



Lymphedema Treatment and Management

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Disclosure Statement

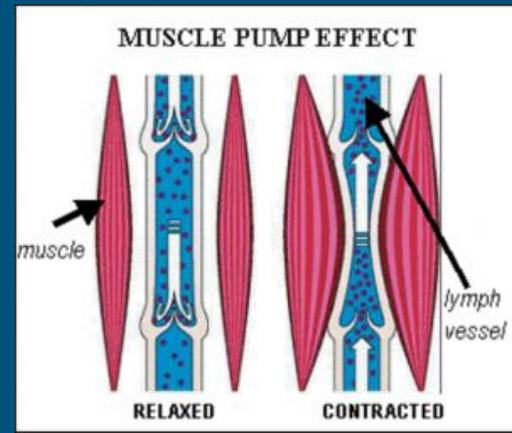
I have no relevant financial or non-financial relationships to disclose.

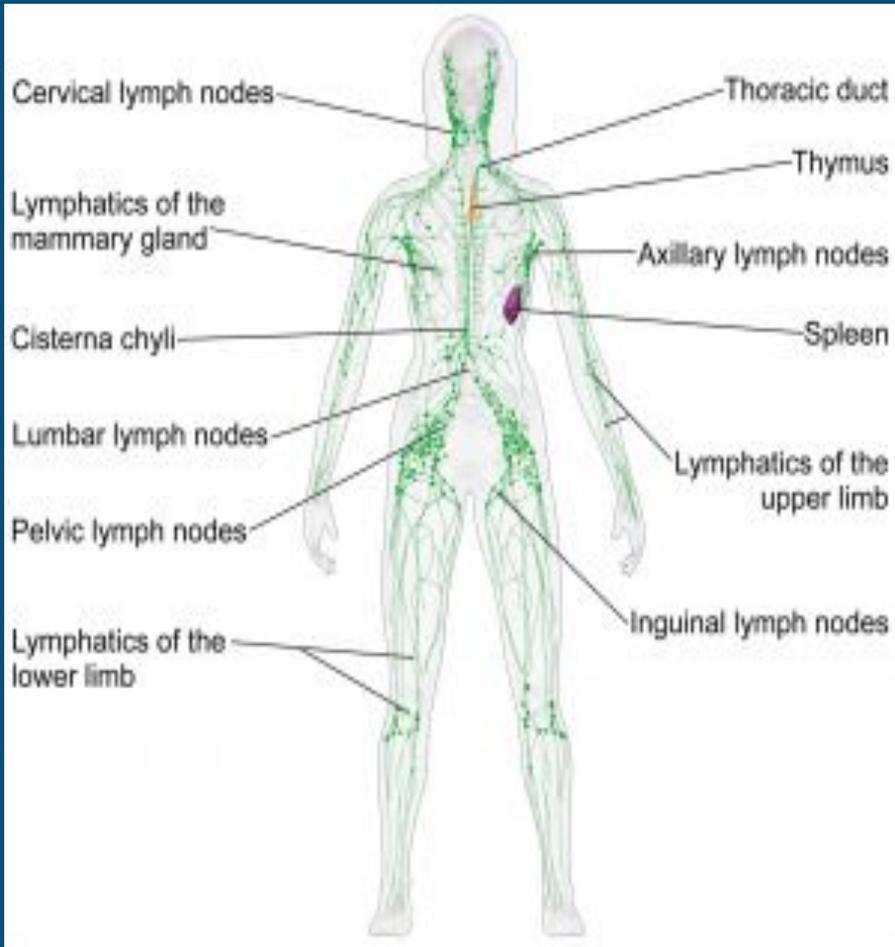
Objectives

- Review the anatomy of the lymphatic system
- Discuss diagnosis and prognosis of lymphedema
- Explore treatment and management of lymphedema
- Review patient case study

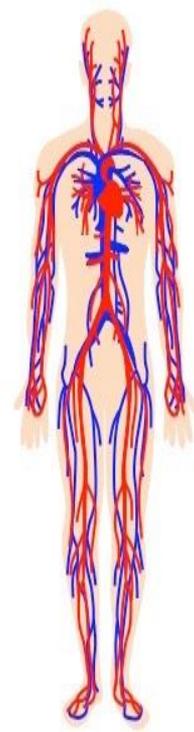
Anatomy of the Lymphatic System

- The lymphatic system is part of the circulatory system and consists of a network of lymphatic vessels that carry a clear fluid called lymph.
- The main function is to collect and transport tissue fluids from the intercellular spaces in all the tissues of the body back to the venous system.
- Lymph nodes and other lymphatic organs filter the lymph to remove microorganisms and other foreign particles.

