

## Assignment 11: The lymphatic system, Chapter 20

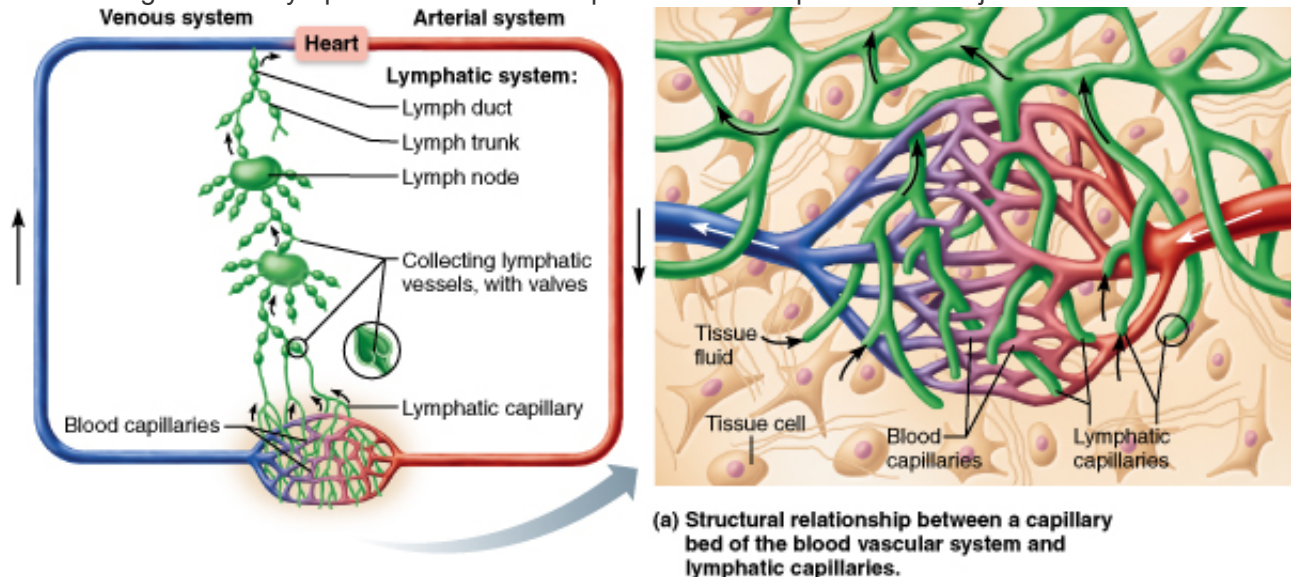
Due: 11:39pm on Tuesday, April 16, 2013

**Note:** To understand how points are awarded, read your instructor's [Grading Policy](#).

## Art Question Chapter 20 Question 3

## Part A

To what organ do the lymphatic vessels return protein-rich escaped fluids to rejoin circulation?



ANSWER:

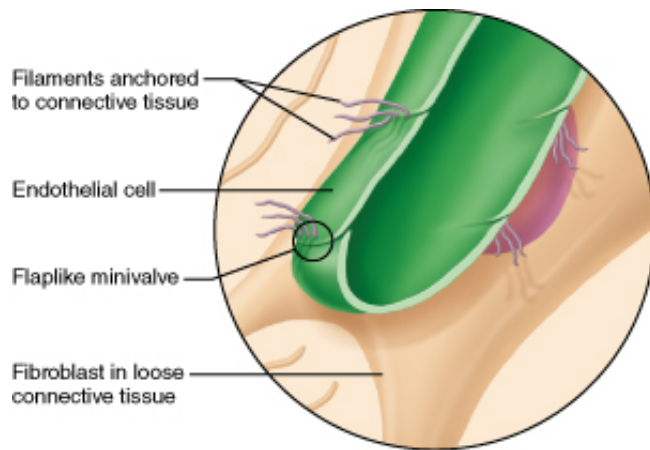
- spleen
- heart
- lymph nodes
- thymus

**Correct**

## Art Question Chapter 20 Question 5

## Part A

What is the main function of the lymphatic system?



**(b) Lymphatic capillaries are blind-ended tubes in which adjacent endothelial cells overlap each other, forming flaplike minivalves.**

ANSWER:

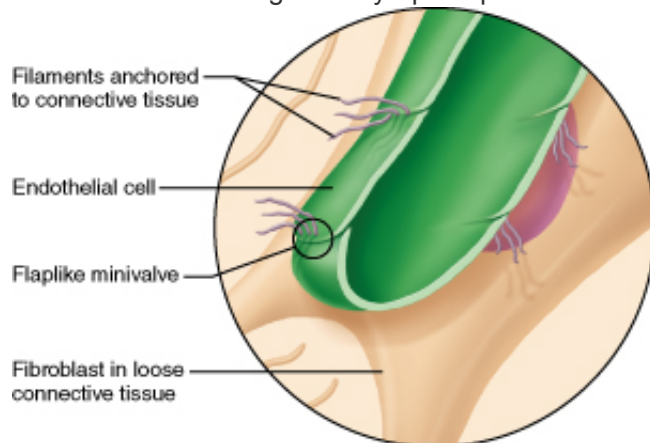
- The lymphatic system regulates blood pressure through the renin-angiotensin-aldosterone mechanism.
- The lymphatic system returns leaked fluid and plasma proteins that escape from the bloodstream to the blood.
- The lymphatic system makes blood cells through a process known as hematopoiesis.
- The lymphatic system pumps and transports blood throughout the body.

