



The **H**uman Body  
in **H**ealth and **I**llness

*Barbara Herlihy*

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**Chapter 20:**  
**Lymphatic System**

# Lesson 20.1 Objectives

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- List three functions of the lymphatic system.
- Describe the composition and flow of lymph.
- State the location of the following lymph nodes: cervical nodes, axillary nodes, and inguinal nodes.
- Describe the four lymphoid organs: lymph nodes, tonsils, thymus gland, and spleen

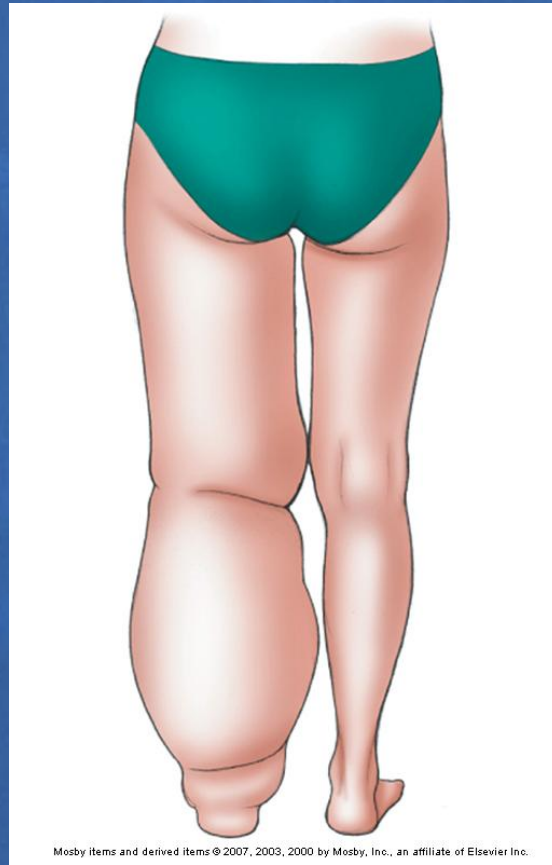
# The Lymphatic System

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- Main functions:
  - Return tissue fluid to the blood
  - Intestinal absorption of fats and fat-soluble vitamins
  - Helps the body defend itself against disease

# The Lymphatic System (cont'd.)

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**Elephantiasis**



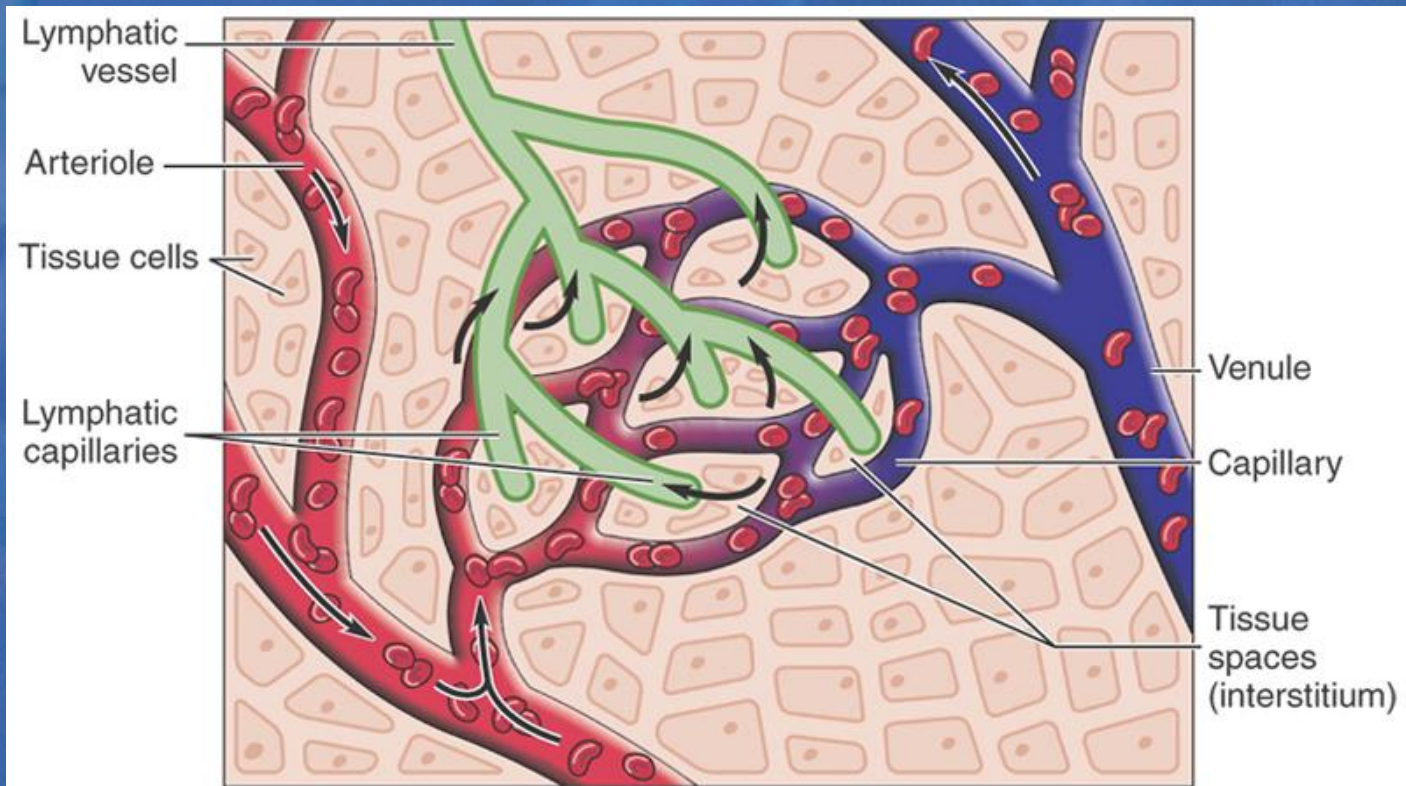
# The Lymphatic System (cont'd.)

