

BODY SYSTEMS

Primary Care Paramedicine

Module: 04

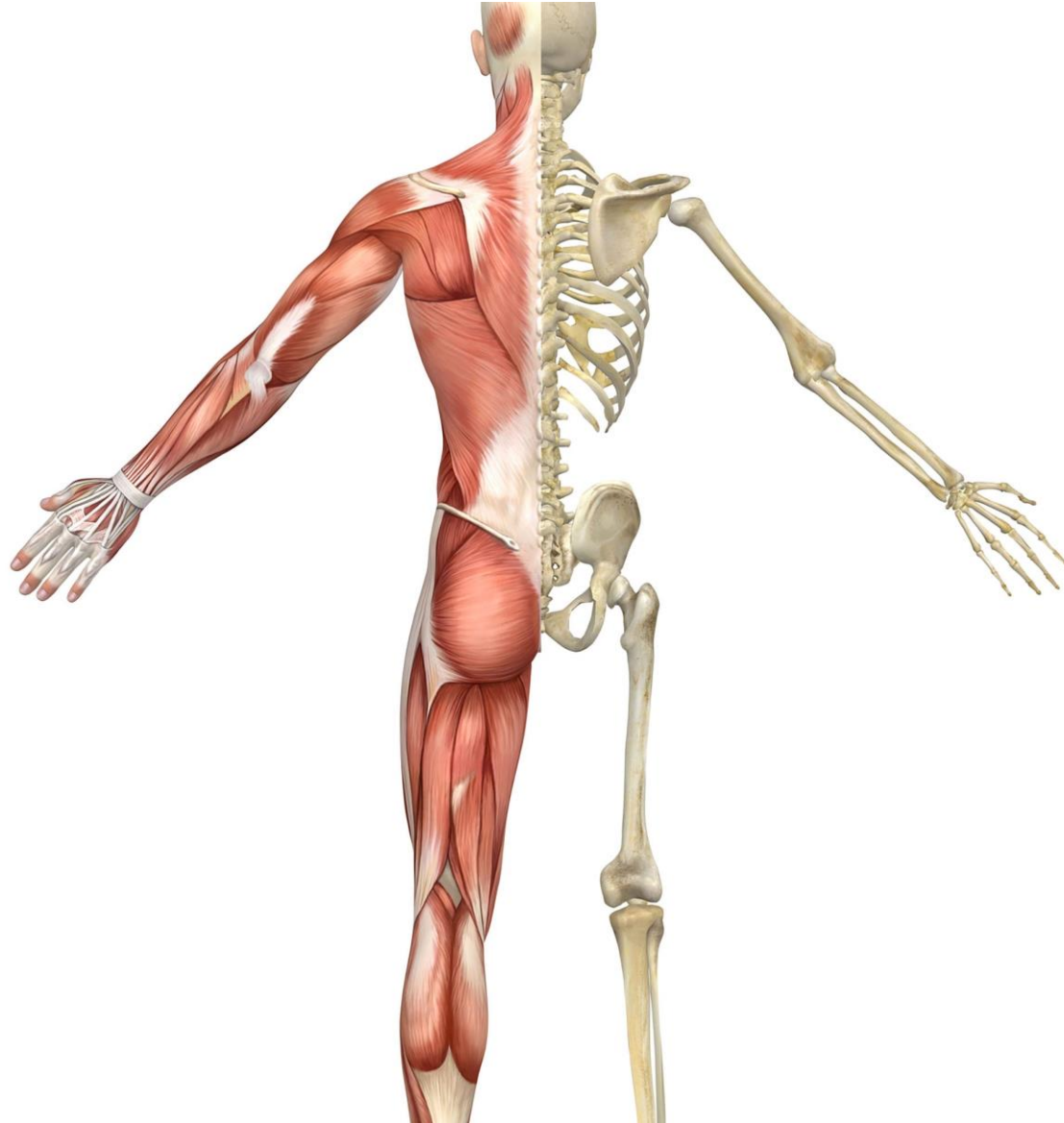
Section: 06



- Musculoskeletal
- Endocrine
- Nervous
- Immune
- Cardiovascular
- Respiratory
- Gastrointestinal
- Genitourinary
- Reproductive
- Integumentary
- Lymphatic

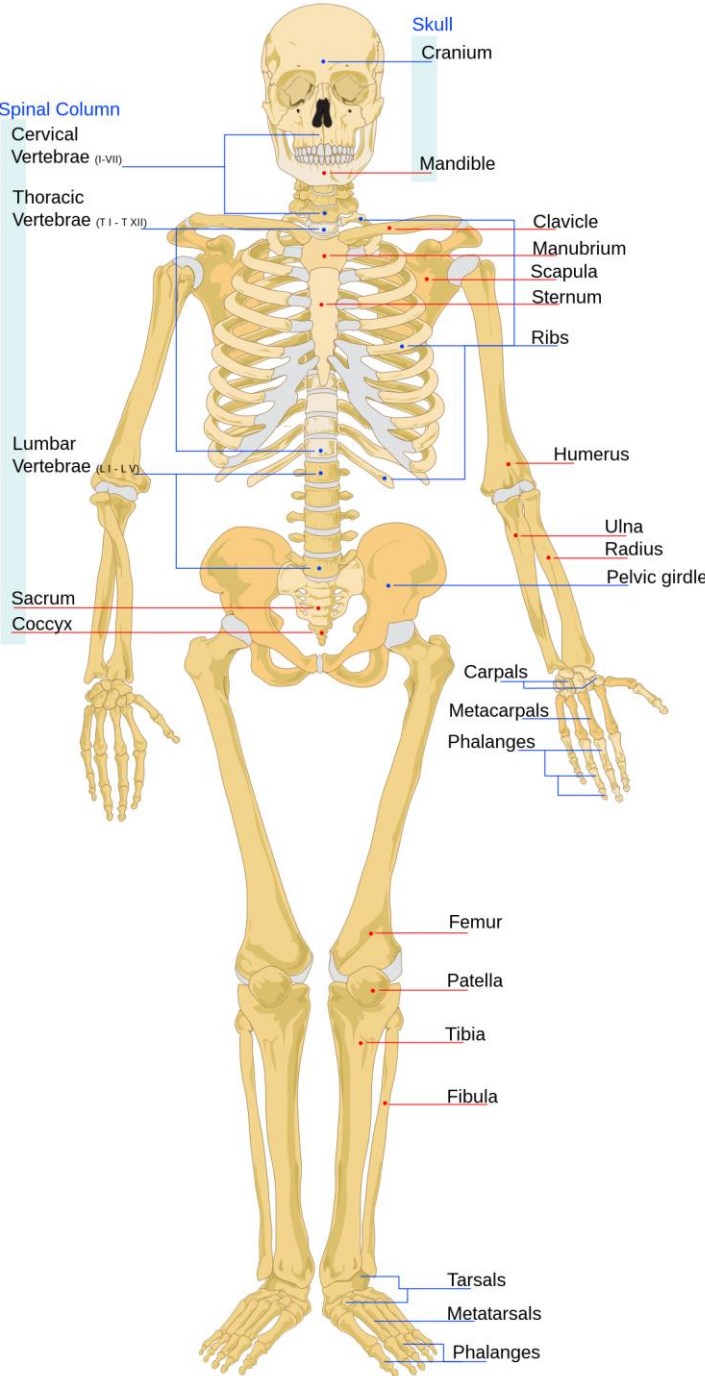
Body Systems

THE MUSCULOSKELETAL SYSTEM

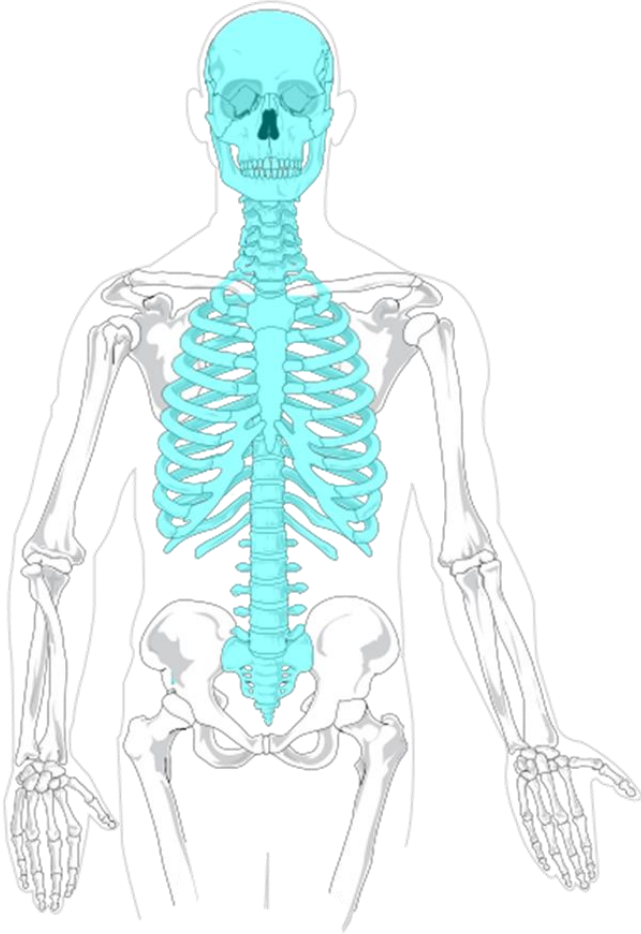


- Gives the body structural form
- Protects vital organs
- Allows for efficient movement
- Stores salts and other materials for metabolism
- Produces red blood cells

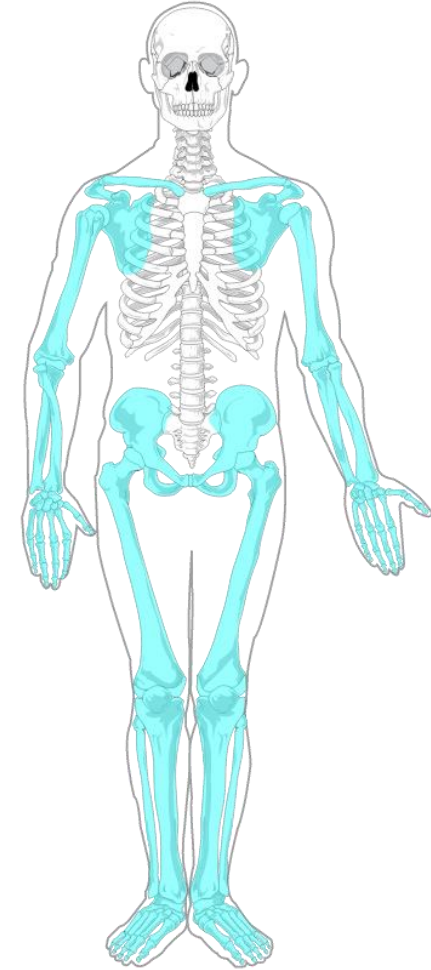
The Human Skeleton



Axial Skeleton

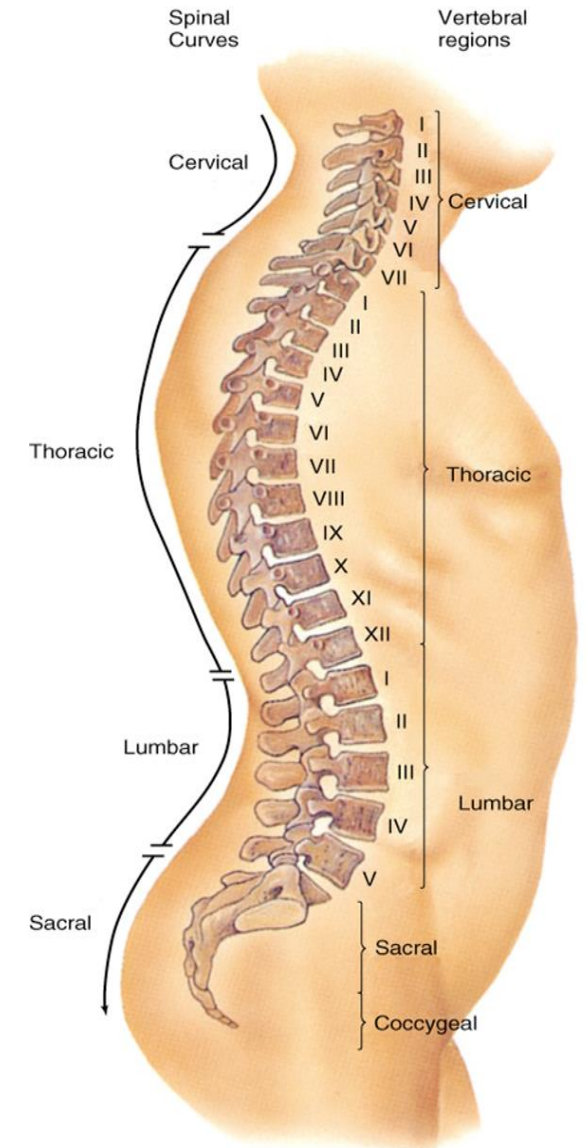


Appendicular Skeleton



Total skeleton is made up of approximately 206 bones

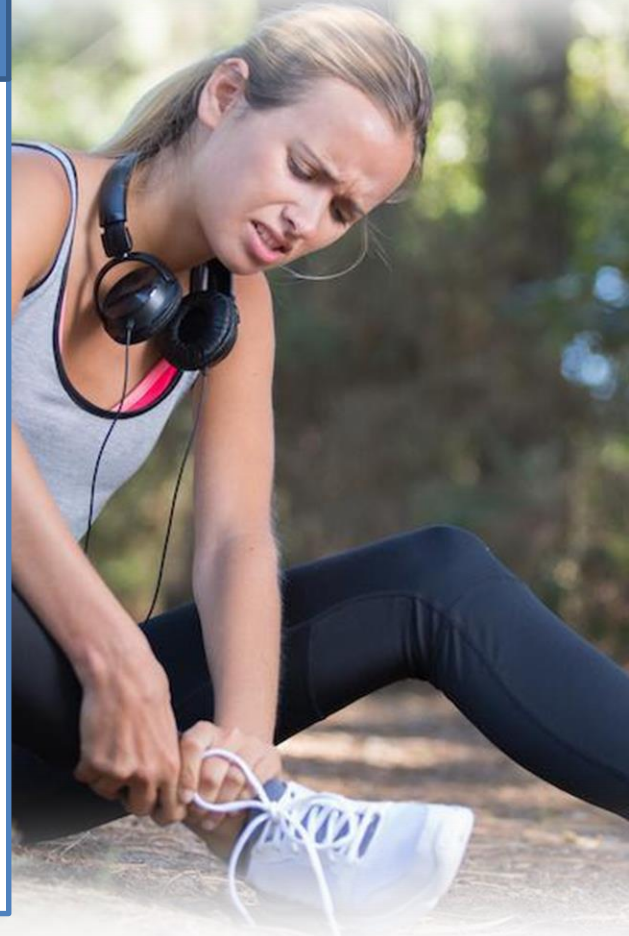
- A hollow skeletal tube made up of 33 irregular bones (vertebrae).
- Divisions
 - Cervical spine
 - Thoracic spine
 - Lumbar spine
 - Sacral spine
 - Coccygeal spine



Tendons



Strong bands of connective tissue that connect muscle to bone (sprains)



