13 The Lymphatic System and Immunity

Chapter Outline

Lymphatic System
- Lymphatic Vessels
- Lymphoid Organs

Immunity
- Nonspecific Defenses
- Specific Defenses

Immunotherapy
- Active Immunity
- Passive Immunity
- Lymphokines

Immunological Side Effects and Illnesses
- Allergies
- Tissue Rejection
- Autoimmune Diseases
- Immune Deficiency

Working Together: The Lymphatic System

Learning Objectives

1. Describe the structure and functions of the lymphatic system.
2. Describe the structure and function of lymph nodes.
3. Describe the structures and functions of the thymus, spleen, and red bone marrow.
4. Describe the body's nonspecific defense mechanisms.
5. Contrast antibody-mediated immunity with cell-mediated immunity.
6. Describe how to provide an individual with active and passive immunity.
7. Give examples of immunotherapeutic drugs.
8. Give examples of how the immune system overdefends and underdefends the body.

Medical Terminology

Medical Term	Meaning
anti-	against
auto-	self

1. What occurs generally during autoimmunity?

2. What is the role of an antibody molecule?

New Terms

Basic Key Terms

active immunity
antibodies
antibody-mediated immunity
antigen
B lymphocytes
bradykinin
cell-mediated immunity
complement system
histamine
inflammatory reaction
lymph
lymphatic system
lymphokines
macrophages
memory B cells
monoclonal antibodies
passive immunity
phagocytosis
plasma cells
pus
T lymphocytes

Clinical Key Terms

AIDS (acquired immunodeficiency syndrome)
allergies
antibody titer
edema
elephantiasis
Hodgkin's disease
immunization
immunosuppression
interferon
lymphangitis
lymphadenitis
lymphoma
multiple sclerosis (MS)
myasthenia gravis
opportunistic infections
pulmonary edema
rheumatoid arthritis
severe combined immunodeficiency disease (SCID)
systemic lupus erythematosus
vaccines

Study Questions

I. Lymphatic System (p. 252)

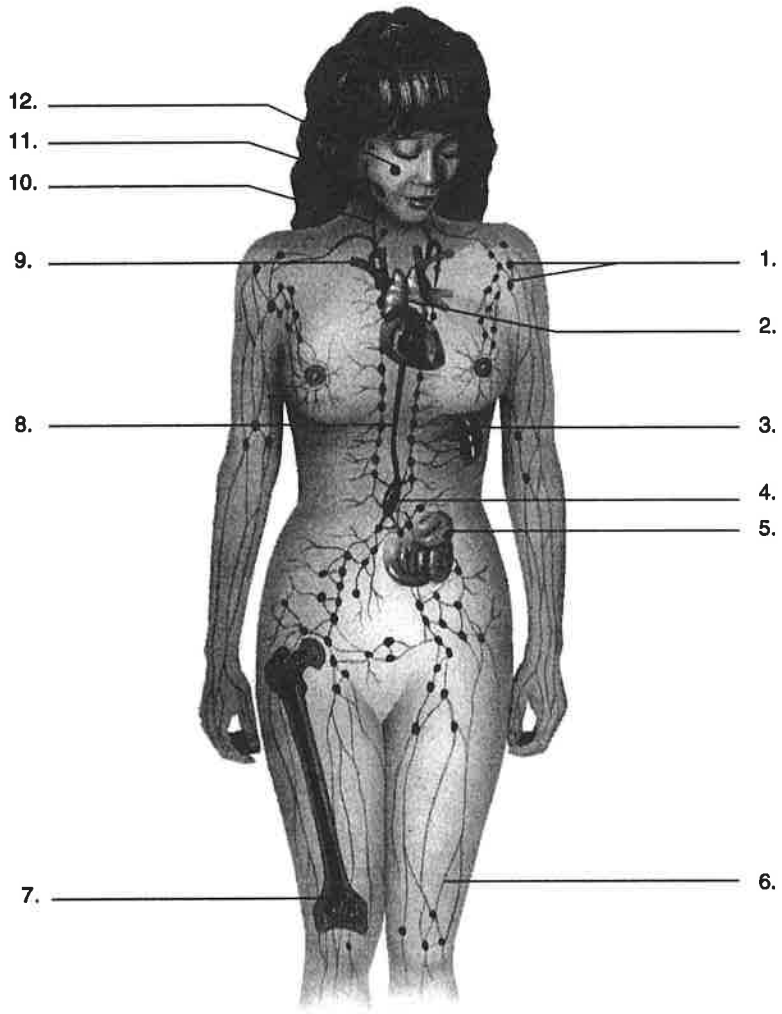
A. Completion. List the three basic functions of the lymphatic system.

1.

2.

3.

B. Use the terms that follow to label the lymphatic system and associated structures (see text figure 13.1, p. 252). Write the correct label in the space provided beside each numbered pointer.



adenoid
chyle cistern
lymphatic vessel
lymph nodes
Peyer's patch
red bone marrow
right lymphatic duct
spleen
subclavian vein
thoracic duct
thymus
tonsil

C. The underlined words in the following statements make the statements false. In the space provided, rewrite each statement to make it true.

1. To become lymph, tissue fluid is initially collected by capillaries of the systemic circulation.

2. Lymph consists mostly of arterial blood.

3. The right lymphatic duct serves the lower extremities, abdomen, left arm, and left side of the head and neck.

4. The lymphatic system is a two-way system.

D. Match the terms on the left with the descriptions on the right. Place the correct letters in the blanks on the left.

____ 1. axillary	a. adenoids are one example
____ 2. inguinal	b. division of a node by wall of connective tissue
____ 3. nodule	c. node found in the armpit
____ 4. sinus	d. node found in the groin
____ 5. tonsil	e. space filled with lymphocytes and macrophages

E. Match the terms on the left with the descriptions on the right. Place the correct letters in the blanks on the left.

____ 1. edema	a. cancer of lymphoid tissue
____ 2. lymphadenitis	b. infection spreading to lymphatic vessels
____ 3. lymphangitis	c. excess accumulation of tissue fluid
____ 4. lymphoma	d. infection with swelling and tenderness of the lymph nodes

F. In the blanks on the left, label each of the following statements as describing the *thymus, spleen,* or *red bone marrow.*

____ 1. contains red pulp and white pulp
____ 2. T lymphocytes mature in its lobules
____ 3. located along the trachea
____ 4. located in the upper left abdominal cavity
____ 5. produces a hormone that is believed to be an inducing factor
____ 6. contains sinuses filled with blood
____ 7. origination site for all types of blood cells

IV. Immunological Side Effects and Illnesses (pp. 266–67)

Complete each of the following statements.

1. An _____ is an antigen provoking an allergic reaction.
2. _____ is the variety of antibodies that causes allergies.
3. If a transported organ has the same _____ proteins as the recipient, it suppresses rejection.
4. Myasthenia gravis is an _____ disease.

V. Effects of Aging (p. 267)

Indicate whether each of the following statements is true (T) or false (F).

____ 1. The thymus gland degenerates with age.
____ 2. B cells always form clones in the elderly.
____ 3. The chances of developing autoimmune diseases decrease as a person ages.