

Lymphedema 101

Andréa Leiserowitz, PT, DPT, CLT
Board-Certified Specialist in Oncologic Physical Therapy

Cascade Health Physical and Hand Therapy
aleiserowitz@cascadehealth.org
Facebook: Oncology Physical Therapy

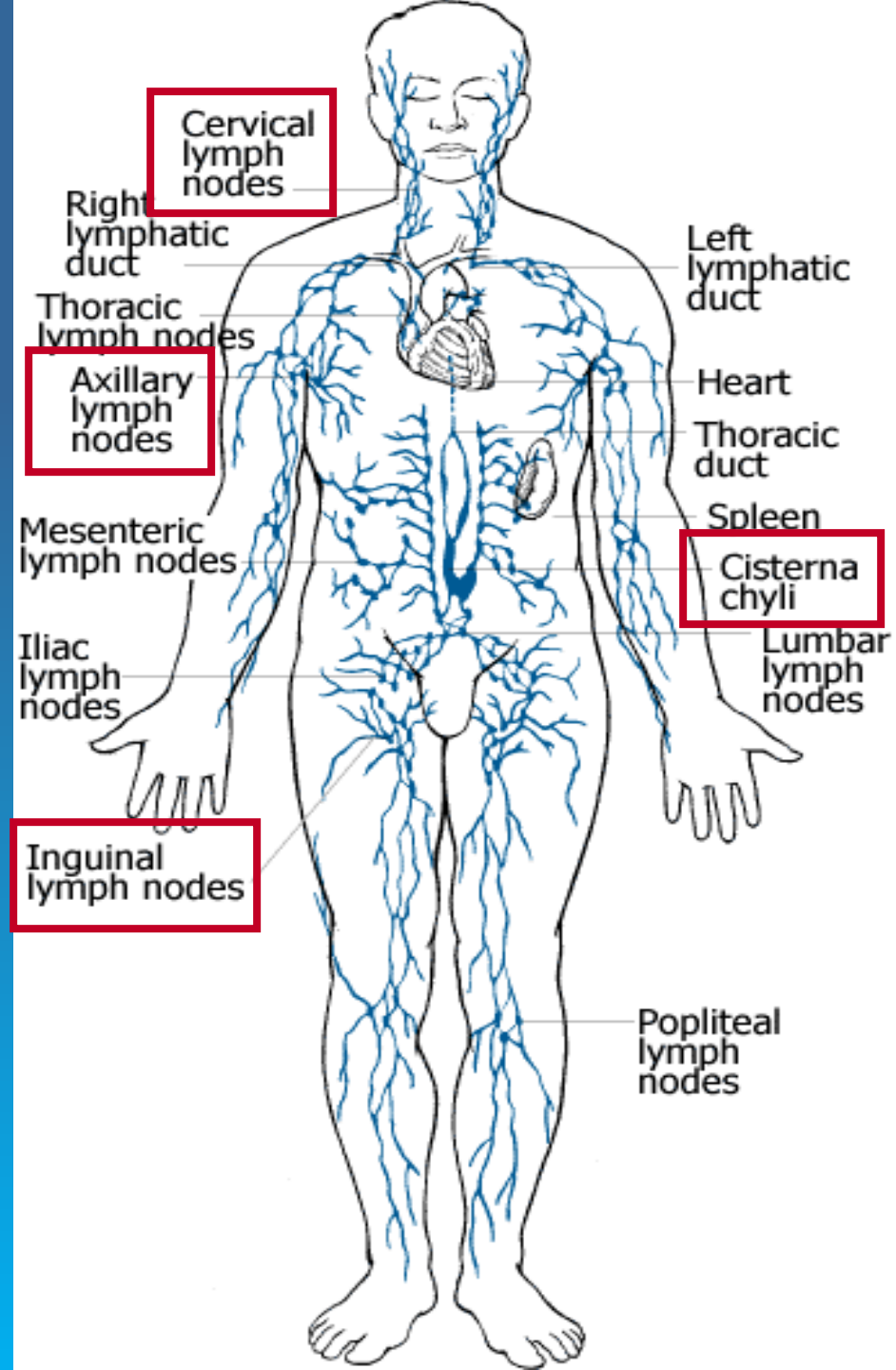
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Lymph Flow