Ligaments

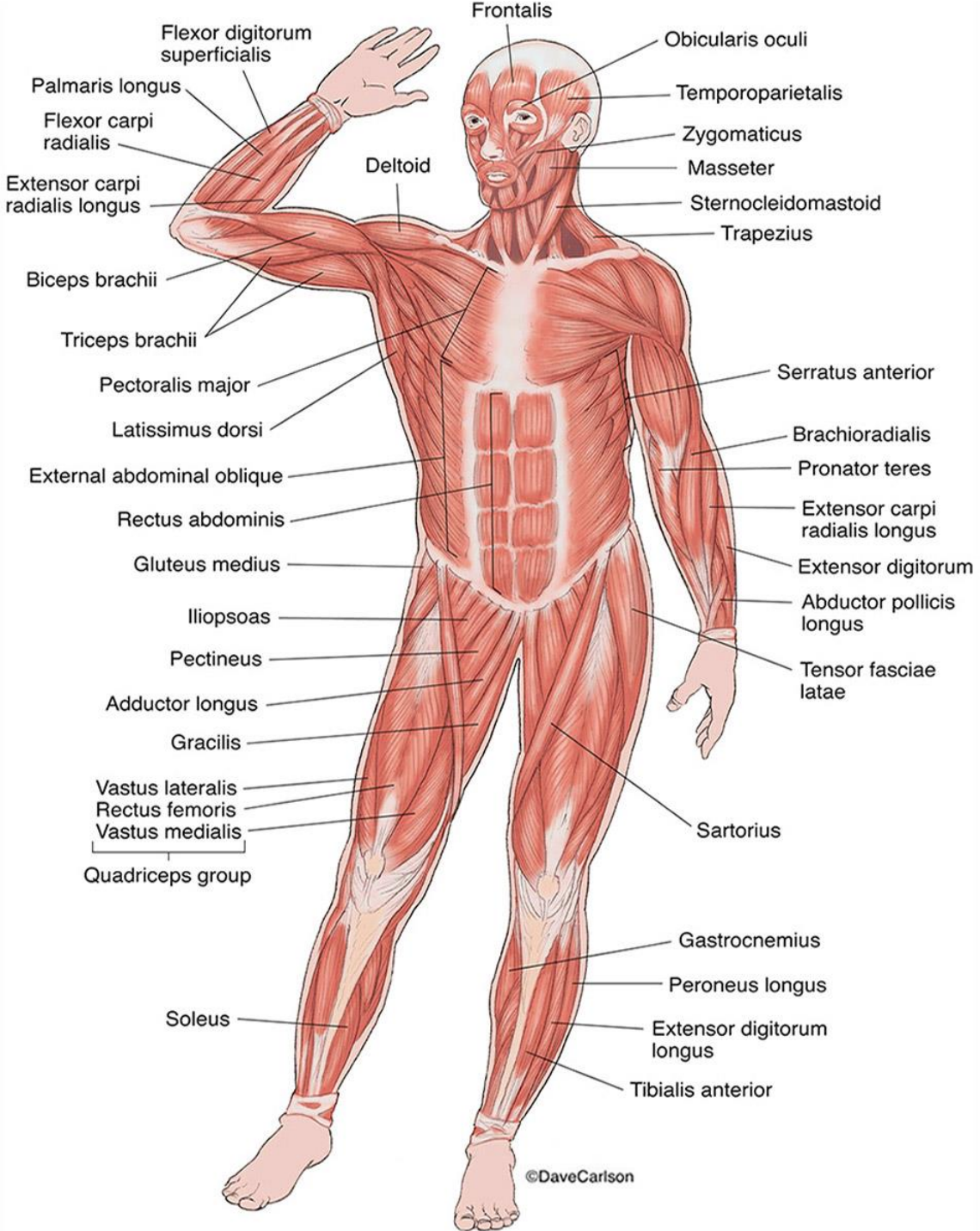


Strong bands of connective tissue that connect bones to bones (sprains)

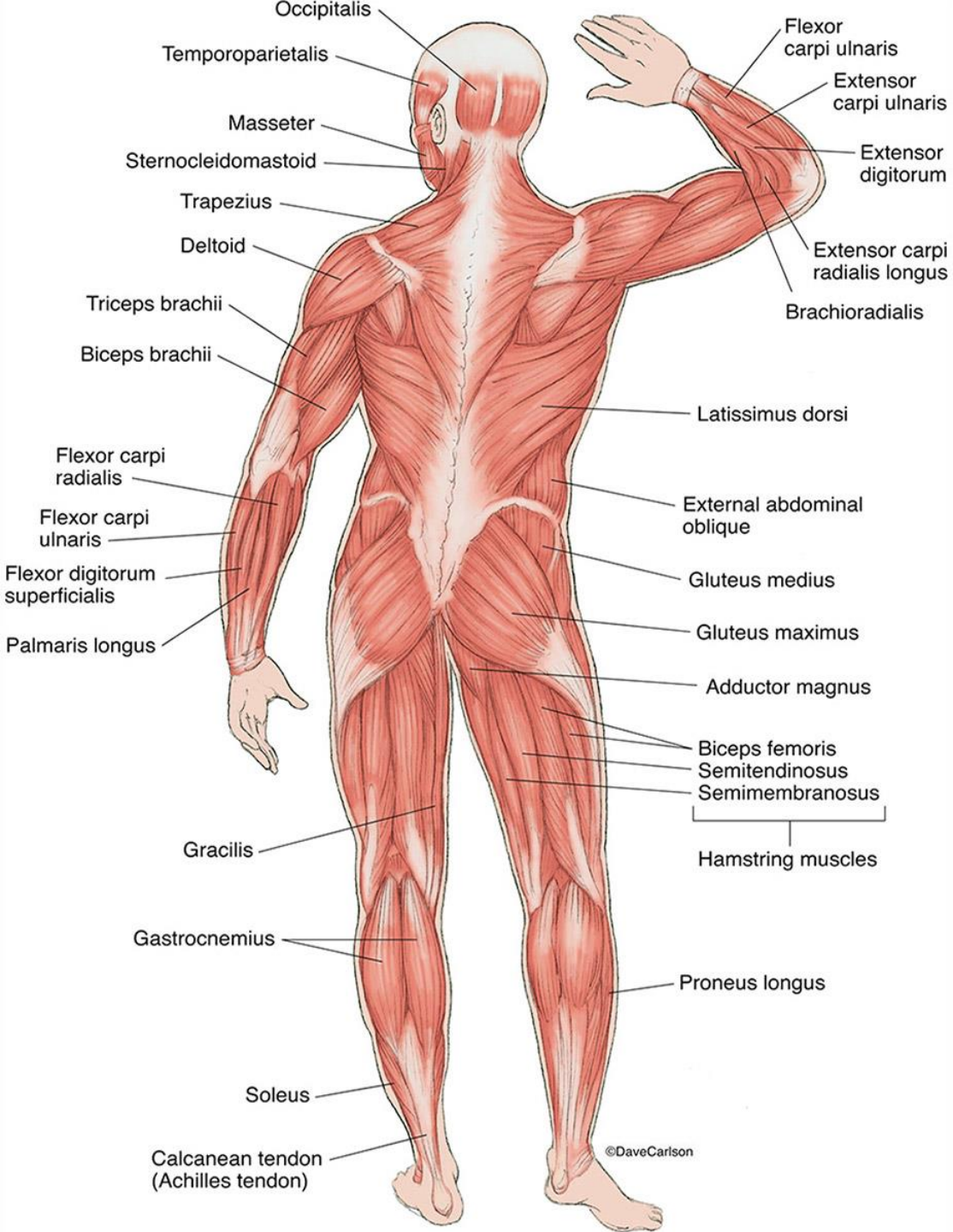
- Movement
- Posture
- Joint stability
- Heat Production



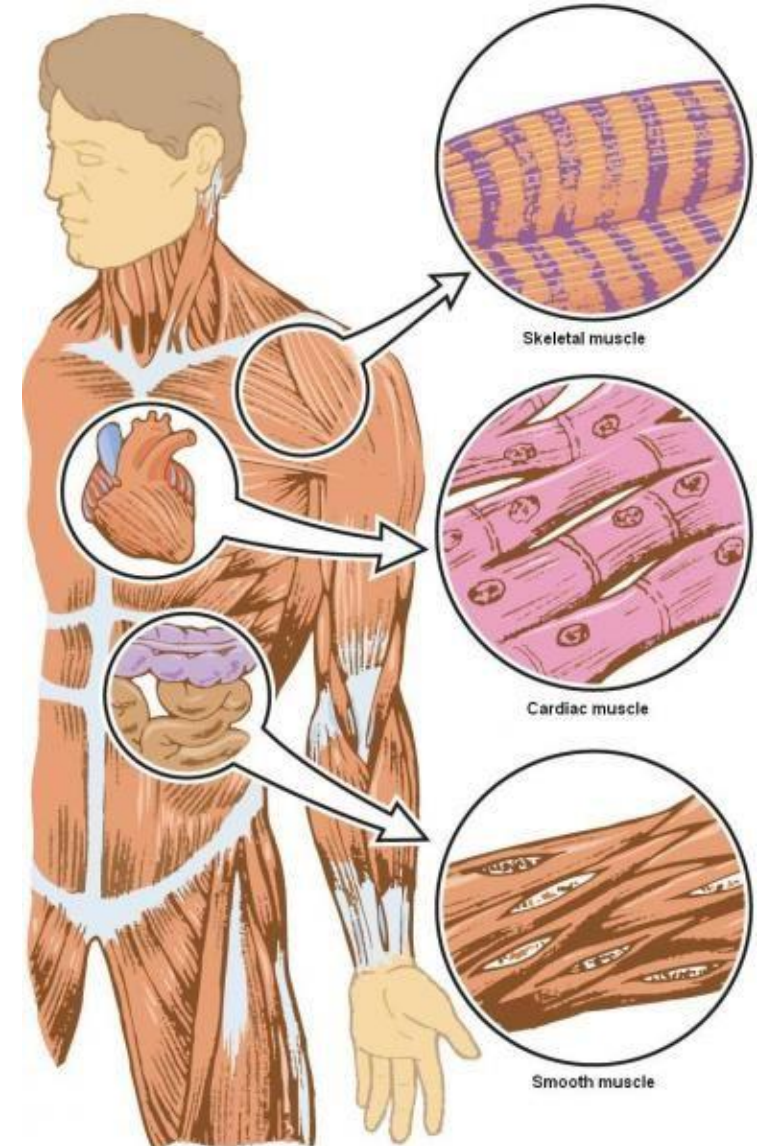
The Muscular System (Anterior View)



The Muscular System (Posterior View)



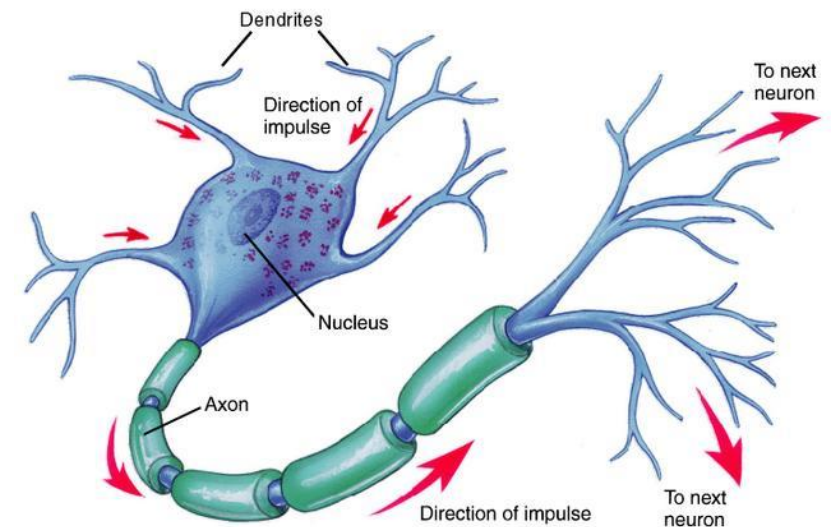
- Skeletal muscle
 - Also called voluntary muscle
 - Found throughout the body.
- Cardiac muscle
 - Limited to the heart.
- Smooth muscle
 - Occasionally called involuntary muscle
 - Found within the intestines and surrounding blood vessels.



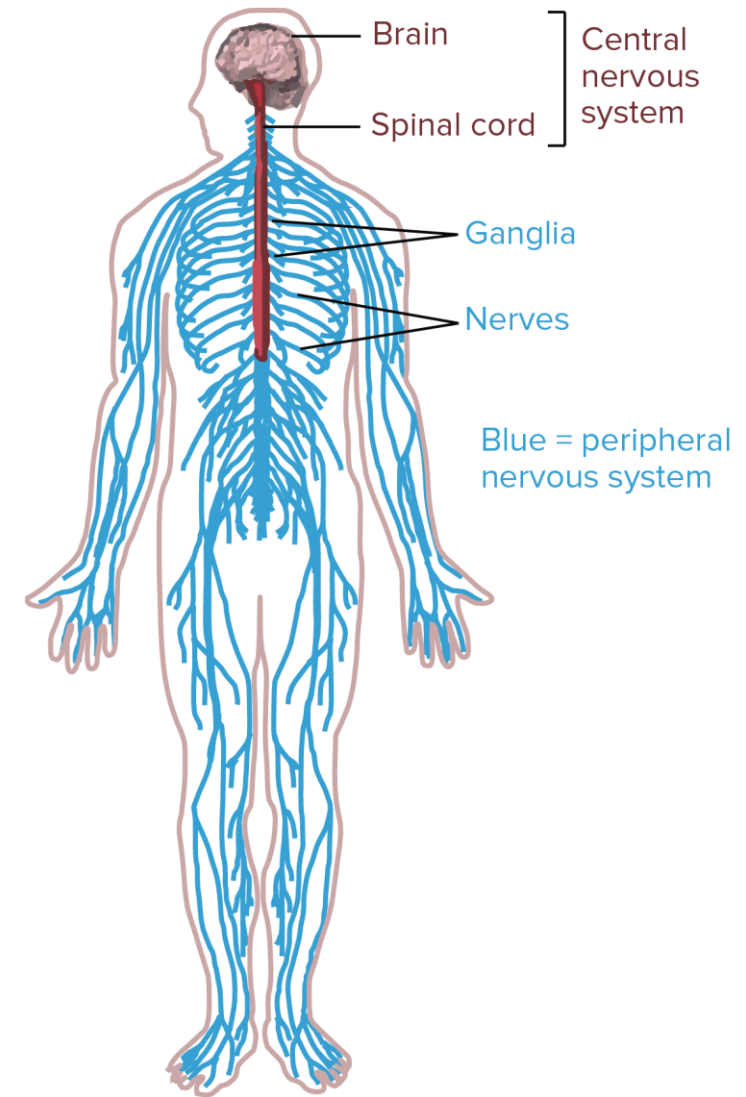
Body Systems

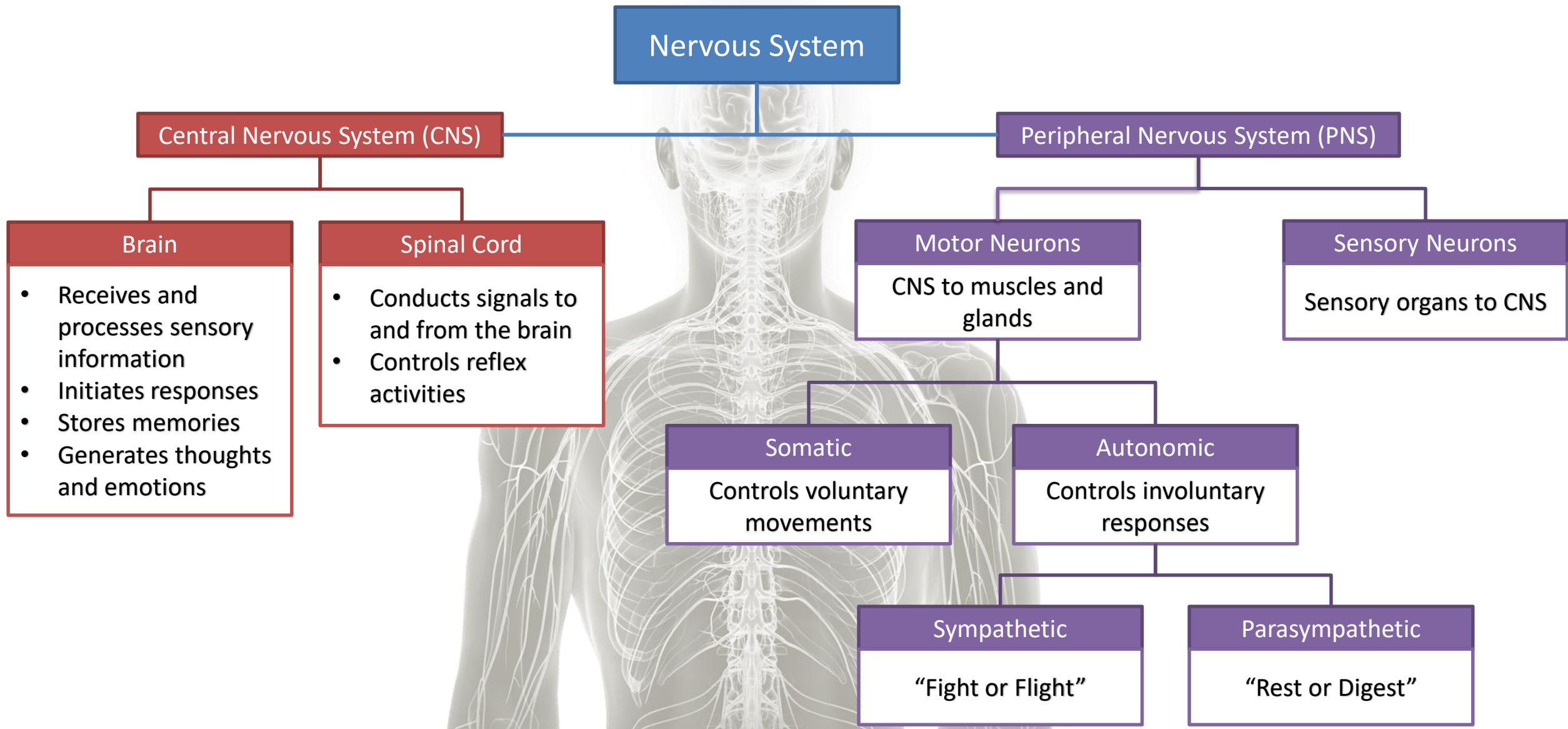
THE NERVOUS SYSTEM

- Is the major controlling, regulatory and communicating system
- Works with the endocrine system to regulate and maintain homeostasis
- Maintains any internal and external check of the environment

