



Animal Organ Systems

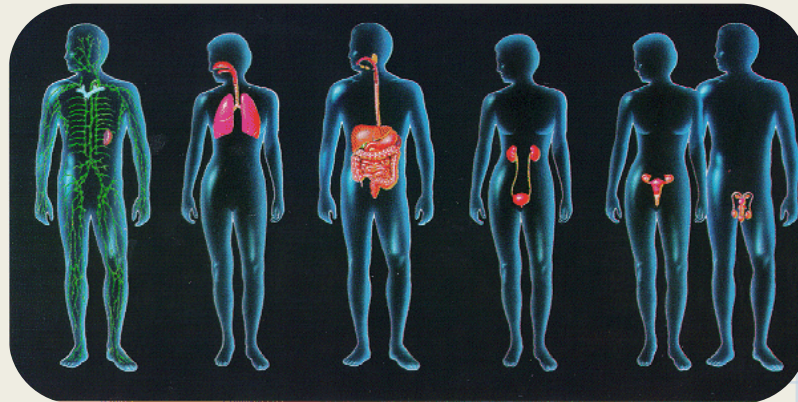
SNC2P Biology

Organ Systems

Biologists categorize **organ systems** according to their main functions. There are 11 main organ systems in the animal body.

Organ System

- One or more organs that work together to perform a major vital body function



Animal Organ Systems

- Circulatory system
- Digestive system
- Endocrine system
- Excretory system
- Integumentary system
- Lymphatic system
- Muscular system
- Nervous system
- Reproductive system
- Respiratory system
- Skeletal system



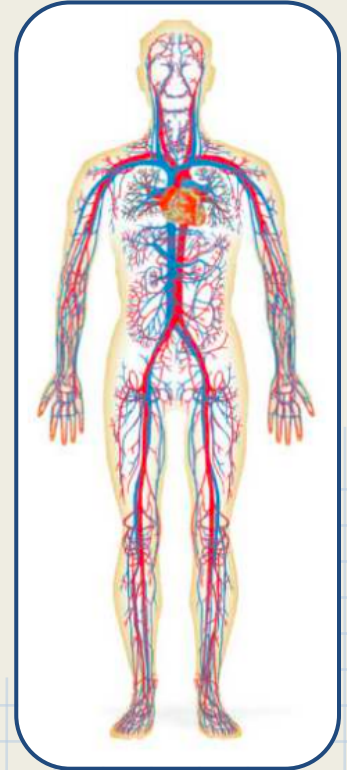
Circulatory System

The **circulatory system** is the blood's transportation system. The circulatory system includes the heart, blood, and blood vessels. The heart acts as a pump to transport and regulate the flow of blood through a series of blood vessels; arteries, veins, and **capillaries**.

- If you were to lay out all of the arteries, capillaries, and veins in one adult, end-to-end, they would stretch about 100,000 kilometers. Capillaries would make up about 80% of this length

Capillaries

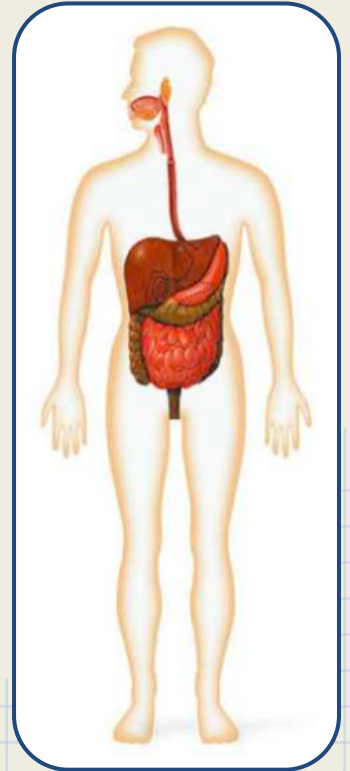
- The smallest blood vessels in the body, they are about one cell thick. Oxygen and carbon dioxide flow in and out of capillaries by the process of diffusion.



Digestive System

In humans, the **digestive system** is essentially a tube that extends from the mouth to the anus. The digestive system is composed of the organs in the mouth, the esophagus, the stomach, the small and large intestines, liver, gallbladder, and the rectum.

- The purpose of the digestive system is to transport nutrients throughout the body by using **absorption**.
- **Absorption** is the process by which food that has already been broken down passes through the wall of the intestine into the bloodstream.

