

**CLT-LANA
DETAILED CONTENT OUTLINE**

1. ANATOMY

A. Circulatory system (i.e., venous and arterial)

B. Lymph System

1. Embryology
2. Lymphangiogenesis
3. Prelymphatic channels
4. Initial lymph vessels (capillaries)
5. Precollector lymph vessels
6. Collector lymph vessels
7. Lymphatic trunks and ducts
8. Lymph nodes
9. Lymphovenous anastomoses
10. Watersheds and collateral anastomoses
11. Drainage pathways
 - a. Head and neck
 - b. Upper extremities
 - c. Lower extremities
 - d. Trunk
 - e. Genital

C. Integumentary system

D. Interstitium

2. PHYSIOLOGY

A. Circulation (i.e., venous and arterial)

B. Microcirculation

1. Starling's hypothesis and equilibrium
2. Safety factors that normally prevent edema

C. Lymph formation and transport

3. LYMPH VASCULAR DISORDERS

(i.e., primary and secondary lymphedema)

A. Etiology

B. Classifications

C. Pathology and pathophysiology

D. Symptoms and signs

4. OTHER DISORDERS (i.e., lipedema, lipolymphedema, phlebolympedema, chronic venous insufficiency, myxedema)

- A. Etiology
- B. Pathology and pathophysiology
- C. Symptoms and signs

5. PATIENT EVALUATION

- A. Patient history
 - 1. Edema and prior edema treatment
 - 2. Family
 - 3. Other medical history
 - 4. Medications/supplements/diets
 - 5. Infections
 - 6. Symptoms
 - 7. Functional status
(e.g., Activities of Daily Living (ADL))
 - 8. Psychosocial
- B. Physical Examination
 - 1. Weight and height
 - 2. Appearance of involved limb(s) and adjacent areas
 - 3. Clinical signs
 - 4. Peripheral pulses
 - 5. Range of Motion (ROM), muscle strength, posture and gait
 - 6. Sensation
 - 7. Measurements (e.g., circumferential, Volumetric, perometry)
- C. Additional considerations
 - 1. Medical conditions that **exclude** treatment
(e.g., acute congestive heart failure, untreated cellulitis, acute deep venous thrombosis)
 - 2. Medical conditions that **may** limit treatment
(e.g., compensated congestive heart failure, peripheral neuropathy, arterial insufficiency, cognitive impairment)

D, Diagnostic tests (e.g., lymphoscintigraphy, lymphography, Computerized Tomography (CT), Magnetic Resonance Imaging (MRI), venous Doppler examination, and Ankle Brachial Index (ABI))

1. Purpose
2. Testing procedures
3. Clinical implications

E.. Potential complications of lymphedema (e.g., angiosarcoma, cellulitis, anasarca, lymphoceles)

6. LYMPHEDEMA MANAGEMENT

A. Manual lymphatic drainage

1. Principles
2. Indications and contraindications

B. Compression bandaging

1. Principles
2. Materials
3. Indications and contraindications

C. Compression garments

1. Grades of compression
2. Materials
3. Fitting principles and problems
4. Indications and contraindications

D. Compression devices and other materials

E. Pneumatic pumps

F. Exercises

1. Principles and methods
2. Indications and contraindications

G. Skin care and wound care

H. Patient education

1. Precautions and risk reduction
2. Symptoms and signs of infection
3. Skin Care
4. Self-assessment
5. Lymphatic drainage
6. Compression bandaging
7. Compression garments (i.e., wear and care)
8. Other compression devices (i.e., wear and care)
9. Exercise
10. Nutrition
11. Activities of Daily Living (ADL) modifications

- I. Quality of Life
 - 1. Psychosocial
 - 2. Compliance issues
 - 3. Supports groups and community resources

- J. Palliative Care