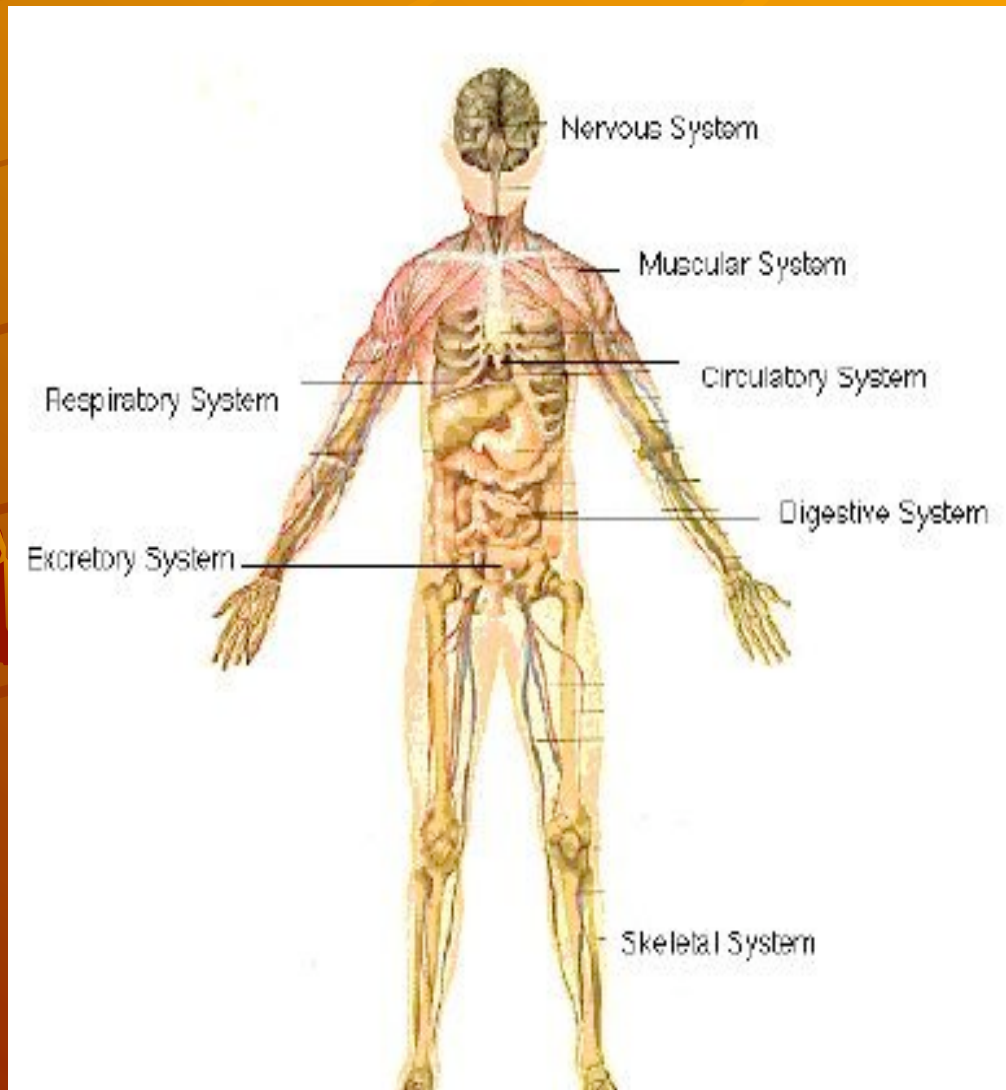


Body Systems



Objectives

- ✦ Students should be able to list the different body systems
- ✦ Students should be able to give a general function of each of the body systems
- ✦ Students should be able to tell the differences in the kinds of muscles of the body

Skeletal system



- ◆ Periosteum
 - Outer part
 - Dense
 - Has nerves and blood vessels
- ◆ Compact Bone
 - Smooth and hard
- ◆ Spongy bone
 - Very strong but not hard
 - Looks like a sponge
- ◆ Marrow
 - Thick jelly
 - Makes blood cells

Growing bones



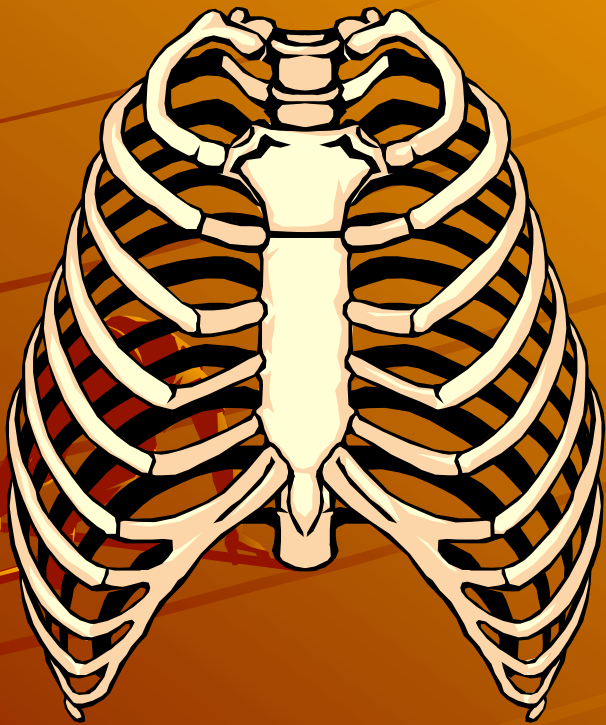
- ✦ Baby's bones are made from cartilage
- ✦ Babies have 300 bones
- ✦ Adults have 206 bones
- ✦ During childhood bones grow and replace cartilage
- ✦ Bones grow until age 25

The Spine



- ◆ Protects the spinal cord
- ◆ Made of 26 vertebrae
- ◆ Cervical, Thoracic, Lumbar, Sacrum, Coccyx
- ◆ In between are disks

The Ribs



- ◆ Protect heart and lungs
- ◆ Come in 12 pairs
- ◆ Middle is called sternum
- ◆ Last 2 pairs are floating ribs

The Skull



- ◆ Protects your brain
- ◆ Made of 29 bones
- ◆ Except for mandibles, they are connected by sutures
- ◆ Babies are born with holes in the skull

Protecting your bones



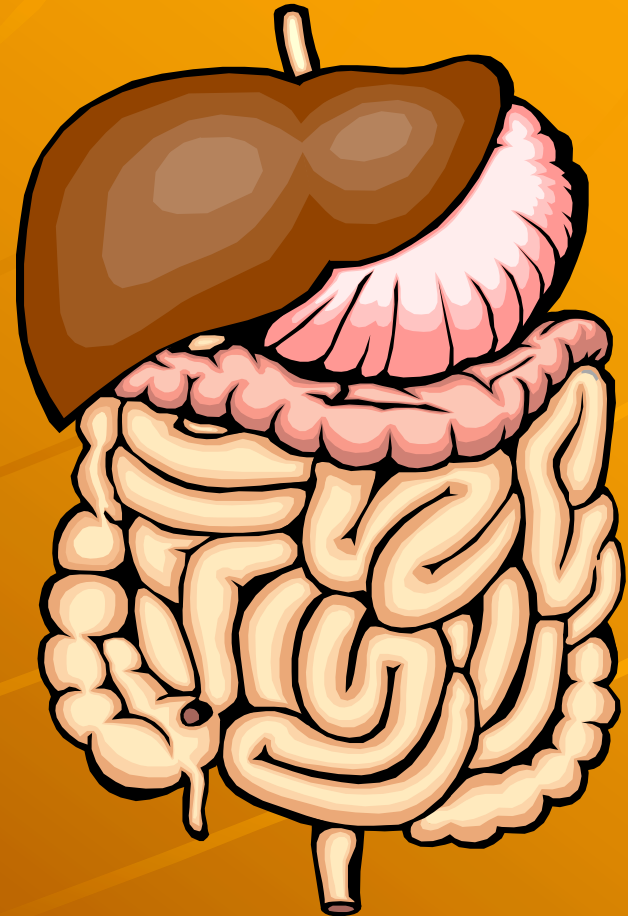
- ◆ Wear a helmet
- ◆ Wear wrist support, elbow and knee pads
- ◆ Use right equipment when playing a sport
- ◆ Drink milk, eat dairy products
- ◆ Exercise to strengthen bones