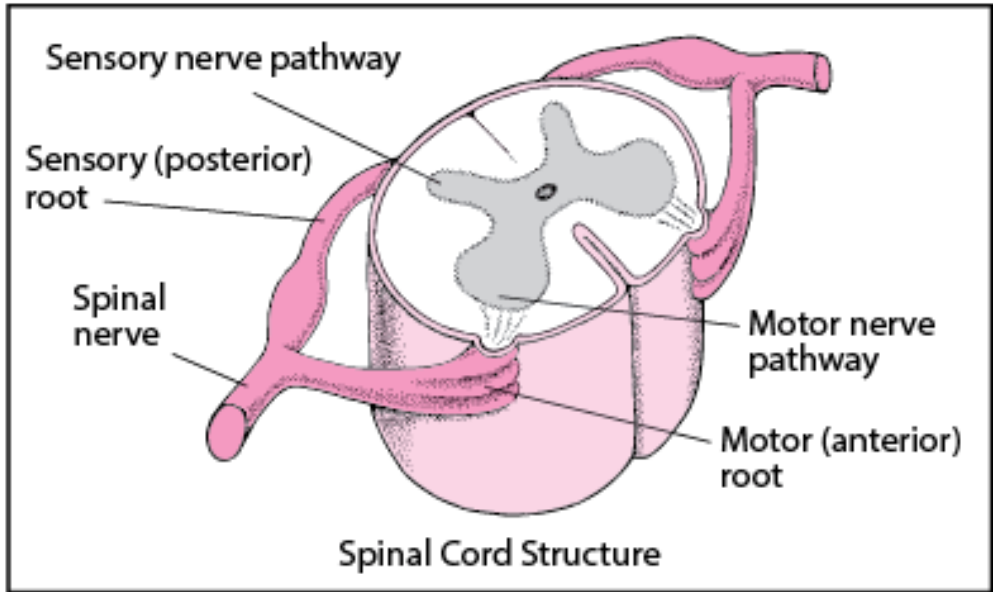
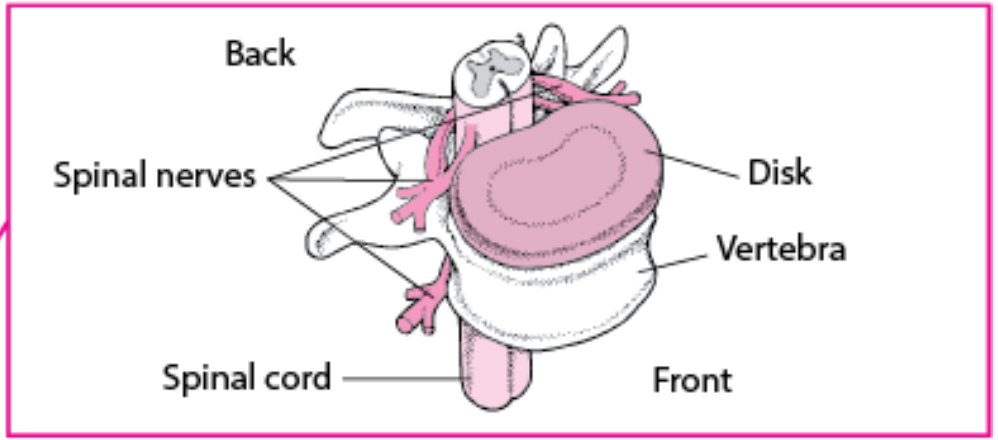
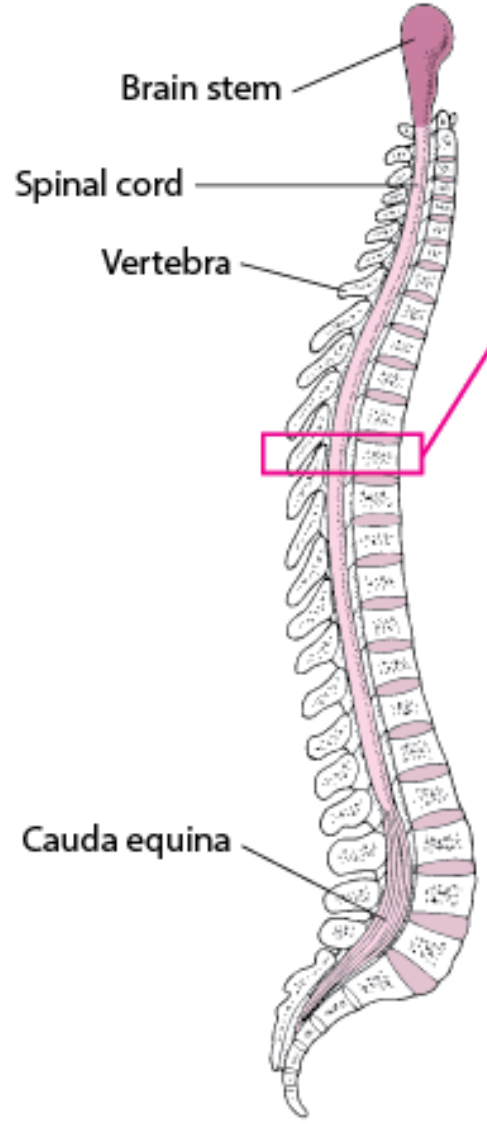
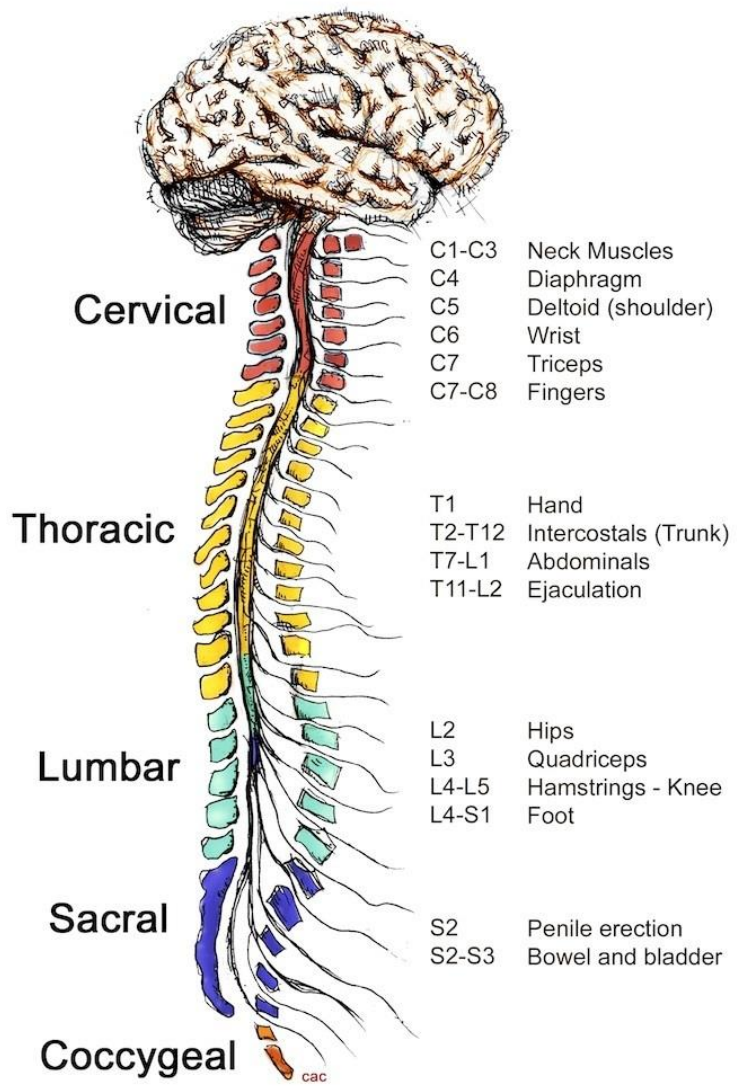


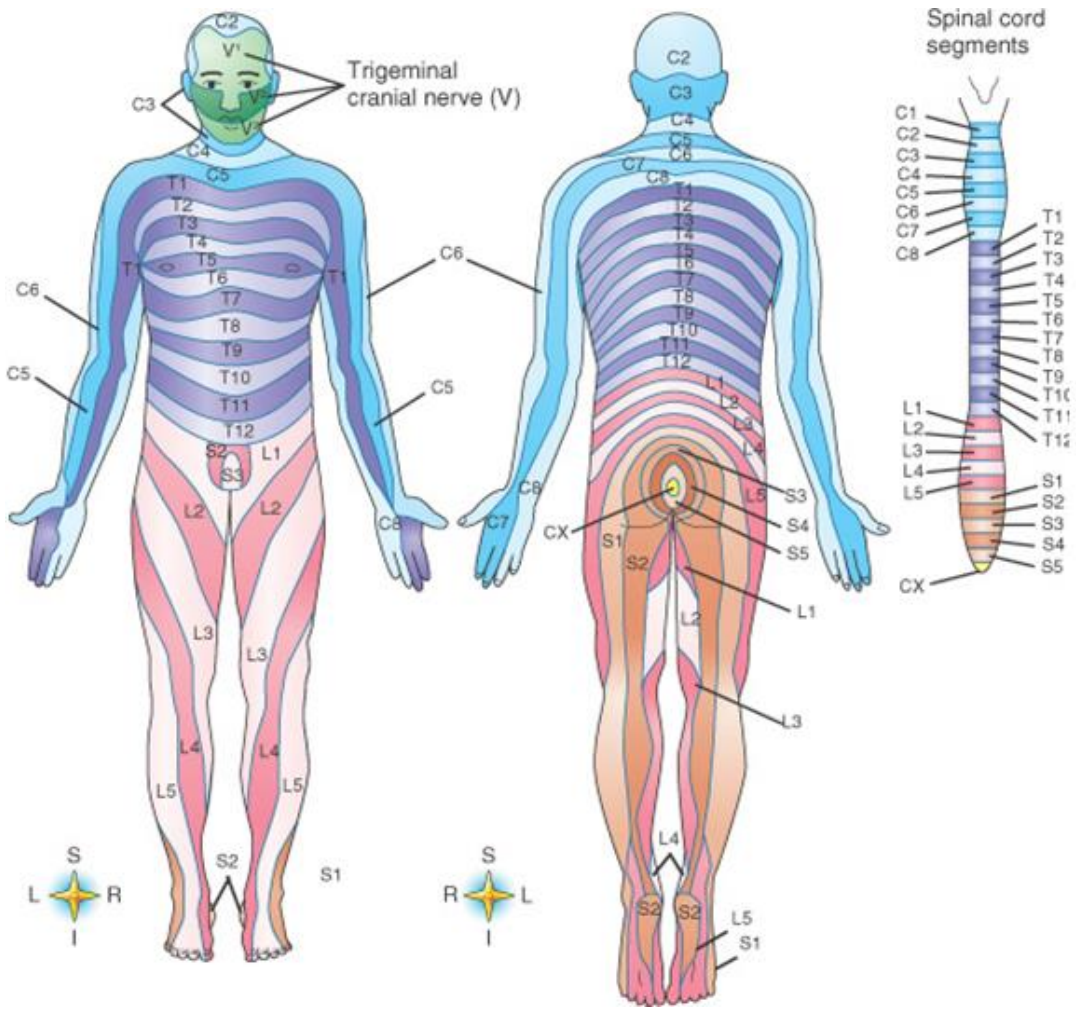
- Consists of:
 - The brain
 - The spinal cord
 - The nerves
 - The ganglia