**Correct**

## Art Question Chapter 20 Question 6

### Part A

Which of the following lacks lymph capillaries?



**(b) Lymphatic capillaries are blind-ended tubes in which adjacent endothelial cells overlap each other, forming flaplike minivalves.**

ANSWER:

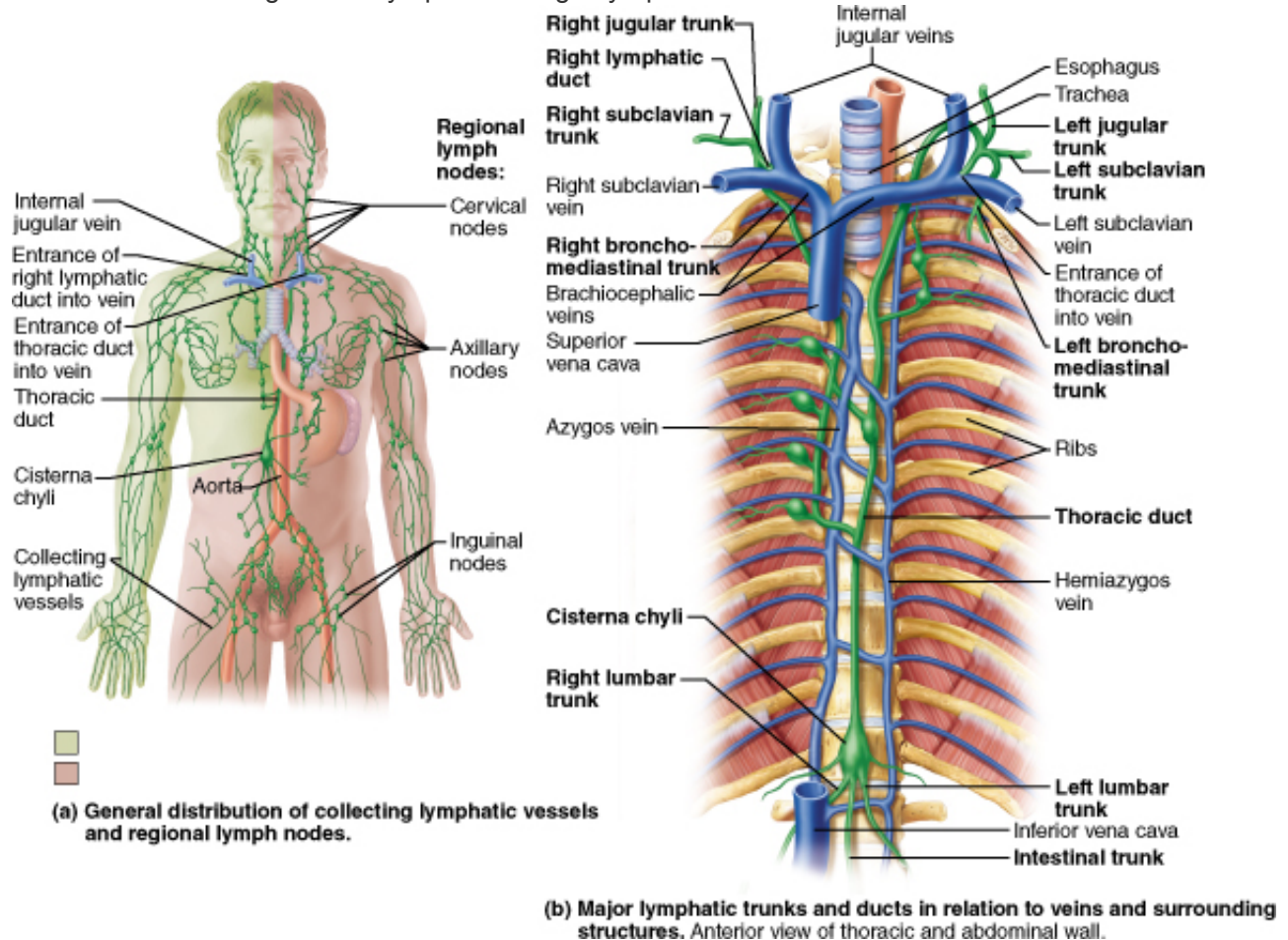
- bones and teeth
- loose connective tissues
- skin
- small intestine

**Correct**

## Art Question Chapter 20 Question 10

### Part A

Which of the following returns lymph to the right lymphatic duct?