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- Lymph: clear fluid that resembles plasma and is formed from plasma during capillary exchange
- Composition of lymph: water, electrolytes, waste from metabolizing cells, and some protein that leaks out of the capillaries of the systemic circulation

# The Lymphatic System (cont'd.)

## Lymph capillaries and blood capillaries.

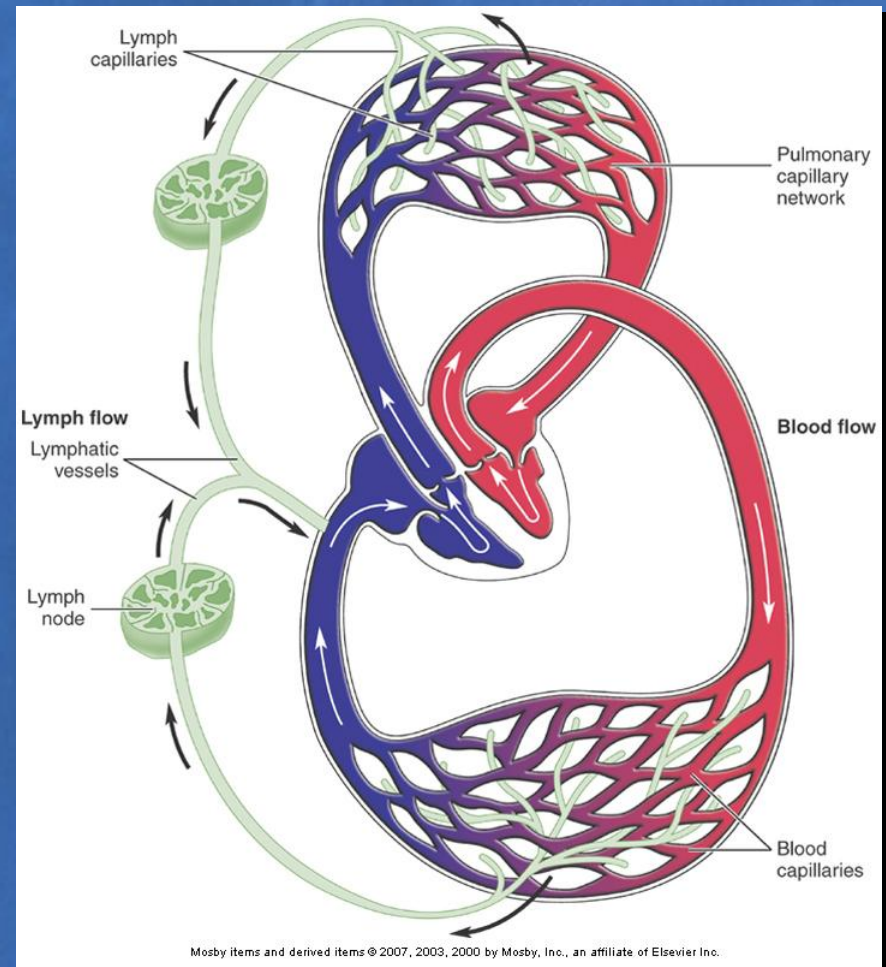


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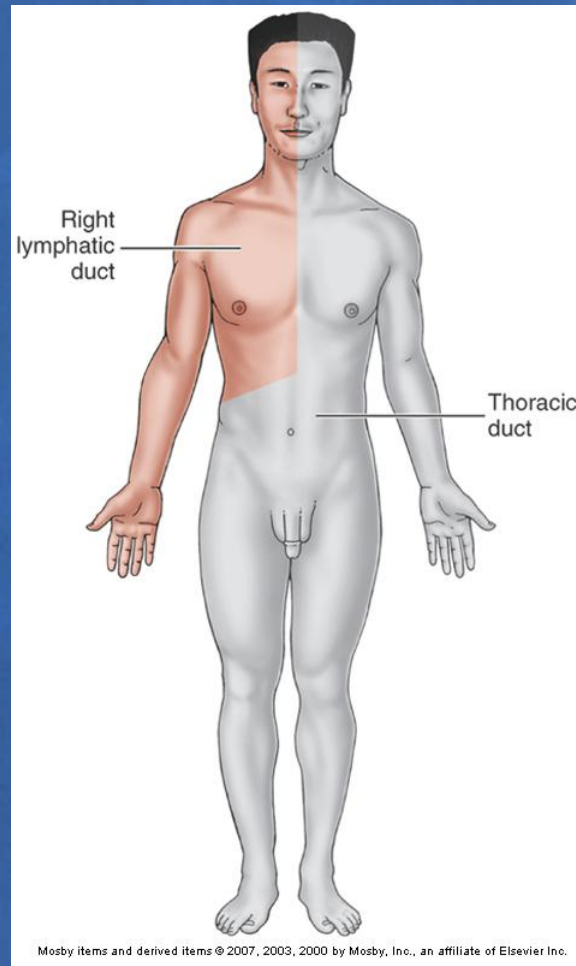
