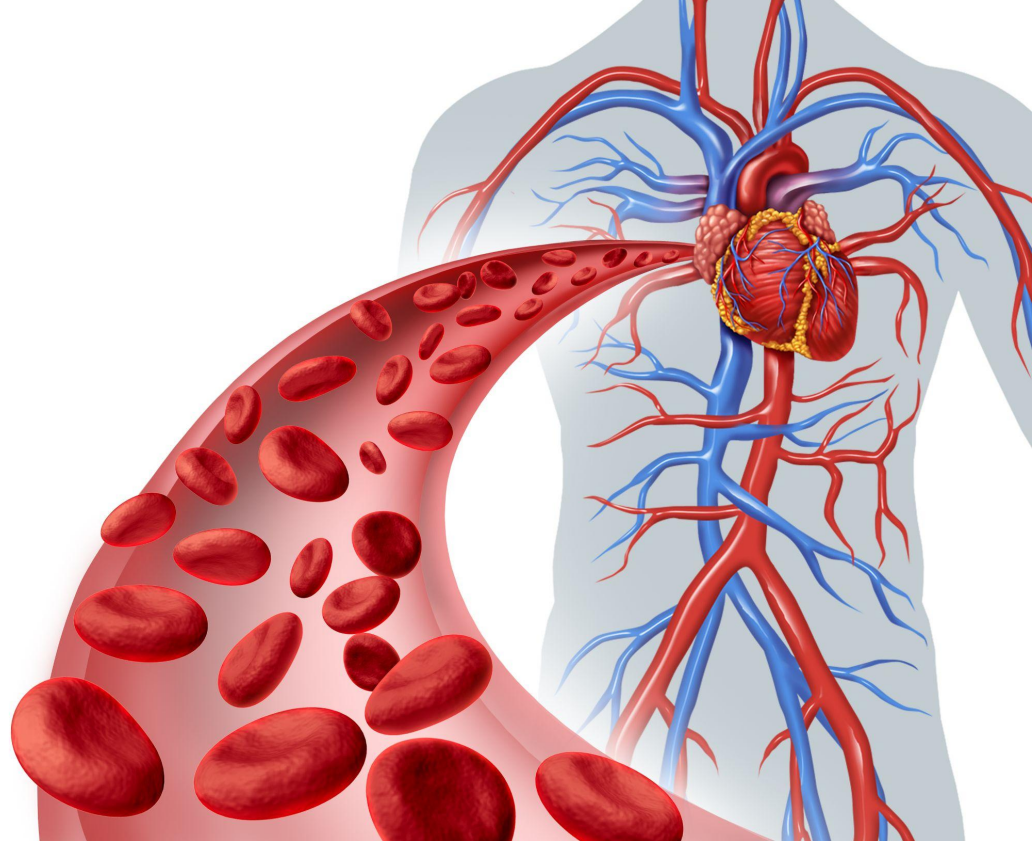


# Circulatory System

Introduction to the circulatory system.