Digestive system

- Starts in the mouth
 - Teeth Chew the food
 - Saliva breaks down food
 - Tongue pushes food down to esophagus

Esophagus → Stomach

- Muscles squeeze food down

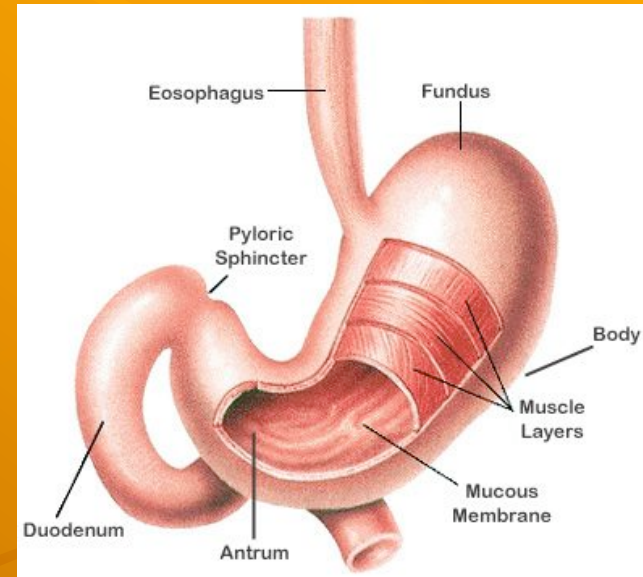


◆ In the stomach

- Stores food
- Breaks down food
- Empties food into small intestine

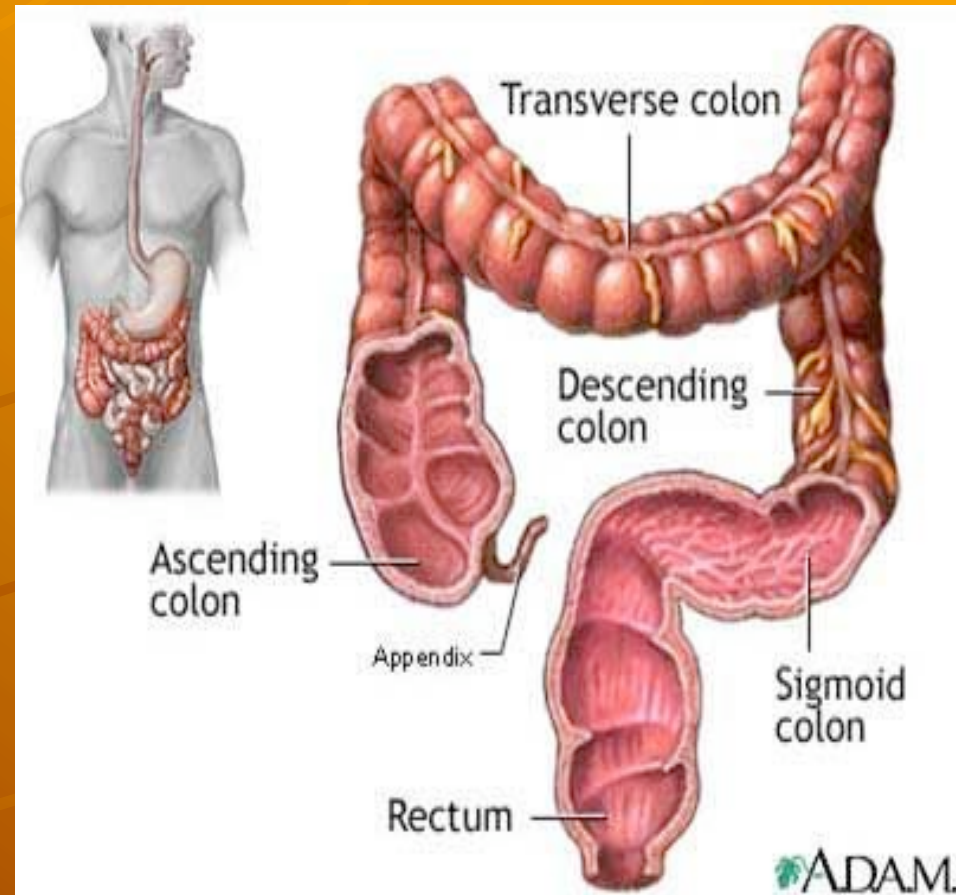
◆ In the small intestine

- Breaks down the food even more
- Extracts vitamins, minerals, proteins, carbohydrates, and fats
- Becomes a watery mixture

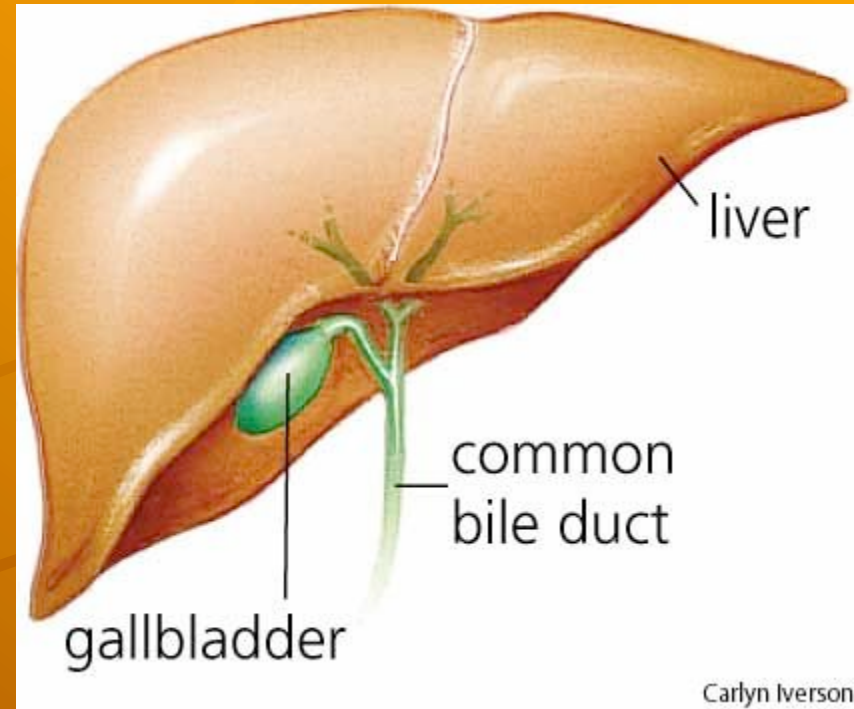


◆ Large intestine

- Left over food material the body doesn't use
- Gets harder and harder
- Colon is last chance to absorb food material



- ◆ Pancreas, gallbladder, liver send juices to help absorb and break down foods
- ◆ Liver makes bile
 - Send fats to the blood stream
- ◆ Gallbladder stores the bile

