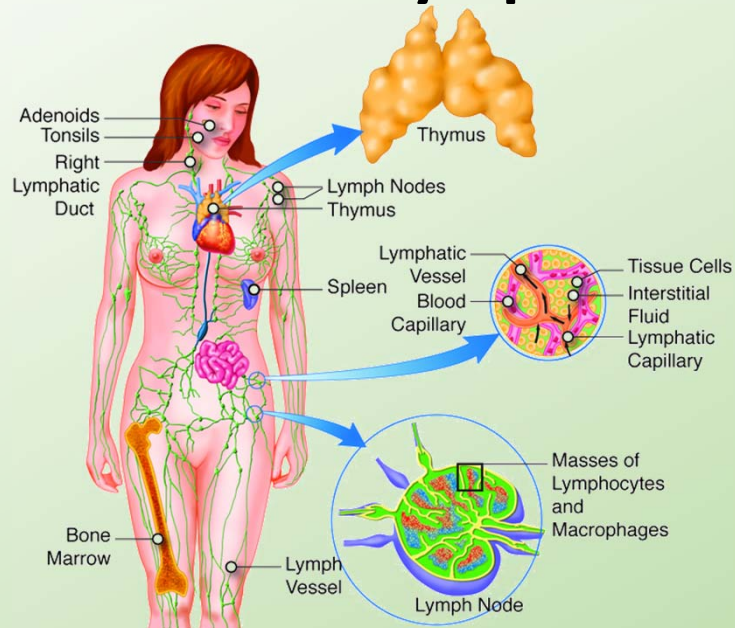




Objectives

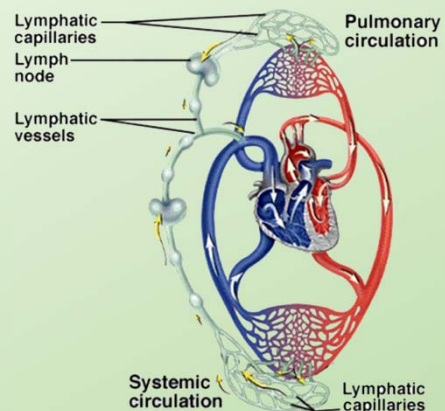
- Review the basic anatomy and function of the lymphatic system.
- Understand the importance of effective MLD techniques.
- Discuss the role of inflammation and the lymphatic system.
- Discuss the role of MLD to help improve lymphatic function in the oncology client.

Components of the Lymphatic System



Functions of the Lymphatic System

- ▶ Prevents edema by returning protein and water from the interstitium to the cardiovascular system.
- ▶ Absorbs fat and fat-soluble vitamins from the small intestine
- ▶ Provides immune surveillance by recognizing and responding to foreign cells, microbes, viruses and cancer cells



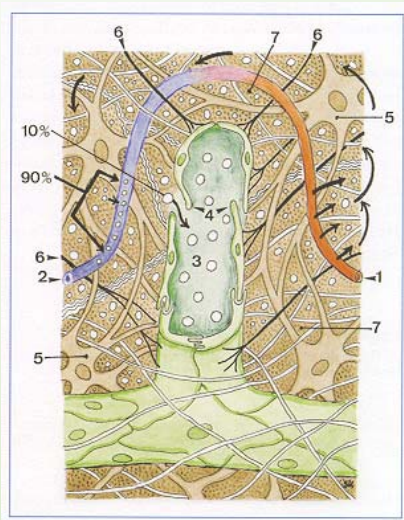
Lymph Fluid

Die Lymphe, das ist das Allerfeinste,
Intimste und Zarteste
in dem ganzen Körperbetrieb.
Man spricht immer vom Blut
und seinen Mysterien und nennt es
einen besonderen Saft.
Aber die Lymphe, die ist erst
der Saft des Saftes,
die Essenz, Blutmilch,
eine ganz delizöse Tropfbarkeit.