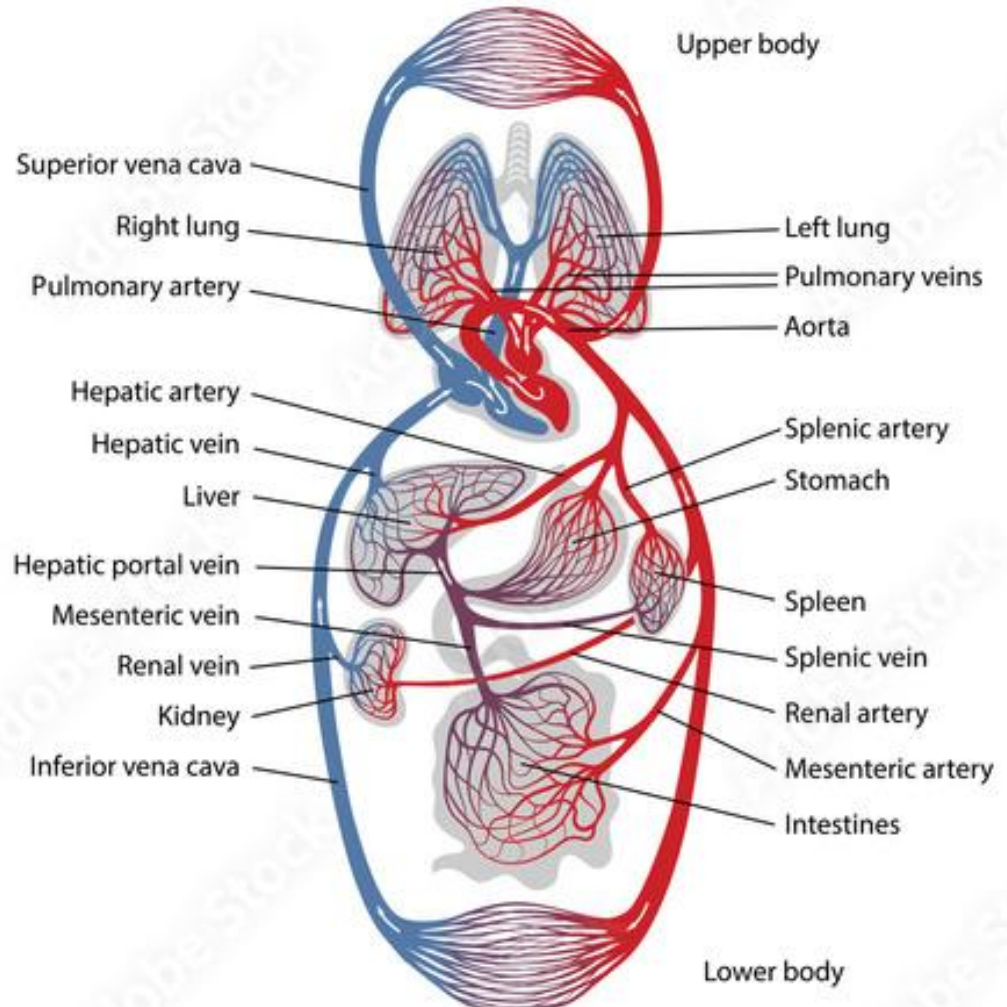


## Circulatory System: Common Questions Answered

What does the circulatory system include? The circulatory system is composed of several vital components, including the heart, blood, arteries, veins, capillaries, bone marrow, blood vessels, and two lungs.

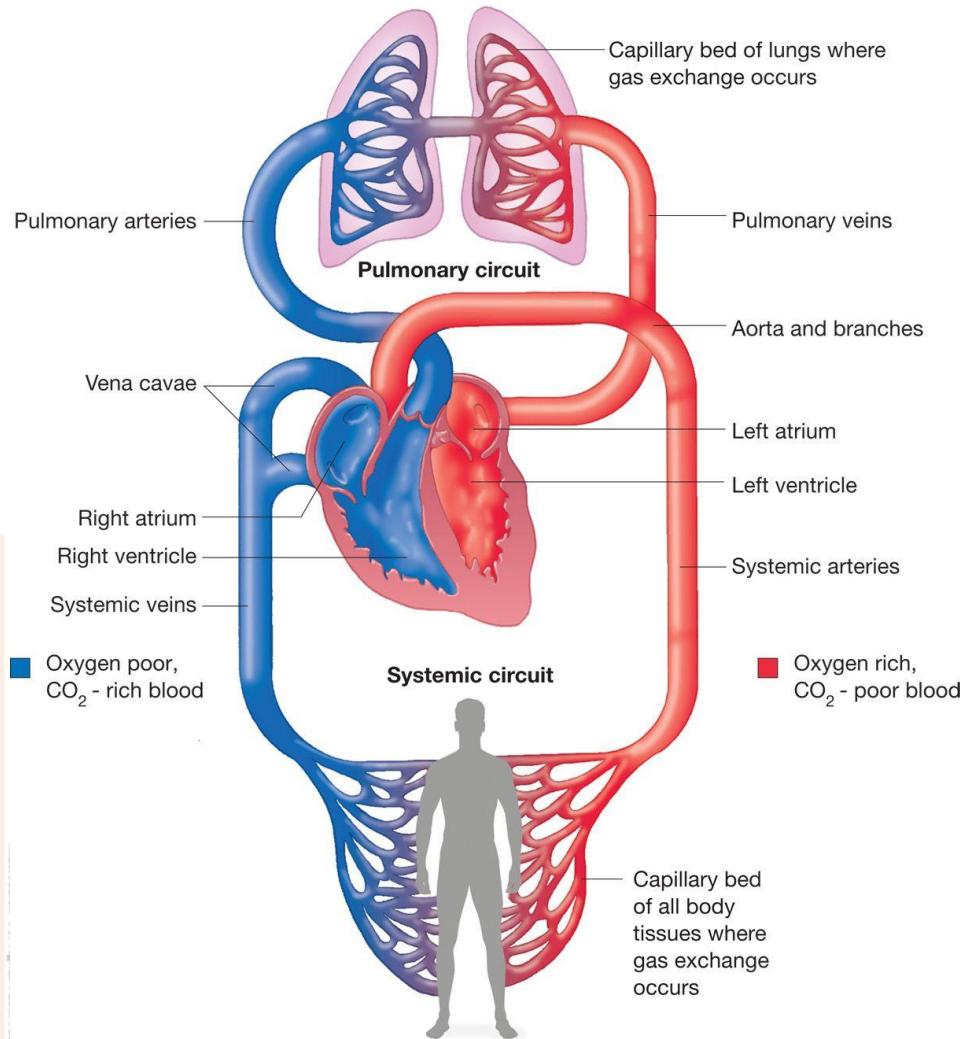
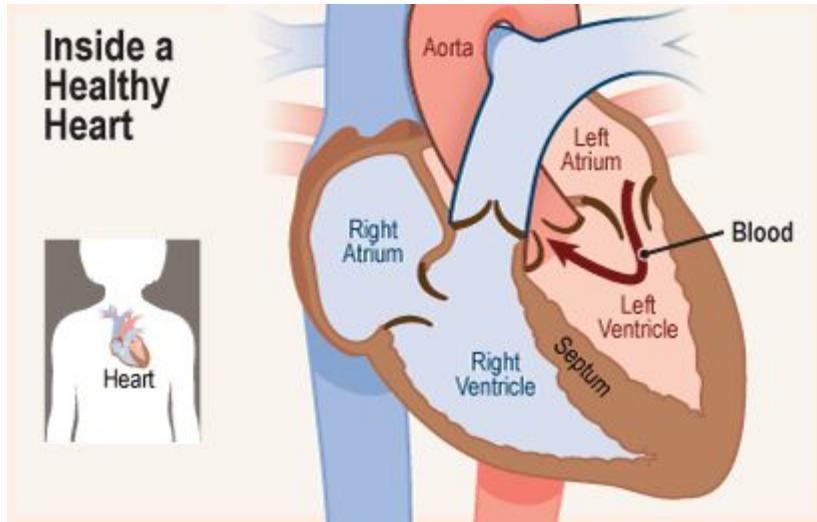
What is the function of the circulatory system? The main role of the circulatory system is to distribute oxygen, nutrients, hormones, and water to various organs and cells throughout the body.