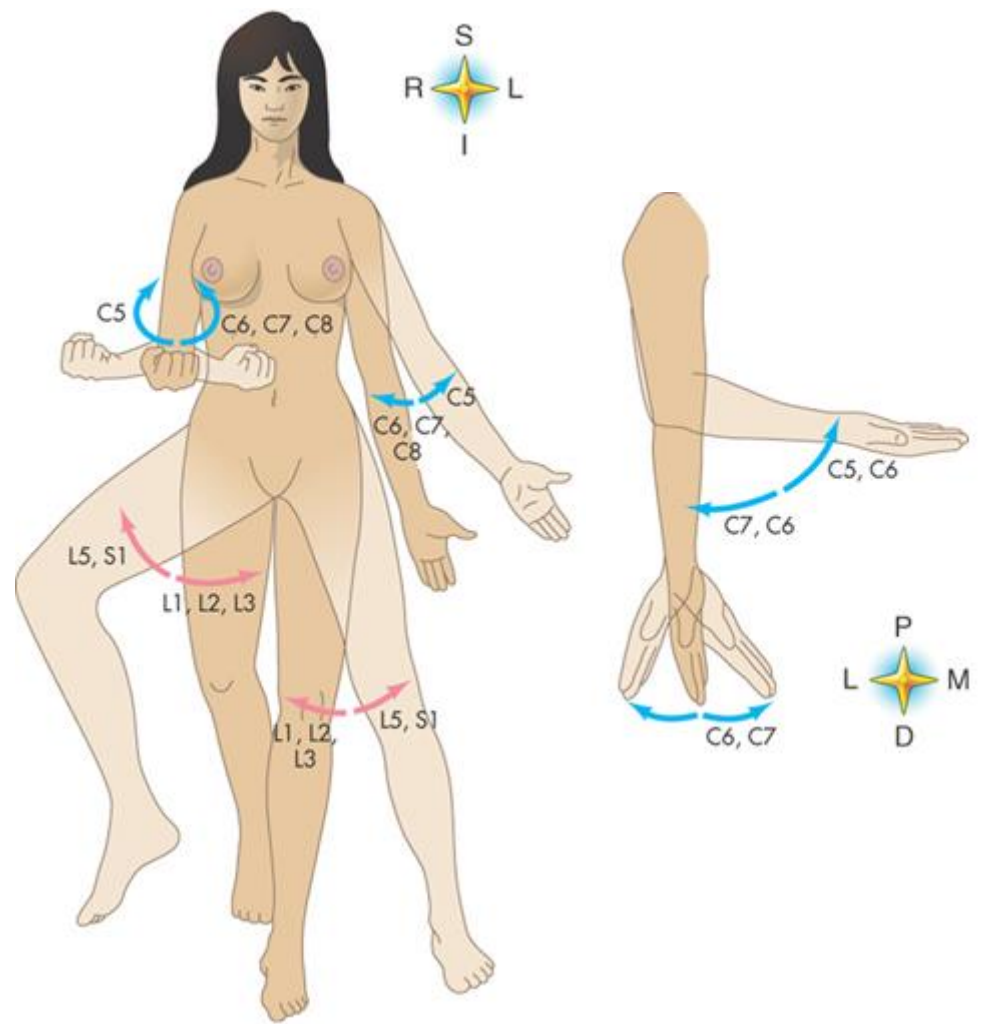


Spinal Cord and Spinal Nerves





Dermatomes

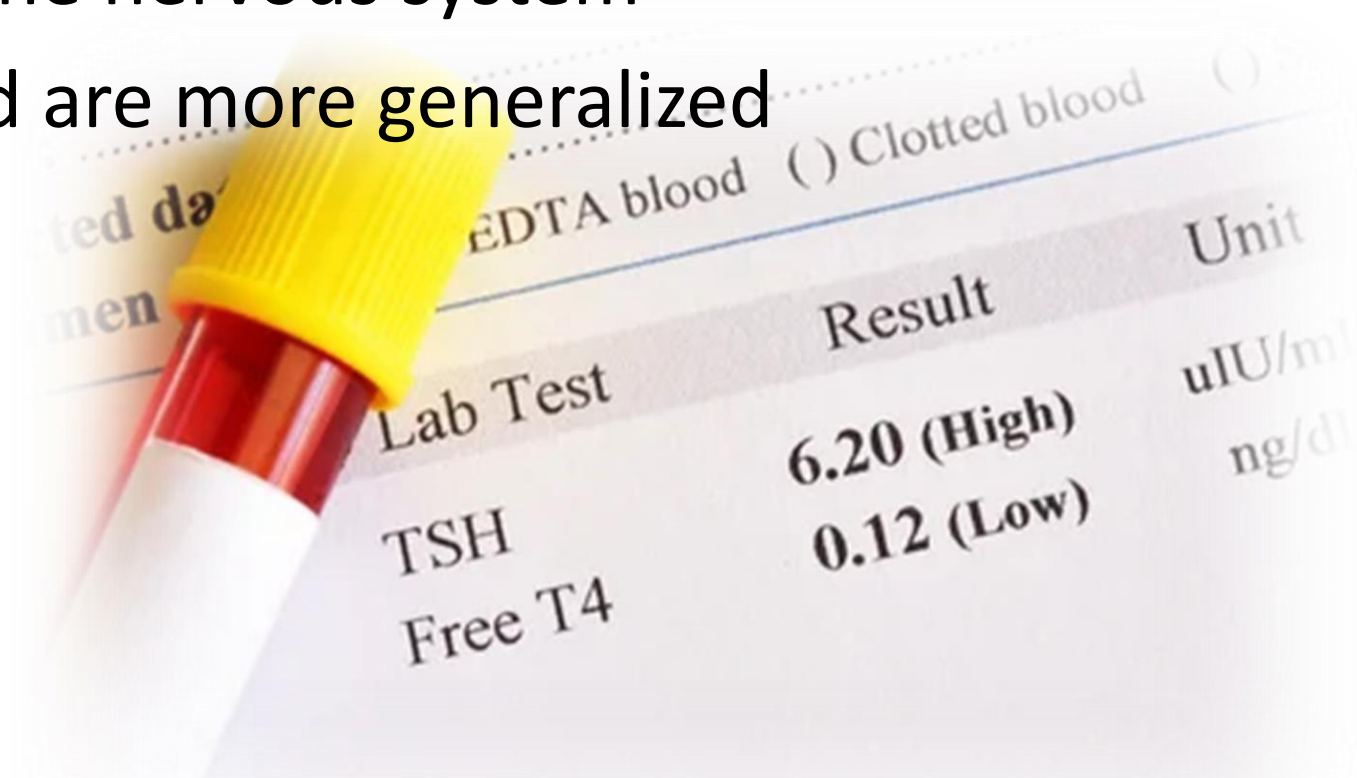


Myotomes

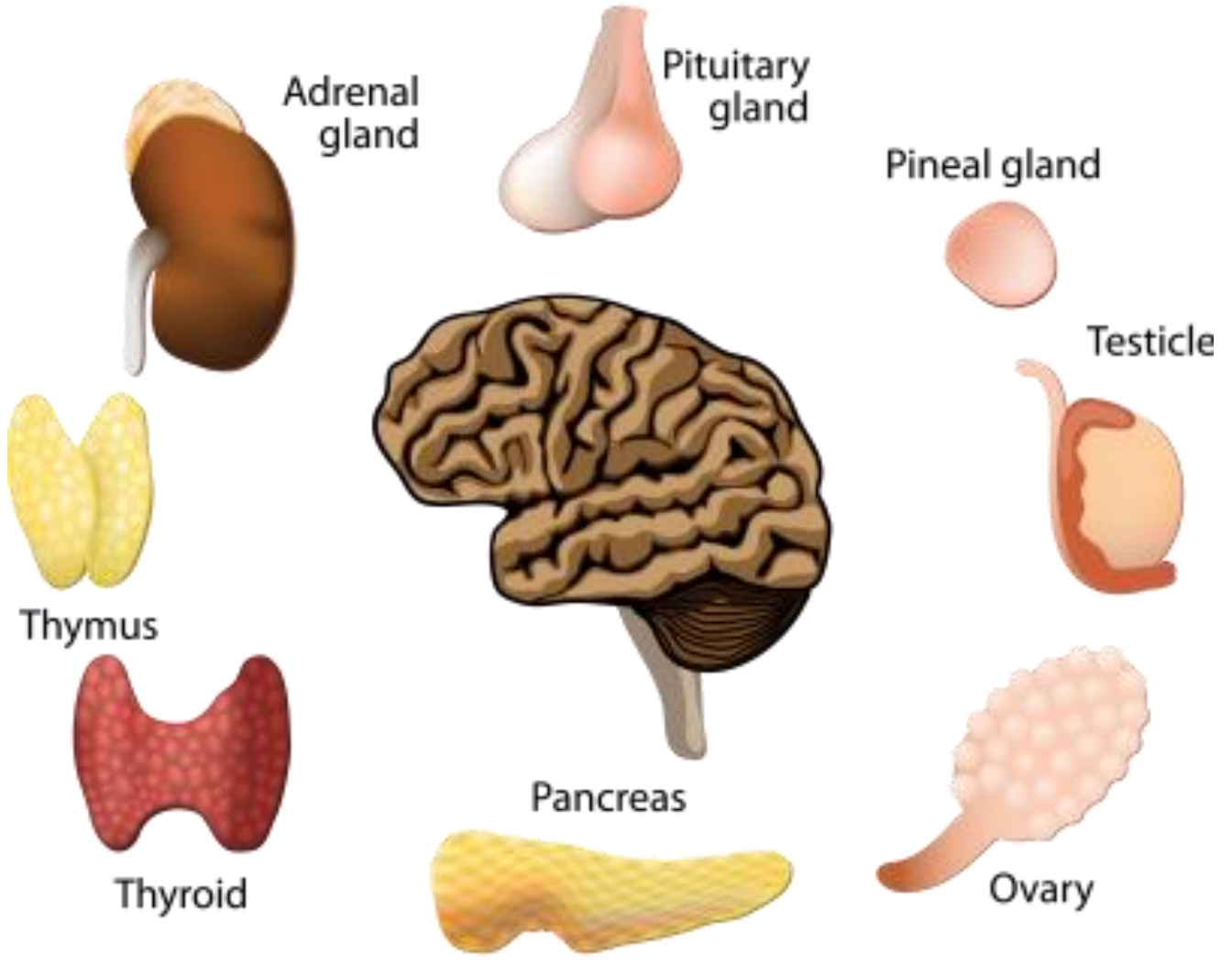
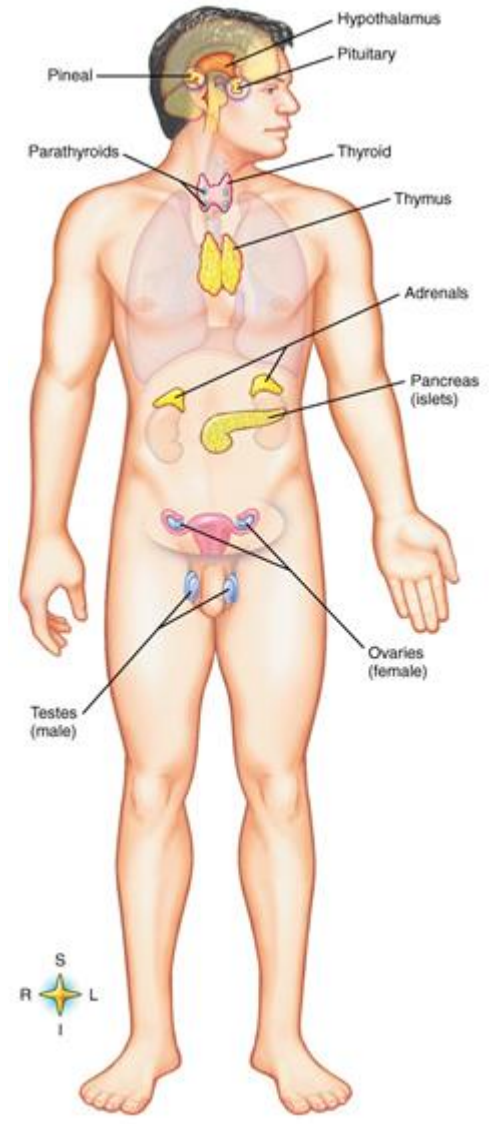
Body Systems

THE ENDOCRINE SYSTEM

- Functions to regulate the bodies activities through hormones and their glands
- Works in conjunction with the nervous system
- Effects are longer acting and are more generalized



Structures

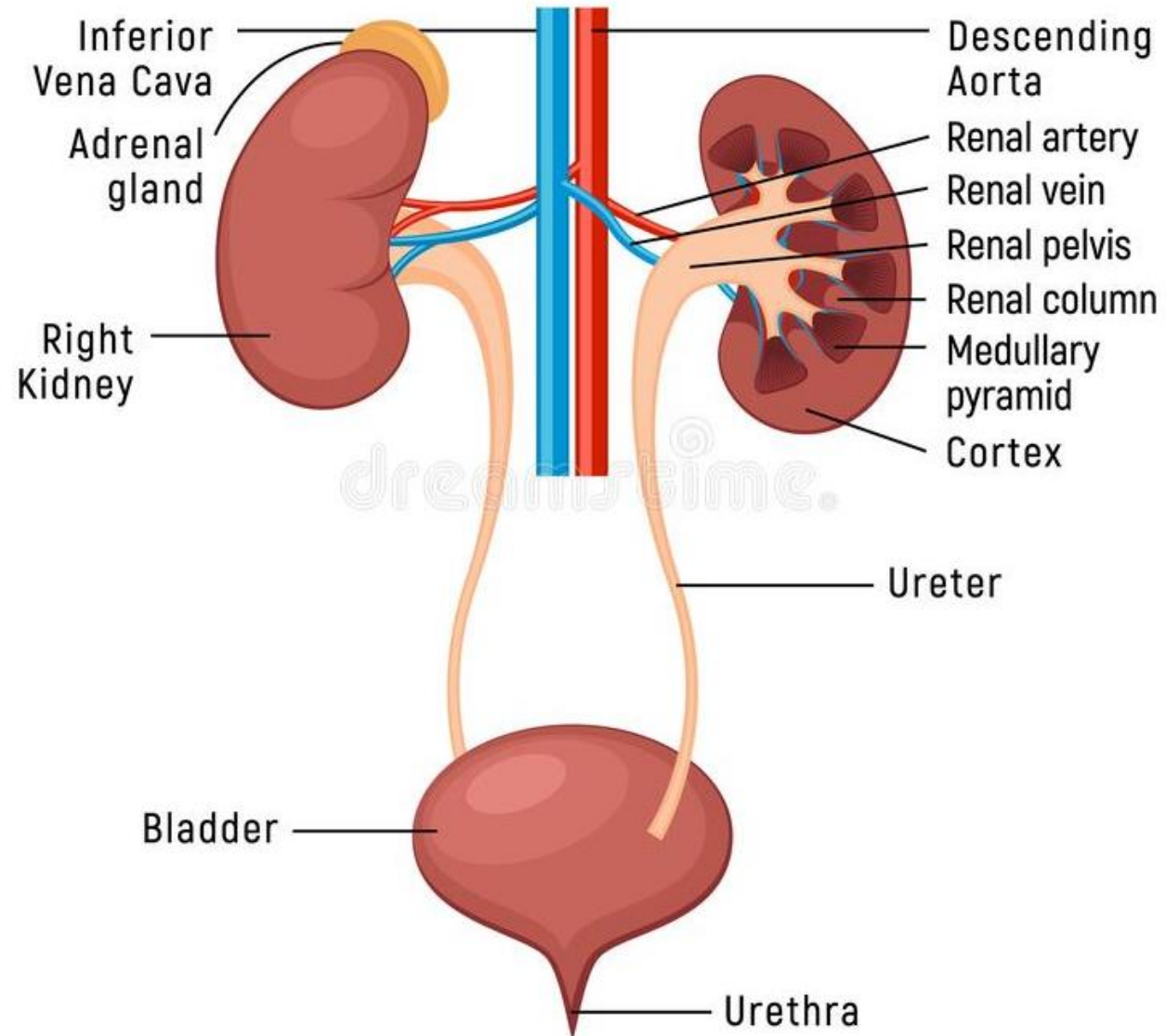


Body Systems

THE GENITOURINARY SYSTEM

- Maintains homeostasis by:
 - Regulation of blood volume, pressure, pH, Osmolarity
 - Reabsorbing glucose and excreting wastes
 - Releasing certain hormones like renin and EPO