ANSWER:

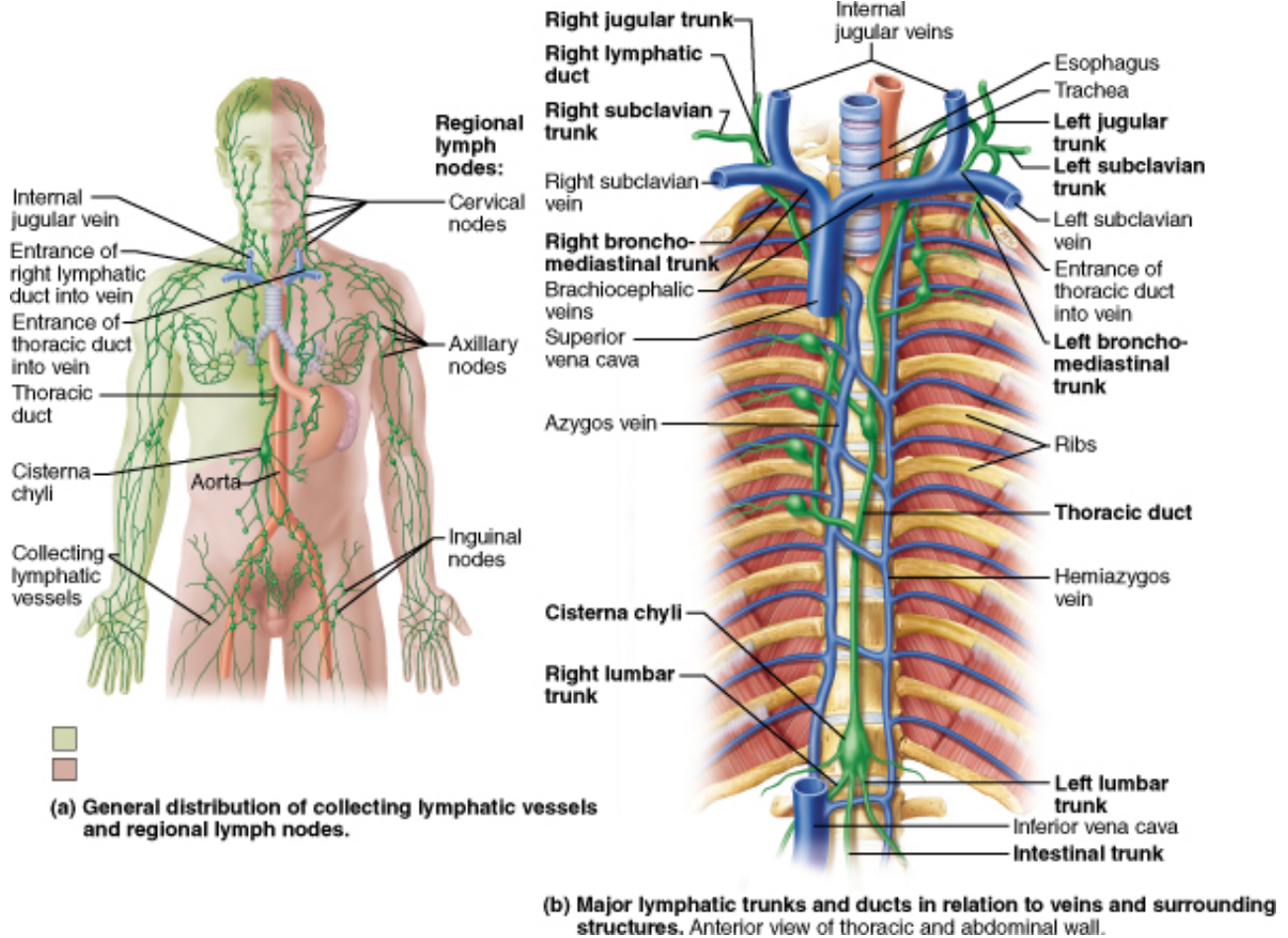
- right side of the head
- left arm
- left side of the head
- cisterna chyli

Correct

## Art Question Chapter 20 Question 12

### Part A

Which of the following delivers lymph into the junction of the internal jugular vein and the subclavian vein?



ANSWER:

- jugular trunk
- subclavian trunk
- cisterna chyli
- thoracic duct

Correct

## Chapter 20 Chapter Test Question 1

**Part A**

Lymph is most similar to \_\_\_\_\_.

ANSWER:

- interstitial fluid
- blood plasma
- saliva
- water

**Correct**

Interstitial fluid and lymph are the same in composition. Interstitial fluid is renamed lymph as soon as it enters a lymphatic vessel.

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**Chapter 20 Chapter Test Question 3**

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**Part A**

Which of the following statements is true regarding veins versus lymphatic collecting vessels?

ANSWER:

- Veins and lymphatic vessels have a different number of tunics.
- Veins have fewer internal valves than do lymphatic vessels.
- Veins have thinner walls than do lymphatic vessels.
- Veins tend to form more branches (anastomoses) than do lymphatic vessels.