## Circulatory system



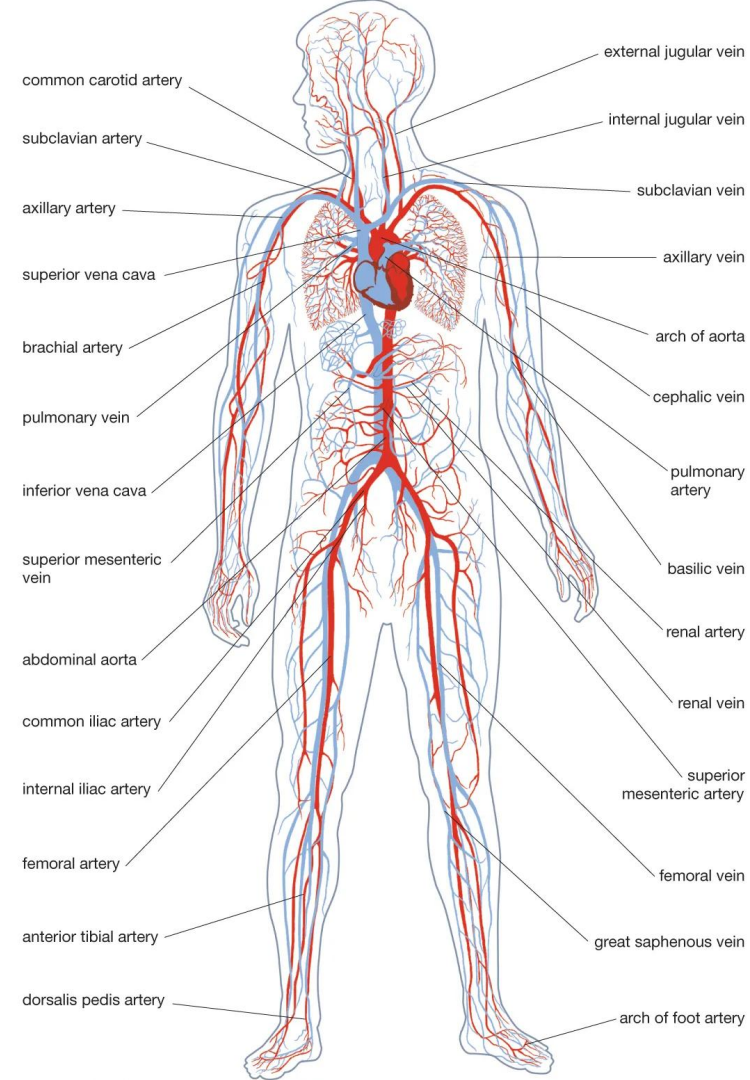
# Circulatory System: The blood's journey.

As you can see on the right, a red blood cell's journey begins in the left atrium traveling through the aorta and straight to one of the many capillary beds in the body. Many things are exchanged in the capillary beds, including water, carbon dioxide ( $\text{CO}_2$ ), oxygen, nutrients, and hormones.