# The Lymphatic System (cont'd.)

- Lymphatic vessels: includes lymphatic capillaries and several larger lymphatic vessels; “run with” the veins



# The Lymphatic System (cont'd.)

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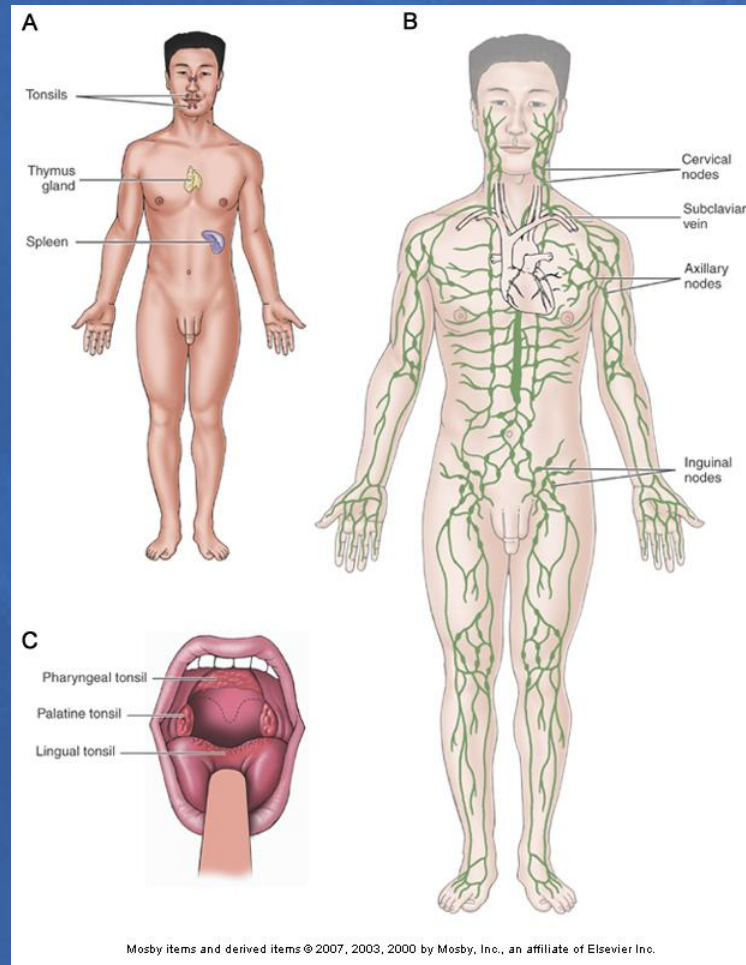


# Lymphoid Organs

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- **Organs:**
  - Lymph nodes
  - Tonsils
  - Thymus gland
  - Spleen
- **Functions:**
  - Filter particles from lymph, tissue fluid, and blood
  - Support activities of lymphocytes