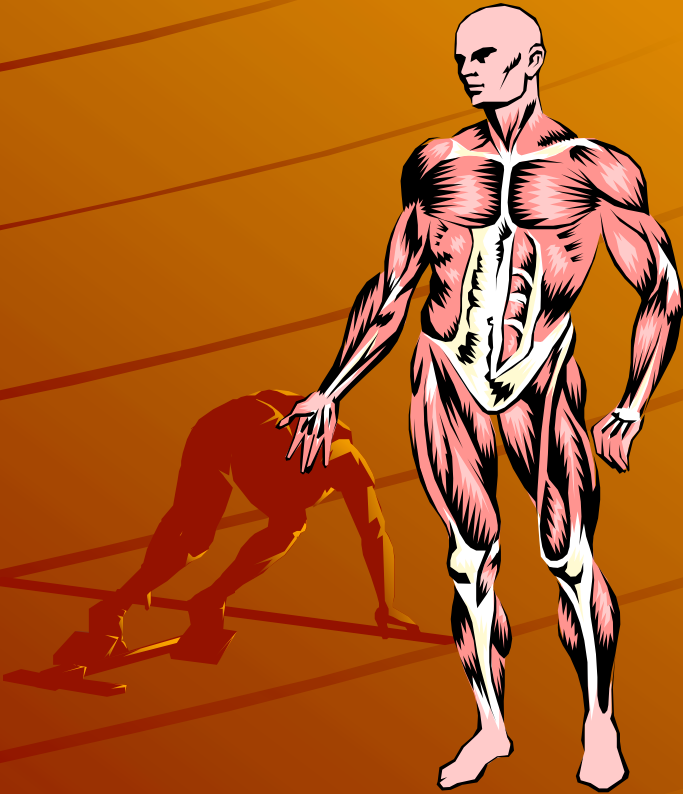


Helping your digestive system

- ◆ Drink lots of water
- ◆ Eat a healthy diet
- ◆ Eat fiber

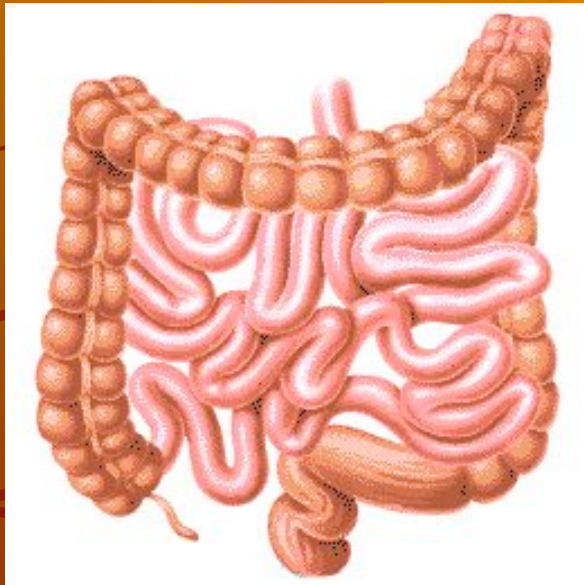


Muscular system



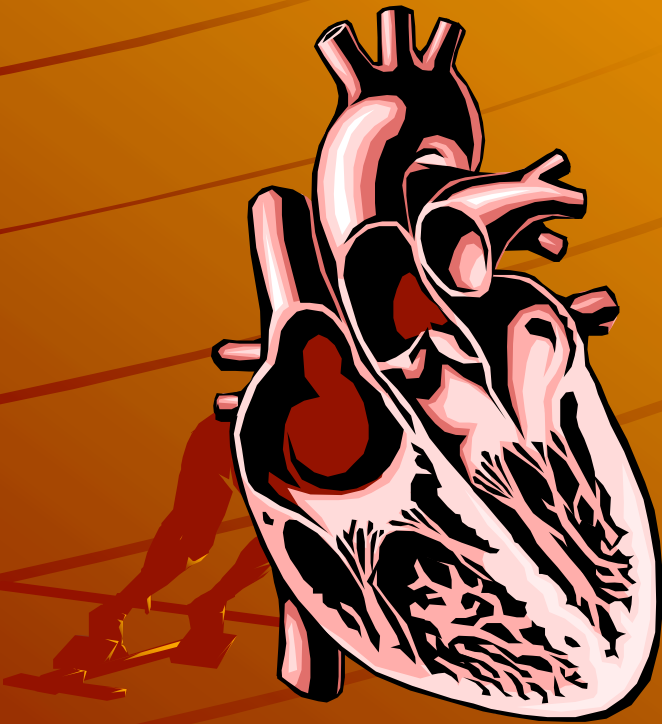
- ◆ 600 muscles in the body
- ◆ 3 types of muscles
 - Smooth
 - Cardiac
 - Skeletal

Smooth muscle



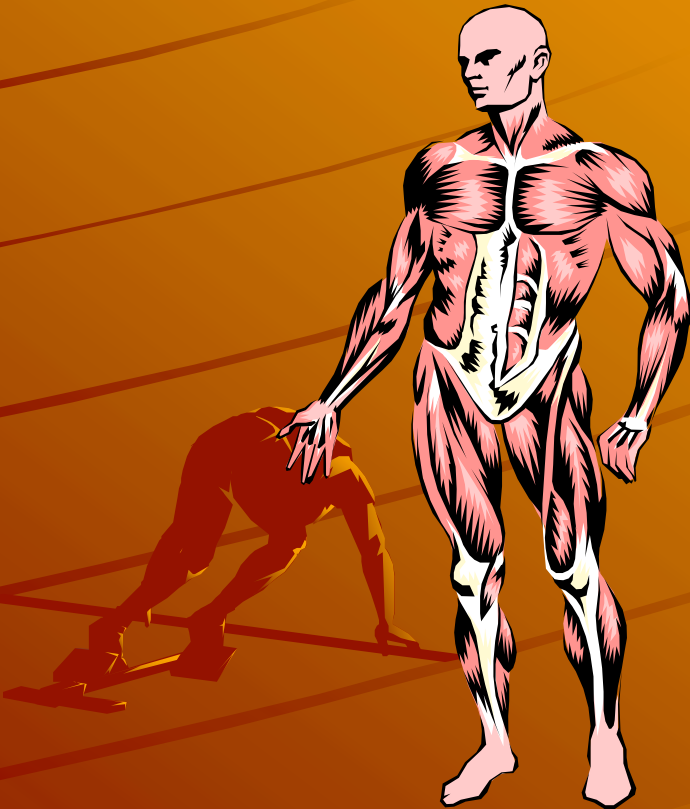
- ◆ Involuntary
- ◆ Found in the urinary and digestive system
- ◆ Push out food, waste, or babies
- ◆ In the eye, keep eyes focused

Cardiac Muscle



- ◆ Only found in the heart
- ◆ Involuntary
- ◆ Pacemaker cells keep the heart beating

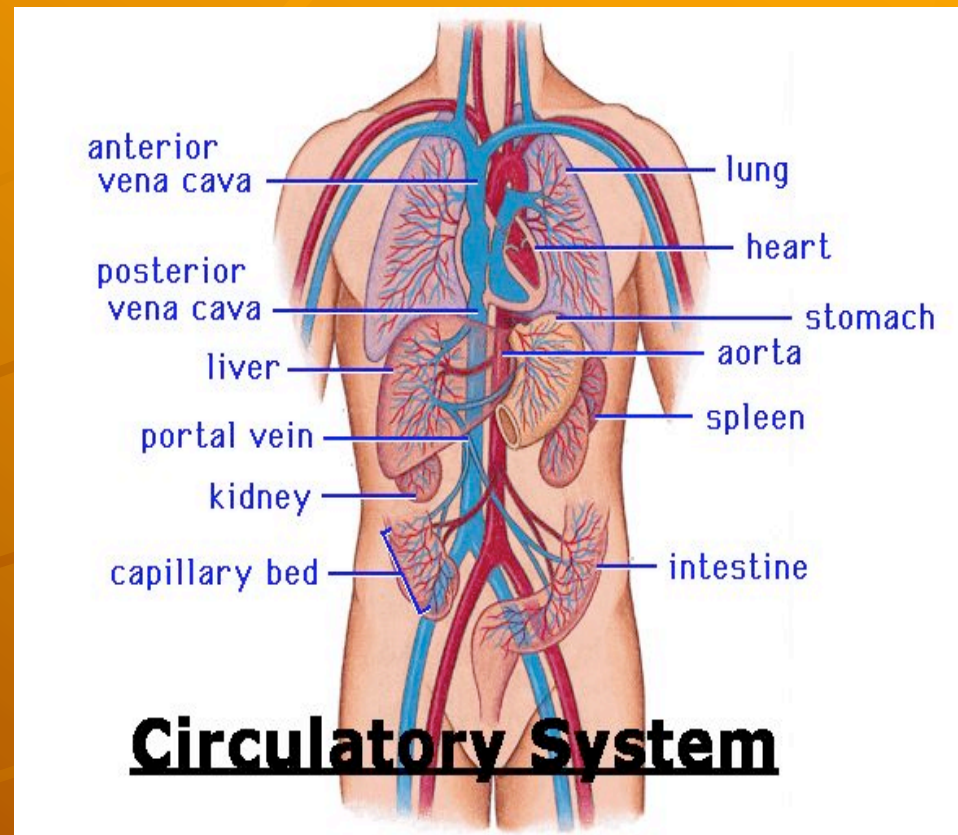
Skeletal Muscle



- ◆ Voluntary
- ◆ Striated
- ◆ Attaches to one end of a bone
- ◆ Crosses the joint
- ◆ Attached to another bone