# Circulatory System: The blood's journey: Continued.

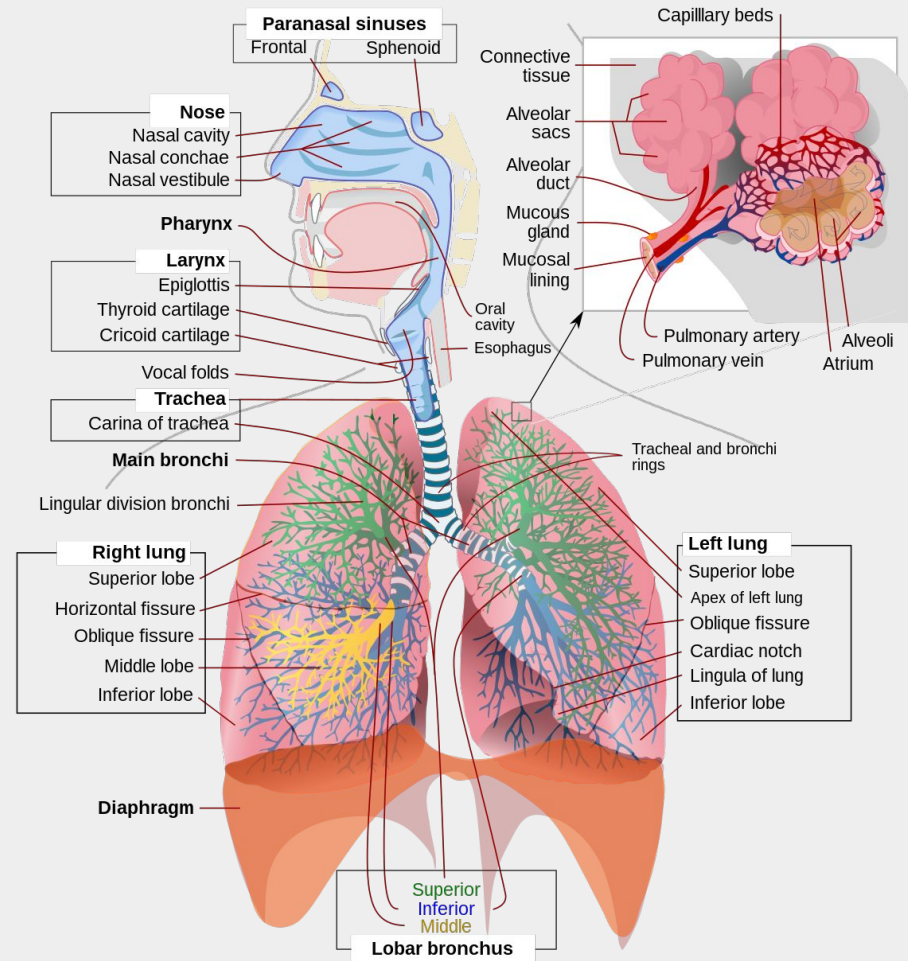
As you can see on the right, your veins and arteries are all around your body! They are even on your lungs and brain! Your blood picks up waste and carbon dioxide ( $\text{CO}_2$ ) and drops off oxygen and water around your body. But, as we all know, there has to be a balance in the body. You cannot have too much, or too little of something. Introducing fat, an energy source. When we do not burn the fat we consume, it accumulates in our bodies. Fat can block something called blood vessels. (a tube that blood travels through) making blood take longer to bring nutrients to cells beyond the clog. Sometimes, fat can completely obstruct the blood vessels, making it impossible to deliver what cells need until the fat is burned.





# Respiratory System

Introduction to the respiratory system.




# Respiratory System: Common Questions Answered

What does the respiratory system include? The respiratory system has numerous parts, such as the mouth, nose, sinuses, pharynx (throat), trachea, bronchial tubes, lungs, diaphragm, alveoli, bronchioles, lung lobes, and larynx (voice box).

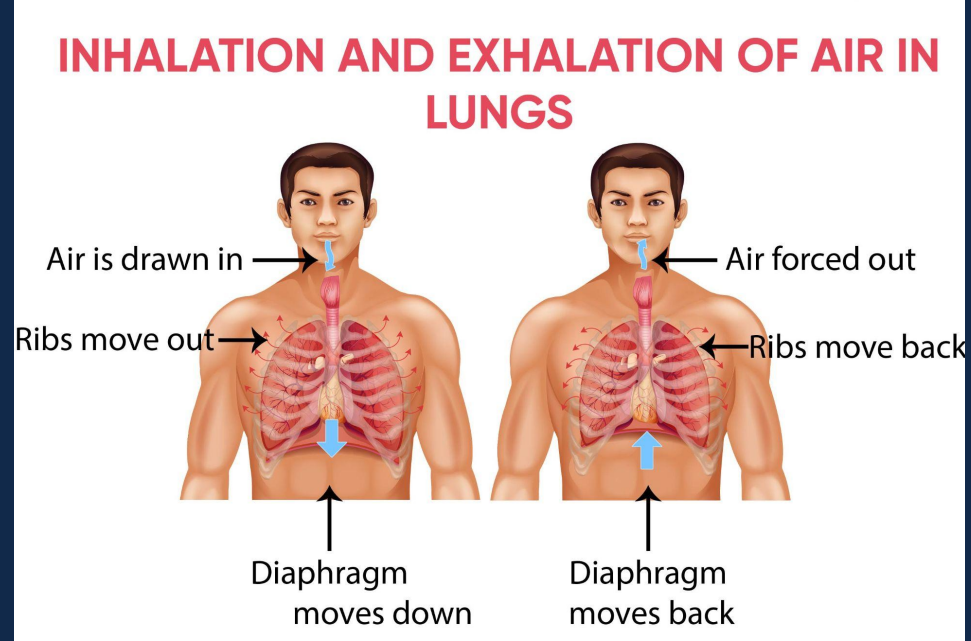
What is the respiratory system's function? The primary function of the respiratory system is to facilitate breathing, talking, and smelling, as well as eliminating waste gases such as carbon dioxide from the body.