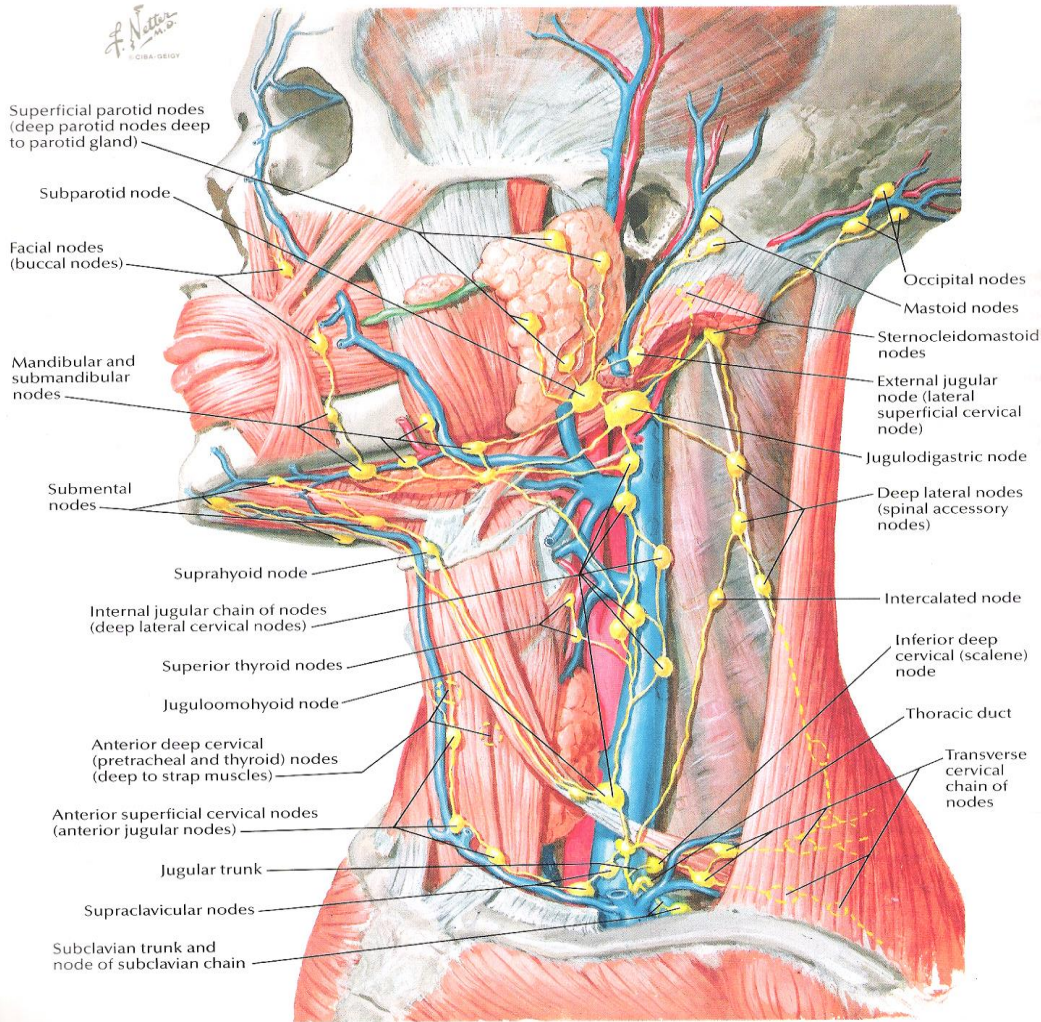
Lymph fluid moves through the body via:

- Muscle contraction and pressure gradient (exercise)
- Diaphragmatic (deep) breathing
- Artery contraction
- Helped by massage and compression