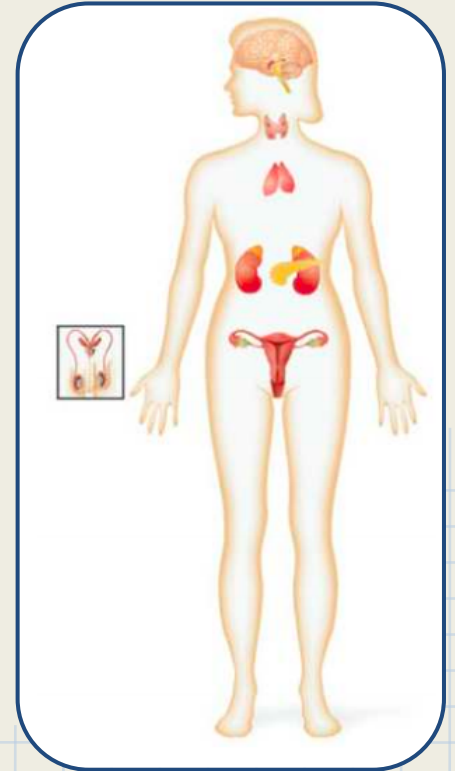


Endocrine System

The **endocrine system** is made up of glands (pituitary, hypothalamus, thyroid, pancreas, ovaries, and testes) which secrete hormones into the bloodstream. These hormones regulate various functions such as metabolism, growth and development, tissue function, and mood.

The basic functions of the endocrine system are to:

- Control growth and development
- Control metabolism

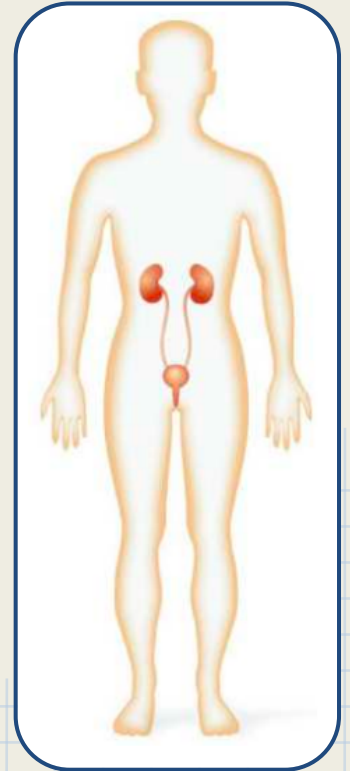


Excretory System

The **excretory system** consists of the kidneys, ureters, urinary bladder, urethra, and skin. The skin is considered to be a part of the excretory system because it excretes water, salts, and urea in sweat.

The purpose of the excretory system is to:

- Filter waste products from the blood
- Maintain proper levels of water and electrolytes in the body



Integumentary System

The most visible system is the **integumentary system**. It is made up of the skin (epidermis and dermis) as well as accessory structures such as horns, antlers, hooves, quills, claws, hair, and nails.

The integumentary system:

- Covers and protects the body
- Helps control body temperature



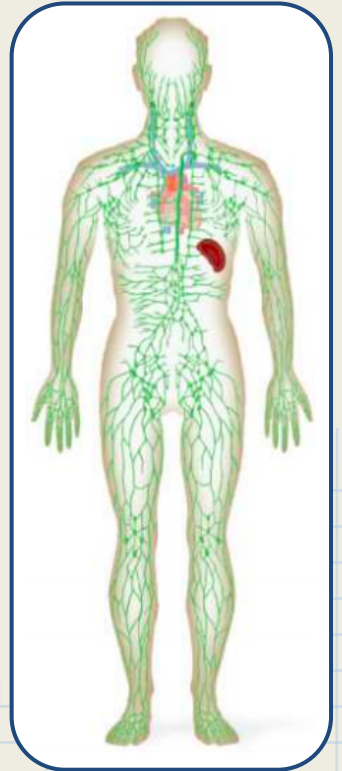
Lymphatic System

The **lymphatic system** is composed of a network of conduits called lymphatic vessels that carry a clear fluid called lymph towards to heart.

The lymphatic system has multiple interrelated functions including:

- Absorbing and transporting fatty acids and fats from the digestive system
- Transporting antigen-presenting cells (APCs) to the lymph nodes where an immune response is stimulated

In general, the lymphatic system helps protect the body from disease.



Muscular System

The **muscular system** consists of skeletal, smooth, and cardiac muscles. It works with the skeletal system to permit movement of the body, maintain posture, and circulate blood throughout the body.

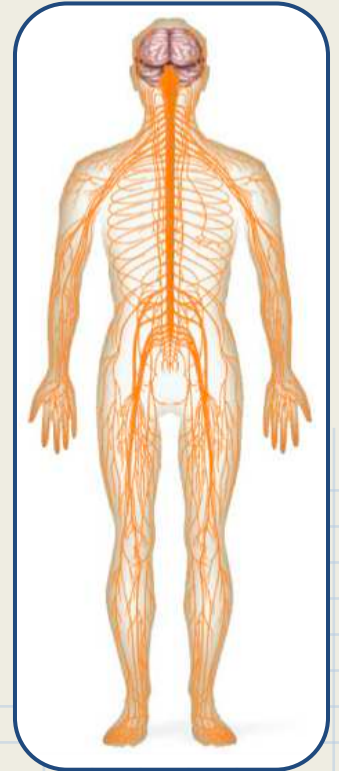
- Muscles make up about 40% of your total body weight. In fact, muscles are the most dense thing in your body.
- There are approximately 640 skeletal muscles in the typical human body
- To take one step, you use 200 muscles



