

# Lymphedema Education Session

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## Questions we will answer:

- What is lymphedema?
- Who is at risk?
- When is it likely to occur?
- Why does it happen?
- How do I reduce my risk?
- How is it treated?
- What are the exercise guidelines?

## What is lymphedema?

Lymphedema is an abnormal accumulation of protein-rich fluid in the tissue which can result in swelling of a body part and fibrosis.

It only impacts the region of the body affected by lymph node removal/damage.

- Upper body for breast cancer survivors
- Lower body for endometrial cancer survivors

## Who is at risk?

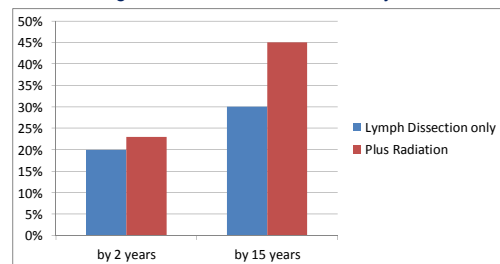
- Removal of lymph nodes
- Damage to the lymph system
- Other factors
  - Obesity
  - Poor diet

## How is lymphedema acquired and how rapidly?

- Once lymphatics are removed or damaged, lymphedema may occur at any time.
- Occurs most often within 3 years of breast cancer treatment.
- Lymphedema usually occurs slowly and steadily.

## Secondary Arm Lymphedema Incidence & Prevalence

Among 1151 women followed for 15 years...



www.nci.nih.gov - lymphedema

## What does the lymphatic system do?

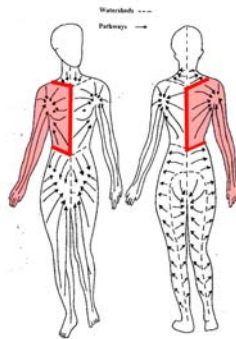
- Provides surveillance against cancer/infection
- Balances fluid and proteins in the circulatory system by transporting several liters of lymph fluid per day
- Assists fat digestion

## Role of the Lymphatic System

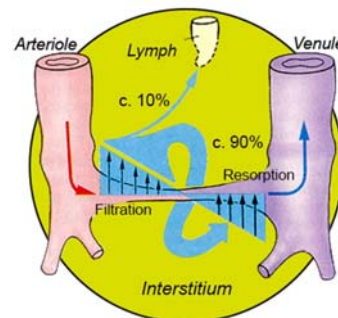
- Transports proteins
- Removes excess water
- Absorbs fat molecules from the gut
- Removes cellular debris and foreign material (e.g. bacteria, viruses, cancer cells)

## Skin Lymph Drainage Territories

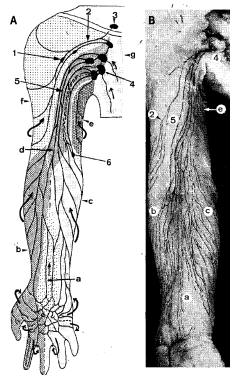
The **at risk region** is the area where lymph nodes were removed. This includes all tissues in the arm, chest and back that are draining lymph fluid toward those nodes.