Lymph Vessels and Nodes of Oral and Pharyngeal Regions

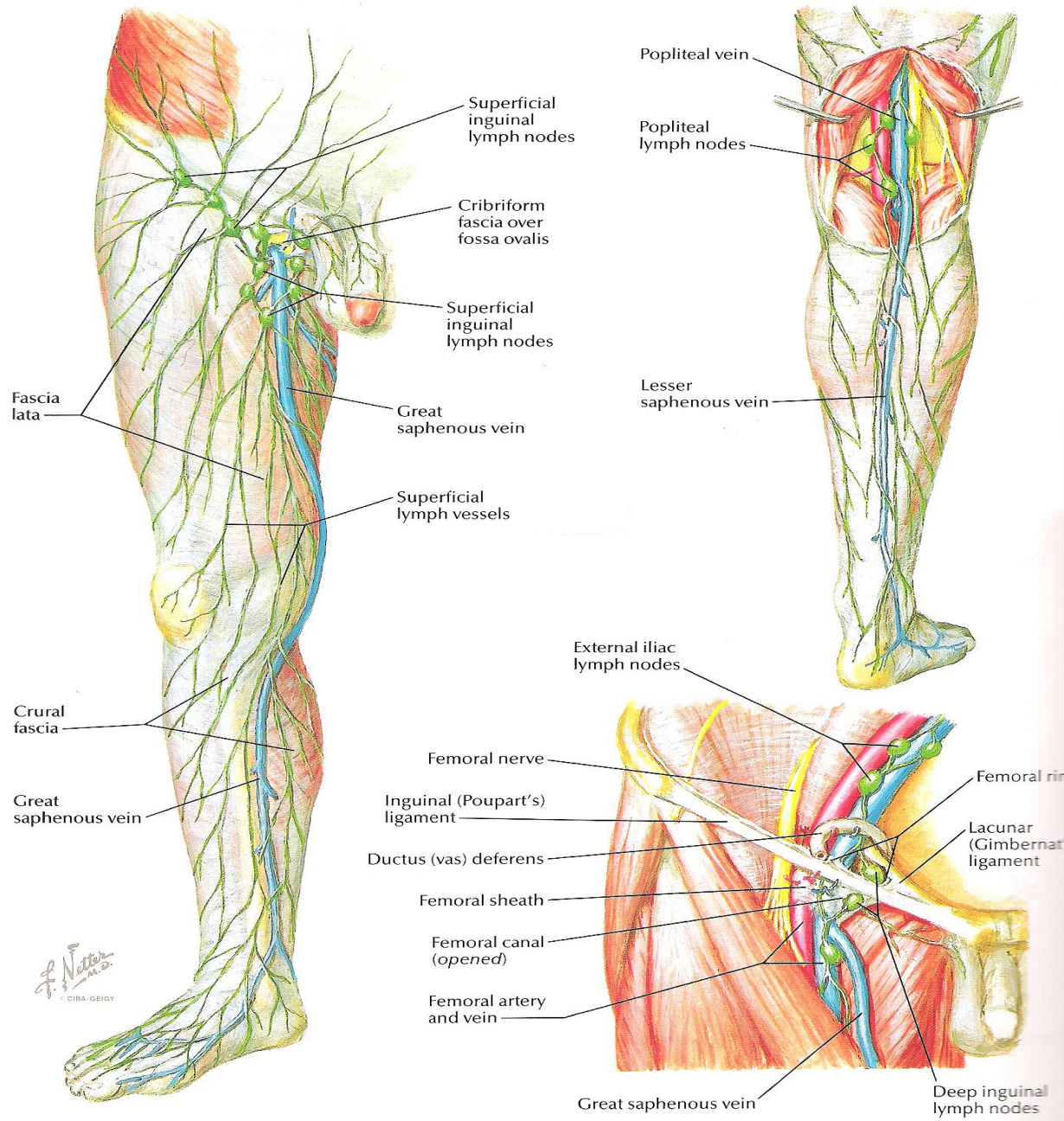
SEE ALSO PLATE 197



Netter's Atlas of Human Anatomy, 1989

Lymph Vessels and Nodes of Lower Limb

SEE ALSO PLATES 382, 383



Netter's Atlas of Human Anatomy, 1989

Lymphedema



- ❖ Protein-rich fluid accumulation
- ❖ **Improper management** can lead to:
 1. Chronic pitting edema
 2. Chronic cellulitis
 3. Pain
 4. Fatigue
 5. Fibrosis

Who Gets Lymphedema?