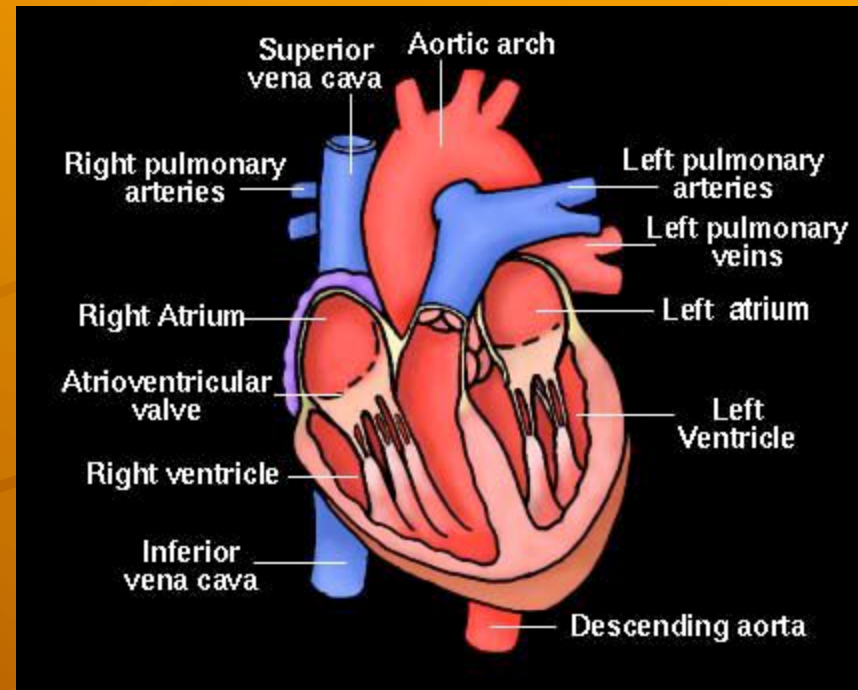
Circulatory System

- ◆ Delivers blood to the body tissues
- ◆ Blood carries nutrients and oxygen
- ◆ 2,000 gallons of blood travel 60,000 or blood vessels
- ◆ 2 loops: pulmonary circulation and systemic circulation
 - Pulmonary circulation heart and lungs
 - Systemic circulation heart to all parts of the body



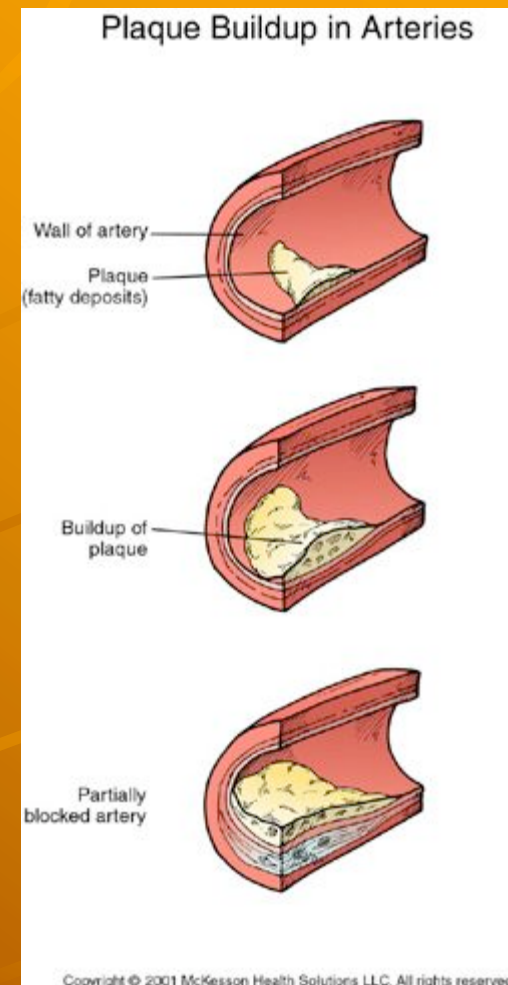
The heart

- ◆ Beats 60-100 times a minute
- ◆ 4 chambers
 - Bottom: right and left ventricles
 - Top: right and left atria
- ◆ Blood vessels carrying blood away are Arteries
- ◆ Blood vessels carrying blood to heart are veins

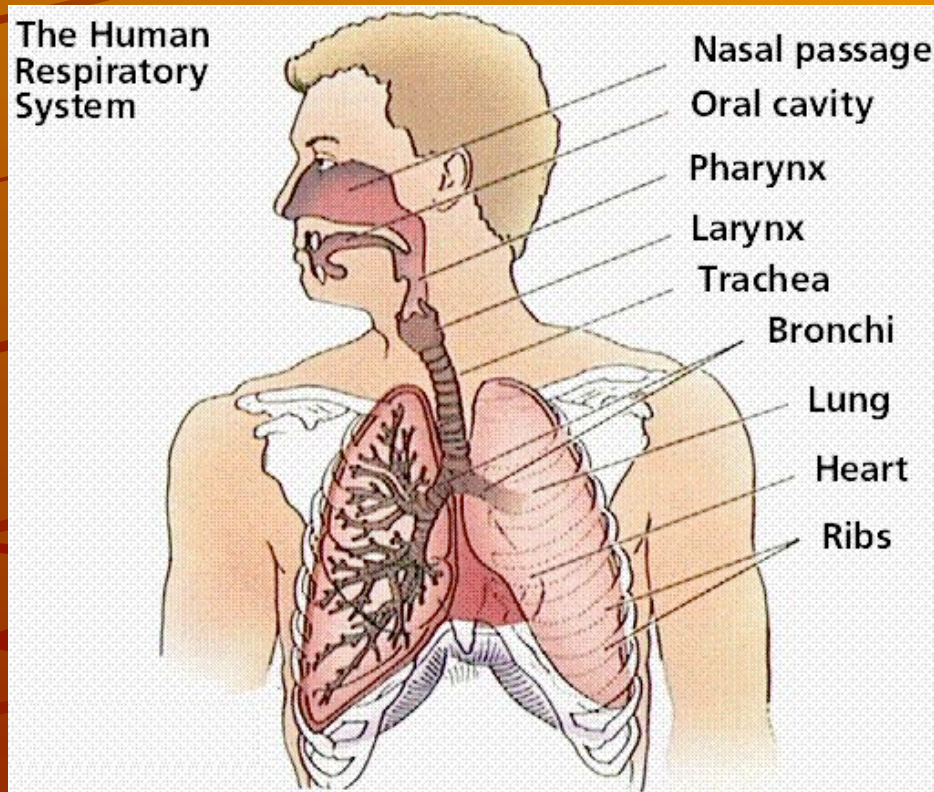


Diseases

- ◆ **Arrhythmia**
- ◆ **Hypertension**
- ◆ **Cardiomyopathy**
- ◆ **Hyperlipidemia/
hypercholesterolemia**