Nervous System

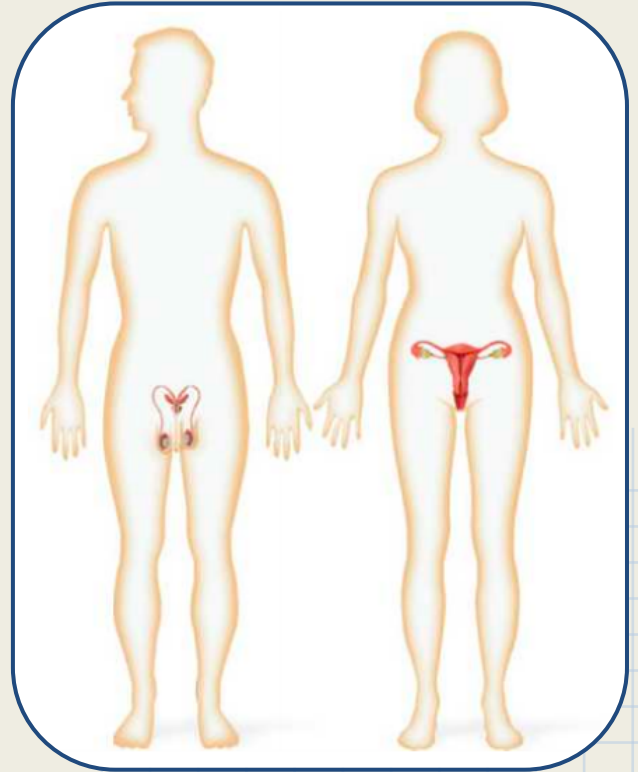
The **nervous system** consists of a network of specialized cells called neurons that control body functions and coordinated responses and activities. In most animals, the nervous system contains the brain, spinal cord, nerves, and retina.

- There are approximately 100 billion neurons in the human brain and 13.5 million neurons in the human spinal cord.
- The nervous system can transmit signals at speeds of 100 meters per second



Reproductive System

The **reproductive system** is a system of organs within an organism which work together for the purpose of reproduction. The major organs of the reproductive system include the external genitalia as well as a number of internal organs including the testicles and ovaries.

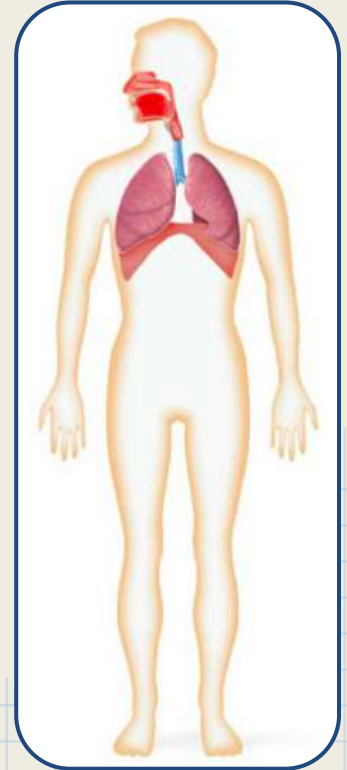
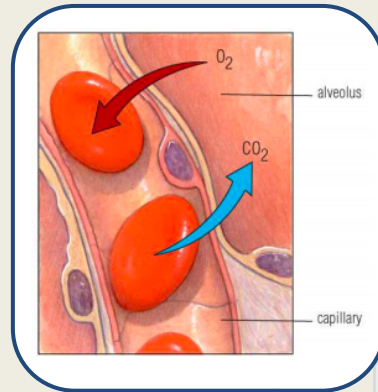


Respiratory System

Each cell in your body requires oxygen to carry out various life processes including growth, movement, and reproduction.

The function of the **respiratory system** is to obtain oxygen and release carbon dioxide. The organs included in the respiratory system are the organs of the mouth, the trachea, and the lungs.

Inside the lungs, air passes through the bronchi to the bronchioles which in turn empty into the **alveoli**. Gas exchange takes place at the **alveoli**.



Skeletal System

The **skeletal system** consists of both fused and individual bones supported and supplemented by ligaments, tendons, muscles, and cartilage. It serves as a scaffold which supports organs, anchors muscles, protects organs such as the brain, lungs, and heart, and allows movement.

- At birth, a newborn baby has over 300 bones, whereas on average an adult human has 206 bones. The difference comes from a number of small bones that fuse together during growth.
- Your hands and feet contain more than half the bones in your entire body.



Recap

Animal Organ System	Basic Function
Circulatory	Transports oxygen, nutrients, and waste throughout the body
Digestive	Digests food, absorbs nutrients
Endocrine	Controls growth, development, metabolism
Excretory	Filters waste products from the blood
Integumentary	Covers and protects the body
Lymphatic	Protects the body from disease
Muscular	Provides movement and blood circulation
Nervous	controls and coordinates body functions
Reproductive	Reproduction
Respiratory	Gas exchange, supplying the body with oxygen
Skeletal	Support and protect the body

Body Worlds