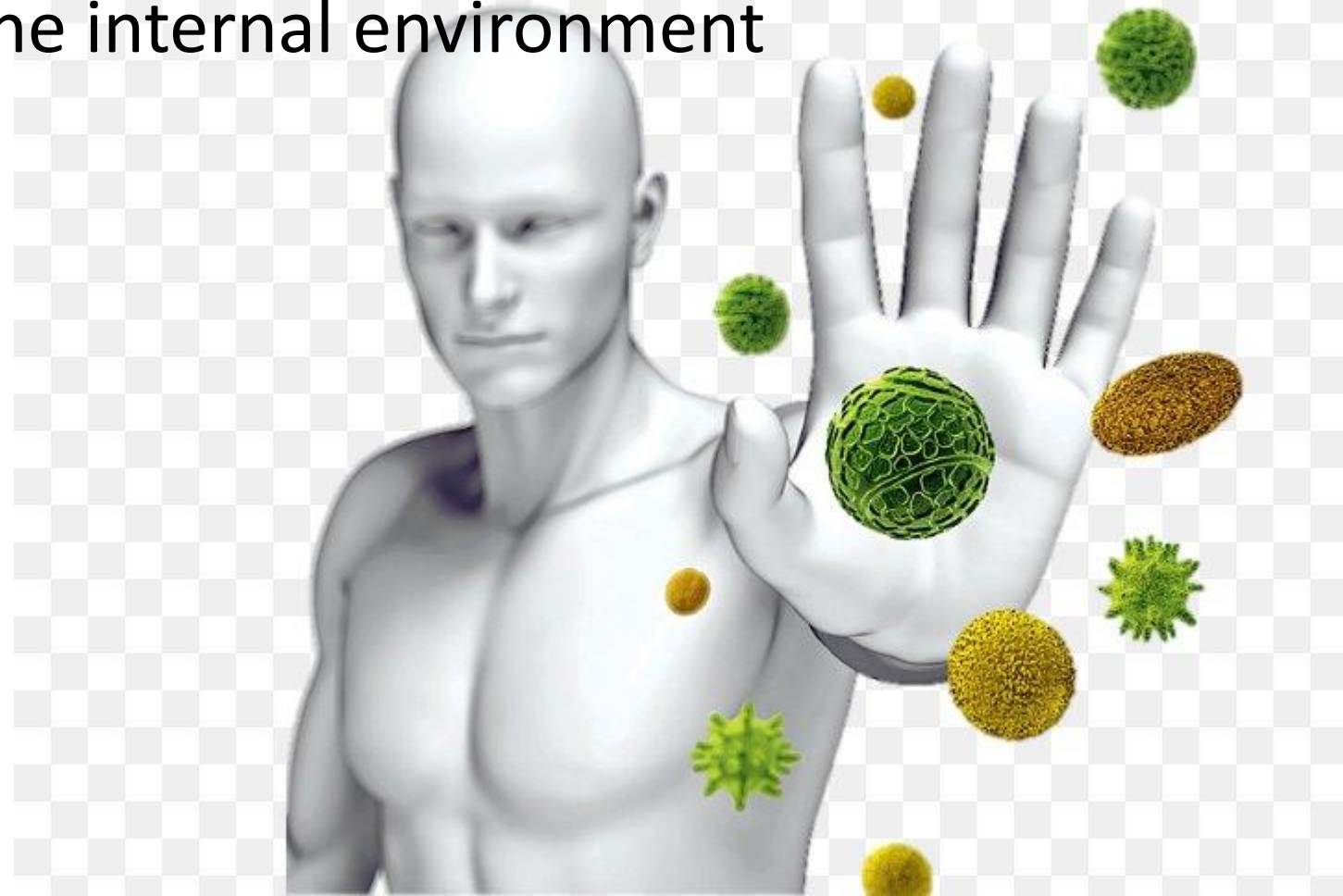




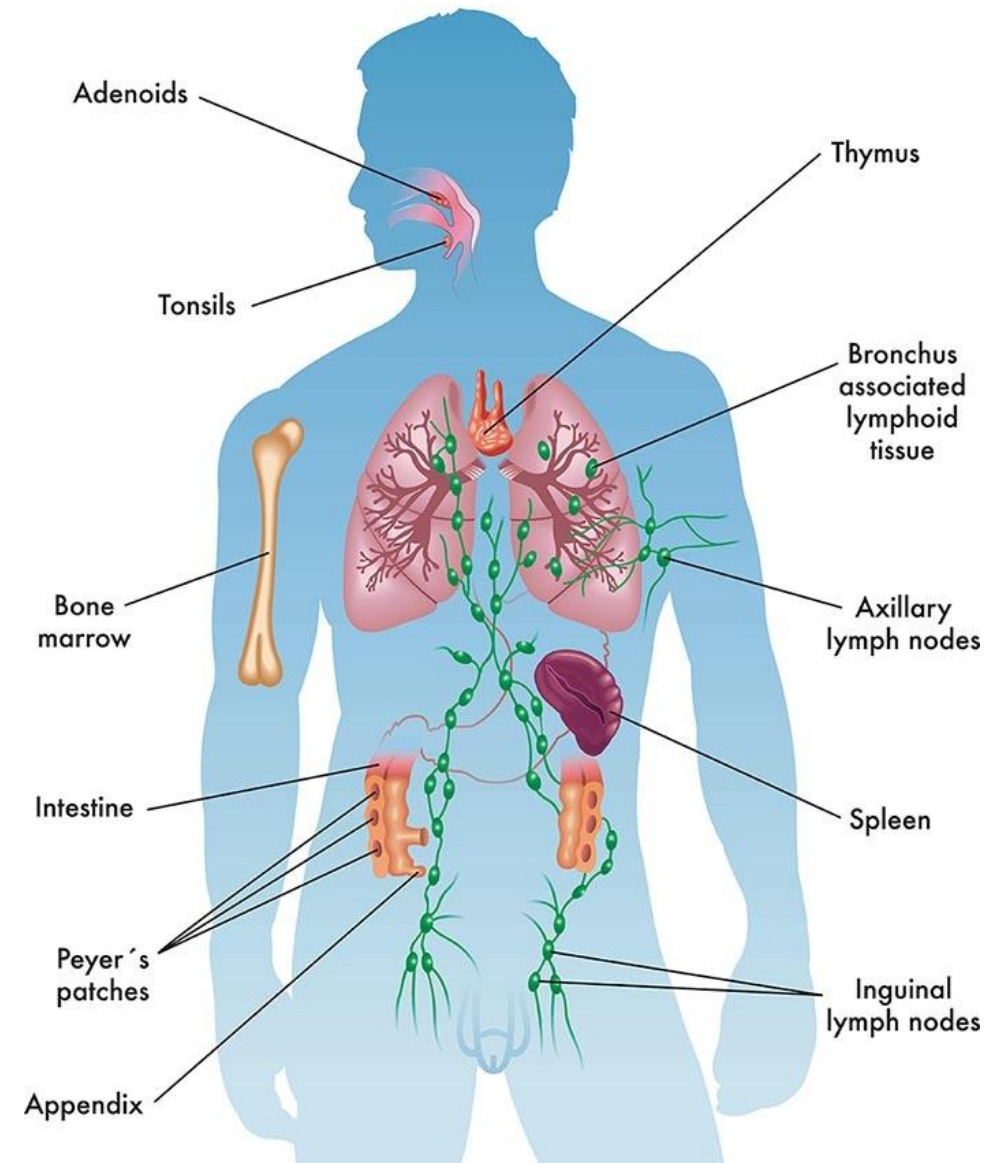
Body Systems

THE IMMUNE SYSTEM

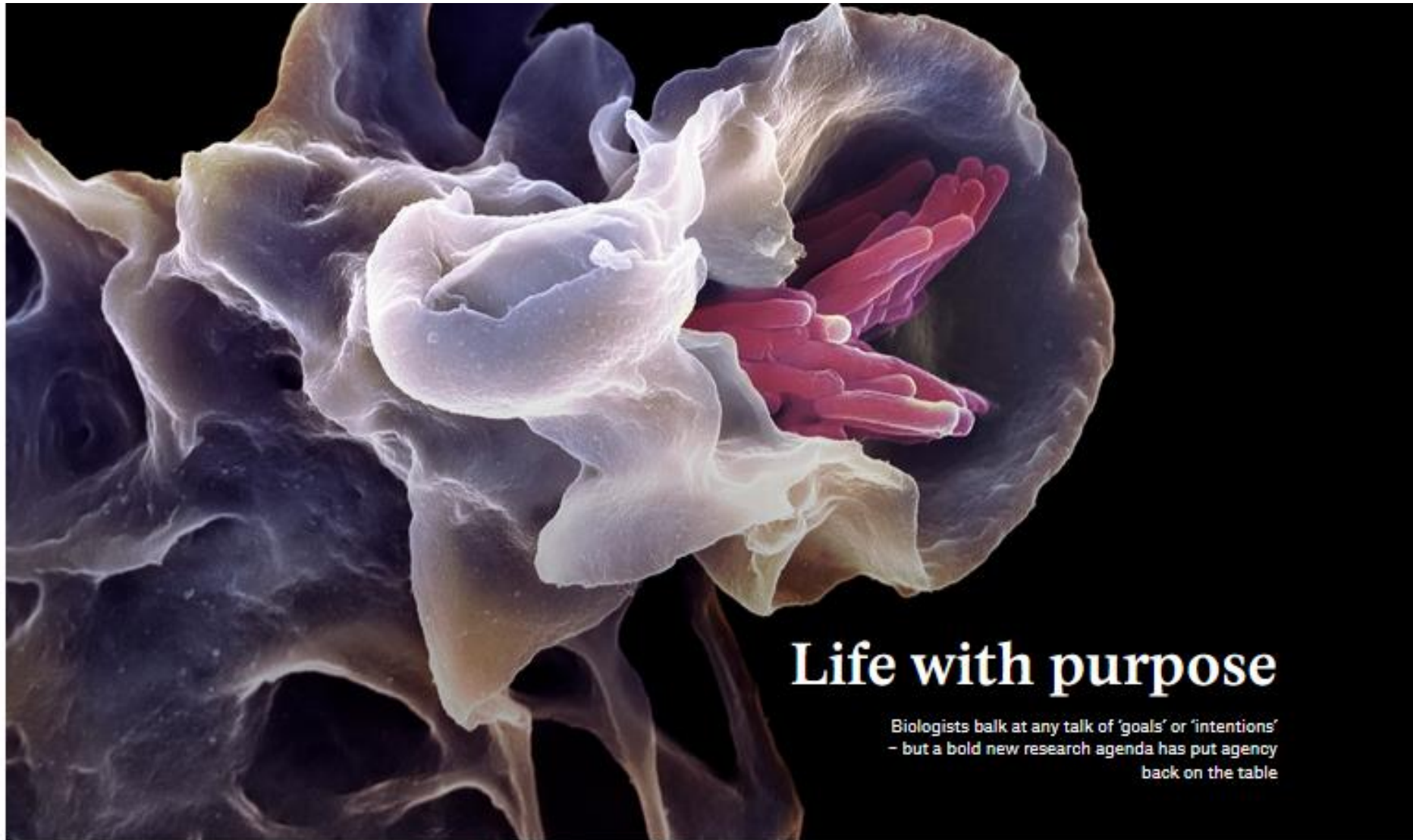
- A system of organs that uses many mechanisms to ensure the integrity and survival of the internal environment



- Two major categories:
 - Non-specific “innate” immunity
 - Specific “adaptive” immunity



White Blood cell eating tuberculosis



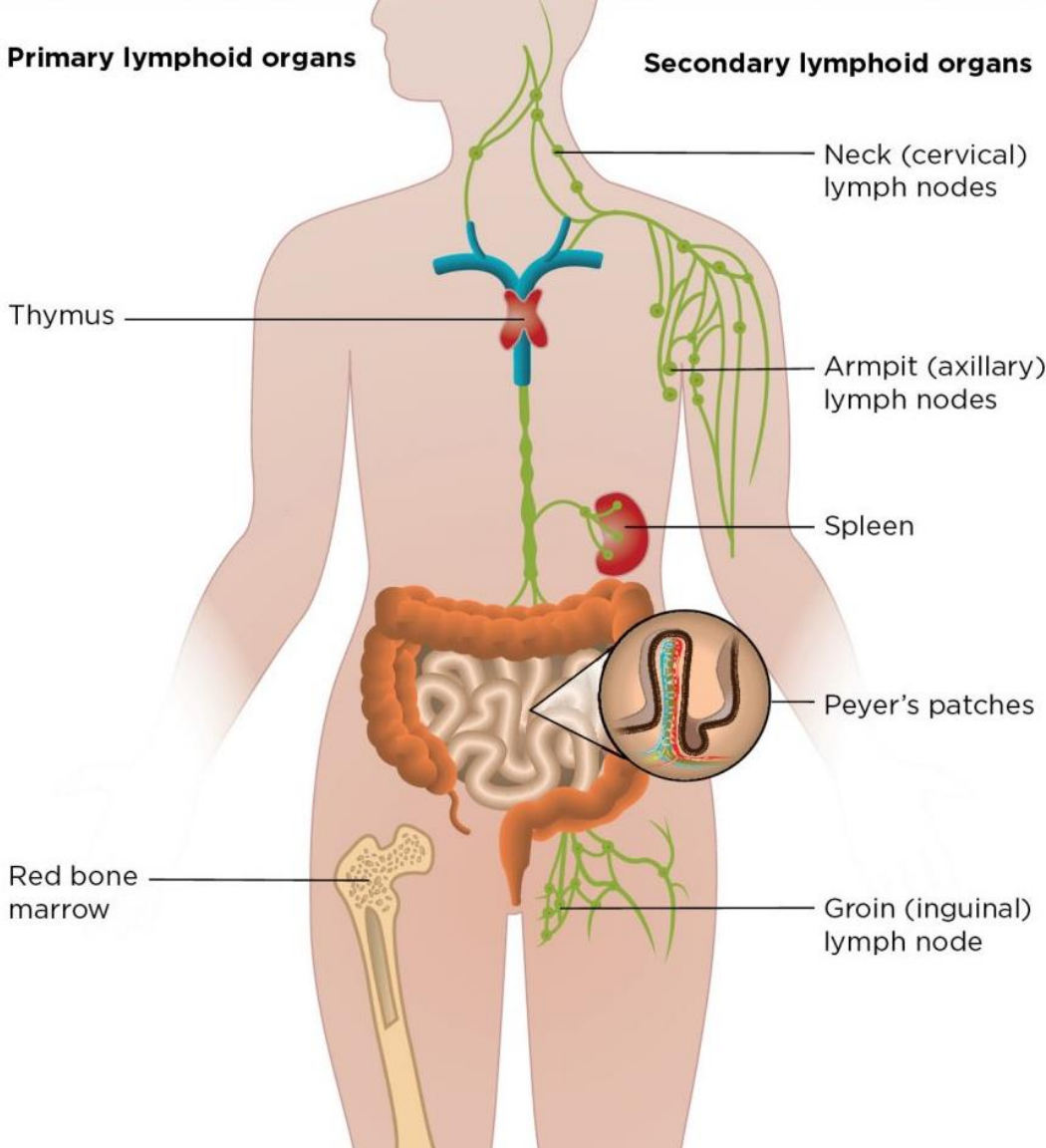
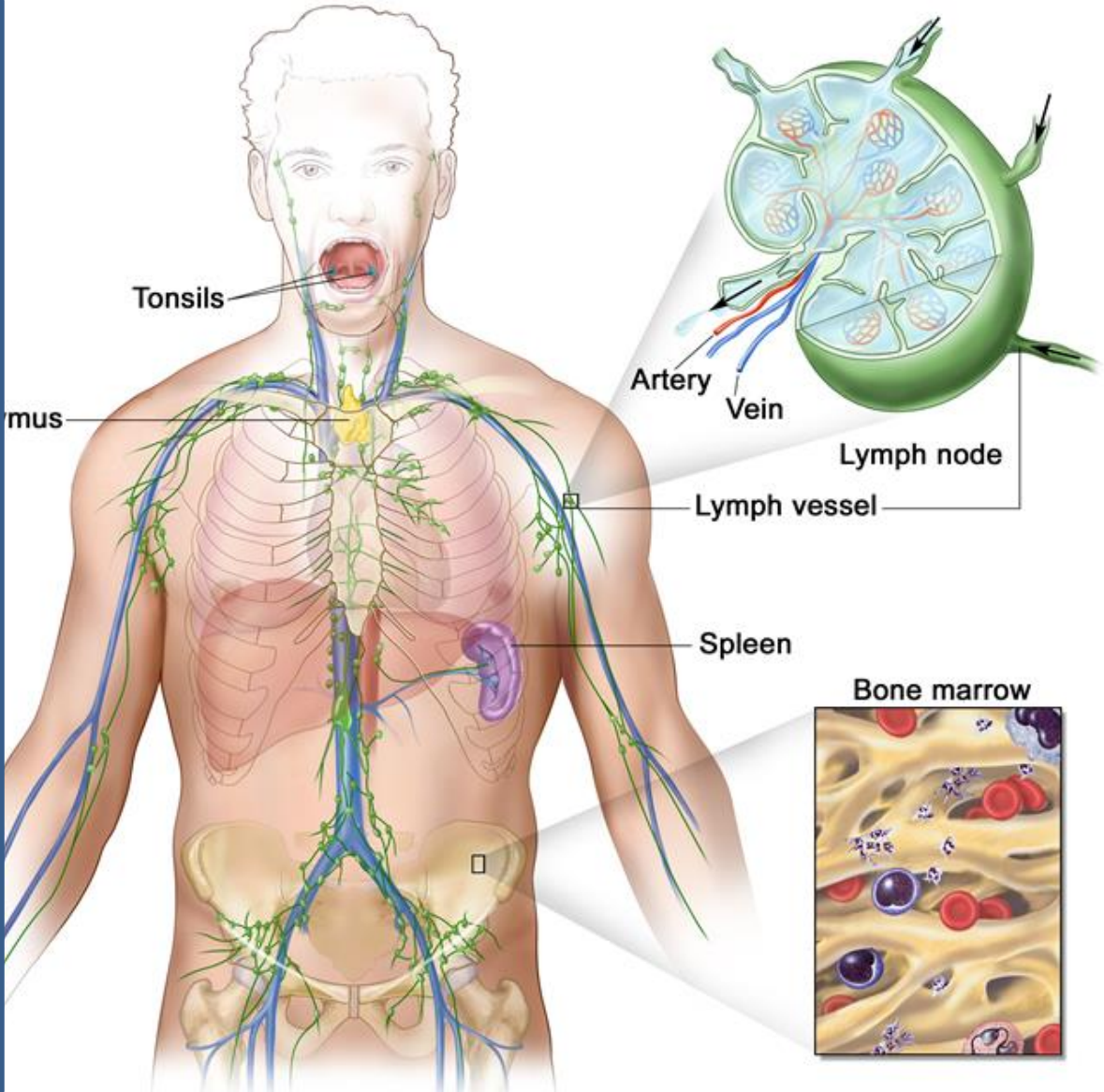
Body Systems

THE LYMPHATIC SYSTEM

- Maintains fluid balance
- Immunity
- Contains
 - Lymph (moving fluid)
 - Lymphatics (group of vessels)

