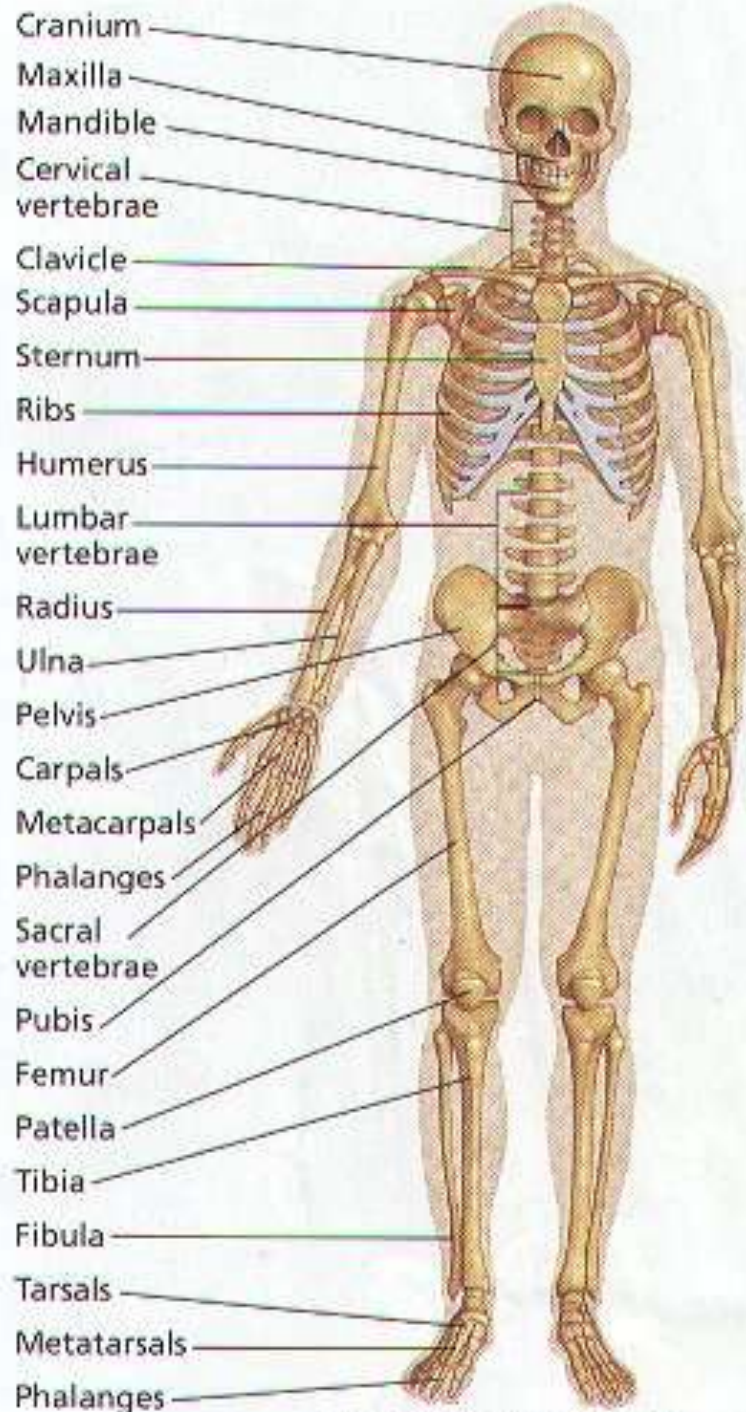