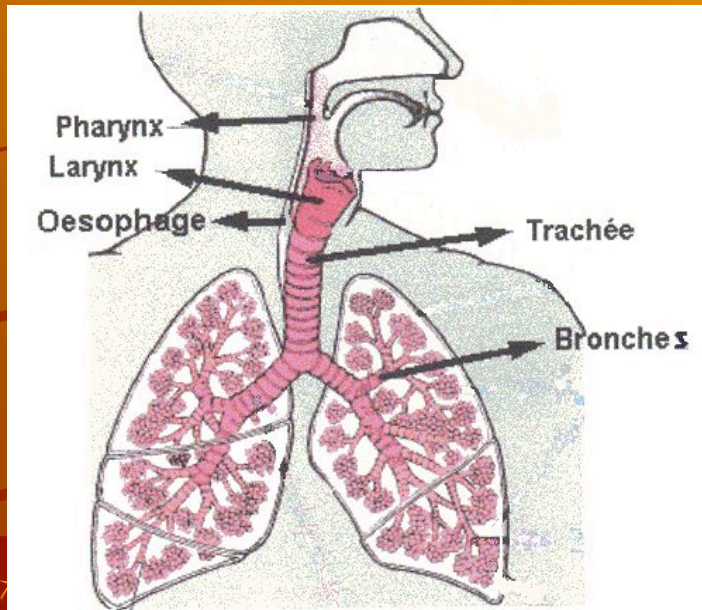


Respiratory systems



- ◆ Nose, throat, windpipe and lungs
- ◆ Take in oxygen
- ◆ Get rid of carbon dioxide
- ◆ Filters out foreign particles
- ◆ Cilia filter out the air in the nose

Path of oxygen



- ◆ Nose to pharynx
- ◆ Pharynx to larynx (vocal cords)
- ◆ Larynx to trachea
- ◆ Trachea to bronchi (left and right)
- ◆ Bronchi to bronchioles
- ◆ Bronchioles to alveoli (little sacs)
- ◆ Alveoli to capillaries (by diffusion)
- ◆ Capillaries to hemoglobin

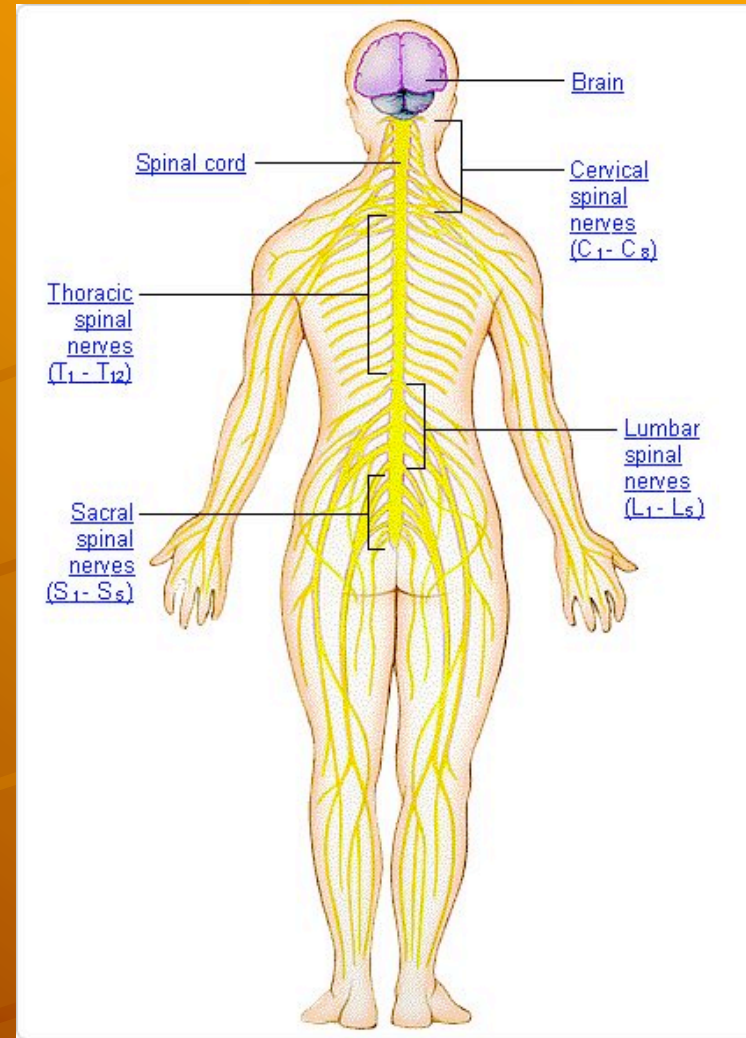
Nervous system

◆ Central Nervous System (CNS)

- Brain and Spinal Cord

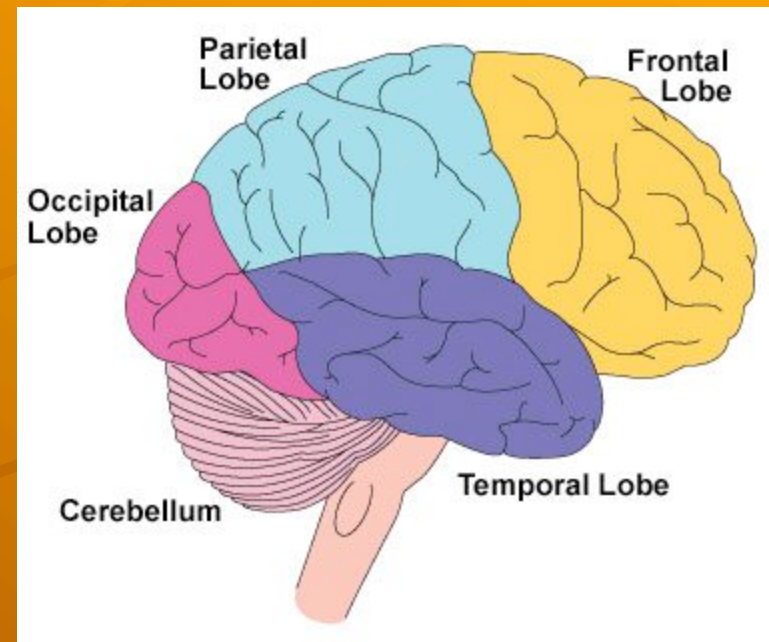
◆ Peripheral Nervous System

- All nerves in the body



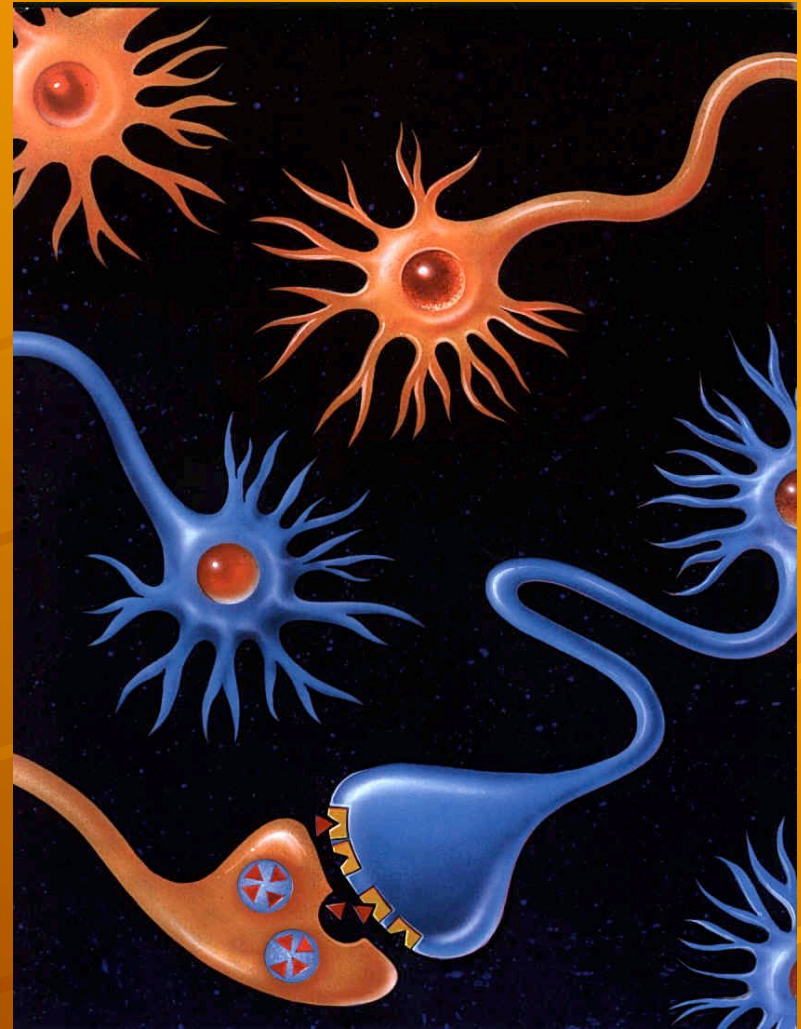
The Brain

- ◆ Divided by corpus colossum
 - Left: logical, analytical, objective (math)
 - Right: intuitive, creative, subjective (music)
- ◆ Cortex is the outer part (cerebrum)
- ◆ Cerebellum