Thomas Mann, „Der Zauberberg“

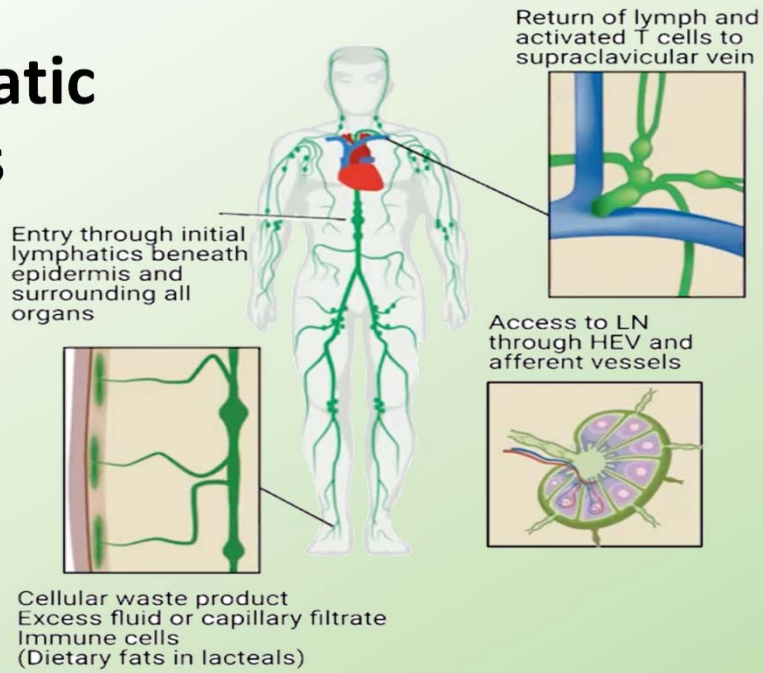
Thomas Mann, The Magic Mountain

Lymph Capillaries

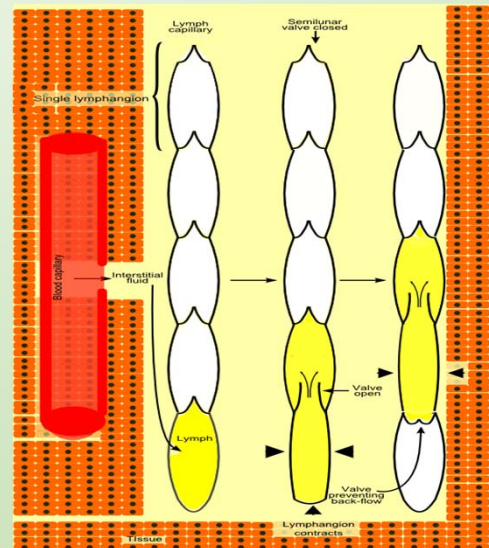
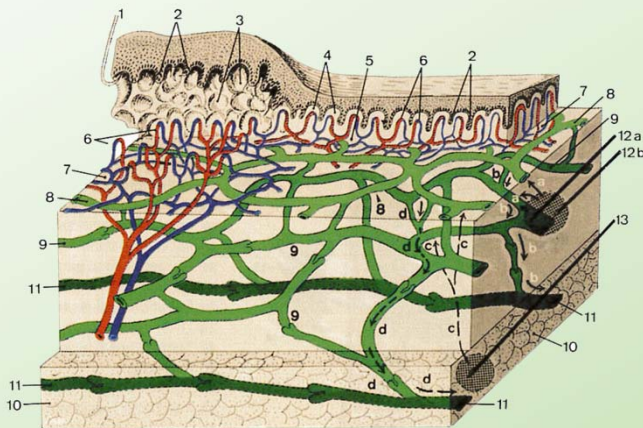


- Located in the superficial areas of the skin
- They absorb interstitial fluid and transport it to lymph collectors that lead to lymph nodes