Lymphatic System

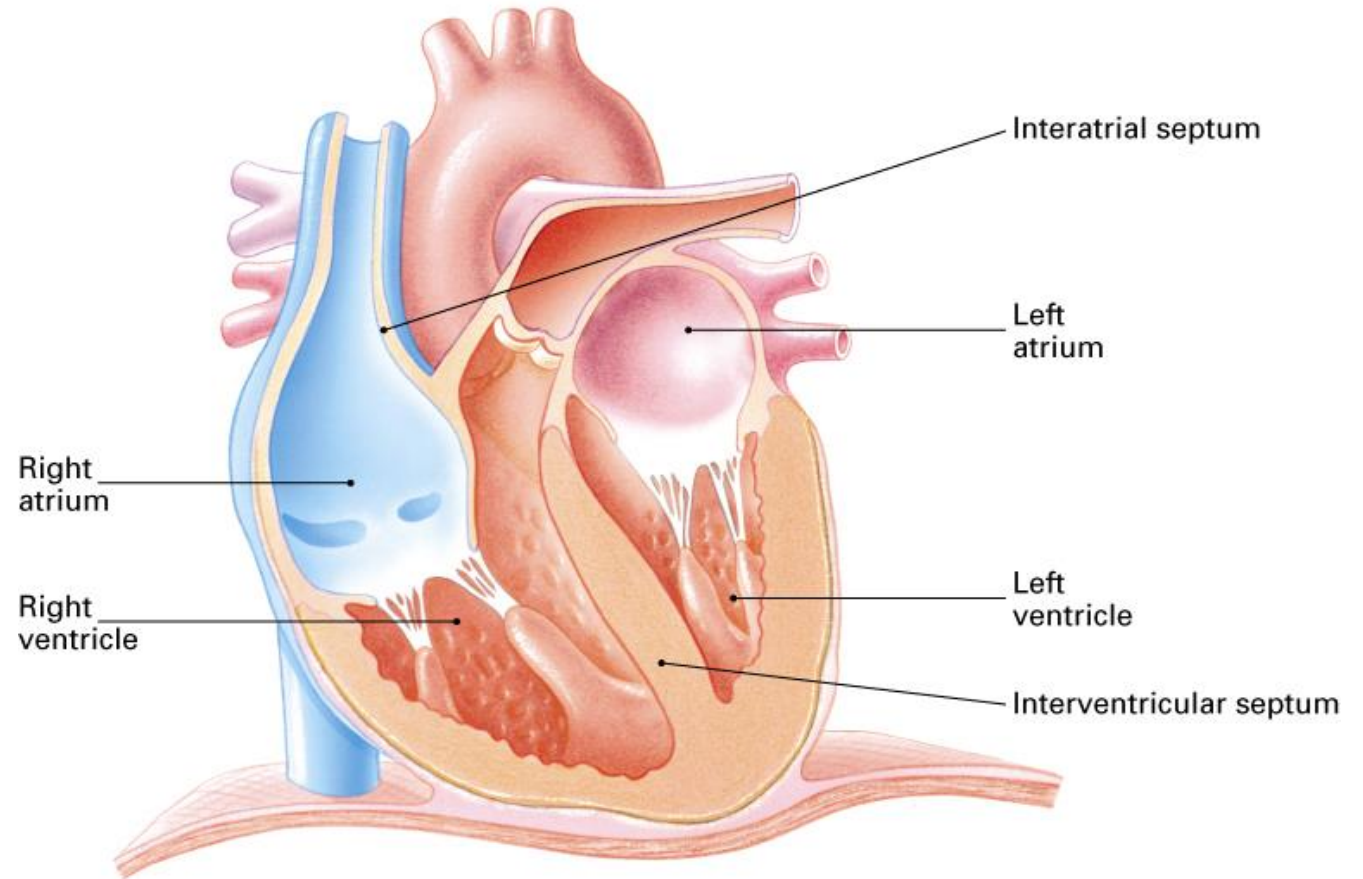
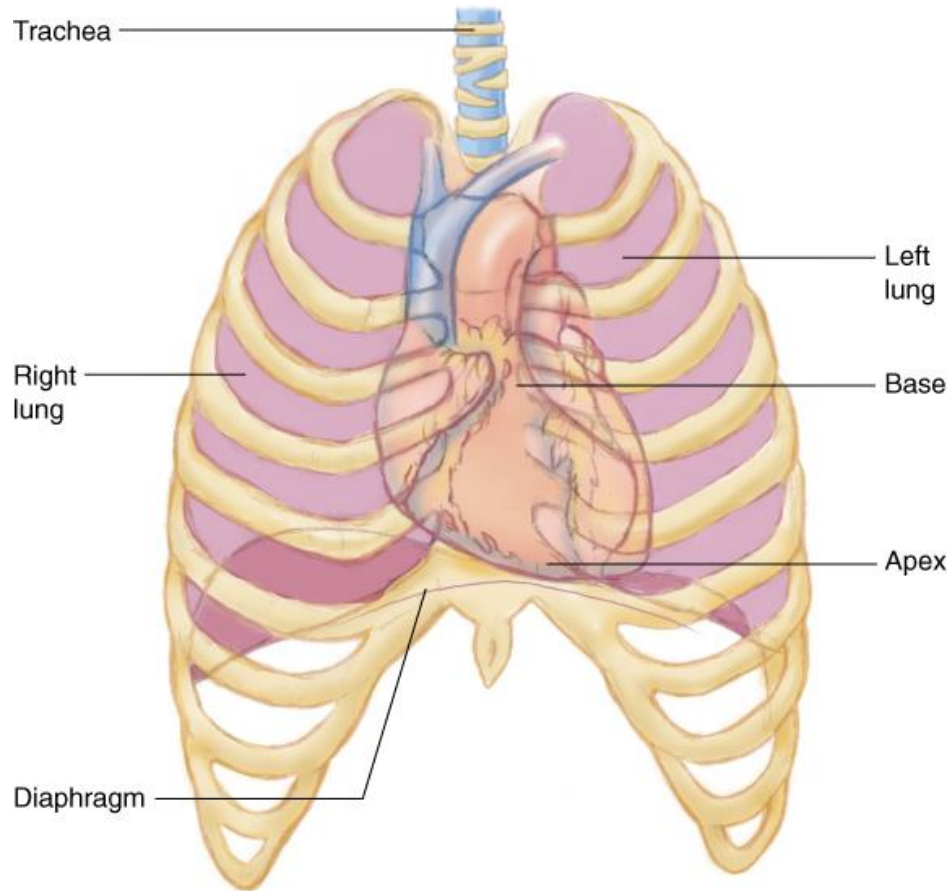
Structures



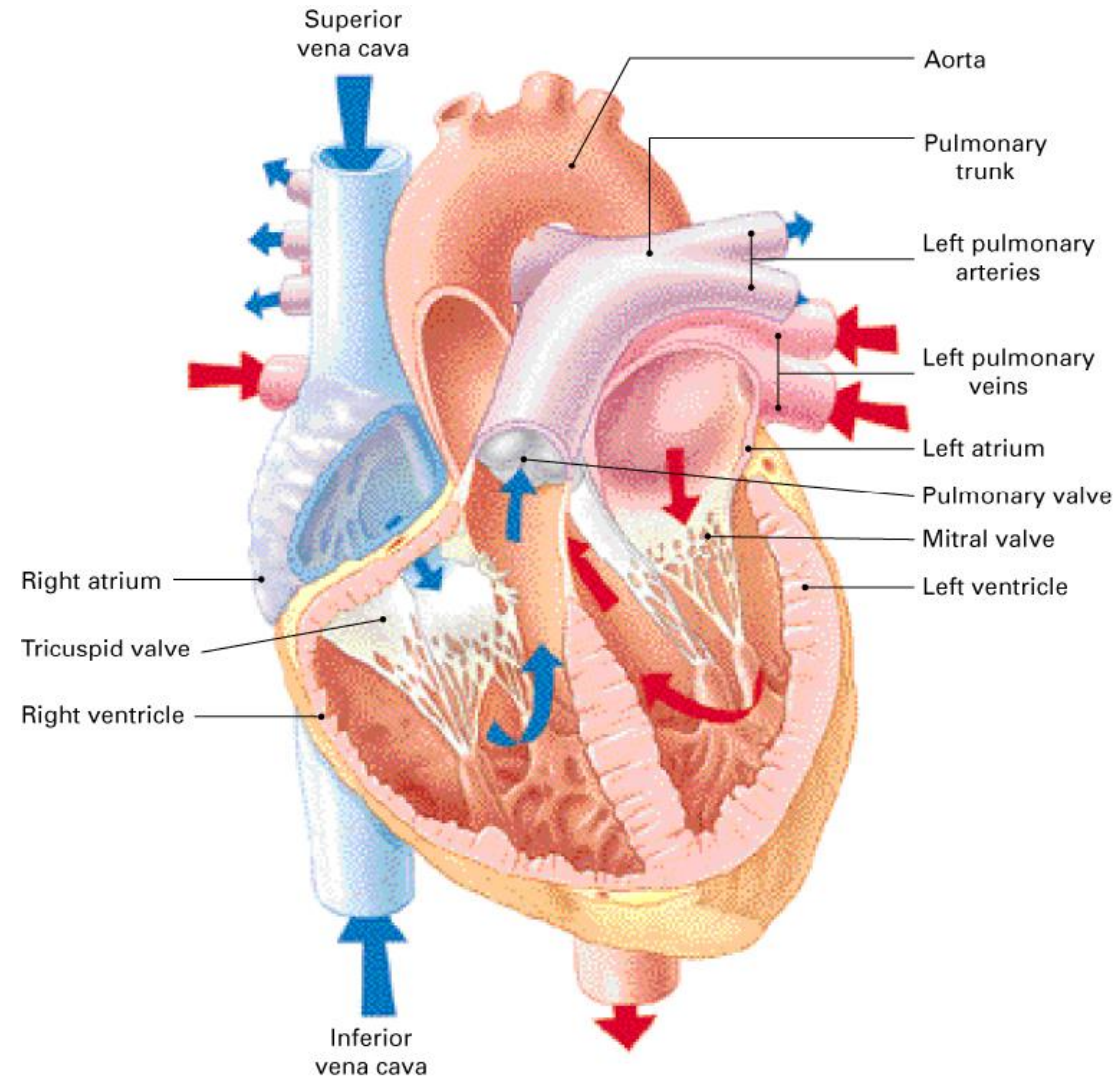
Body Systems

THE CARDIOVASCULAR SYSTEM

- Its primary function is to transport nutrients and oxygen-rich blood to all parts of the body and to carry deoxygenated blood back to the lungs.



Blood Flow Through the Heart

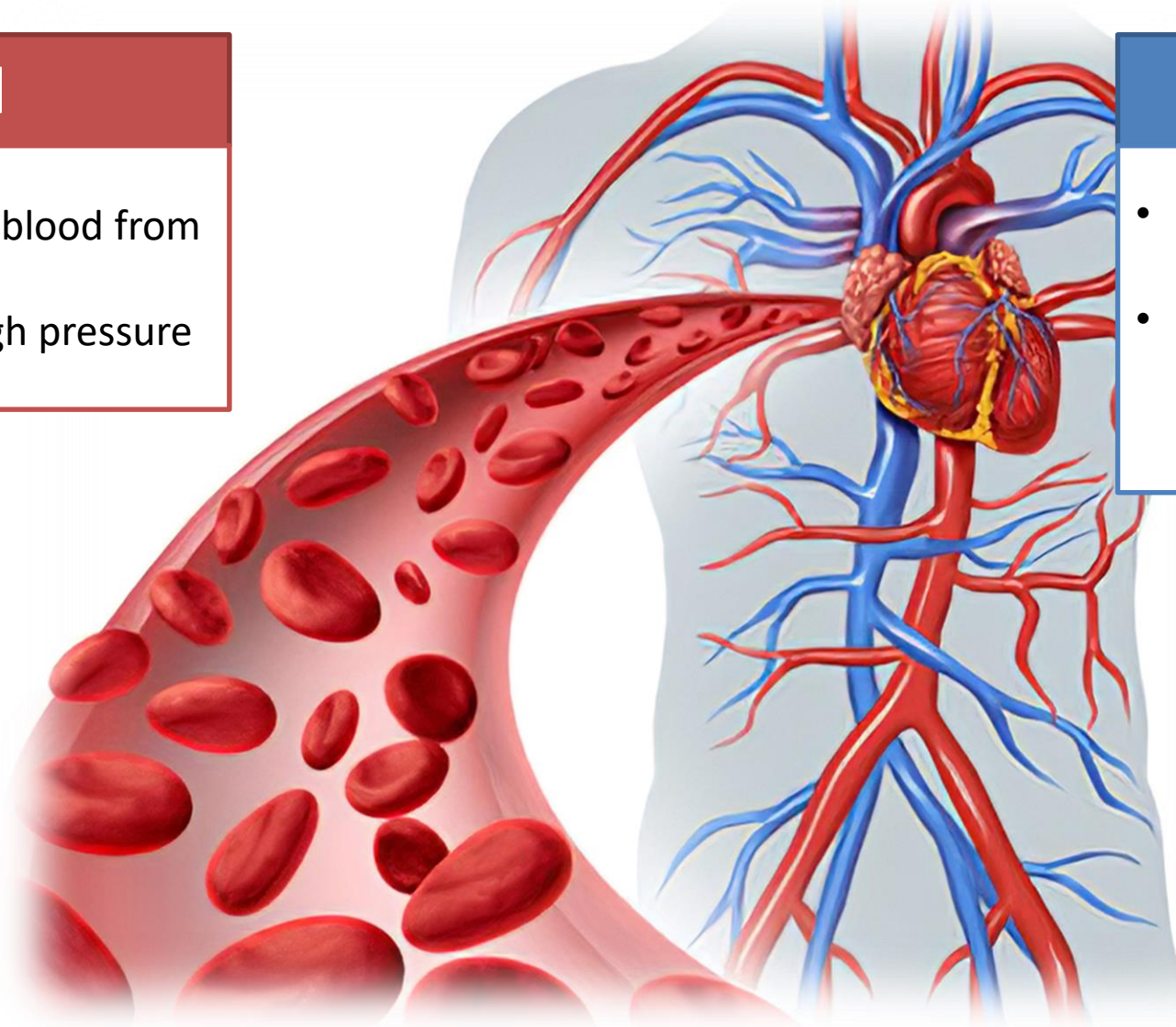


Arterial

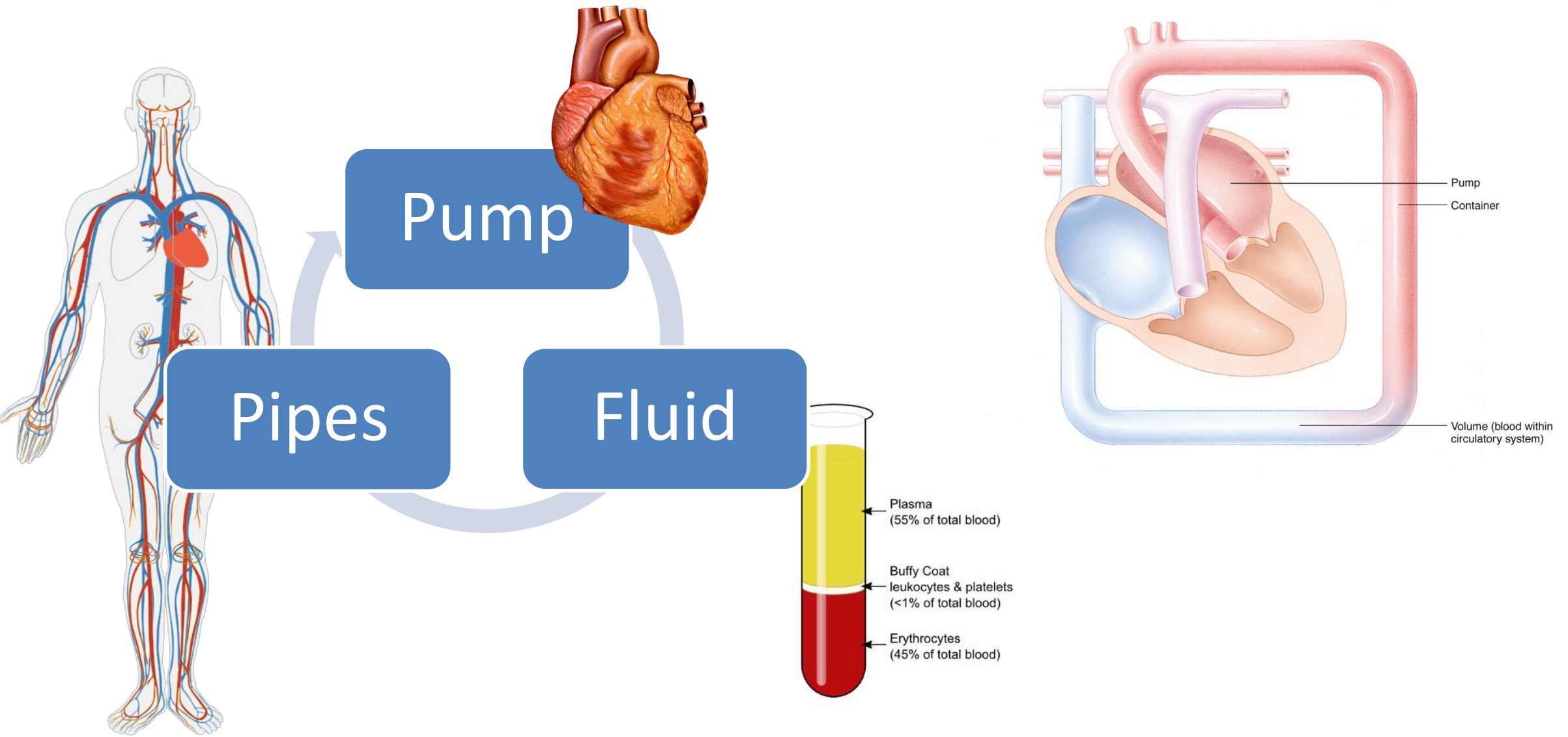
- Carries oxygenated blood from the heart
- Functions under high pressure

Venous

- Transports blood from the peripheral tissues back to the heart.
- Functions under low pressure with the aid of surrounding muscles and one-way valves within the veins.