**Correct**

Veins and lymphatic collecting vessels both have valves, but lymphatic vessels have more valves than do veins. Veins also have specialized endothelial flap valves, which allow them to more readily collect fluid from the interstitial space.

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**Chapter 20 Chapter Test Question 5**

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**Part A**

Lymphatic vessels \_\_\_\_\_.

ANSWER:

- supply nutrients to tissues
- deliver oxygen to tissues
- collect blood from tissues
- return tissue fluid to the bloodstream

**Correct**

Lymphatic vessels have a role in transporting tissue fluid, leaked proteins, and absorbed fats to the blood. They do not deliver nutrients nor gases to the tissues; that is the role of blood vessels.

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## Chapter 20 Multiple Choice Question 8

**Part A**

The lymphatic capillaries are \_\_\_\_\_.

ANSWER:

- more permeable than blood capillaries
- completely impermeable
- as permeable as blood capillaries
- less permeable than blood capillaries

**Correct**

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## Chapter 20 Multiple Choice Question 14

**Part A**

Select the correct statement about lymph transport.

ANSWER:

- Lymph transport depends on the movement of adjacent tissues, such as skeletal muscles.
- Lymph transport is faster than that occurring in veins.
- Under normal conditions, lymph vessels are very high-pressure conduits.
- Lymph transport is only necessary when illness causes tissue swelling.

**Correct**

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## Chapter 20 Reading Quiz Question 2

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### Part A

What is the role of the mini-valves in lymph capillaries?

ANSWER:

- reduce pressure in the lymphatic capillary
- increase permeability
- speed transport
- connect to blood capillaries

**Correct**

The lymph capillaries owe their permeability to the mini-valves formed by the lack of tight junctions between the endothelial cells and the collagen filaments anchoring the endothelial cells to surrounding structures.

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## Chapter 20 True/False Question 8

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### Part A

About 3 liters of fluid are lost to the tissue spaces every 24 hours and are returned to the bloodstream as lymph.

ANSWER:

- True
- False

**Correct**

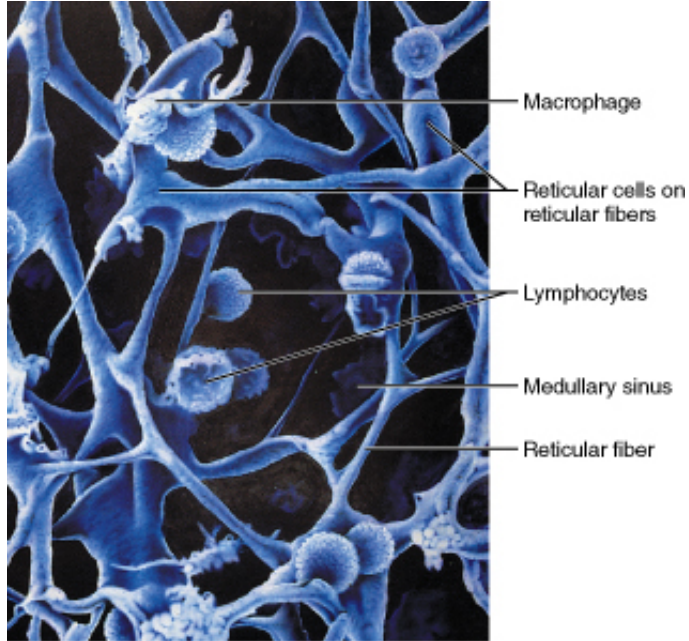
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## Art Question Chapter 20 Question 14

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### Part A

What is the role of the B lymphocytes (B cells) in lymphoid tissue?



ANSWER:

- capture antigens and bring them back to the lymph nodes
- manage the immune response
- produce plasma cells that secrete antibodies
- phagocytize foreign substances

**Correct**

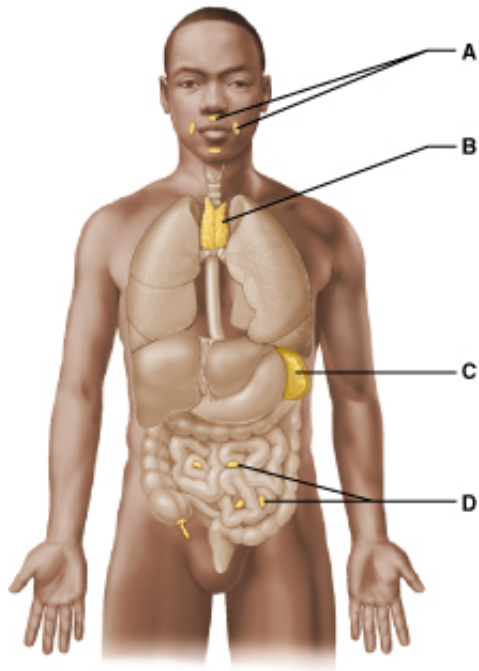
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## Art Question Chapter 20 Question 22

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### Part A

Which of these lymphoid organs is the thymus? Select from letters A-D.