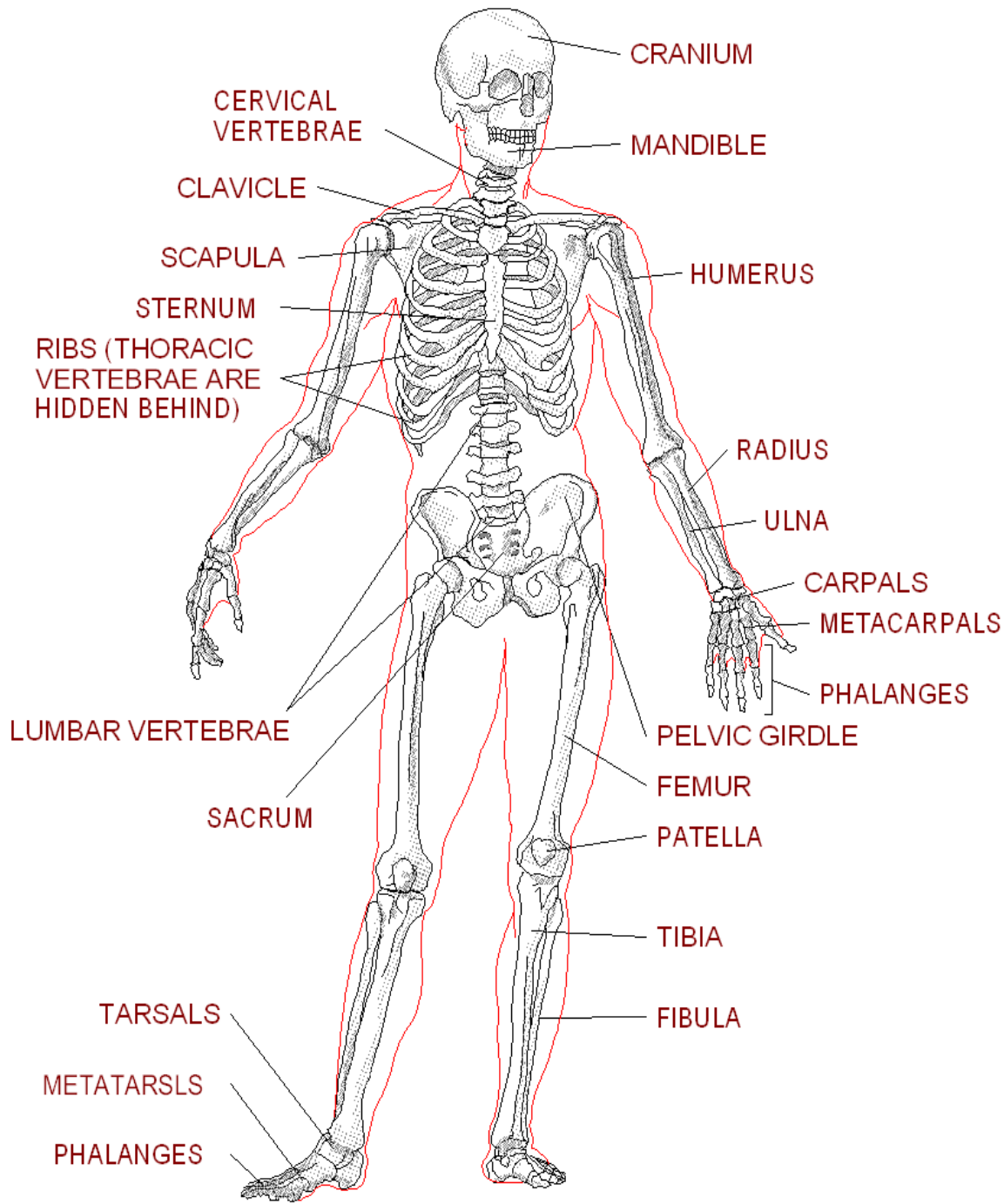