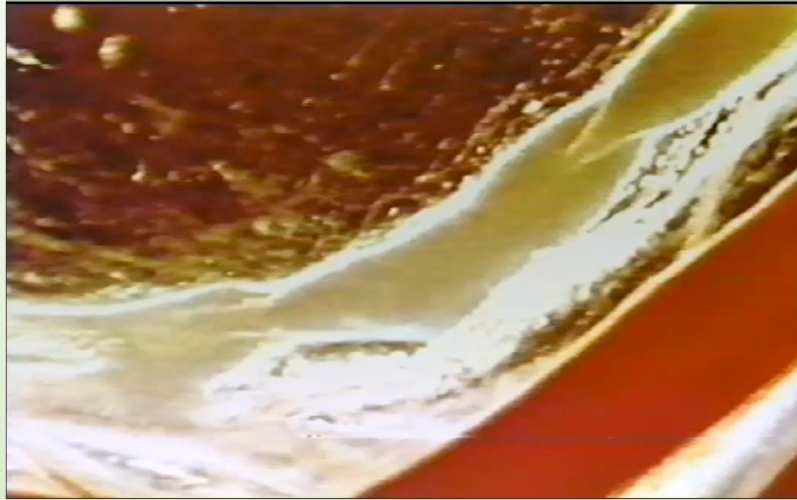
Lymphatic Vessels



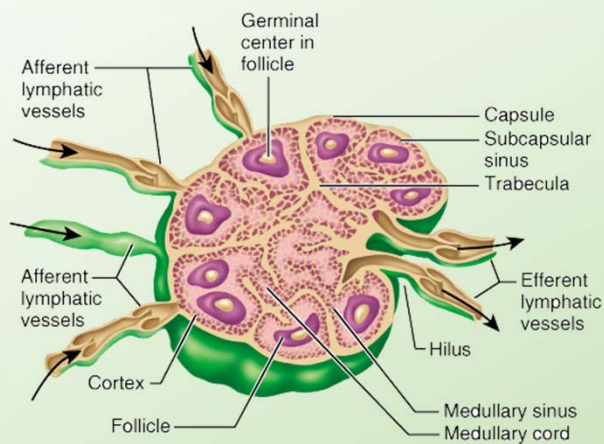
Lymphatic Collectors



Lymphatic Collectors and Lymphangions



Lymph Nodes



- Filter lymphatic fluid collected from the interstitium before it enters back into the cardiovascular system
- Responsible for immune cell education and immune response.

Polling Question 1

Which of the following is not a function of the lymphatic system?

1. Prevent edema in the tissue spaces
2. Promotes inflammation
3. Plays an important role in the digestion of fats and fat-soluble vitamins
4. Plays an important role in immune function

What is Manual Lymphatic Drainage?

- Gentle, rhythmic, manual movements that are performed on the skin
- Developed to enhance the movement of lymphatic fluid from the interstitial space into the vast network of lymphatic vessels whilst following the anatomy and physiology of the lymphatic system

Benefits of MLD

- Analgesic
- Calming and soothing to the ANS
- Increases the rate of lymph absorption and transport of lymph fluid
- Enables the movement of lymph fluid to be redirected around blocked areas.

Ineffective MLD



Effective MLD



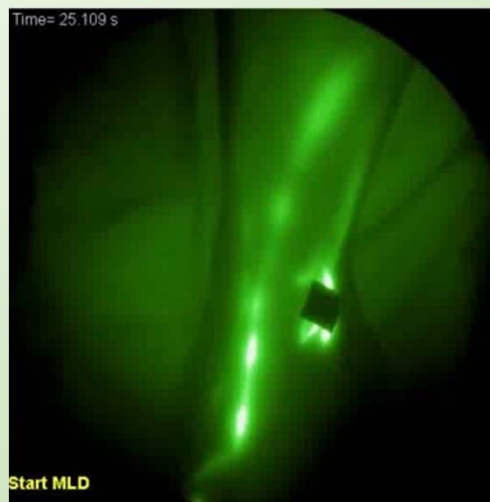
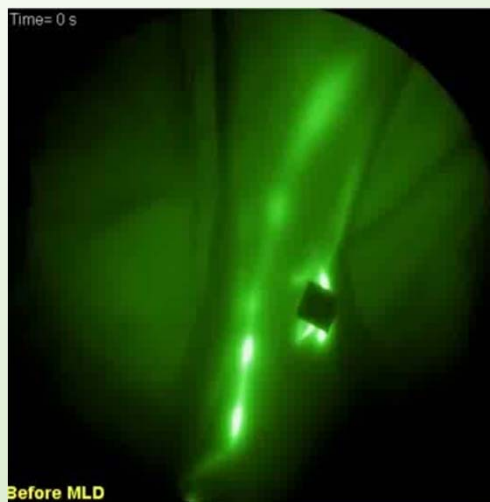
Ineffective MLD