ANSWER:

- A
- B
- C
- D

**Correct**

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## Chapter 20 Chapter Test Question 6

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### Part A

Antibodies are produced by \_\_\_\_\_.

ANSWER:

- reticular cells
- plasma cells
- macrophages
- dendritic cells

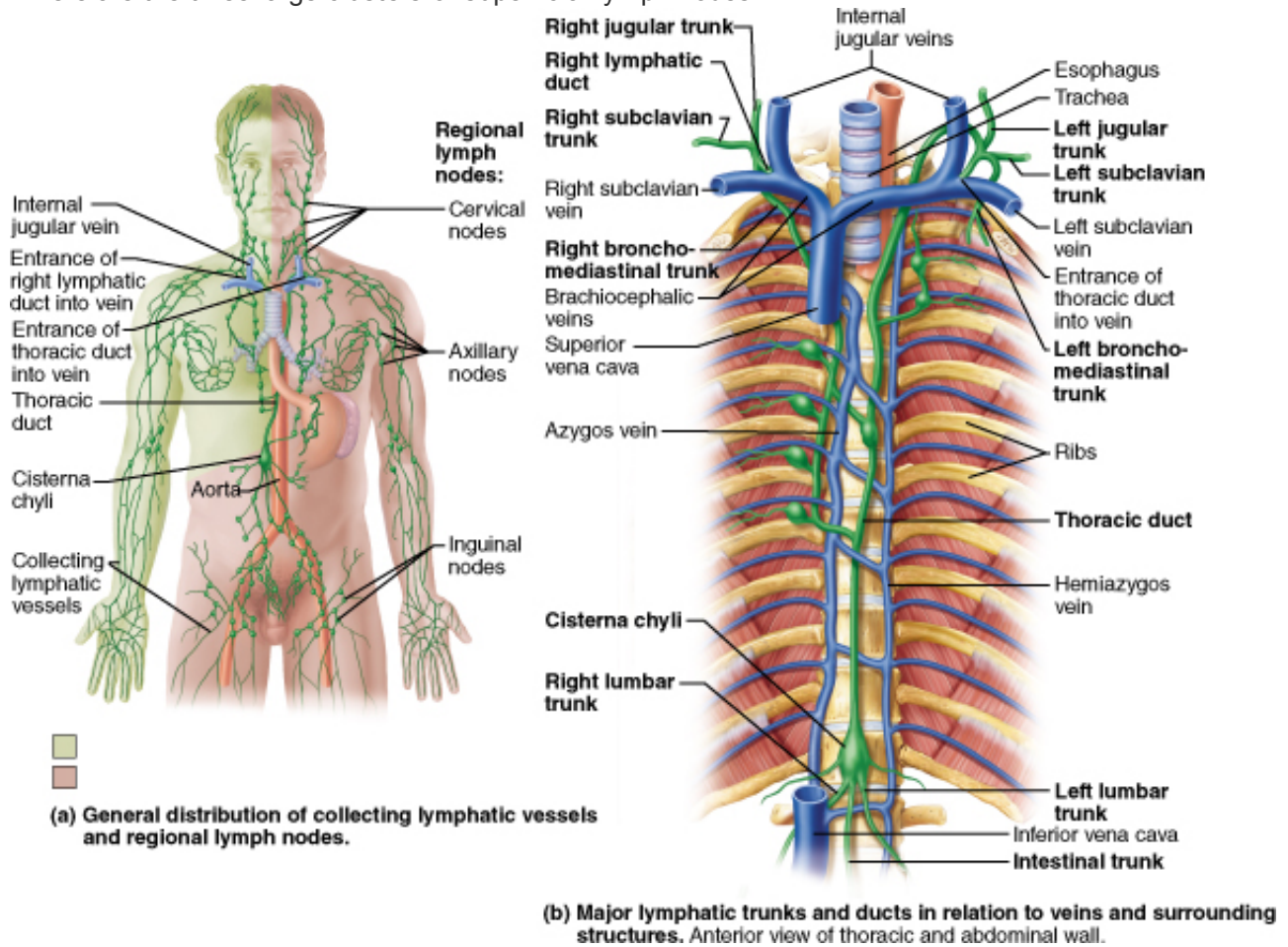
**Correct**

Activated B cells, called plasma cells, are responsible for producing antibodies.

## Art Question Chapter 20 Question 11

### Part A

Where are the three large clusters of superficial lymph nodes?