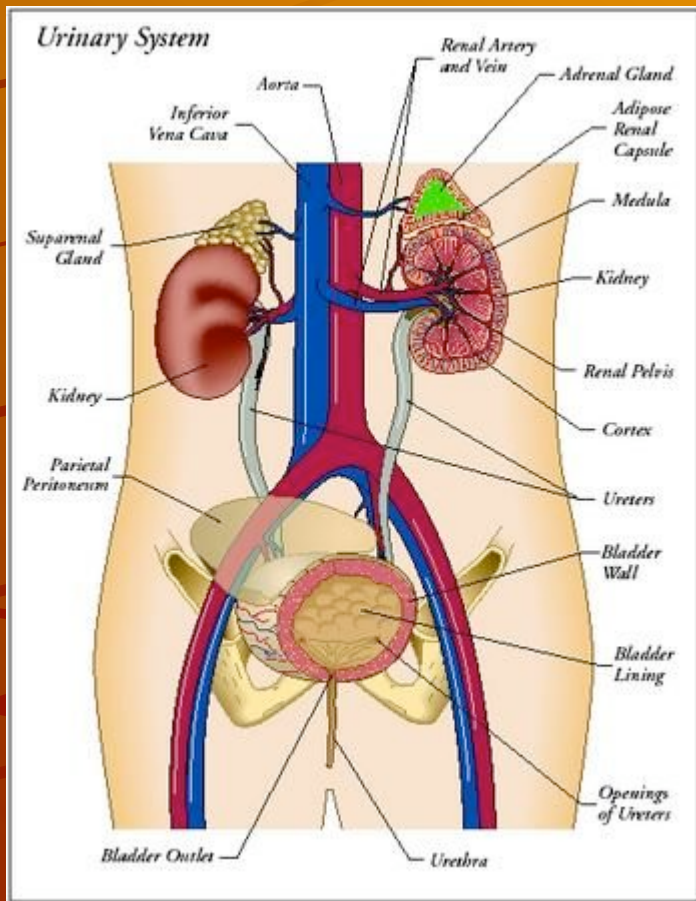


How it works

- ◆ Neurons get a message
- ◆ Send message to the brain
- ◆ Brain sends the message to body

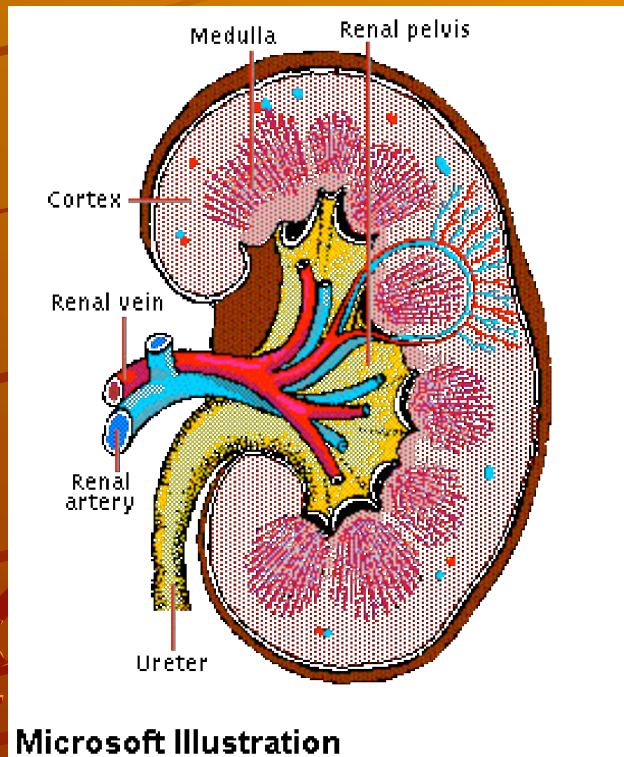


Urinary System



- ◆ Kidneys, ureters, bladder, urethra
- ◆ Eliminate waste from blood
- ◆ Maintain water balance in the body
- ◆ Regulates salt levels
- ◆ Stimulates the body to produce red blood cells

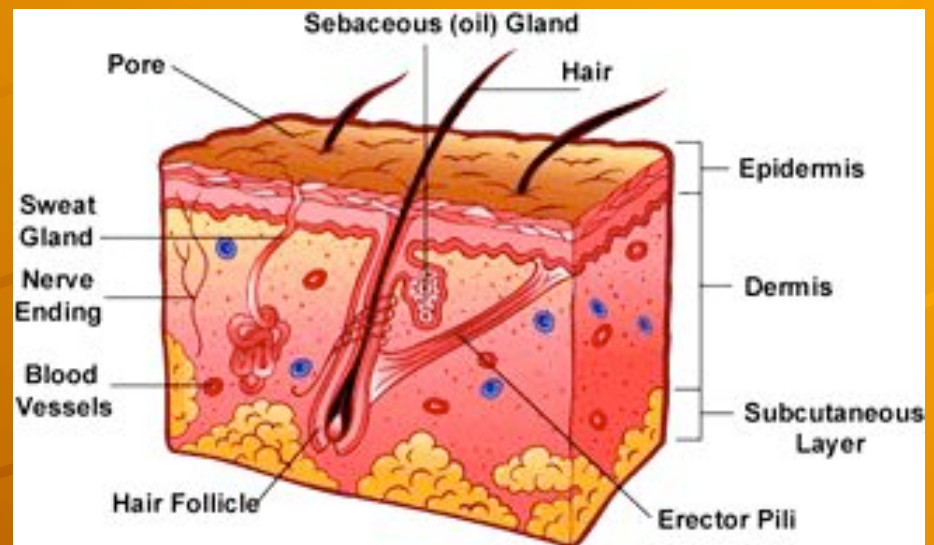
Blood to Urine



- ◆ Blood travels through renal artery to cortex
- ◆ Cortex to the nephrons (filtering units)
- ◆ Nephrons have glomerulus (with blood capillaries) to tubule
- ◆ In tubule filter out waste products
- ◆ Blood levels through renal vein back to heart
- ◆ Urine is made from waste products