# Bones, Muscles & Skin



# The Skeletal System





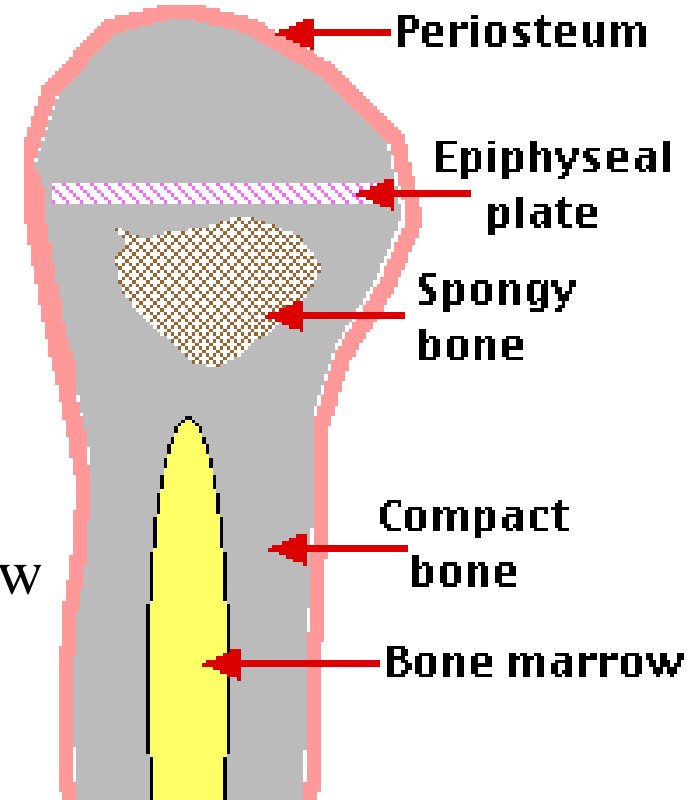
# Function

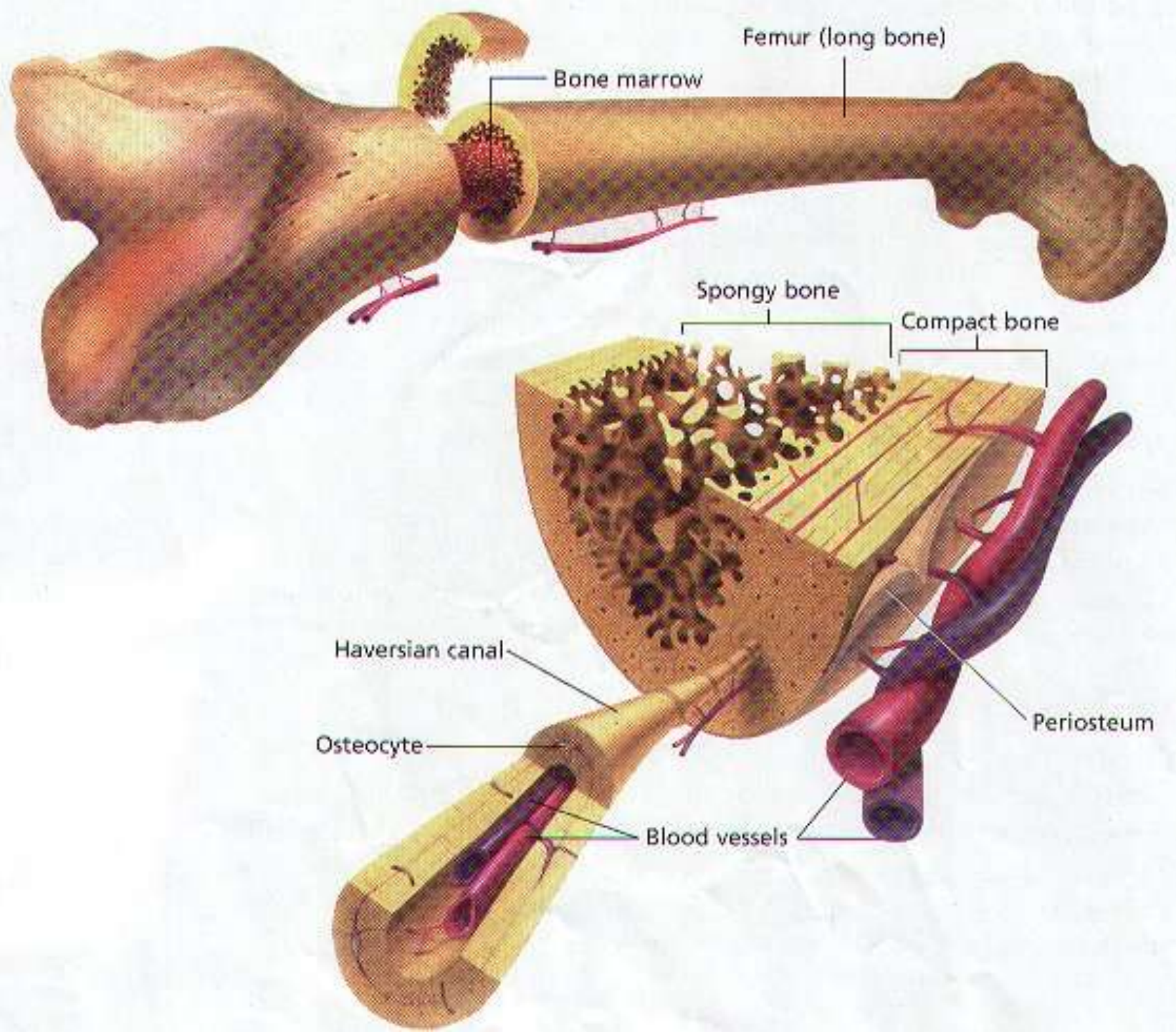
- Support
- Protection
- Movement



# Structure

- Periosteum –outer bone membrane
- Compact bone
- Spongy bone
- Marrow cavity
  - Filled with fatty tissue called marrow
  - Makes red blood cells in flat bones