# Lymphoid Organs (cont'd.)



# Lymphoid Organs (cont'd.)

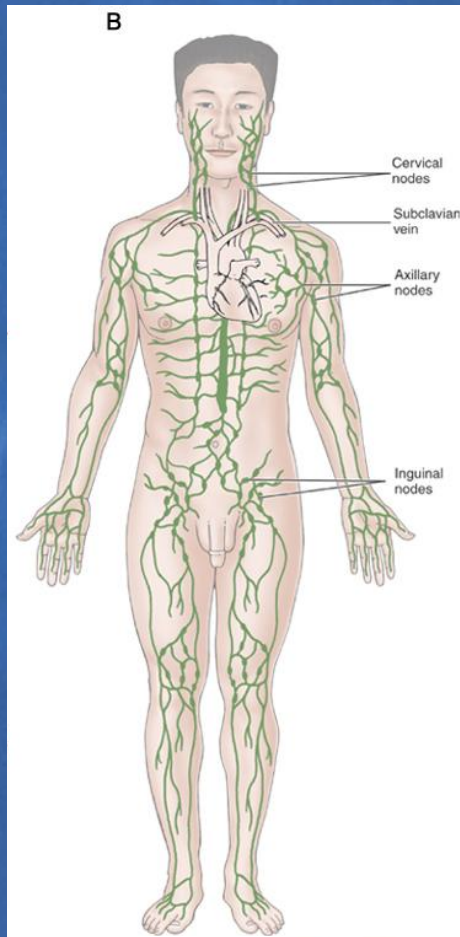
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- Lymph nodes: small pea-shaped patches of lymphatic tissue that filter lymph as it flows through the lymphatic system
  - Cervical lymph nodes drain and cleanse lymph from head and neck areas
  - Axillary lymph nodes drain and cleanse lymph from upper extremities, shoulders, and breast area
  - Inguinal lymph nodes drain and cleanse lymph from lower extremities and external genitalia



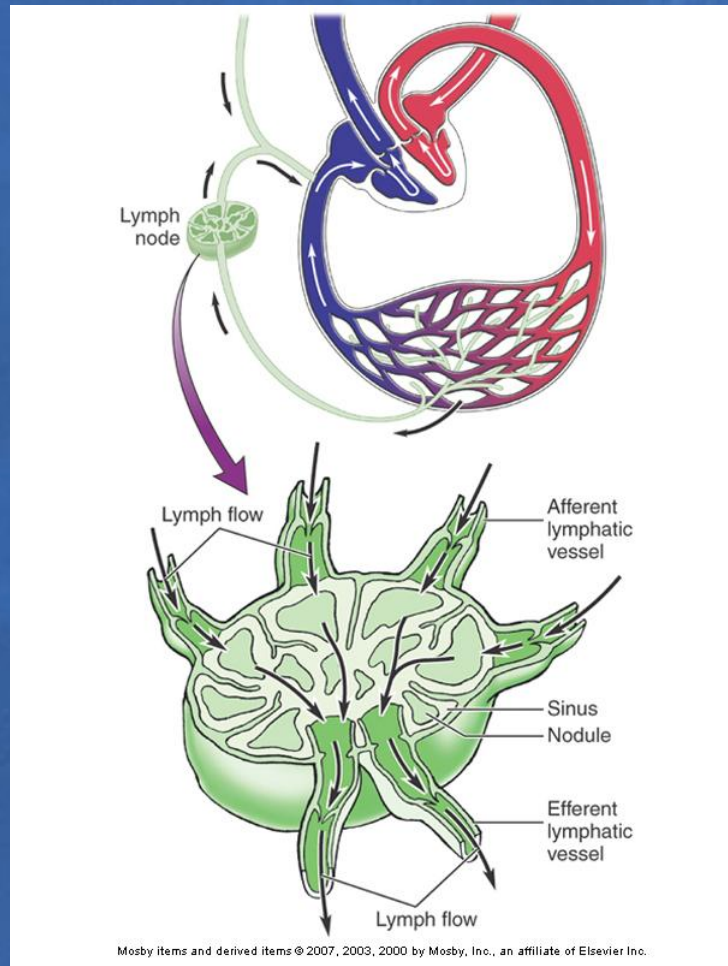
# Lymphoid Organs (cont'd.)

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# Lymphoid Organs (cont'd.)