ANSWER:

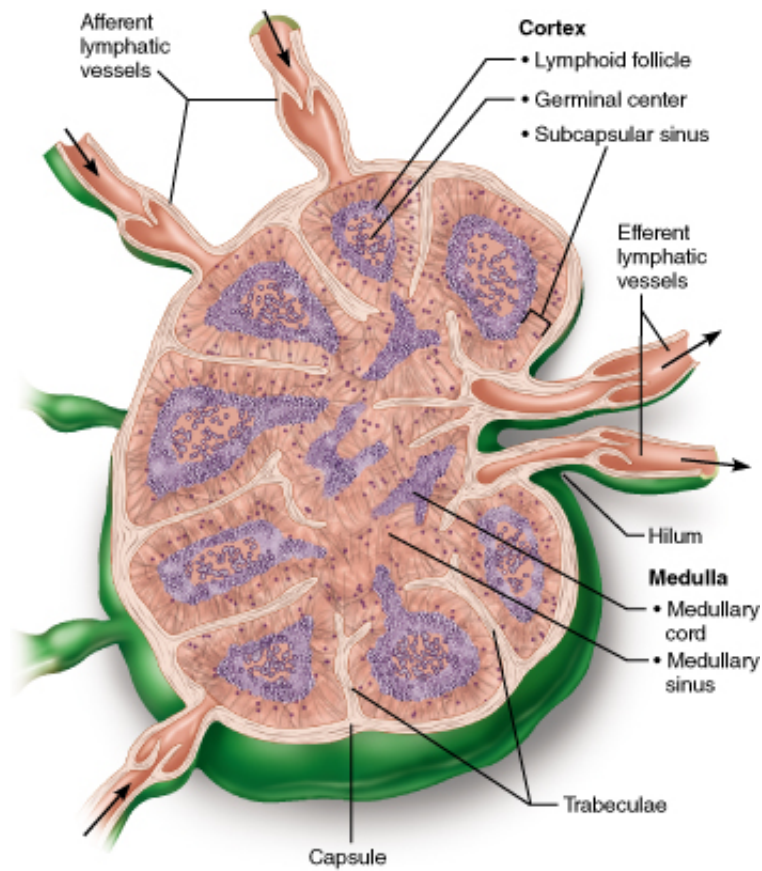
- cervical, inguinal, and axillary regions
- axillary, brachial, and subclavian regions
- lumbar, inguinal, and femoral regions
- cervical, acromial, and mammary regions

**Correct**

## Art Question Chapter 20 Question 18

### Part A

What region of the lymph node contains densely packed follicles with dividing B cells?



(a) Longitudinal view of the internal structure of a lymph node and associated lymphatics

ANSWER:

- cortex
- capsule
- medulla
- trabeculae

**Correct**

## Chapter 20 Chapter Test Question 8

### Part A

Which of the following is a role of lymph nodes?

ANSWER:

- They produce lymph.
- They filter lymph.
- They return lymph to circulation.
- They produce red blood cells.

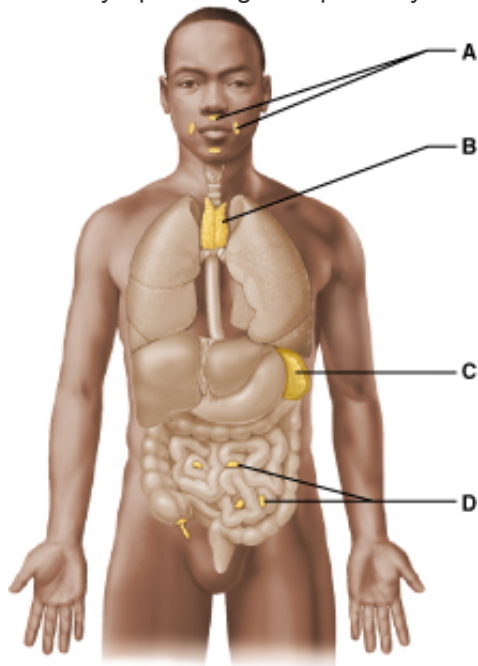
### Correct

Lymph nodes are rich with macrophages, B cells, and T cells; therefore, the lymph nodes are primed for activating the immune system. Structurally, lymph nodes have a capsule and medullary chords and sinuses that serve to filter lymph fluid.

## Art Question Chapter 20 Question 19

### Part A

Which lymphoid organ is primarily active during the early years of life? Select from letters A-D.



ANSWER:

- A
- B
- C
- D

### Correct

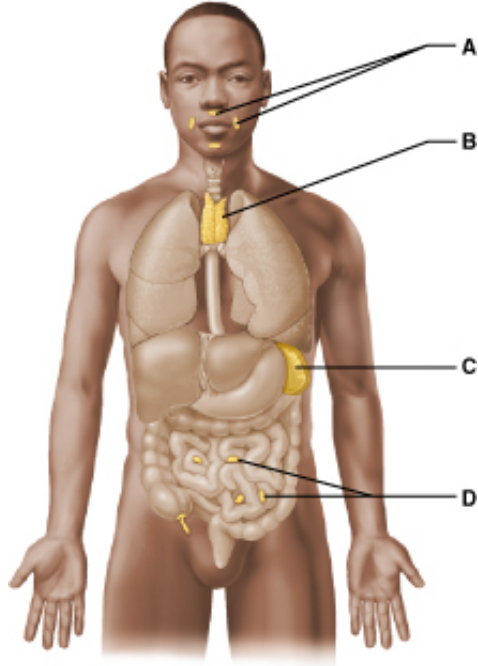
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## Art Question Chapter 20 Question 20

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### Part A

Which of these lymphoid organs is a part of collection of tissues called the mucosa-associated lymphoid tissues (MALT) and removes pathogens entering the pharynx (throat)? Select from letters A-D.