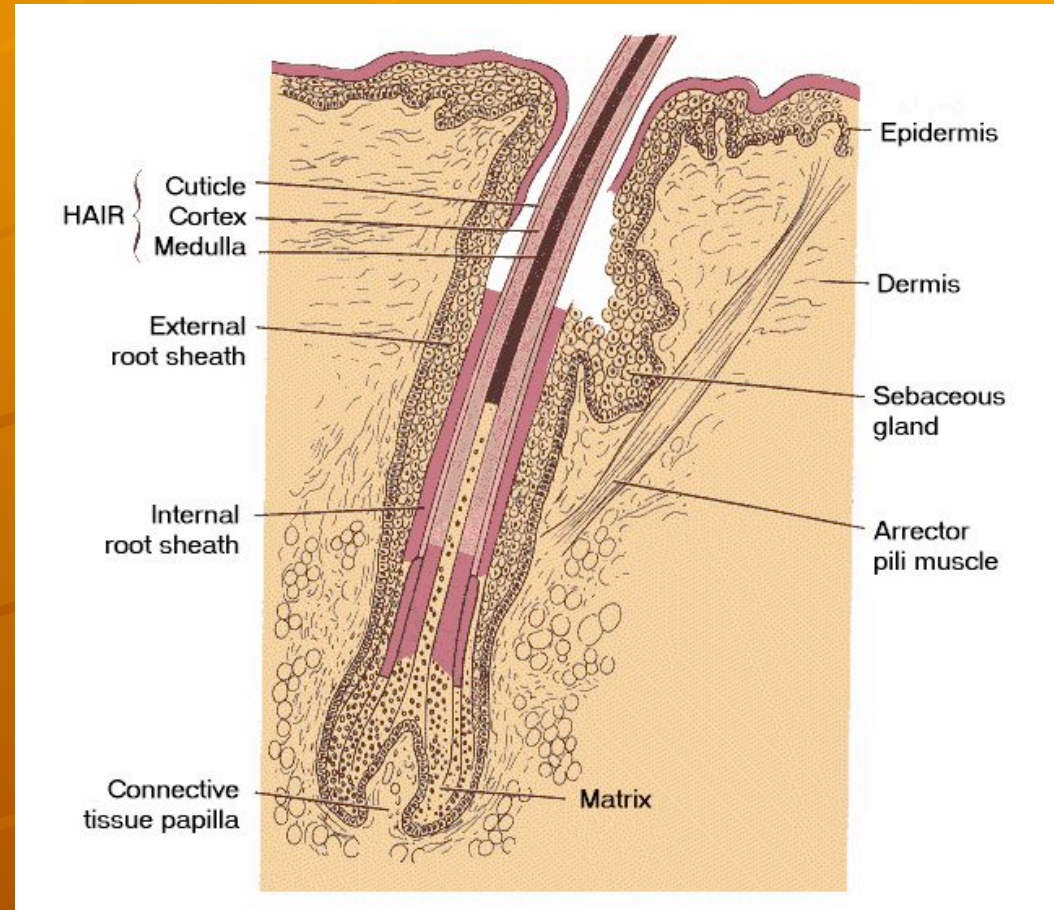
Integumentary System

- ◆ The skin
- ◆ Epidermis
 - Contain melanocytes, keratinocytes, and langerhan cells
- ◆ Dermis
 - Blood vessles, never endings, connective tissue, collagen, elastin
- ◆ Subcutaneous tissue
 - Sweat glands, blood vessels, fat storing cells

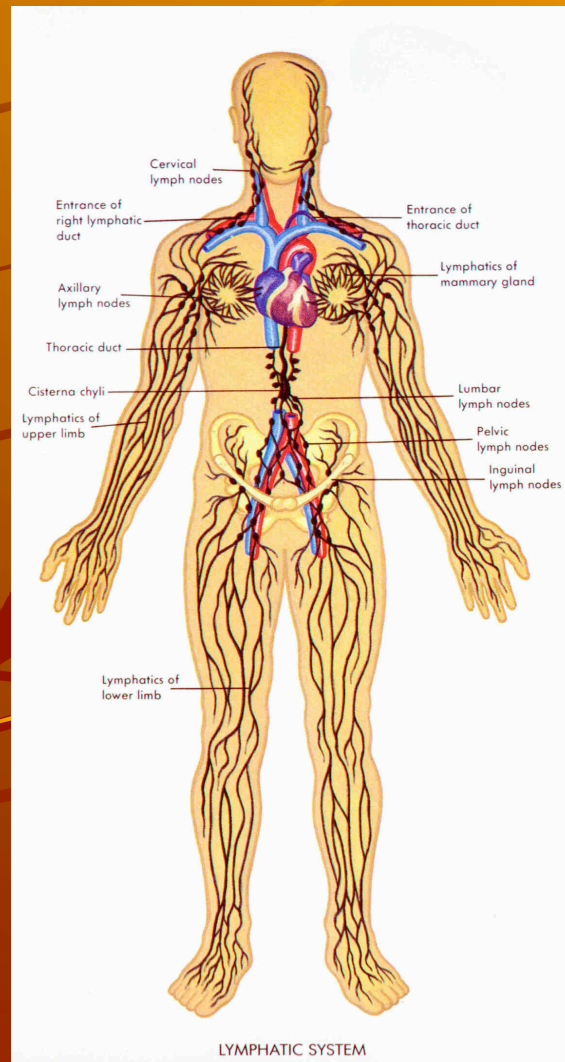


Hair

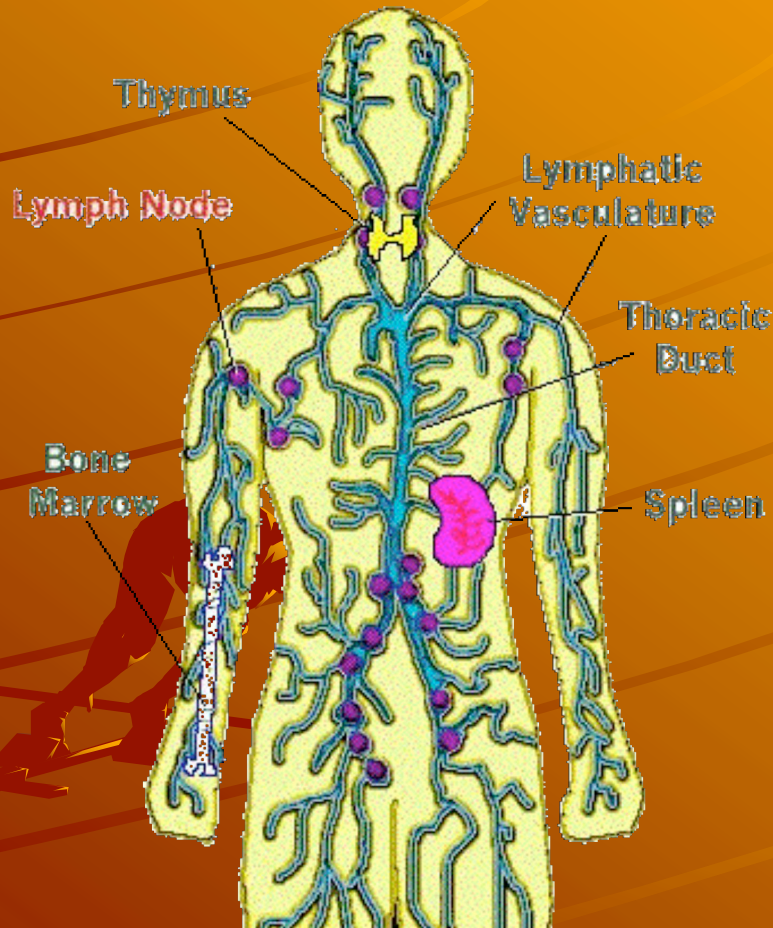
- ◆ Hair shaft
 - Projects from skin surface
- ◆ Root
 - Thick base in bedded in skin
- ◆ Hair bulb
 - At the end of the root
- ◆ Follicle
 - Where the hair grows
- ◆ Papilla
 - Below shaft where hair grows