# Lymphoid Organs (cont'd.)

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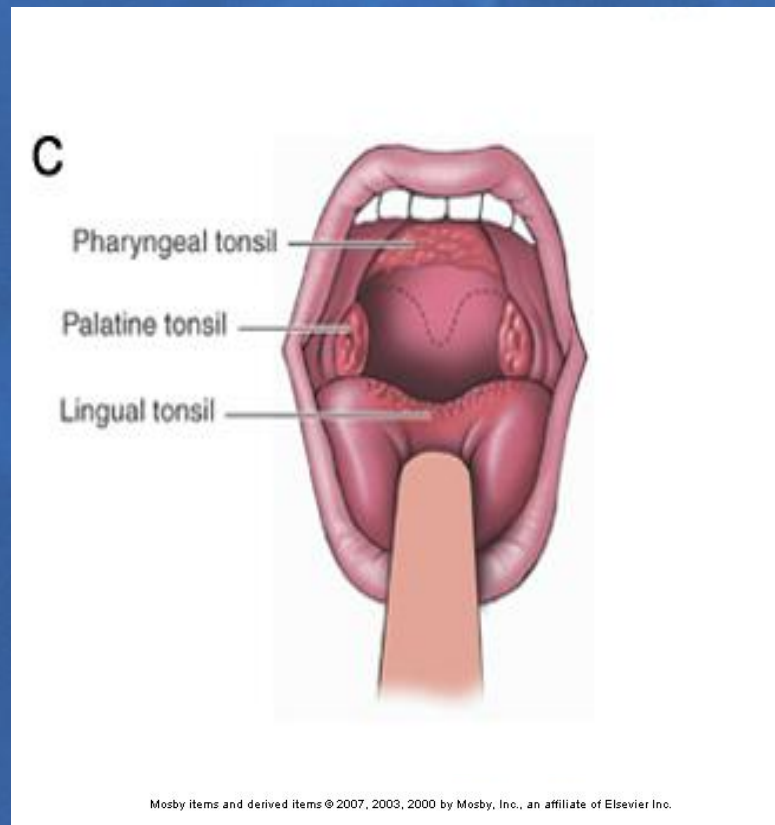
- Tonsils: partially encapsulated lymph nodes in the throat area
- Locations:
  - Palatine tonsils: opening of oral cavity into pharynx
  - Pharyngeal tonsils: opening of nasal cavity in upper pharynx
  - Lingual tonsils: back of the tongue



# Lymphoid Organs (cont'd.)

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## Tonsils



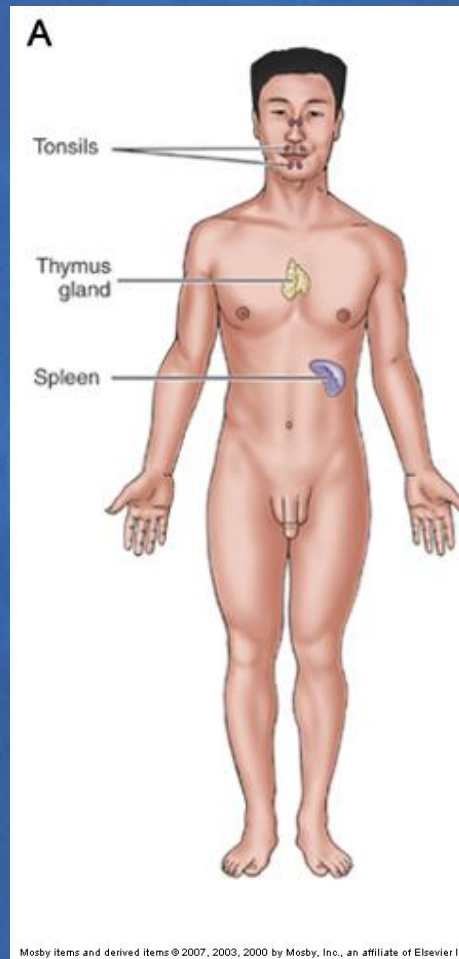
# Lymphoid Organs (cont'd.)

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- Thymus gland: secretes thymosins, located in the upper mediastinum thoracic cavity
- Thymosins: hormones that promote the proliferation and maturation of T cells in lymphoid tissue

# Lymphoid Organs (cont'd.)

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# Lymphoid Organs (cont'd.)

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- Spleen: largest lymphoid organ in the body; located in the upper left quadrant of the abdominal cavity just beneath the diaphragm
- Two types of spleen tissue:
  - White pulp
  - Red pulp

# Lymphoid Organs (cont'd.)

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- Functions of the spleen:
  - Filters blood
  - Stores blood, especially platelets
  - Destroys and performs phagocytosis on old red blood cells
  - Produces RBCs before birth

# Lymphoid Organs (cont'd.)