ANSWER:

- A
- B
- C
- D

**Correct**

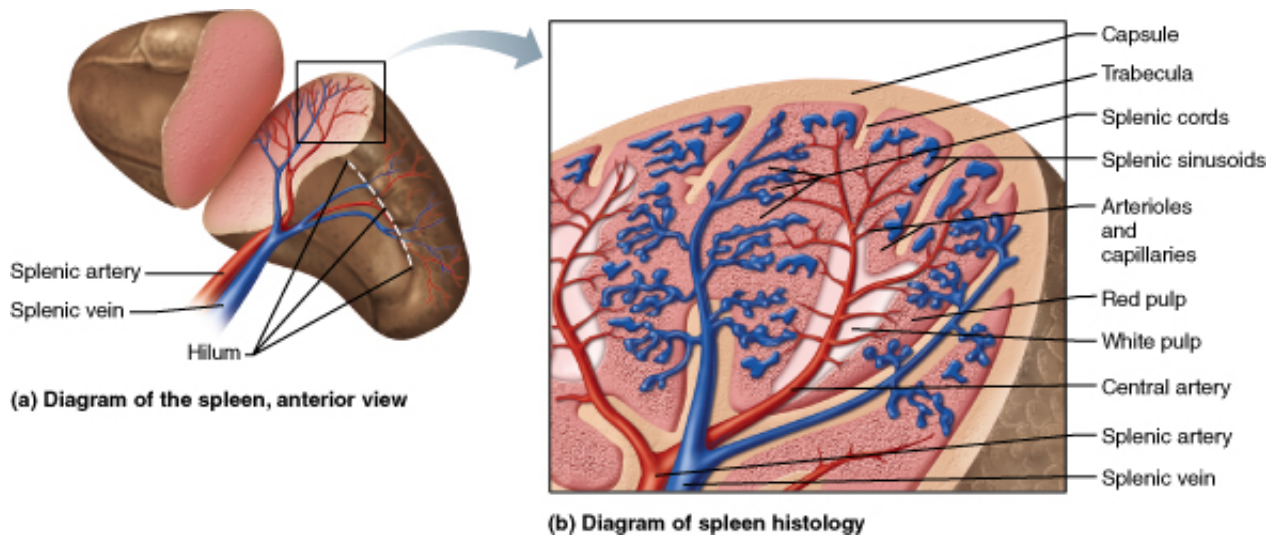
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## Art Question Chapter 20 Question 25

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### Part A

Which part of the spleen is the site of immune function?



ANSWER:

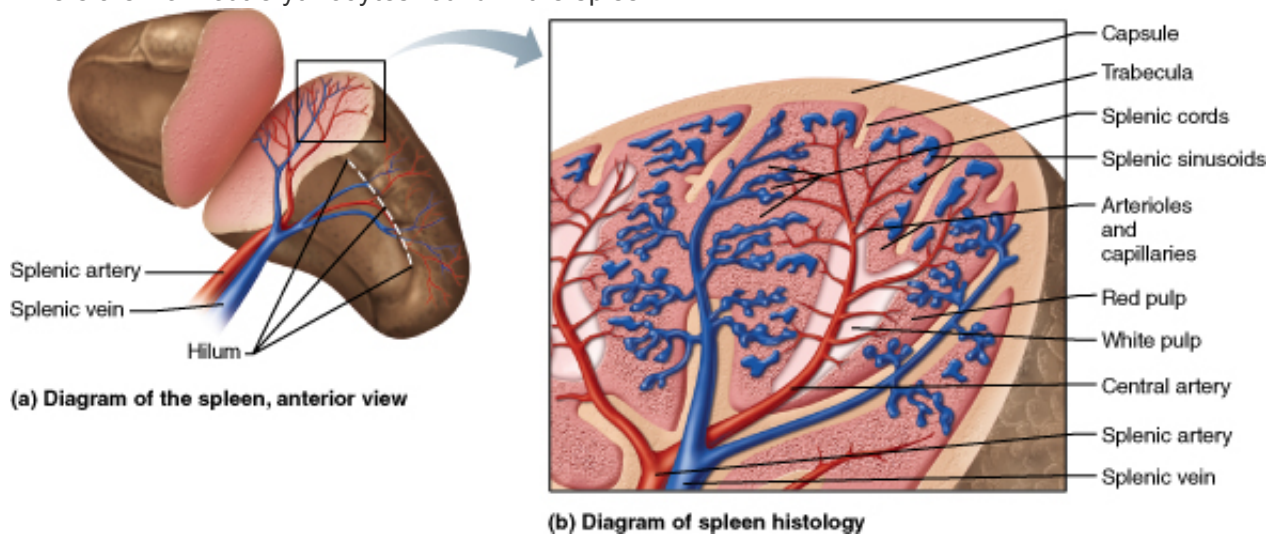
- splenic sinusoids
- red pulp
- splenic cords
- white pulp

**Correct**

### Art Question Chapter 20 Question 26

#### Part A

Where are worn-out erythrocytes found in the spleen?