## Illustrating the Concept of Lymph Formation

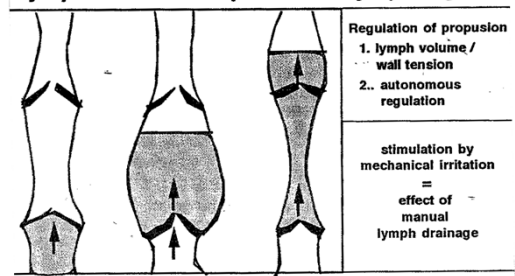


## Arm Lymph Drainage



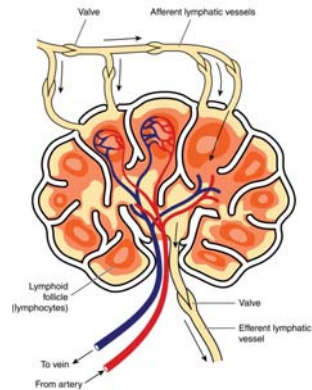
## Lymphangion

### Lymph vessel transport unit Lymphangion

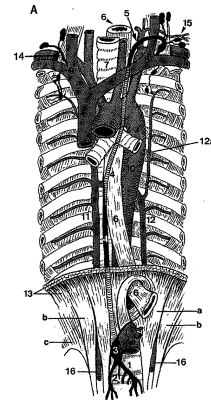


Frequency in resting : 6 - 10 beats / min.; increase 10 times by exercise

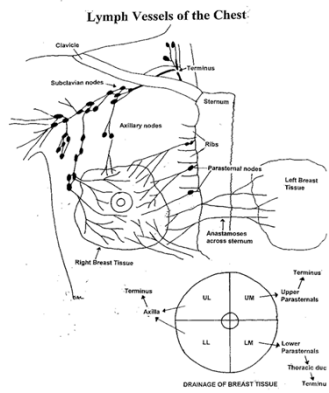
## Lymph Node



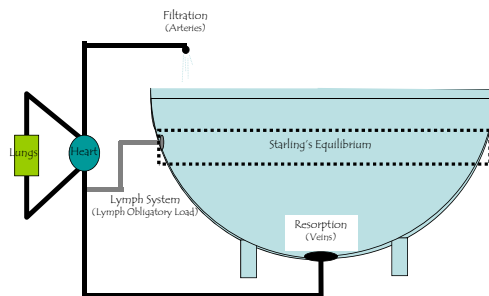
## Thoracic Duct



## Breast Lymph Drainage



## Lymph Drainage System



## Stages of Lymphedema

**Stage 0** – Latent, sub-clinical

**Stage 1** – Spontaneously reversible

- At this stage, it is present during the day but goes away overnight
- Pitting starts between Stage 1 and 2

**Stage 2** – Spontaneously irreversible

- By this stage, it is still present after a night's rest, even if improved

**Stage 3** – Lymphostatic Elephantiasis

- Rare occurrence in breast cancer

## Breast Cancer-Related Lymphedema



## What changes occur with an altered lymph system?

- Excess protein in the tissues
- Accumulation of excess fluid in the limb
- Decreased oxygenation
- Slow tissue-healing time
- Formation of fibrosis

## What does lymphedema feel like?

- Tightness or heaviness in the limb
- Achy
- Pins and needles
- Tenderness in the elbow
- 'Odd' sensations
- "Pain of congestion"
- Discomfort
- NOT "unbearable pain," which might be
  - malignant lymphedema
  - radiogenic plexopathy
- NOT muscle soreness
  - Let's discuss the difference...

## National Lymphedema Network (NLN) materials associated with this education session

- Training of therapists
- Risk-reduction guidelines
- Treatment of lymphedema
- Exercise guidance

## How can you reduce your risk of developing/worsening lymphedema?

Lymphedema risk-reduction practices include:

- Skin care
- Activity and lifestyle
- Avoiding limb constriction
- Compression garments (If appropriate)
- Avoiding extremes of temperature

## Skin Care

Avoid trauma/injury and reduce infection risk

- Keep arm clean and dry
- Apply moisturizer daily to prevent chapping and chafing of skin
- Give 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 (shave arm pit/axilla with electric razor)
- Wear gloves while doing activities that may cause skin injury
- If scratches/punctures to skin occur, wash with soap and water, apply antibiotics, and observe for signs of infection
- If a rash, itching, redness, pain, increased skin temperature and swelling, fever, or flu-like symptoms occur, contact your physician immediately

## Activity and Lifestyle

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

## Avoid Limb Constriction

- If possible, never have your blood pressure taken on the arm at risk
- Wear loose-fitting clothing and jewelry

## Compression Garments

- Should be well-fitting
- Support the affected limb during strenuous activity (e.g. weight lifting!)
- If you have lymphedema, wear a well-fitting compression garment for air travel

## Extremes of Temperature

- Avoid exposure to extreme cold - which can be associated with rebound swelling - or chapping of skin
- Avoid prolonged (>15 minutes) exposure to heat, particularly hot tubs and saunas
- Avoid immersing limb in water temperatures above 102 degrees

## What can you do if you develop lymphedema?

Get evaluated by your doctor or a Certified Lymphedema Therapist (CLT).

Early treatment results in faster response to treatment, thereby decreasing the length of therapy.

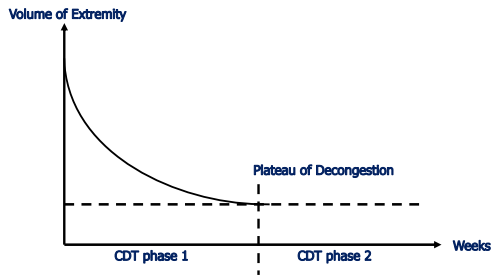
## Training of Lymphedema Therapists

See handout from the NLN ([lymphnet.org](http://lymphnet.org)). Be sure your therapist meets their minimum requirements.