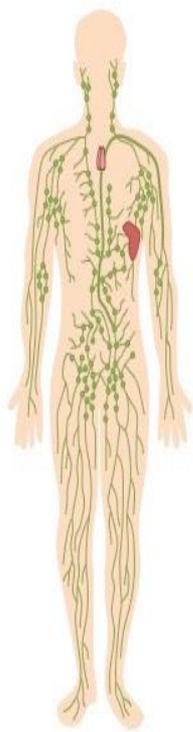




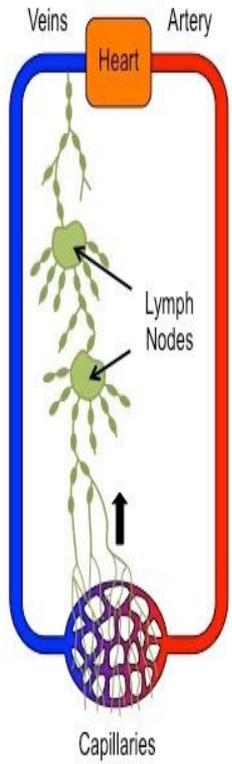
Circulatory System



Lymphatic System



Inter-relationship between systems



Overview of the System

- Lymph - Interstitial fluid once it enters the lymphatic system
- Lymphatic loads - Protein, water, cellular components and particles, and fat
 - Protein - cell nutrition, immune defence, and blood coagulation
 - Water - essential in the body's fluid management and solvent for other lymphatic loads
 - Cells and Particles - circulation of lymphocytes back into bloodstream is essential for immune response; formation of metastases in lymph nodes and other tissues
 - Fatty acids - absorbed by the intestinal lymph vessels
- Lymph time volume (LTV) - Amount of lymph fluid the lymphatic system is able to transport in a unit of time
 - Lower at rest, higher with activity
- Transport capacity (TC) - Amount of lymph fluid transported by the lymphatic system at the maximum frequency

The Flow of Lymph

- Capillaries - Absorb lymphatic loads into the lymphatic system
- Pre-collectors - Absorb and transport lymph
- Collectors - Transport lymph fluid to the lymph nodes and lymphatic trunks
- Nodes - Protective function and immune function
 - Axillary, cervical, inguinal
- Trunks - Transport lymph to the ducts
 - Jugular, supraclavicular, subclavian, parasternal, lumbar
- Ducts - Drains the lymph into the venous angle
 - Right lymphatic duct, thoracic duct

What is Lymphedema?

- Transport capacity of the lymphatic system falls below the normal lymphatic load
 - Abnormal accumulation of water and proteins in subcutaneous tissue
- Chronic lymphatic disease
 - Gradual onset
- Long-term physical and psychosocial consequences
 - Combines with other pathologies (i.e. cardiac and venous insufficiency)
 - Cosmetic deformities
- Lymphedema vs edema

Primary vs Secondary

- Primary
 - Hypoplasia
 - Hyperplasia
 - Aplasia
 - Lymphedema praecox
 - Lymphedema tarda
- Secondary
 - Radiation and surgery
 - Orthopedic injury



Source: CompreCare Lymphatics

Stages of Lymphedema

Stage 0 - No swelling

Stage 1 - Edema is soft/pitting, no secondary tissue changes, elevation reduces swelling

Stage 2 - Lymphostatic fibrosis, hardening of the tissue, no pitting, frequent infections