Effective MLD

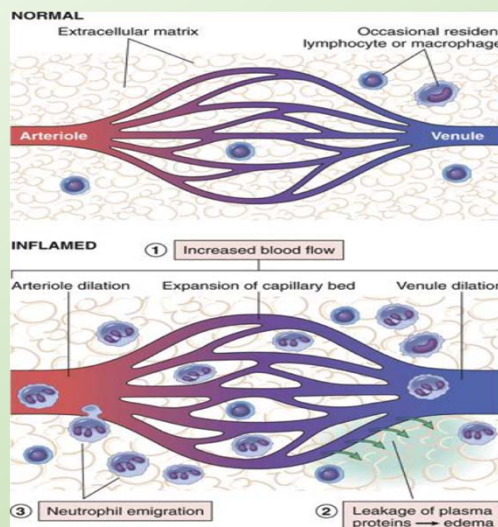


Indocyanine Green (ICG) Lymphography



Inflammation

- Inflammation is the body's attempt at self-protection and start of a healing process
- Inflammation initiates a local response to cellular injury that is preceded by capillary dilation, immune cell infiltration, redness, heat, pain, swelling, and often loss of function.



MLD and Inflammation

- Lymphatic function is mediated by inflammatory conditions.
- Inflammation creates a proliferation of pro inflammatory cytokines that can lead to an increase in capillary dilation resulting in possible valve dysfunction in the lymphatic vessel
- MLD can effectively reduce and remove the inflammatory substances that may be causing pain and irritation to the area.
- MLD will also help reduce protein load in the interstitial space and re-establish homeostasis

Dysfunction of the Lymphatic System in the Cancer Client

- Damage to the Lymphatics from surgery and /or radiation putting one at risk for developing lymphedema
- Scar tissue can disrupt normal lymphatic flow
- Pain medications can lead to disruption to the digestive tract.



Impact of Scar Tissue on Lymphatic Function

- Scar tissue can disrupt normal lymphatic flow
- Surgery
- Trauma

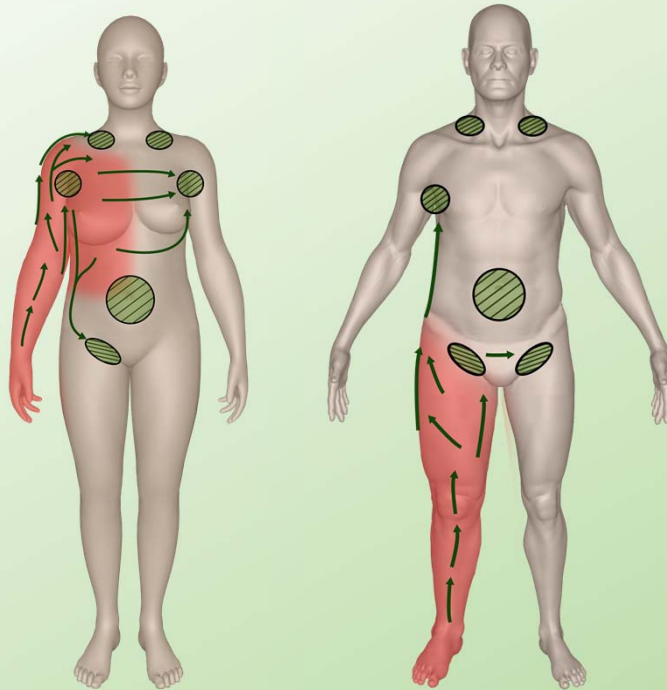


Benefits of MLD in the Oncology Setting

- Analgesic
- Regulation of the sympathetic nervous system
- Promotes parasympathetic nervous system function often leading to reduction in anxiety, promote restful sleep and aid digestion.
- Redirect tissue fluid from areas of lymphatic dysfunction



Redirection of Lymphatic Fluid in Clients with Lymphedema



MLD in the Oncology Setting

MLD can also assist with:

- Post-surgical recovery
- Edema reduction
- Pain control
- Infection prevention (particularly local infections)
- Hematoma reduction/resolution
- Constipation relief
- Relaxation
- Stress reduction
- Improved sleep

MLD in the Oncology Setting

- Numerous side effects of an Oncology treatment provide indications for the use of MLD.
- MLD should be avoided over recent surgery sites and radiated areas of the client's body.
- Contraindications must be considered - always stay up to date with client's current lab work and functioning of system that process the lymph fluid.

Polling Question 2

Which of the following should be considered when providing MLD on an oncology client?

1. Awareness of areas with blockage or damage to the lymphatic system
2. Radiation sites
3. Surgery sites
4. Name of their oncologist



Thank You