

## LYMPH SYSTEM

The tissues of your body accumulate fluids formed from all types of metabolic processes. In this lesson, you will learn how the lymphatic system clears these fluids from your body. You will also explore lymph tissues and organs and examine their role as defenders against infectious agents.



## THE LYMPH SYSTEM

### FOCUS QUESTION:

**What are the general functions of the lymph system?**

The main function of the lymphatic system is to sustain your body's fluid balance. Your cells work best when they can take in the proper amount of water, oxygen, and nutrients from the fluids that surround them, so it is important to maintain the appropriate concentration of these fluids inside and outside the cells.

Open this Lymph System Worksheet and fill it in as you view the video on the multiple functions of the lymphatic system.

[> Select this to view the Lymph System Worksheet](#)

## LYMPH SYSTEM WORKSHEET

**Word Bank:** circulatory, elimination, infectious agents, lymph, nodes, vessels

1. The lymphatic system is a vast network of \_\_\_\_\_ running through the body.
2. It has a number of functions, including \_\_\_\_\_ of water that congests tissues.
3. Every day blood circulation releases large amounts of liquid into the body's tissues called \_\_\_\_\_. This fluid circulates in one direction, toward the center of the body.

4. Lymph passes through the lymph vessels to small clusters of organs called the lymph \_\_\_\_\_ . They contain many of the body's defense cells.
5. The defense cells of the lymph nodes eliminate \_\_\_\_\_ .
6. Once the lymph is cleansed by the nodes, it moves to the \_\_\_\_\_ system via the subclavian veins.

## LYMPH SYSTEM—TEXT VERSION

---

The lymphatic system is a vast network of vessels running through the body. It has a number of functions including elimination of water that congests tissues. Every day, blood circulation releases large amounts of liquid into the body's tissues. The vessels in the lymphatic system collect this liquid and keep tissues from swelling. The liquid called lymph, circulates in one direction in the lymphatic vessels. On its way, the lymph passes through small clusters of organs along the vessels, the lymph nodes. These nodes contain many of the body's defense cells with which they filter the lymph to eliminate infectious agents. Once it is cleansed, the lymph is returned to the blood circulatory system via the subclavian veins. Everyday the lymphatic system drains and cleanses about three liters of lymph.

---

## THE STRUCTURES OF THE LYMPH SYSTEM

### FOCUS QUESTION:

#### What are the general structures of the lymph system?

When blood circulates through your body, some of the blood plasma leaks through the blood vessel walls and into the surrounding tissues. Most of the plasma moves back into the blood vessels, but some of the yellowish fluid, called **lymph**, is left behind. Lymph contains **lymphocytes**, which are cells that attack pathogens and cancer cells, and a fluid from the intestines called **chyle**, which includes proteins and fats.

Lymphatic organs include lymph vessels, ducts, and small round structures called **lymph nodes**. Lymph nodes are gathered in clusters at the neck, armpit, groin, and inside the chest and abdomen. They collect lymph from smaller lymph vessels and cleanse it by removing pathogens, cancer cells, or foreign substances from it. When lymph nodes encounter an infectious agent, they begin making white blood cells, like lymphocytes, to help fight the infection. **i**

Once the lymph is filtered, muscle contractions move it into larger lymph vessels, called **lymphatics**. These lymph vessels contain valves that prevent lymph from flowing backward. The lymphatics converge to **lymph trunks** that drain back into the blood through the **subclavian veins** of the circulatory system. Blood is eventually filtered by the kidneys, and the waste products are excreted as urine.

In addition to the lymph nodes, lymphatic tissues are found in the thymus, spleen, tonsils, and the gut. Flip the cards below to review the functions of lymphatic tissues within these organs:

#### The thymus



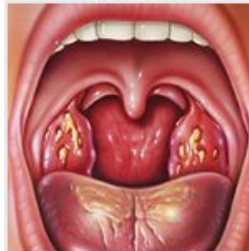
© Anatomical Travelogue / Photo Researchers / Universal Images Group 2013

#### Spleen



© 3D4Medical / Universal Images Group 2013

#### Tonsils



© John Bavosi / Science Photo Library / Universal Images Group 2013

#### Peyer's patch



© Russell Kingtley/ Science Photo Library / Universal Images Group 2013

---

## CARD 1

### The thymus

[Image: The thymus gland]

Flipped Card

**The thymus:** The thymus is located just under the neck. It's made up of two lobes of lymphoid tissues: the medulla and surrounding cortex. Immature lymphocytes enter the cortex to become T cells and mature in the medulla.

## CARD 2

### Spleen

[Image: spleen]

Flipped Card

**The spleen:** The spleen is located in the upper left side of the abdomen, just under the ribs. It removes old or damaged red blood cells from the blood and releases lymphocytes in reaction to infection.

### CARD 3

#### Tonsillitis

[Image: Tonsillitis]

Flipped Card

**The tonsils:** There are three sets of tonsils in the back of the throat. They help fight infection but are susceptible to becoming infected as well, due to their constant exposure to pathogens.

### CARD 4

#### Peyer's patches

[Image: Peyer's patches]

Flipped Card

**Peyer's patches:** These patches are located in the mucosa and submucosa of the small intestine. They contain mostly B cells, which initiate the humoral immune response against infectious agents.