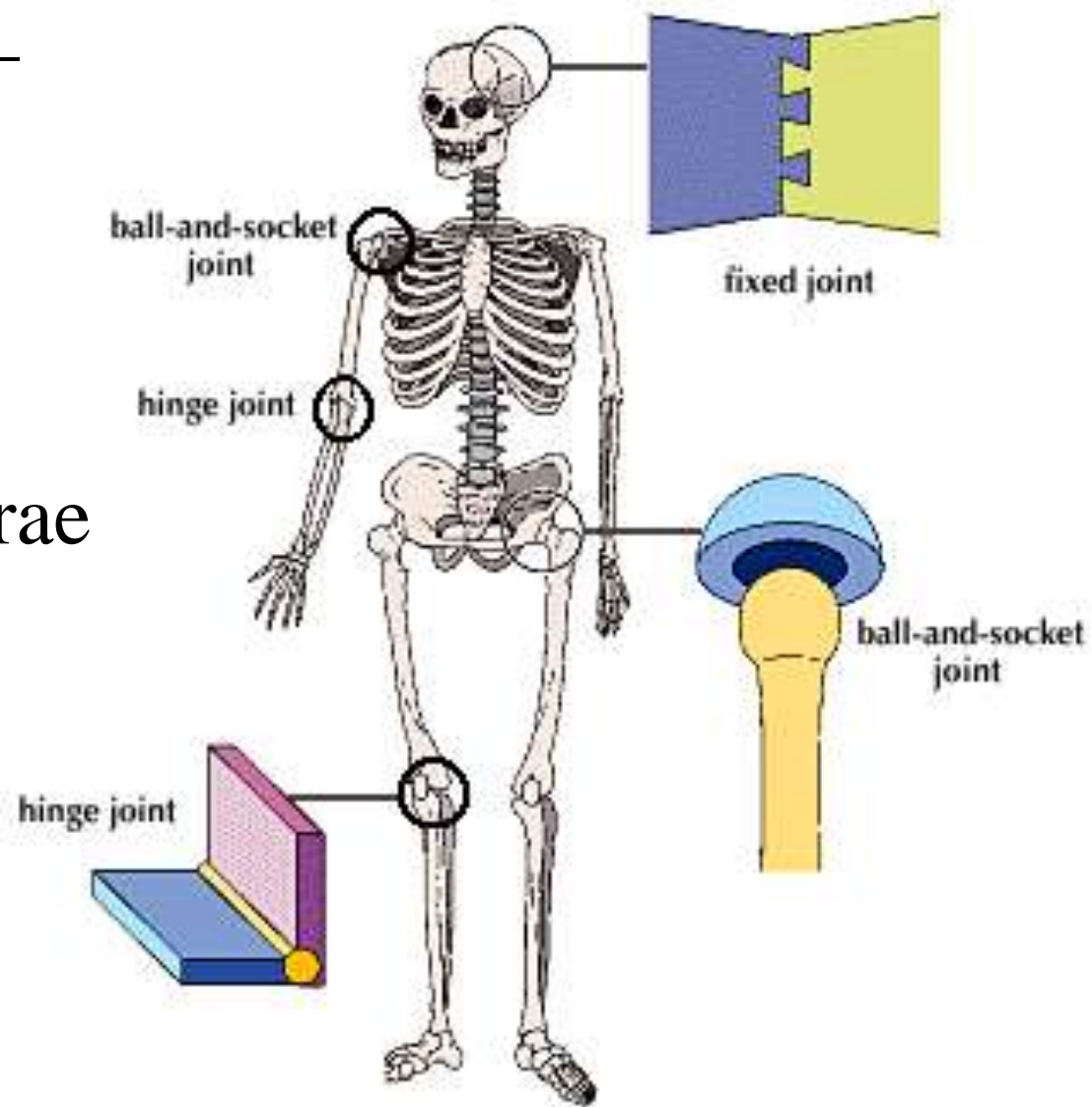


# Cartilage

- Rubbery tissue
- Function
  - Cushion Joints
  - Turns into bone
  - Supports tissue and other bone
- Ligaments - hold bones together

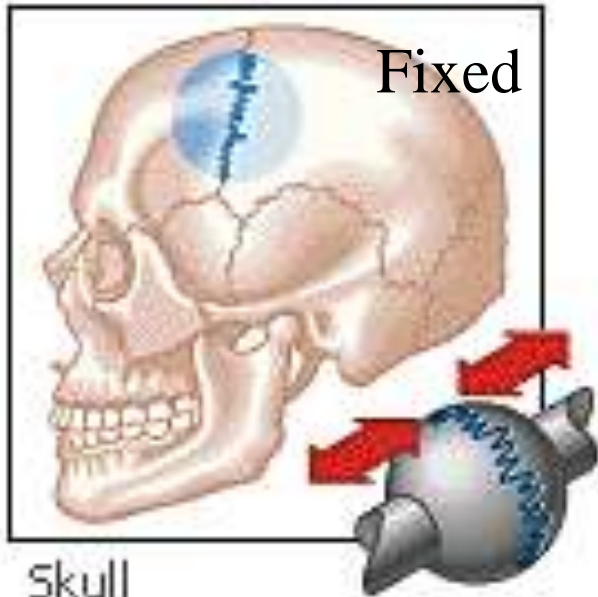
# Types of joints

- Ball and socket – shoulder
- Fixed – skull
- Pivot – radius
- Gliding – vertebrae
- Hinge - knee