ANSWER:

- capsule
- red pulp
- splenic cords
- white pulp

**Correct**

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## Chapter 20 Multiple Choice Question 22

### Part A

The thymus is the only lymphoid organ that does *not*:

ANSWER:

- have a cortex and medulla
- produce hormones
- have lymphocytes
- directly fight antigens

**Correct**

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## Chapter 20 Multiple Choice Question 24

### Part A

Digestive tract-associated lymphatic tissue includes all of the following *except* \_\_\_\_\_.

ANSWER:

- islets of Langerhans
- Peyer's patches
- lingual tonsils
- palatine tonsils

**Correct**

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## Chapter 20 Reading Quiz Question 5

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### Part A

Which lymphoid organ provides a site for lymphocyte proliferation and immune surveillance and response and provides blood-cleansing functions?

ANSWER:

- lymph node
- spleen
- tonsil
- thymus

### Correct

The spleen provides a site for lymphocyte proliferation and immune surveillance and response, and blood-cleansing functions such as storing some of the breakdown products of erythrocytes and storage of platelets.

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## Chapter 20 True/False Question 16

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### Part A

If even a small part of the spleen is left in a ten-year-old child, it will most likely regenerate itself.

ANSWER:

- True
- False

### Correct

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## Chapter 20 True/False Question 17

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### Part A

In the spleen, red pulp is involved in the immune functions and white pulp is involved in disposing of worn-out RBCs.

ANSWER:

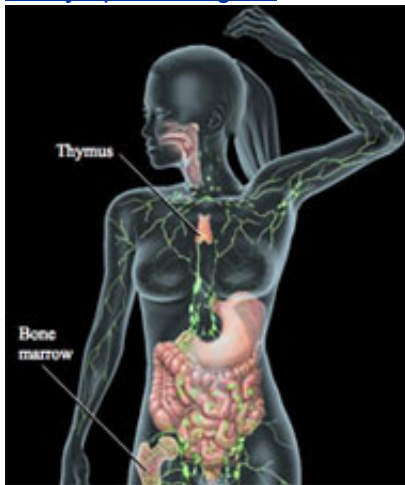
- True  
 False

**Correct**

## IP: Lymphatic Organs

Click on the link or the image below to explore the topic of lymphatic organs in Interactive Physiology (IP), then answer the questions to the right.

[IP: Lymphatic Organs](#)



### Part A

Which of the following are primary lymphoid organs?

**Hint 1.**

Primary lymphoid organs are sites where lymphocytes mature and become immunocompetent.

ANSWER:

- bone marrow and thymus  
 spleen and thymus  
 appendix and spleen  
 lymph nodes and tonsils

**Correct**

Yes, the **B** lymphocytes are named **B** cells because they mature in the **B**one marrow and the **T** lymphocytes are named **T** cells because they mature in the **T**hymus. This is also where they become immunocompetent.

**Part B**

Which of the following areas in a secondary lymphoid organ allows intimate contact between blood and the lymphocytes?

**Hint 1.**

This is the largest secondary lymphoid organ that also acts to cleanse the blood.

ANSWER:

- white pulp of the spleen
- red pulp of the spleen
- germinal centers of the lymph nodes
- Hassall's corpuscles of the thymus

**Correct**

Yes, the white pulp is where lymphocytes are concentrated and the immune functions take place in the spleen.

**Part C**

Where in the lymph node do the T cells first encounter antigens presented by dendritic cells?

**Hint 1.**

This would be in the outer area of the organ.

ANSWER:

- deep in the cortex
- lymphoid follicles of the outer cortex
- germinal centers of the cortex
- medullary cords in the medulla

**Correct**

Yes, the T cells encounter antigens presented by dendritic cells in the deeper part of the cortex. The cortex is the outer area of the lymph node.

**Part D**

Collections of lymphoid tissues, called MALT, are strategically placed throughout the respiratory,

digestive, and genitourinary systems. Which one of these is located at the end of the small intestine?

**Hint 1.**

These collections of lymphoid tissue are located in the plicae circularis of the ileum.

ANSWER:

- tonsils
- Peyer's patches
- appendix

**Correct**

Yes, Peyer's patches are located in the small intestine, and they guard against bacteria from the large intestine.

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**Part E**

There is a decrease in our ability to fight infection as we age. Which lymphoid organ may have a role in this decline?

**Hint 1.**

This organ atrophies as we age.

ANSWER:

- lymph nodes
- spleen
- thymus

**Correct**

Yes, the relative size of the thymus as well as its function decreases with age. Thymic atrophy may be one reason the elderly are more susceptible to infection.

Score Summary:

Your score on this assignment is 97.7%.

You received 27.35 out of a possible total of 28 points.