Circulatory System



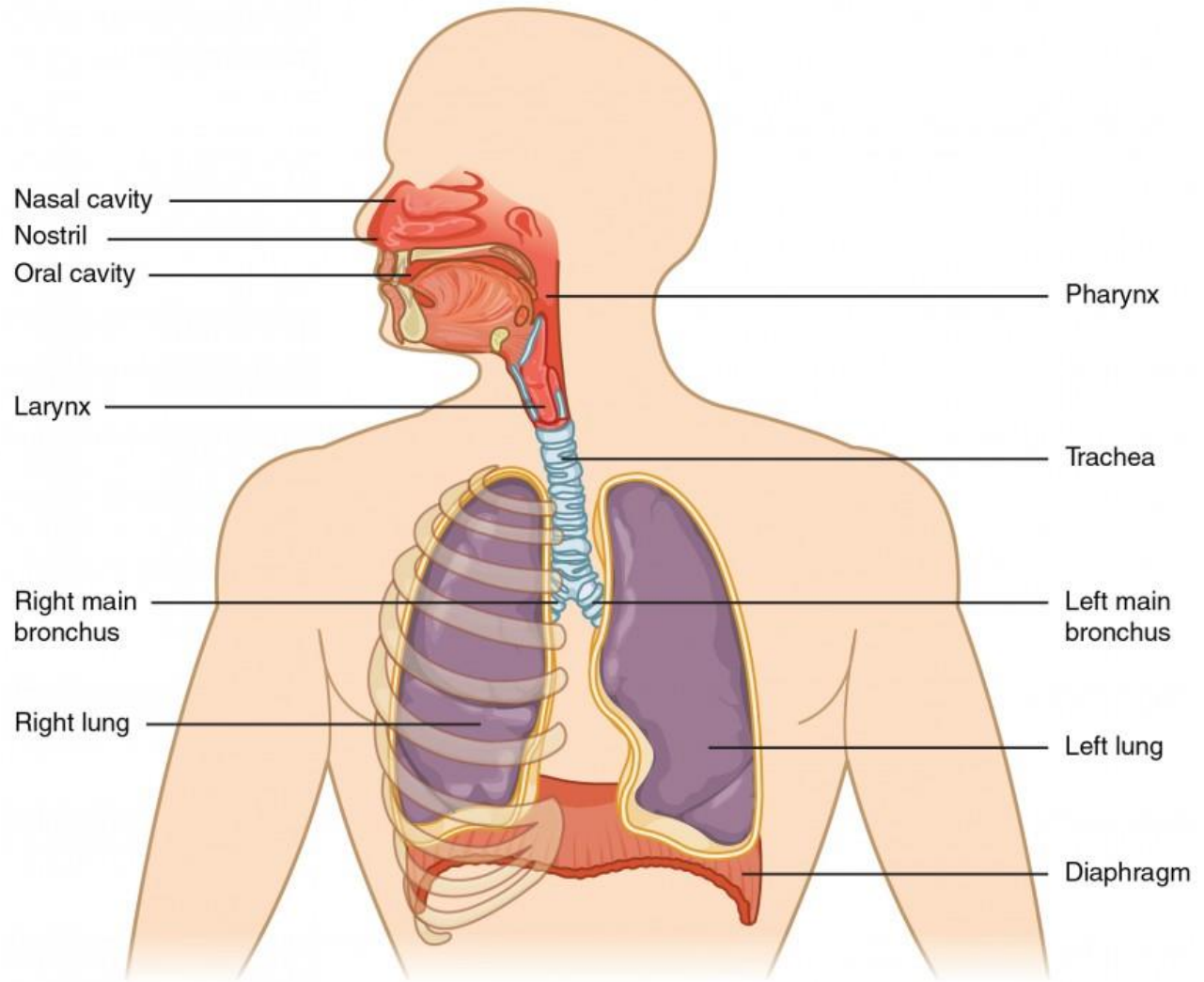
Body Systems

RESPIRATORY SYSTEM

- Provides a passage for oxygen to enter the body and for carbon dioxide to exit the body.

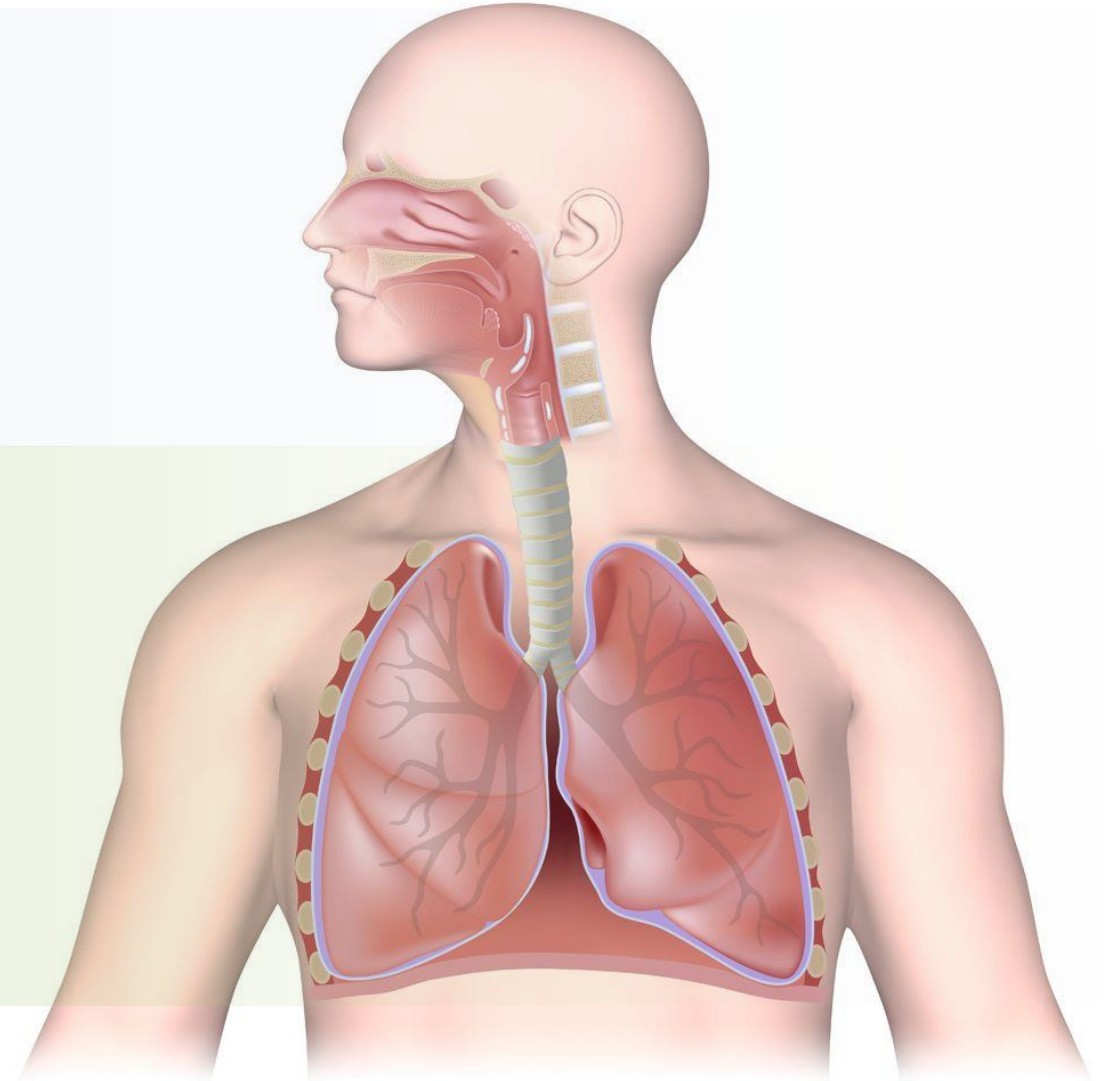
Respiratory System

Structures

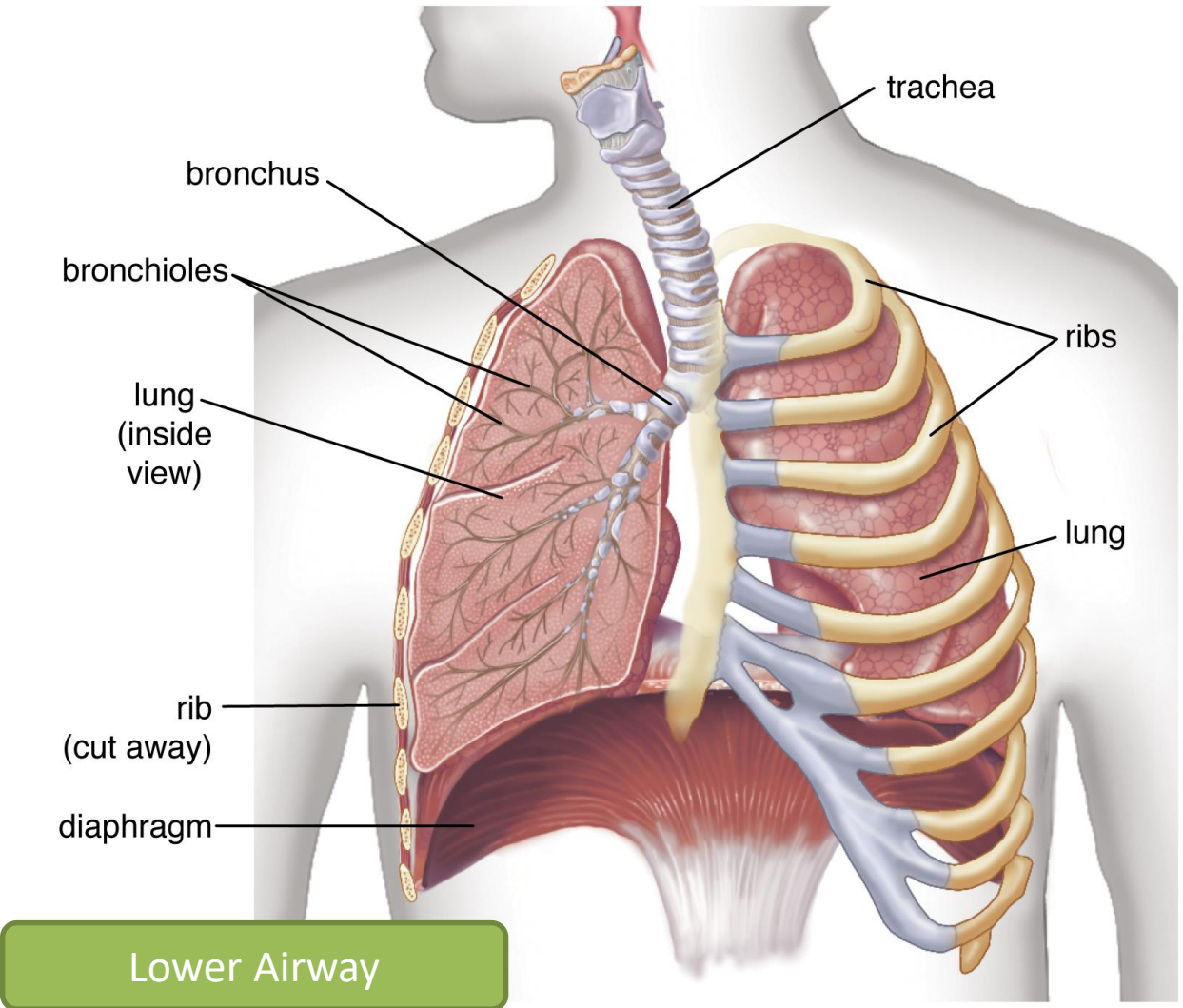
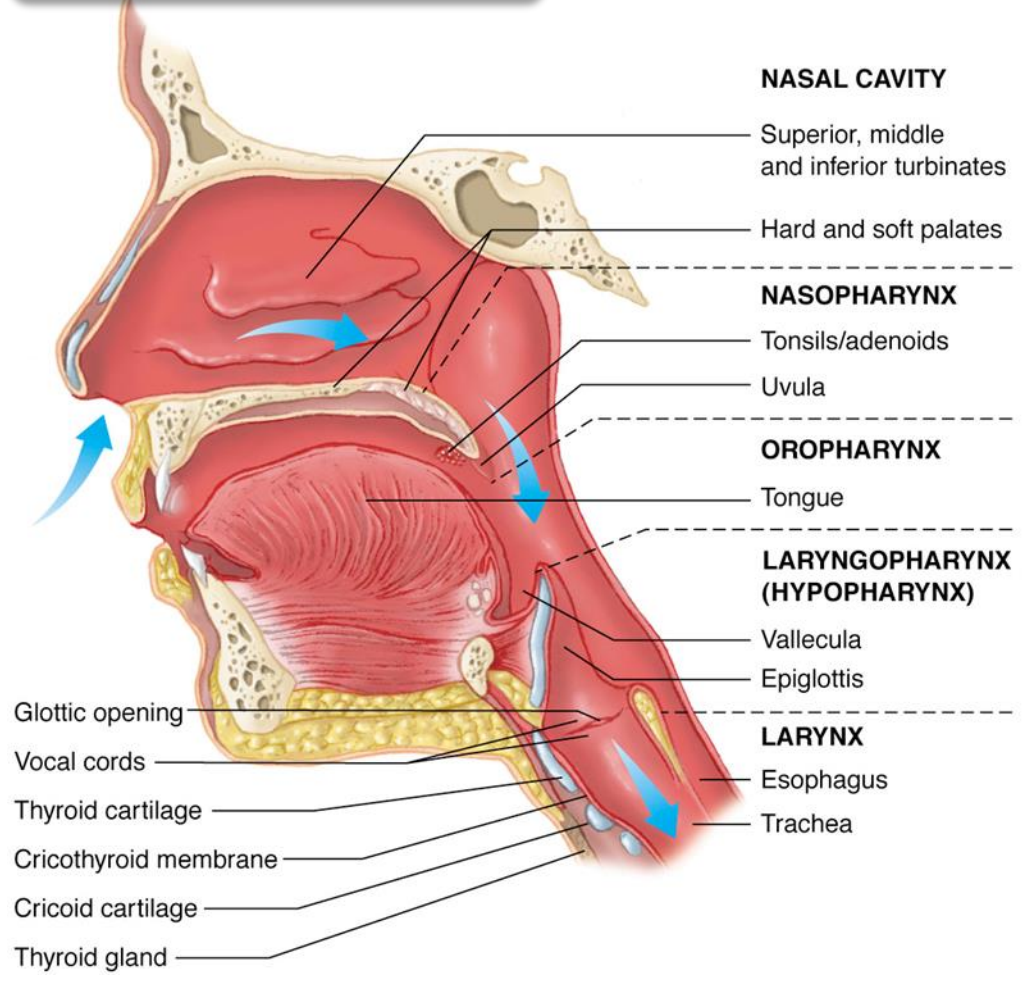