Lymphatic System

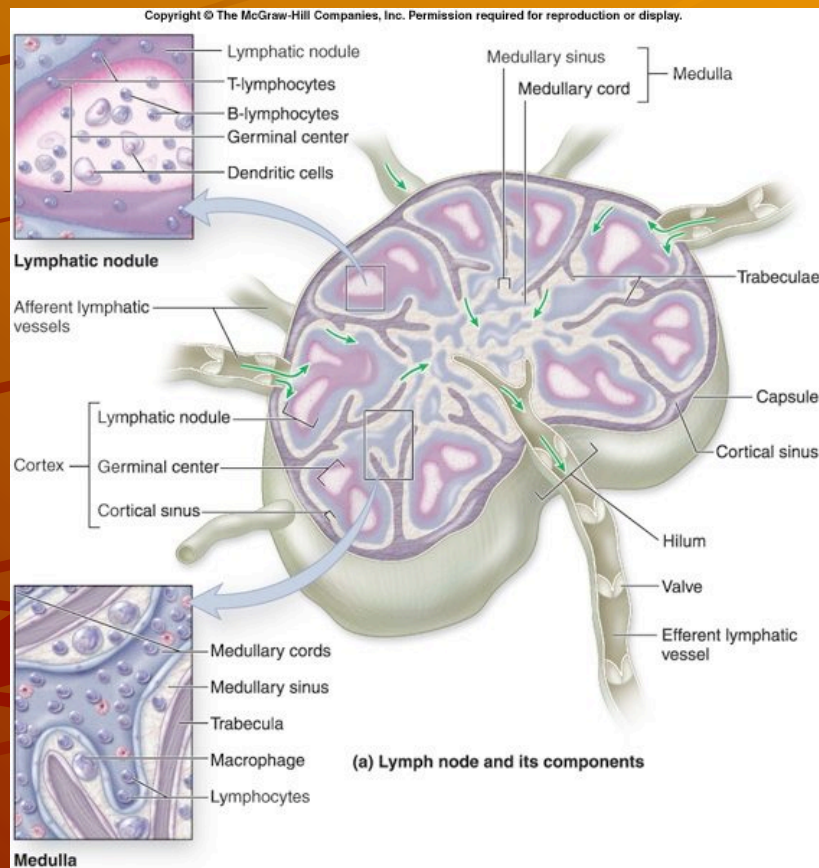


- ◆ Defends against disease keep fluid levels in balance
- ◆ Made of lymphatic vessels that carry lymph
- ◆ Drains fluid that collects in the tissue
- ◆ Returns the fluid to the blood
- ◆ Without it we would swell



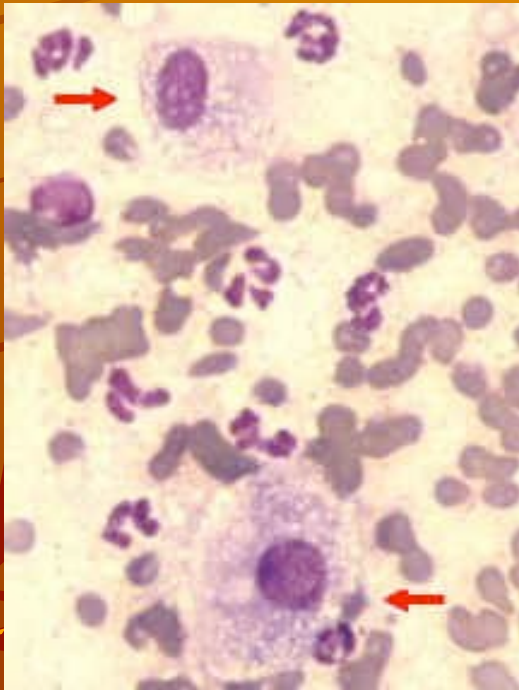
- ◆ Germs are filtered out at lymph nodes
- ◆ Lymph nodes have lymphocytes
- ◆ Lymphocytes make antibodies
- ◆ Spleen has macrophages

To get rid of waste



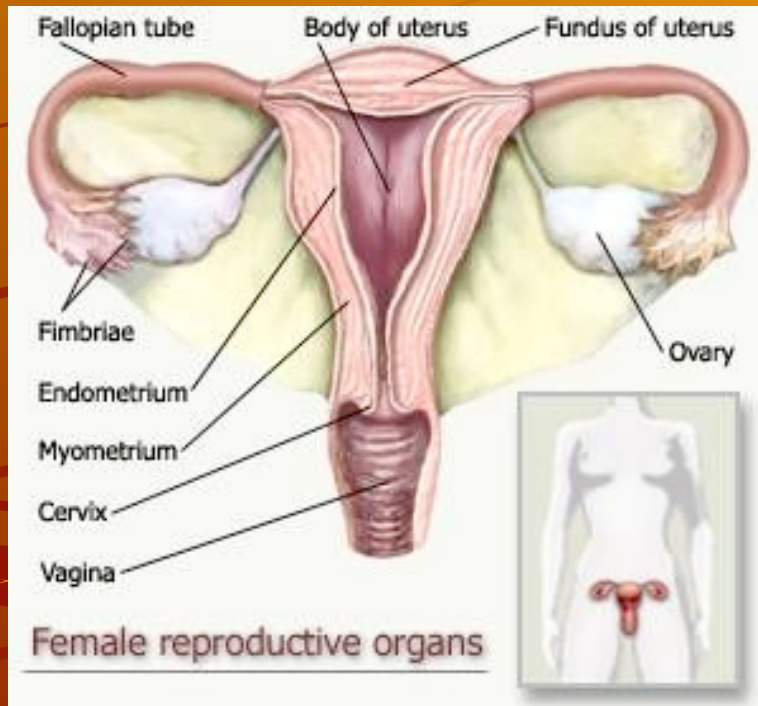
- ◆ Lymph fluid drains into capillaries
- ◆ Allow nutrients to pass through to other cells but take away the waste
- ◆ Lymph vessels collect the waste and return it to the blood

To fight disease



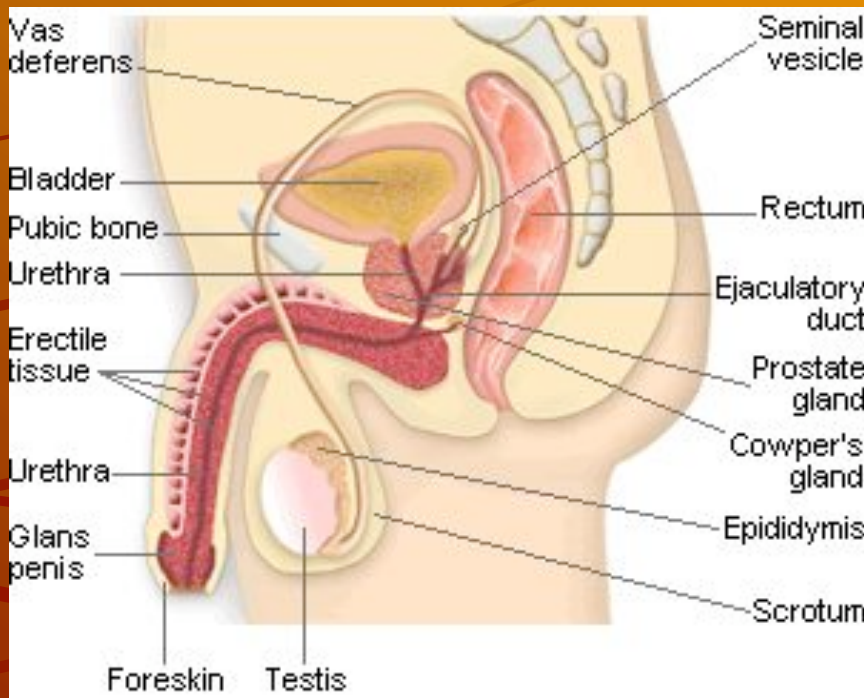
- ◆ Lymph fluid enters into lymph nodes to fight off disease
- ◆ After it has been fought the remains go into the blood

Reproductive system



- ◆ Female reproductive system
- ◆ External: Vulva, mons pubis, labia, clitoris, opening of the urethra
- ◆ Internal: Vagina, uterus, fallopian tubes, and ovaries
- ◆ Produces eggs (ova), sexual intercourse, protect and nourish fertilized eggs, give birth

Reproductive system



- ◆ Male reproductive system
- ◆ Testicles, duct system (epididymis, vas deferens) seminal vesicles and prostate gland, the penis

Review

- ◆ Bones are solid structures T F
- ◆ The teeth and tongue are some of the parts of the digestive system T F
- ◆ Smooth muscle is found in the digestive system T F
- ◆ The heart has _____ chambers
- ◆ The respiratory system starts in the _____ and ends in the _____
- ◆ What are the names of the two nervous systems
- ◆ The urinary system helps the body to eliminate waste T F
- ◆ List some structures of the integumentary system
- ◆ The lymphatic system helps us fight disease T F
- ◆ The reproductive system is important for us to reproduce T F