

**CLT-LANA
DETAILED CONTENT OUTLINE**

I. ANATOMY AND PHYSIOLOGY 25%

A Comprehension of anatomy

- 1 Circulatory system (i.e., venous and arterial)
- 2 Lymphatic system
 - a Embryology
 - b Lymphangiogenesis
 - c Prelymphatic channels
 - d Lymphatic vessels
 - e Lymph nodes
 - f Lympho-venous anastomoses
 - g Watersheds and collateral anastomoses
 - h Superficial drainage pathways
 - 1 Head and neck
 - 2 Upper extremities
 - 3 Lower extremities
 - 4 Trunk
 - 5 Genital
 - i Deep drainage pathways (e.g., abdominal, pelvic, thoracic organs, limbs)
- 3 Integumentary system
- 4 Interstitium

B Comprehension of physiology

- 1 Function of the circulatory system including the lymphatic system
- 2 Microcirculation
 - a Starling's hypothesis and equilibrium (including updates)
 - b Safety factors that prevent edema
- 3 Lymph formation and transport

2. LYMPH VASCULAR DISORDERS (i.e., primary and secondary lymphedema) 15%

- A** Differentiate etiology
- B** Identify pathology and pathophysiology
- C** Classify and stage lymph vascular disorders
- D** Recognize sign and symptoms

**3. OTHER DISORDERS (e.g., lipedema, lipolymphedema, phlebolymphe-
dema, chronic venous insufficiency, myxedema) 10%**

- A** Differentiate etiology
- B** Identify pathology and pathophysiology
- C** Recognize signs and symptoms

4. PATIENT EVALUATION 20%

A Identify relevant elements of patient history

- 1 Edema and prior edema treatment
- 2 Family history
- 3 Other medical history
- 4 Medications/supplements/diet
- 5 Infections
- 6 Symptoms
- 7 Functional status (e.g., Activities of Daily Living (ADL))
- 8 Psycho-social

B Assess implications of patient history

C Recognize potential complications associated with lymphedema

- 1 Medical conditions associated with lymphedema (e.g., angiosarcoma, cellulitis, anasarca, lymphoceles, cancer recurrence)
- 2 Medical conditions that exclude treatment (e.g., acute congestive heart failure, untreated cellulitis, acute deep venous thrombosis)
- 3 Medical conditions that may limit treatment approach (e.g., compensated congestive heart failure, peripheral neuropathy, cognitive impairment)
- 4 Medical conditions that can affect lymphedema treatment outcomes (e.g., arthritis, hypertension, impaired mobility)

D Conduct physical examination

- 1 Weight and height
- 2 Appearance of involved limb(s) and adjacent areas (e.g., deepened skin folds, lobules, discoloration)
- 3 Clinical signs (e.g., tissue texture, Stemmer's sign)
- 4 Peripheral pulses
- 5 Range of Motion (ROM), muscle strength, posture, and gait

- 6 Sensation
- 7 Measurements (e.g., circumferential, volumetric, perometry)
- 8 Skin integrity (e.g., lymphorrhea, fungal infection)

E Comprehension of diagnostic tests (e.g., lymphoscintigraphy, computerized tomography (CT), magnetic resonance imaging (MRI), venous Doppler examination, and ankle brachial index (ABI))

- 1 Purpose
- 2 Testing procedures

F Incorporate results of diagnostic tests in treatment planning

5. LYMPHEDEMA MANAGEMENT 30%

A Apply principles of complete decongestive therapy (CDT)

- 1 Manual lymphatic drainage (MLD)
 - a Effects
 - b Technique concepts (e.g., pressure, direction, sequence)
- c Contraindications
- 2 Compression bandaging
 - a Effects
 - b Concepts (e.g., materials, gradient pressure, procedure)
 - c Contraindications
- 3 Compression garments
 - a Effects
 - b Concepts (e.g., types and styles, fitting principles, grades of compression)
 - c Contraindications
- 4 Decongestive exercises
 - a Effects
 - b Concepts (e.g., variations, approaches)
 - c Contraindications
- 5 Skin care
- 6 Education
 - a Activities of Daily Living (ADL) modifications
 - b Compression bandaging
 - c Compression garments (i.e., wear and care)
 - d Exercise
 - e Lymphatic drainage
 - f Nutrition
 - g Precautions and risk reduction
 - h Self-assessment
 - i Skin care
 - j Signs and symptoms of infection
 - k Weight management
 - l Follow-up

B Recognize principles of adjunct treatments

- 1 Intermittent pneumatic compression (IPC)
- 2 Additional compression devices
- 3 Additional treatment options (e.g., laser, elastic taping, deep oscillation)

C Adapt treatment plan to specific populations and needs (e.g., pediatric, palliative care, wound care)

D Recognize factors that affect quality of life (e.g., psycho-social, adherence issues)

E Identify best practices (e.g., International Lymphoedema Framework (ILF), International Society of Lymphology (ISL), National Lymphedema Network (NLN))