Anatomy

Breast cancer is a cancer that starts in the tissues of the breast. There are two main types of breast cancer:

- Ductal carcinoma starts in the tubes (ducts) that move milk from the breast to the nipple. Most breast cancers are of this type.
- Lobular carcinoma starts in the parts of the breast, called lobules, that produce milk.

In rare cases, breast cancer can start in other areas of the breast.

Breast cancer may be invasive or noninvasive. Invasive means it has spread from the milk duct or lobule to other tissues in the breast. Noninvasive means it has not yet invaded other breast tissue. Noninvasive breast cancer is called "in situ."

- Ductal carcinoma in situ (DCIS), or intraductal carcinoma, is breast cancer in the lining of the milk ducts that has not yet invaded nearby tissues. It may progress to invasive cancer if untreated.
- Lobular carcinoma in situ (LCIS) is a marker for an increased risk of invasive cancer in the same or both breasts.

Many breast cancers are sensitive to the hormone estrogen. This means that estrogen causes the breast cancer tumor to grow. Such cancers have estrogen receptors on the surface of their cells. They are called estrogen receptor-positive cancer or ER-positive cancer.

Goals

- Restore flexibility and strength to the joints and muscle groupings that have weakened as a result of the surgery and lack of use
- Increase endurance and lung capacity
- Help prevent lymphedema or, if present, help treat it
- Restore range of motion, preventing a “frozen” shoulder or other joint
- Improve circulation, which in turn will facilitate faster healing
• Elevate levels of natural **endorphin**, which in turn will help relieve pain, depression, fatigue, weakness, and tension
• Help prevent formation of excessive **scar tissue and swelling**
• Facilitate better **posture** and improve body mechanics
• Facilitate overall **conditioning and improve bone density**, especially for those about to undertake chemotherapy and/or radiation
• Prevent **muscle atrophy**
• Help **lose or maintain weight**
• Increase one’s **sense of well-being**, promoting not only physical healing, but emotional healing as well

**Lymphedema**- a disruption of the body’s lymphatic system when damaged lymph nodes can cause protein rich fluid to leak into the tissues. This can result in significant swelling and evolve into a severely limiting physical condition.

**Secondary Lymphedema**- acquired as result of surgery, radiation, infection, or trauma-Specifically cancer surgeries removing lymph nodes.

- can develop post-operatively, or weeks, months, years later

- can be caused by infection due to chemo performed to the surgical area after repeated aspirations of seroma in the axilla or breast incision.

- Radiation therapy can damage otherwise healthy lymph nodes and vessels, causing scar tissue to form which interrupts the normal flow of the lymphatic fluid.
Symptoms of Lymphedema

-a full sensation in the limb(s)

-skin feeling tight

-decreased flexibility in the hand, wrist or ankle

- difficulty fitting into clothing in one specific area, or ring/wristwatch/bracelet tightness.

If you notice persistent swelling, it is very important that you seek immediate medical advice

Stages of Lymphedema

Lymphedema develops in a number of stages, from mild to severe, referred to as Stage 1, 2 and 3:

- **Stage 1 (spontaneously reversible):**
  
  Tissue is still at the "pitting" stage, which means that when pressed by fingertips, the area indents and holds the indentation. Usually, upon waking in the morning, the limb(s) or affected area is normal or almost normal size.

- **Stage 2 (spontaneously irreversible):**
  
  The tissue now has a spongy consistency and is "non-pitting," meaning that when pressed by fingertips, the tissue bounces back without any indentation forming. Fibrosis found in Stage 2 lymphedema marks the beginning of the hardening of the limbs and increasing size.

- **Stage 3 (lymphostatic elephantiasis):**
  
  At this stage the swelling is irreversible and usually the limb(s) is/are very large. The tissue is hard (fibrotic) and unresponsive; some patients consider undergoing reconstructive surgery called "debulking" at this stage.

When lymphedema remains untreated, protein-rich fluid continues to accumulate, leading to an increase of swelling and a hardening or fibrosis of the tissue. In this state, the swollen limb(s) becomes a perfect culture medium for bacteria and subsequent recurrent lymphangitis (infections). Moreover, untreated lymphedema can lead into a decrease or loss of functioning of the limb(s), skin breakdown, chronic infections and, sometimes, irreversible complications. In the most severe cases, untreated lymphedema can develop into a rare form of lymphatic cancer called Lymphangiosarcoma (most often in secondary lymphedema).
Treatments for Lymphedema

- If first signs are redness, heat and/or pain, may be treated with antibiotics which often reduces some of the swelling and discoloration.

- If not caused by infection:
  - Manual lymphatic drainage
  - Bandaging/Wrapping
  - Proper skin care/diet
  - Compression garments- sleeves
  - Exercise
  - Self-manual lymphatic drainage and bandaging

Lymphedema Considerations for Patients

I. Skin Care – Avoid trauma / injury to reduce infection risk

- Keep extremity clean and dry
- Apply moisturizer daily to prevent chapping/chafing of skin
- Attention to nail care, do not cut cuticles
- Protect exposed skin with sunscreen and insect repellent
- Use care with razors to avoid nicks and skin irritation
- If possible, avoid punctures such as injections and blood draws
- Wear gloves while doing activities that may cause skin injury (i.e., washing dishes, gardening, working with tools, using chemicals such as detergent)
- If scratches/punctures to skin occur, wash with soap and water, apply antibiotic ointment, and observe for signs of infection (i.e. redness)
- If a rash, itching, redness, pain, increased skin temperature, fever or flu-like symptoms occur, contact your physician immediately for early treatment of possible infection
II. Activity / Lifestyle

- Gradually build up the duration and intensity of any activity or exercise
- Take frequent rest periods during activity to allow for limb recovery
- Monitor the extremity during and after activity for any change in size, shape, tissue, texture, soreness, heaviness or firmness
- Maintain optimal weight

III. Avoid Limb Constriction

- If possible, avoid having blood pressure taken on the at-risk extremity
- Wear loose fitting jewelry and clothing

IV. Compression Garments

- Should be well-fitting
- Support the at-risk limb with a compression garment for strenuous activity (i.e. weight lifting, prolonged standing, running) except in patients with open wounds or with poor circulation in the at-risk limb
- Consider wearing a well-fitting compression garment for air travel

V. Extremes of Temperature

- Avoid exposure to extreme cold, which can be associated with rebound swelling, or chapping of skin
- Avoid prolonged (greater than 15 minutes) exposure to heat, particularly hot tubs and saunas
- Avoid placing limb in water temperatures above 102˚ Fahrenheit (38.9˚ Celsius)

VI. Additional Practices Specific to Lower Extremity Lymphedema

- Avoid prolonged standing, sitting or crossing legs
- Wear proper, well-fitting footwear and hosiery
- Support the at-risk limb with a compression garment for strenuous activity except in patients with open wounds or with poor circulation in the at-risk limb