## How is lymphedema treated?

Complete Decongestive Therapy is an effective therapy for lymphedema and other swelling disorders.

## Complete Decongestive Therapy



## Complete Decongestive Therapy

PHASE 1: Decongestion	PHASE 2: Maintenance
Meticulous skin care	Meticulous skin care
Manual Lymph Drainage	Day: Compression garment
Gradient compression bandaging	Night: Gradient compression bandaging
Remedial exercises	Self-Manual Lymph Drainage
Compression garment	Remedial exercises
	Follow-up assessment

## Meticulous Skin & Nail Care

- Low-pH, gentle soaps
- Moisturizer (Low pH also recommended)
- Do **not** cut cuticles
- Prevent infection
- Keep skin working optimally

## Manual Lymph Drainage Expert Stretching of the Skin



## Manual Lymph Drainage

- Drains the congested areas
- Reduces the risk of infection
- Normalizes the size and pressure in the limb
- Reduces pain/discomfort

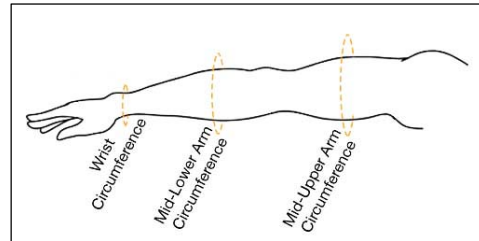
## Compression Therapy

- Gradient, short-stretch bandaging
- Medical compression garment

## Gradient Compression Bandaging

- Decreases the filtration rate
- Prevents re-accumulation of fluid
- Softens fibrosis
- Provides external counter-pressure during exercise

## Garment Measurement



## Treatment with CDT



Before CDT



After CDT

## Custom Compression Garment



## Remedial Lymphedema Exercises

- Improves range of motion, endurance, coordination, and strength, where possible. Will provide optimal results with decongestive therapy.
- Non-aerobic, gentle stretching
- Swimming, scuba diving, singing, yoga, Tai Chi, Chi Kung

## Diaphragmatic Breathing

Abdominal breathing stimulates the transport of lymph back to the heart through the thoracic duct.

## NLN Exercise Guidelines

### GENERAL

- Increase gradually, progress slowly, monitor your limb
- If you have lymphedema, wear a compression garment while exercising
- There is no agreement on whether you should wear a garment if you do NOT have lymphedema
- Modify your program according to your symptom response
- Stay well hydrated
- Avoid getting overheated

### LYMPHEDEMA EXERCISES

- Non-resistive active motion of the affected arm
- Part of treatment and risk reduction

## NLN Exercise Guidelines (cont.)

### FLEXIBILITY/STRETCHING

- May improve lymph flow by decreasing scarring and tightness
- Avoid over-stretching

### STRENGTH TRAINING

- Modifications are needed
- Adequate rest between sessions is crucial
- Modify your program according to your symptom response

## NLN Exercise Guidelines (cont.)

### AEROBIC CONDITIONING

- Thought to be beneficial for individuals with lymphedema
- Deep respiration enhances lymph drainage
- Avoid injury by increasing very gradually
- Avoid getting overheated
- Modify your program according to your symptom response

## NCCN/ACS/ACSM Guidelines for Breast Cancer Survivors

- Avoid inactivity
- Build to 150 minutes/week of aerobic activity
- Daily flexibility activities are encouraged
- Strength training activities are safe
  - Start with a SUPERVISED program
  - Start low, progress slow
  - If you have any change in upper-body symptoms that last a week or longer, get an evaluation by a clinician
  - Careful with overall arm work (e.g. If you garden on a Monday, wait to do strength training 'till Tuesday)
  - Back off resistance after an exercise holiday

## Strength After Breast Cancer

Based on a large clinical trial conducted at U. of Pennsylvania

- 154 survivors WITHOUT lymphedema
- 141 survivors WITH lymphedema

Women who participated had these benefits:

- 50% reduced likelihood of lymphedema worsening
- 70% reduced likelihood of lymphedema onset among women with 5 or more nodes removed
- Improved strength and energy
- Improved body image
- Reduced body fat
- Prevented decline in physical function



## For more information...

National Lymphedema Network  
[www.lymphnet.org](http://www.lymphnet.org)

BreastCancer.org  
[www.breastcancer.org](http://www.breastcancer.org)

Living Beyond Breast Cancer  
[www.lbbc.org](http://www.lbbc.org)

American Cancer Society  
[www.cancer.org](http://www.cancer.org)