How do the respiratory system and the circulatory system interact with each other? When the respiratory system takes in oxygen, it enters the lungs. Since the lungs are connected to the heart, red blood cells collect oxygen and other nutrients to deliver to cells around the body. The blood cells then return to the lungs (via the veins) to dispose of carbon dioxide. The carbon dioxide is exhaled, and the process is repeated.



# Respiratory System: Why do we exhale carbon dioxide?

Everyone knows that we inhale oxygen and exhale carbon dioxide. But where does carbon dioxide come from? The answer is simple, the cells in our bodies absorb oxygen and produce carbon dioxide. Red blood cells will pick up the carbon dioxide and bring it to the lungs.

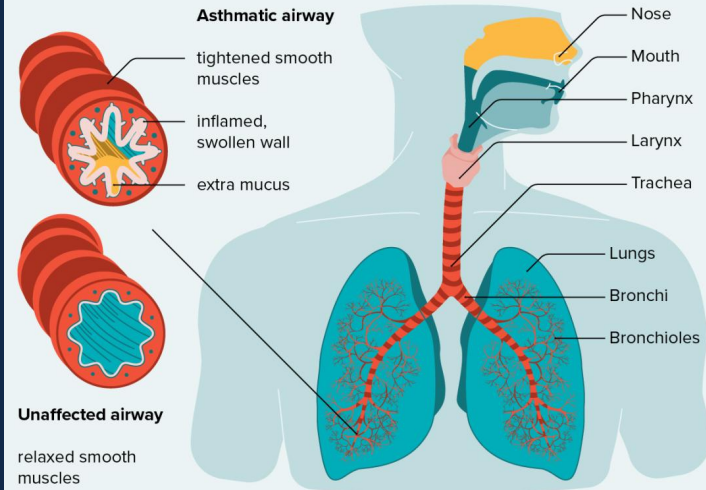


# Respiratory System: How do illnesses affect the respiratory system?

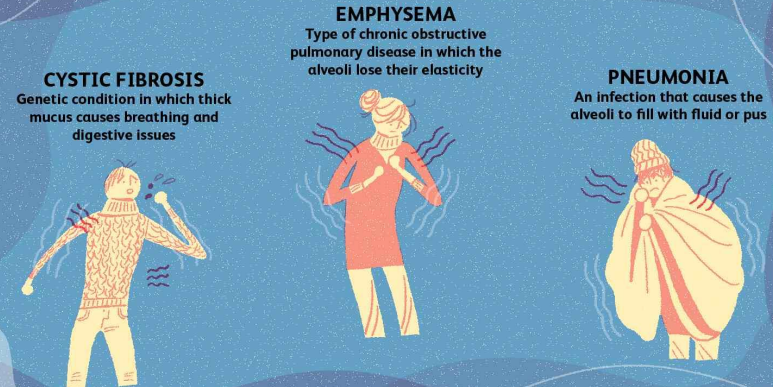
**Asthma:** Asthma is a chronic disease that affects many people today. As you can see on the top right, when a bronchi airway is affected by Asthma, the muscles are tightened, the walls are inflamed and swollen, and there is unneeded mucus. This makes it hard to breathe if you have Asthma.

**Tuberculosis:** Tuberculosis is a bacterial infection caused by *Mycobacterium tuberculosis*. The bacteria will destroy parts of the lung around something put up by the immune system called a *granuloma*.