- ❖ Secondary - damage/trauma to lymph system:
 - Parasites (Filarial worms)
 - Lymph node dissection
 - Radiation
 - Malignant lymphedema = tumor blockage
 - Trauma/burns/paralysis
 - Liposuction
 - Incidence: not fully known, around 15.5% of all cancers (2010 ACS):
 - up to 40% of breast cancer
 - upper extremity melanoma = 5%, lower = 28%,
 - gynecologic = 20%, genitourinary = 10%, head/neck = 4%
 - sarcoma = 30%, pelvic node dissection = 22%, radiation = 31%
- ❖ Primary – congenital
- ❖ Difficult to know there's a problem without *palpating* and *measuring*

Lymphedema Triggers

Lymph fluid overload secondary to:

1. Heat
2. Overexertion/over-use during exercise/activities
3. Infection
4. Elevation/altitude
5. Obesity: body mass index of overweight to obese = a 40-60% higher risk of lymphedema
6. Flight
7. Seroma and lymphatic cording may contribute to risk

It can occur anytime after surgery and/or radiation

There is NO cure for lymphedema

Lymphedema Risk Reduction

1. Automatic referral
2. Education/re-education of ALL patients at risk
3. Fibrosis reduction and scar tissue work
4. Baseline girth measurements
5. Teach patient daily skin checks
6. Teach self-MLD
7. Get patient on comprehensive ex. program
8. Address weight loss
 - Rec'd nutrition consult if needed
 - Decrease salt intake before/during flight



Scars Make a Difference!



- Visible scar is the “tip of the iceberg”
- Immobile scars can cause **long-term pain syndromes and local edema**
- All incisions should have scar tissue work done 4-6 weeks post surgery - taught to caregiver
- Once scar is mobilized, no further treatment needed except:
radiation

Range of Motion

- Normalized motion after surgery is critical
- Loss of motion affects function and may make lymphedema worse
- Recommend stretches before and after radiation healing – no end point

Lymphedema Treatment

- Fibrosis reduction
- Manual lymph drainage massage
 - PT, OT, MT
 - Self
- Compression bandaging
- Compression garment (leg/abdomen/chest wall/scrotum)
- Exercise, weight reduction



Bandaging Supplies

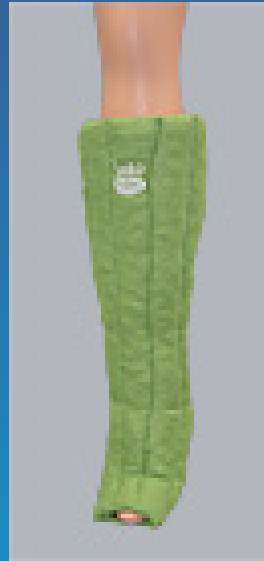


Garments

1. Prophylactic versus treatment
2. Cost
3. Replacement: every 6 months
4. Types:
 - a. Juzo
 - b. Medi
 - c. JOBST
 - d. Sigvaris
5. Indication with exercise:
 - Need to be on before, during and after
 - No garments needed for swimming



Nighttime Garment Options



Jovipak: jovipak.com



Circaid: www.lymphedema.biz/products/graduate.htm

Healthy Living Recommendations

1. Lifetime risk but lymphedema is not inevitable
2. Stay healthy, maintain proper weight
3. Daily skin checks, seek MD promptly with any changes
4. Return to PT/OT as needed
5. If you have a garment, replace it every 6 months and make sure it fits you properly, especially if you gain/lose weight
6. Slow, gentle exercise progression is always best

If you follow your precautions and take good care of yourself, you should be able to do almost any activity

Continued Recommendations

2. Early intervention with chemo-related toxicities such as neuropathy and swelling
3. Address weight loss or maintain proper weight, especially of abdominal area
4. Find a PT: [apta.org](https://www.apta.org)

On our Radar

- Physiotouch/Lymphatouch
- Low-level laser
- Acupuncture
- Lymph vessel to vein anastomosis or lymph node transfer
- Acebilustat as treatment for arm lymphedema at Stanford

Trial # NCT05203835

Bottom Line

Whether at risk or currently have lymphedema:

1. Daily **cardiovascular exercise** with combination of weight bearing and non-weight bearing exercise x minimum 30 min.
2. Appropriate **whole body weight training program** 2-3x/week specific to medical issues, osteopenia/osteoporosis levels
3. **Flexibility** exercises 3-7x/week depending on specific needs
4. Swimming
5. Avoid infection