift, but pay attention to how your body reacts. You should be able to lift a weight comfortably and get tired after lifting it 10 times. Pain and swelling after an activity are signs that you are doing too much.

#### **Repeated movements**

- For most people, repeated arm movements such as mopping, vacuuming, painting, rowing, weightlifting, and using exercise machines are not a problem. However, some patients feel these types of activities may have triggered their lymphedema.
  - Most of these patients report having done a lot of one activity at a time. Start with a short period (5-10 minutes) of activity and progress slowly.
- As you do activities, be aware of any symptoms in your chest, breast, arm or hand. If your arm or hand swell or hurt during or after an activity, you should stop this activity or decrease the force and/or amount of time you use your arm and hand.

### **Hot tubs or saunas**

- If you are going to use a hot tub or sauna, start slowly (5 minutes, for example) and watch your body for signs of swelling over the next 24 hours. Progress the time you are using the hot tub or sauna slowly.

### **Airplane travel**

- Drink water before, during, and after your flight. Staying hydrated can help to keep fluid moving.
- Stretch your arm over your head while waiting to board and during the flight.
- If you do not have lymphedema, there is no evidence that you need to wear a compression sleeve as prevention when traveling.
- If you have lymphedema, use a compression sleeve when flying. A compression sleeve should be professionally fitted by a certified lymphedema therapist and feel comfortable on your arm.

### **Exercise and Activities**

There are many valuable research studies on the effect of exercise on lymphedema. If supervised and progressed slowly, exercise does not cause lymphedema in those who are at risk and does not worsen it in those who have lymphedema.

Approach an exercise program slowly and mindfully, letting your arm guide you in how quickly to increase your activities. Our goal is to help you continue the activities you enjoy and that are part of your daily lifestyle.

Activities such as walking, swimming, yoga, stretching and weightlifting are all good choices. Exercise should be prescribed by a healthcare professional. Ask your treatment team for more information.

### **How can I protect myself from skin infections?**

Skin infections can put you at risk for developing lymphedema. Of course, you will get cuts and scrapes from time to time. As long as these are healing normally, there is no cause for concern. If you have a cut that seems infected (increasing redness in the area, increased soreness or fever or chills), please seek medical care immediately on the same day. If you are at risk of lymphedema, infections should be treated quickly.

### **Part of good skin care for anyone includes:**

- Wash and moisturize your skin daily to avoid chapped, dry, or broken skin.
- Protect yourself from insect bites.
- Use sunblock with an SPF of 30 or more to avoid sunburn.
- Try to push back your cuticles (the skin around your nails) rather than cutting them. Always use instruments that have been cleaned well when caring for your nails.
- Try to minimize scratches or bites from pets.
- Wash cuts with soap and water.

**There is no evidence that injections, intravenous lines, blood draws or blood pressure readings on the arm on the same side as your breast cancer causes lymphedema.**

- You may choose to have medical procedures done only on the side without lymph node removal, especially if you are at high risk of lymphedema (after axillary lymph node dissection).
- If you have had only a sentinel node biopsy, your risk of lymphedema is low, and you may use whichever arm you prefer for these procedures.
- Isolated injections, blood pressure measurements or blood draws are not associated with increases in arm swelling. If you need to use your treated side for these procedures, you may do so.

**What about the COVID vaccine?**

- Patients who have been treated for breast cancer appear to have symptoms similar to the general population after COVID vaccination.
- Lymph node swelling close to the location of the COVID vaccine site is a side effect of the Moderna and Pfizer vaccines in 10-15% of people vaccinated.
- We do not know if lymph node swelling after COVID vaccination increases risk of lymphedema. We are studying this.
- We recommend having the vaccine either on your leg or on the side which has not undergone lymph node removal.
- You should be aware that lymph node swelling may also happen on the side opposite to the vaccine site. For example, if you have your vaccine in your right arm, you could experience lymph node swelling under your right arm, under your left arm, or on either side above your collar bone.
- In most cases, lymph node swelling resolves within a week after COVID vaccination. If it is not resolving, please discuss with your team.

**Be mindful but not fearful of lymphedema. Know what your risk factors are, take part in screening and know how to look for lymphedema.**

**Please talk to your treatment team about any concerns or questions you have about developing lymphedema.**