How asthma affects the airways in the lungs



## Common Types of Respiratory Diseases





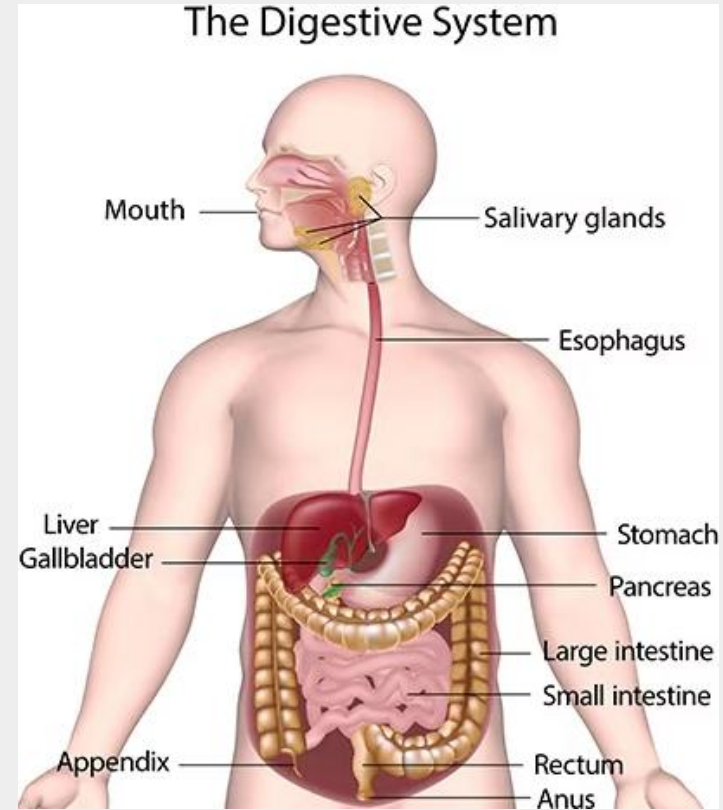
# Digestive System

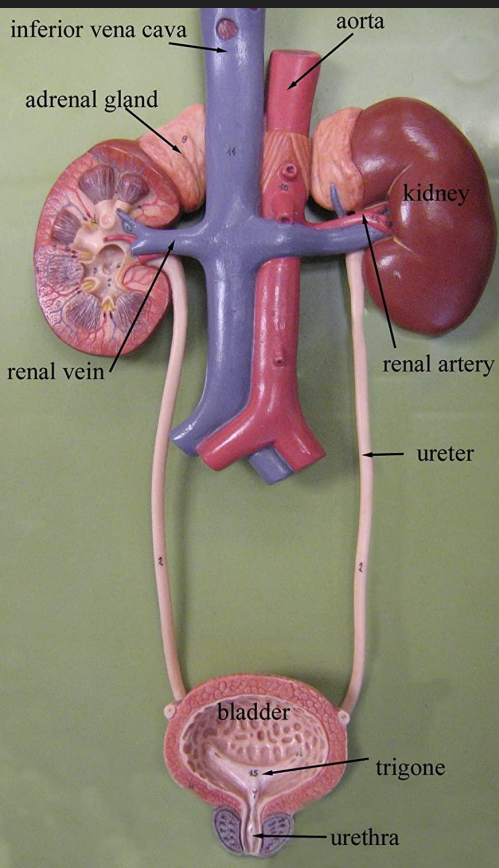
Introduction into the digestive system.



## Digestive System: Anatomy of the Digestive System.

As you can see on the right, the digestive system consists of the mouth, salivary glands, esophagus, liver, gallbladder, stomach, pancreas, large intestine, small intestine, appendix, rectum, and anus.