Stage 3 - Extreme increase in volume and tissue texture with skin changes



Insufficiency of the Lymphatic System

Dynamic insufficiency - $LL > TC$

Mechanical insufficiency - $TC < LL$

Combined insufficiency - TC reduced, LL elevated

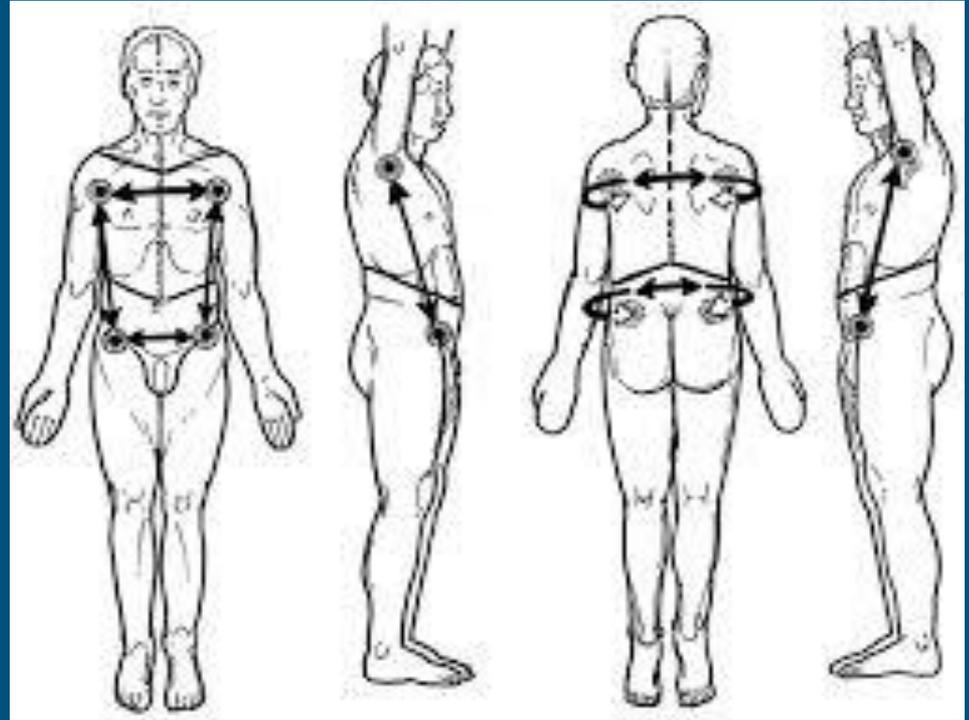
Complete Decongestive Therapy

- Manual Lymphatic Drainage (MLD)
- Compression therapy
 - Bandages
 - Garments
- Decongestive exercises
- Skin care



Anastomoses

- Anterior and posterior
 - Inguino axillary or allixo-inguinal
 - Inter-axillary
 - Inter-inguinal



Source: Lymphedema
Management

Contraindications to CDT

- Cardiac edema
- Renal failure
- Acute infections
- Acute bronchitis
- Acute DVT
- Malignancies
- Bronchial asthma
- Hypertension

Lymphedema Precautions

- Do not have blood pressure taken in the affected extremity
- Do not have injections or sticks in the affected extremity
- Avoid heat
- Increase skin care
- Use caution with air travel

Meet My Patient

- 70 year old male
- Bilateral secondary lower extremity lymphedema
 - Sustained an orthopedic injury at work in the early 90's

Initial Evaluation - August 29, 2019



CircAid Reduction Lower Leg Kit

CircAid Lower Leg Reduction Kit is a new and revolutionary way of treating lymphedema. Designed for use in the early decongestive phase of treatment, the Reduction Kit can serve as an alternative to traditional bandaging and wrapping. Feature a built-in tension system, the Reduction Lower Leg Kit allows for reliable and repeatable application and offers the ability to make a small adjustments to the garment as the leg reduces in size.

Retrieved from
<https://www.lymphedemaproducts.com/products/circaid-reduction-kit-ad.html>



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August 29



September 17



October 10



Discharge - November 1, 2019

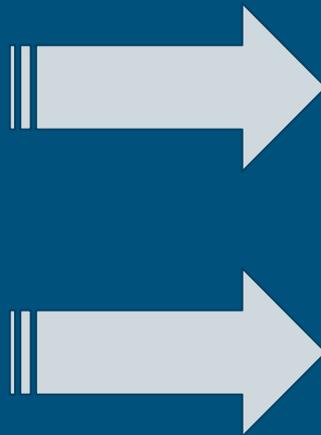
- Juxta-Fit Premium with compression socks
- Day time compression
- Home exercise program



August 29 - Eval



January 28 - Re-Eval



Manageable..... Not Curable

- Self-management phase
 - Phase 2
- Skin and Nail Care
- Self MLD
- Compression Therapy
- Decongestive Exercises
- Reduce, Maintain, Prevent

References

About lymphedema. (n.d.). CompreCare Lymphatics . <https://comprecarelymphatics.com/welcome-to-our-practice/about-lymphedema/>

Circaid reduction kit lower leg. (n.d.). Compression Sleeves, Socks & Other Garments | Lymphedema Products.
<https://www.lymphedemaproducts.com/products/circaid-reduction-kit-ad.html>

Compression treatment. (n.d.). <https://www.mediusa.com/>.
<https://www.mediusa.com/compression/diagnosis-treatment/compression-treatment/>

(n.d.). Lymphatic Education and Research Network, Lymphedema Lymphatic Disease | Lymphatic Education & Research Network. <https://lymphaticnetwork.org/>

Zuther, J. E., & Norton, S. (2017). *Lymphedema management: The comprehensive guide for practitioners* (4th ed.). Thieme.