Upper Airway

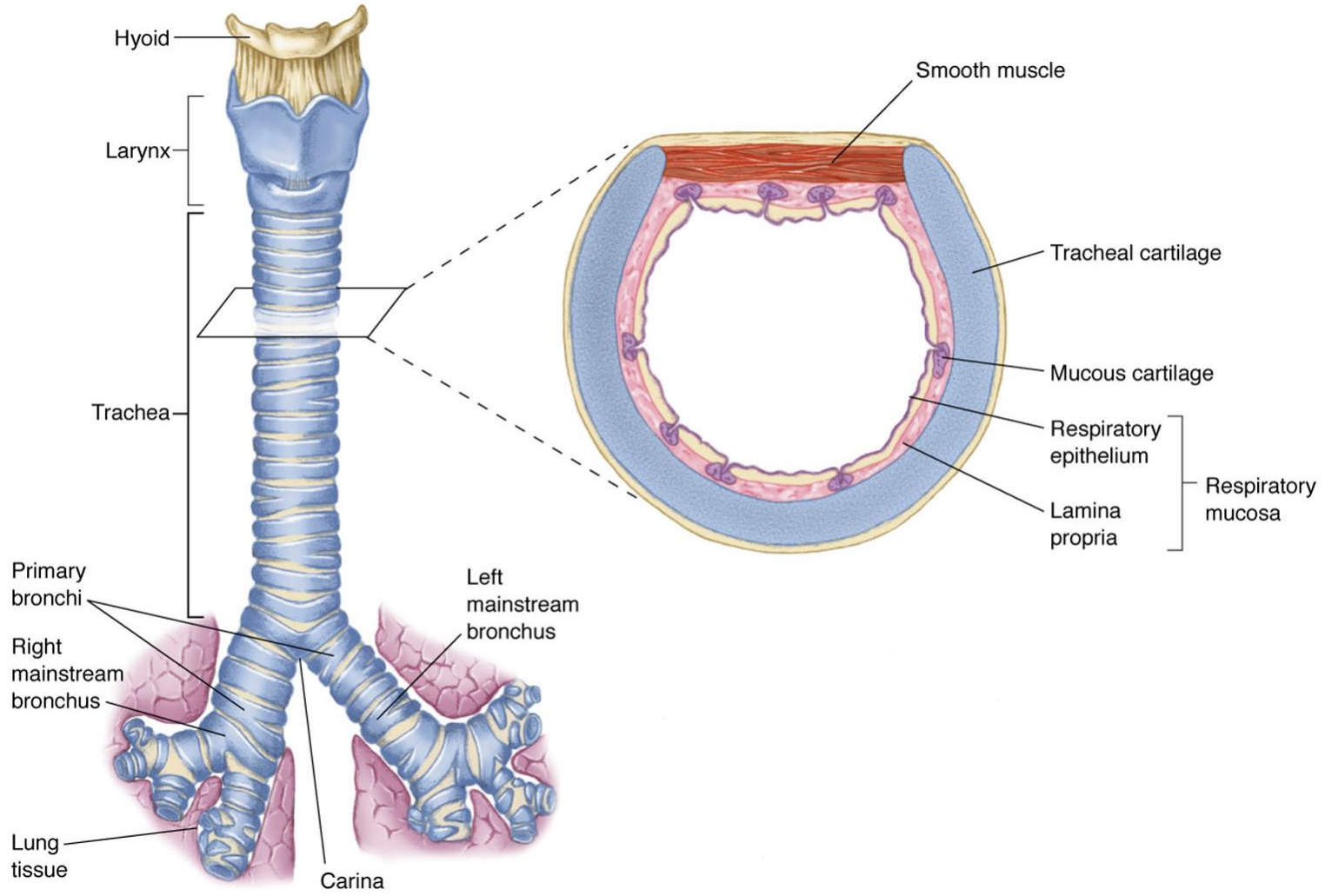
Lower Airway



Upper Airway



Lower Airway

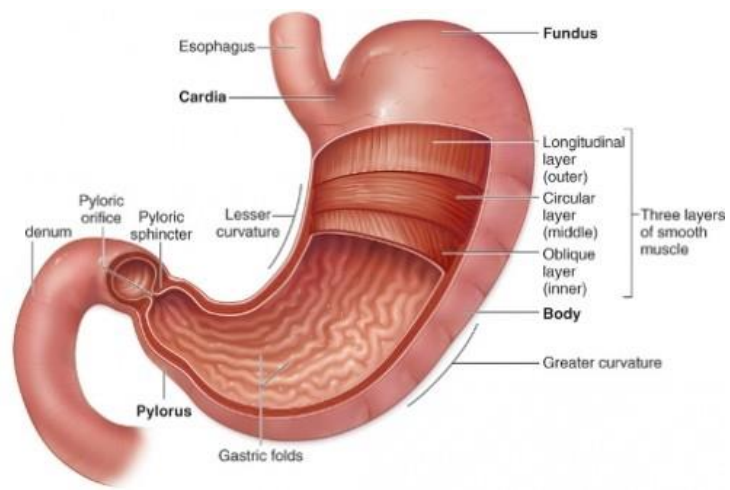
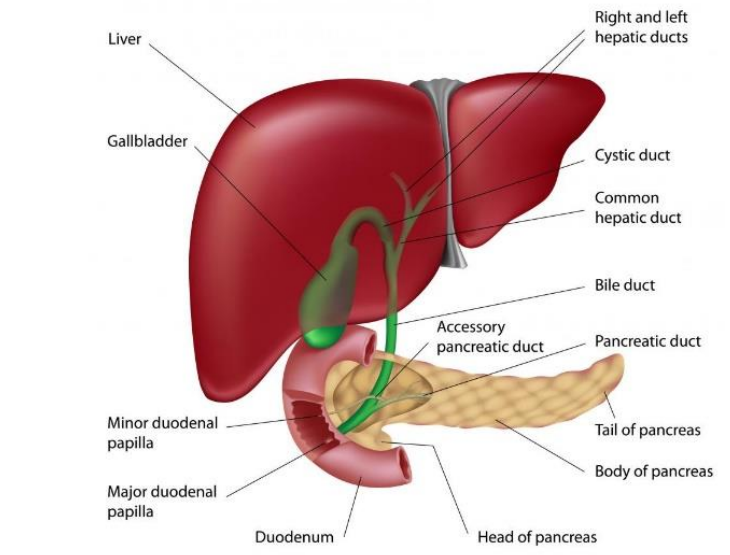
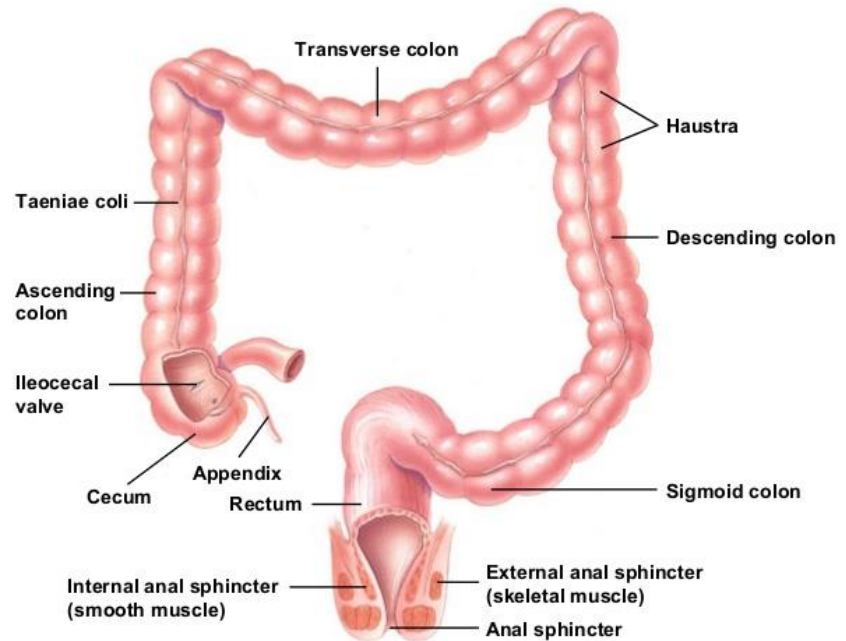
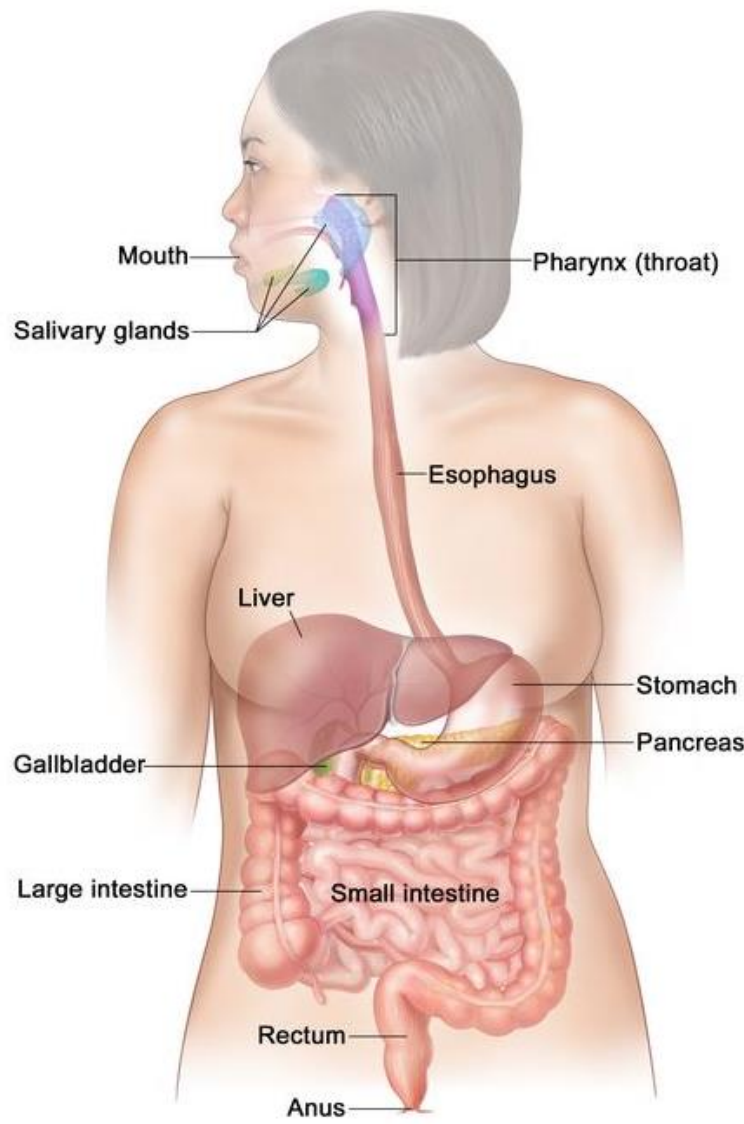


Body Systems

GASTROINTESTINAL SYSTEM

- Prepares nutrients for absorption
- Metabolism

Structures



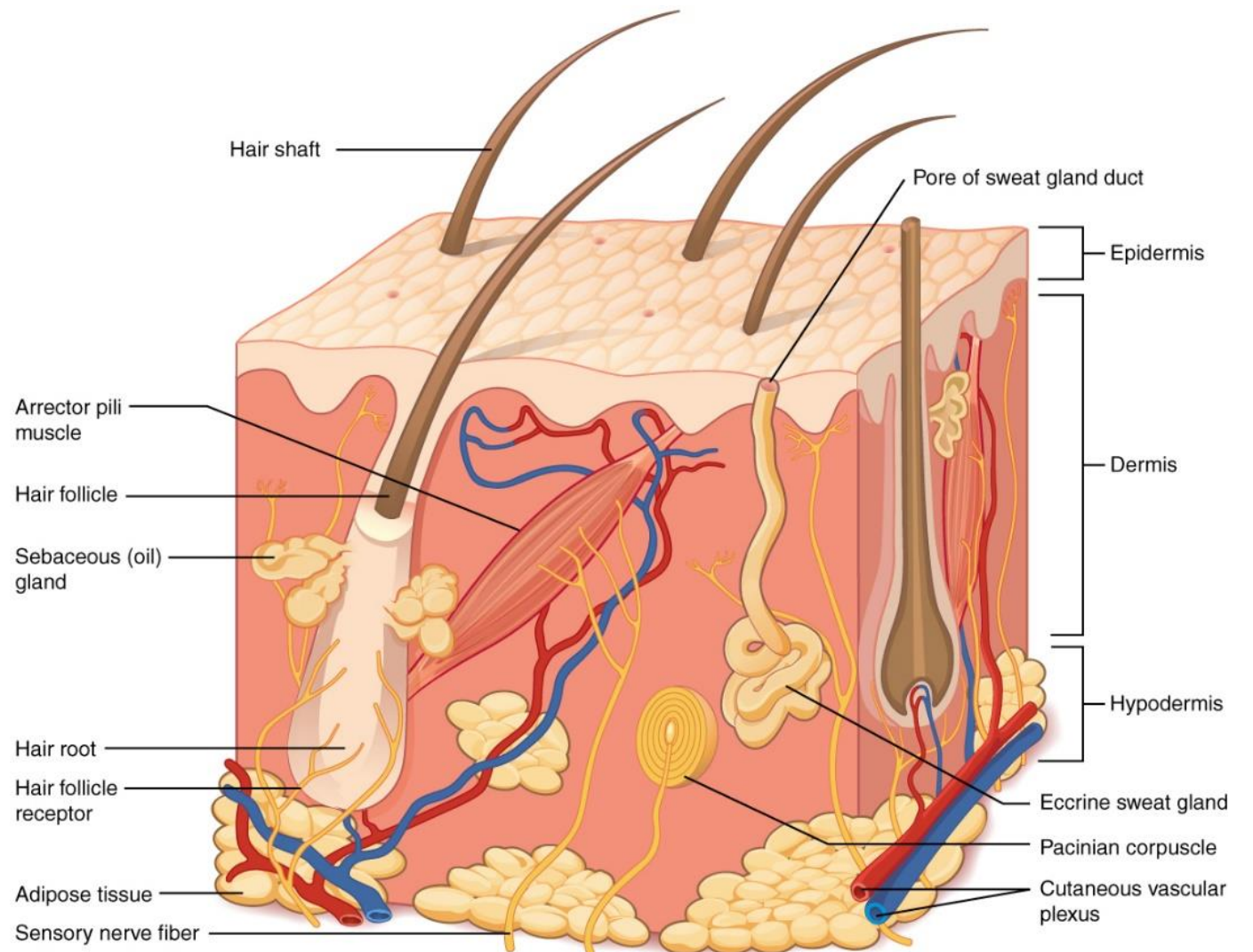
Body Systems

INTEGUMENTARY SYSTEM

- The largest system of the human body
- Acts as a barrier to protect
- Helps to regulate body temperature
- Gathers sensory information
- Assists the immune system

- Contains the skin and its appendages:

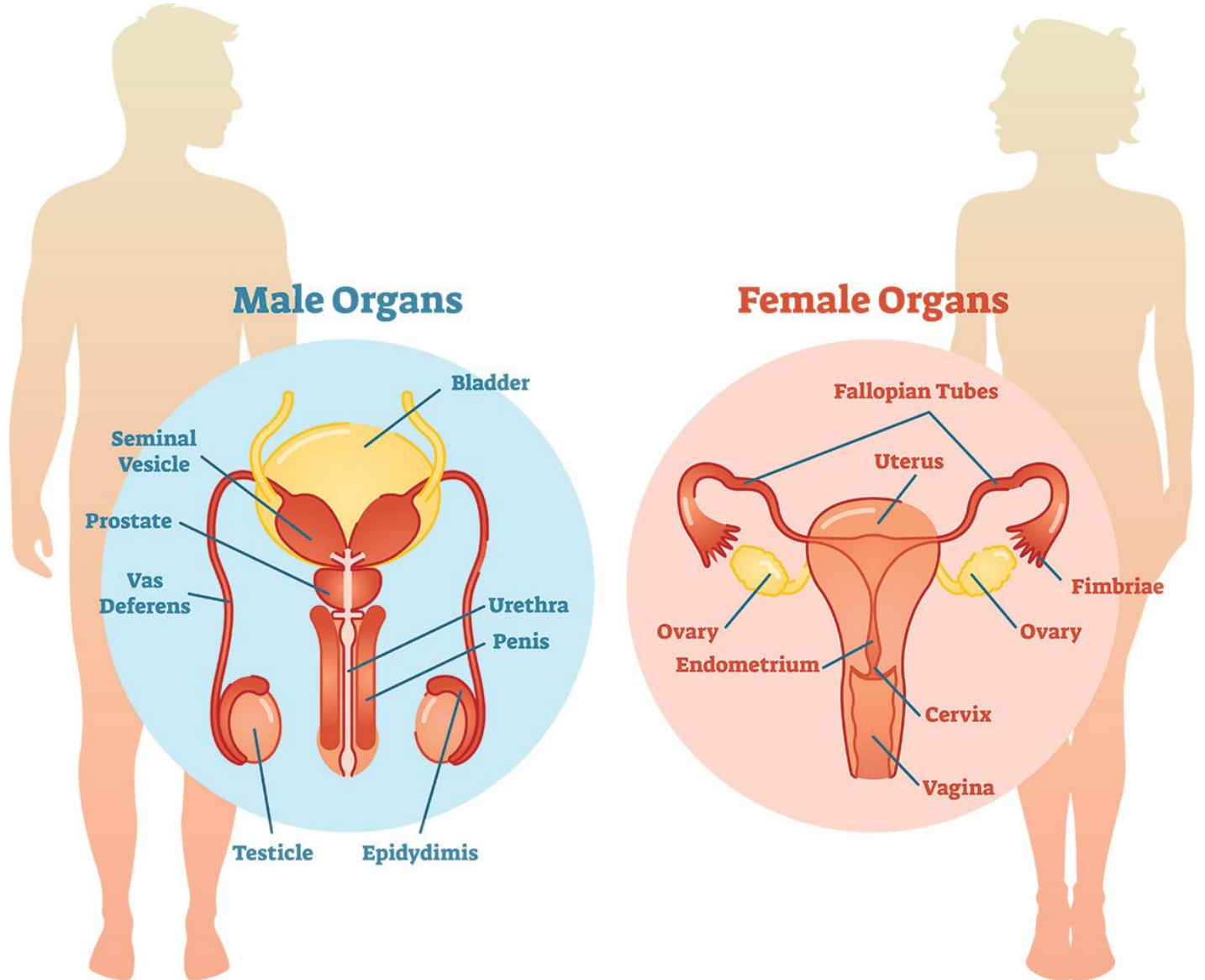
- Glands
- Hair
- Nails



Body Systems

REPRODUCTIVE SYSTEM

- Produce eggs and sperm cells
- Transport and sustain them
- Nurture the developing offspring
- Hormone production



- Musculoskeletal
- Endocrine
- Nervous
- Immune
- Cardiovascular
- Respiratory
- Gastrointestinal
- Genitourinary
- Reproductive
- Integumentary
- Lymphatic