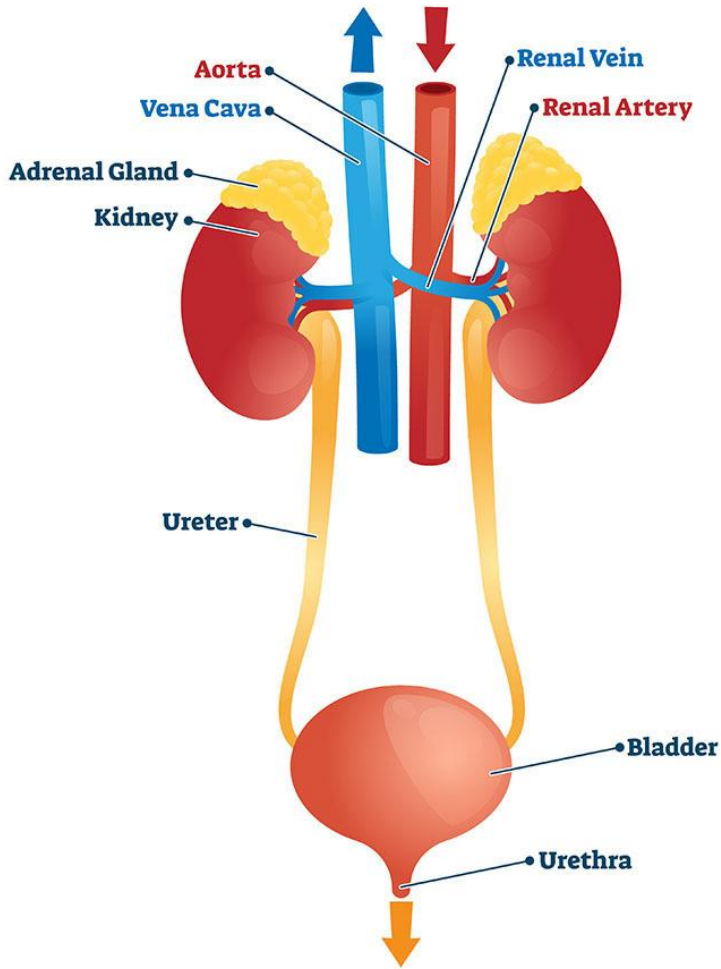




# Excretory System

Introduction to the excretory system

# EXCRETORY SYSTEM

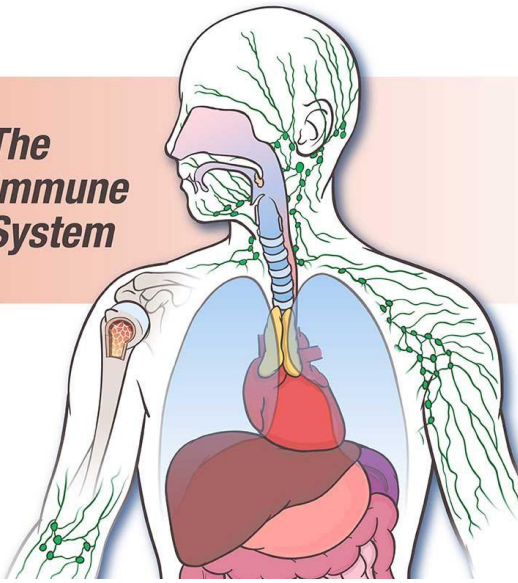


## Excretory System: Physiology of the Excretory System

The excretory system's physiology is very simple. Blood enters the kidneys through the aorta and renal arteries. The kidneys filter the blood for water, and chemical waste. This waste travels through the ureter, to the bladder. The bladder will expand as it fills up, and it gets smaller when it is ready to deposit through the urethra.

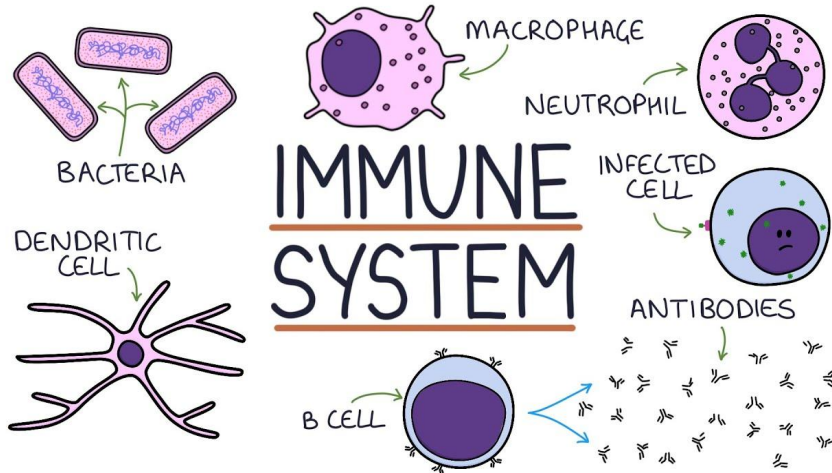


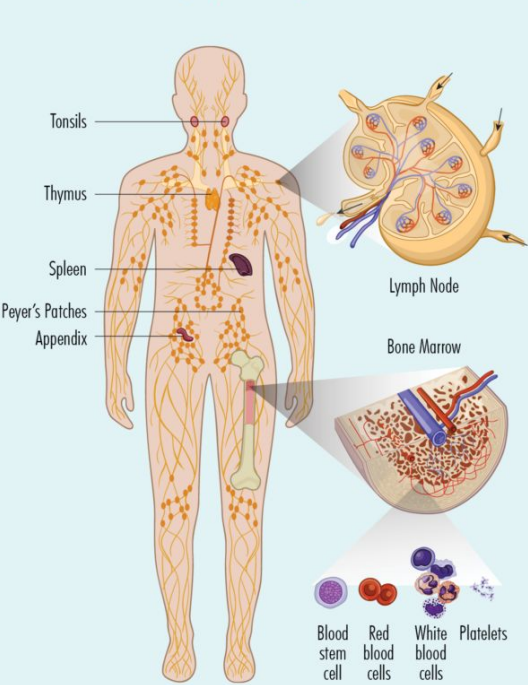
# The Immune System



# Immune System

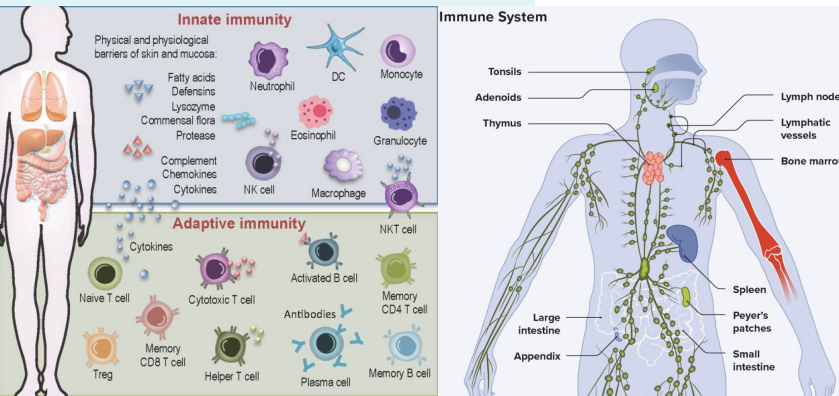
Introduction to the immune system.

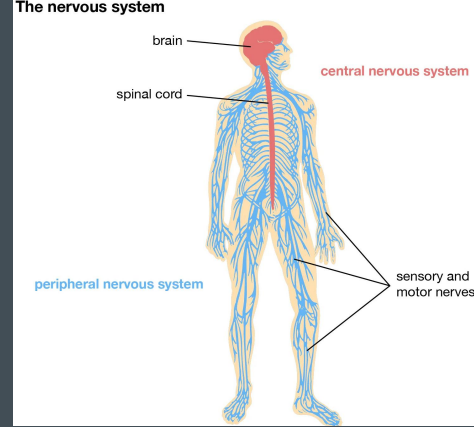




# Immune System: Anatomy of the Immune System.

The immune system consists of tonsils, adenoids, bone marrow, lymph nodes, blood stem cells, red blood cells, white blood cells, platelets, lysozyme cells, protease cells, chemokine cells, cytokine cells, neutrophils, dendritic cells, monocyte cells, eosinophils, granulocyte cells, nk cells, macrophages, nk+ cells, memory cells, plasma cells, antibodies, helper T cells, cytotoxic T cells, naive T cells, B cells, treg cells, the thymus, spleen, appendix, and peyer's patches.



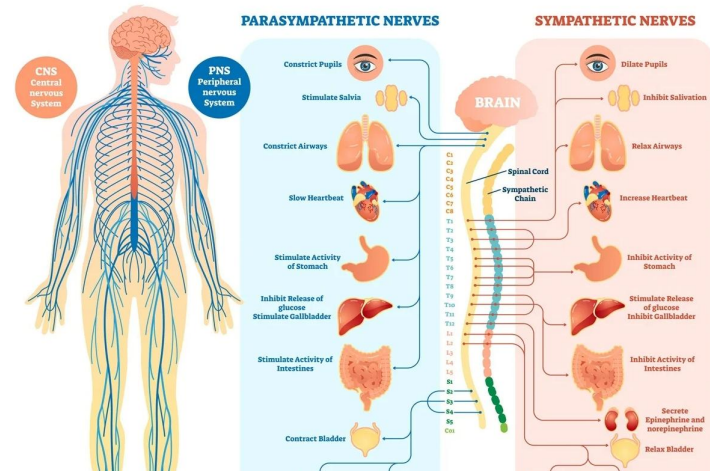


# *Nervous System*

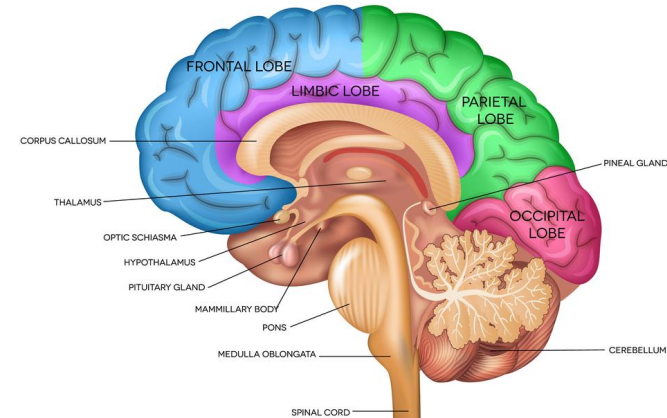
*Introduction to the nervous system.*

## Nervous System: What does the nervous system do?

The nervous system is the system that controls the entire body. There are two parts of the nervous system: the parasympathetic nervous system, and the sympathetic nervous system.



### ANATOMY OF THE BRAIN





# You have reached the end!

Here is the proper definitions of anatomy  
and physiology!

Anatomy is a field of study that focuses on the physical structures of living organisms, including humans and animals. It is often explored through dissection and the separation of different body parts.

Physiology is the field of biology that focuses on the regular operations of organisms and their components.

Anatomy versus physiology: Anatomy is the study of the internal and external structures of the body and how they are related, while physiology is the study of how those structures function.