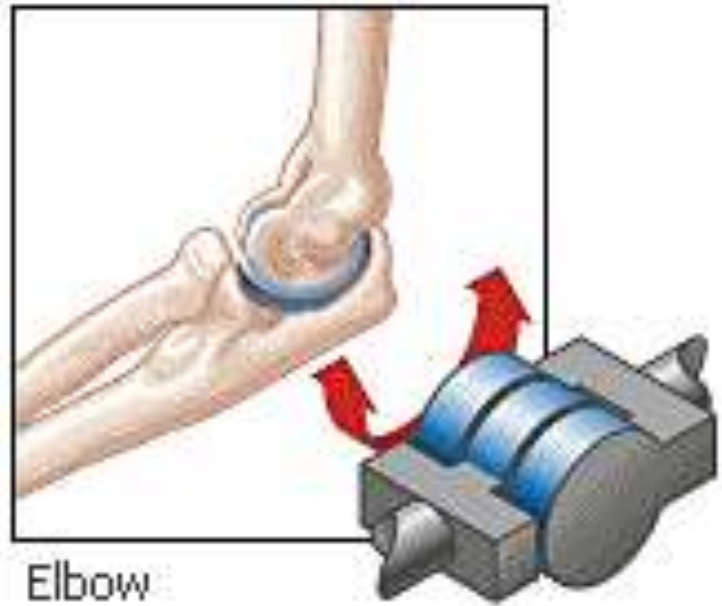




## Suture



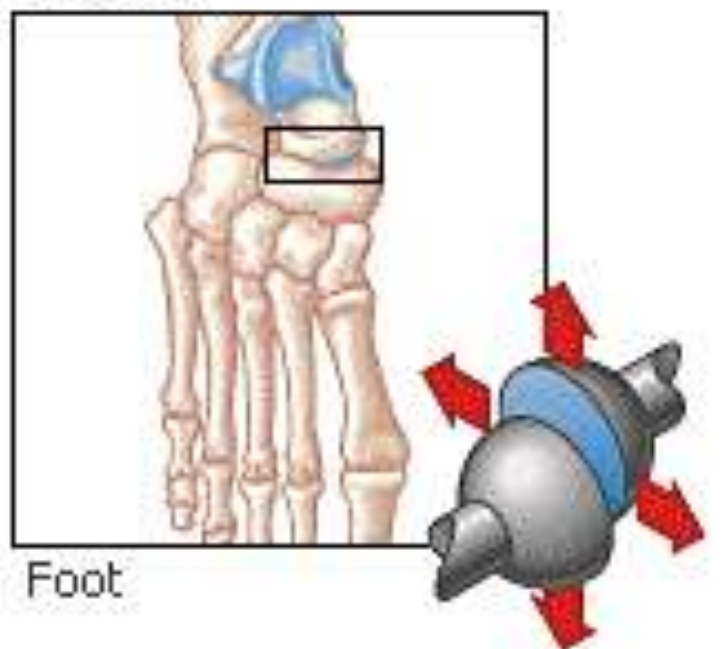
## Hinge



## Ball-and-socket



## Gliding



# The Muscular System



There 630 active muscles  
in your body.

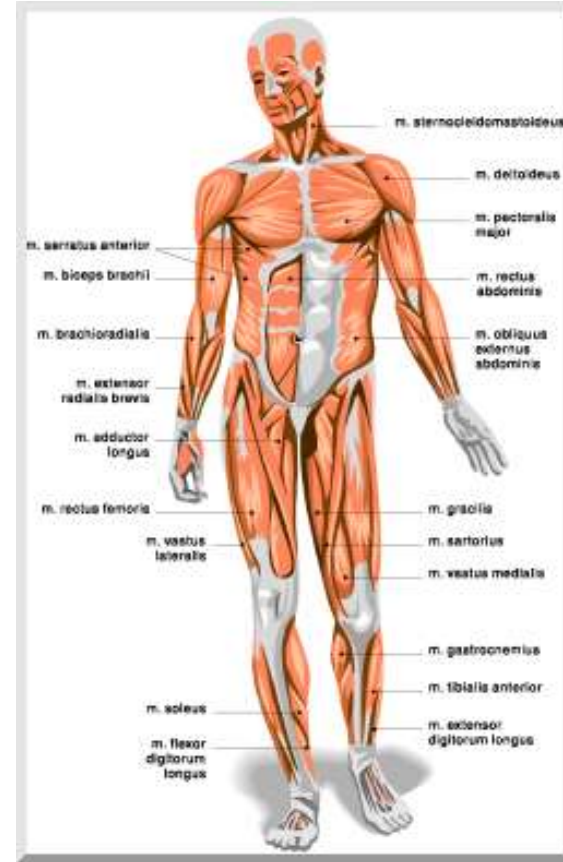
Muscles are bundles of  
cells and fibers.

Muscles tighten up, and  
then they relax.

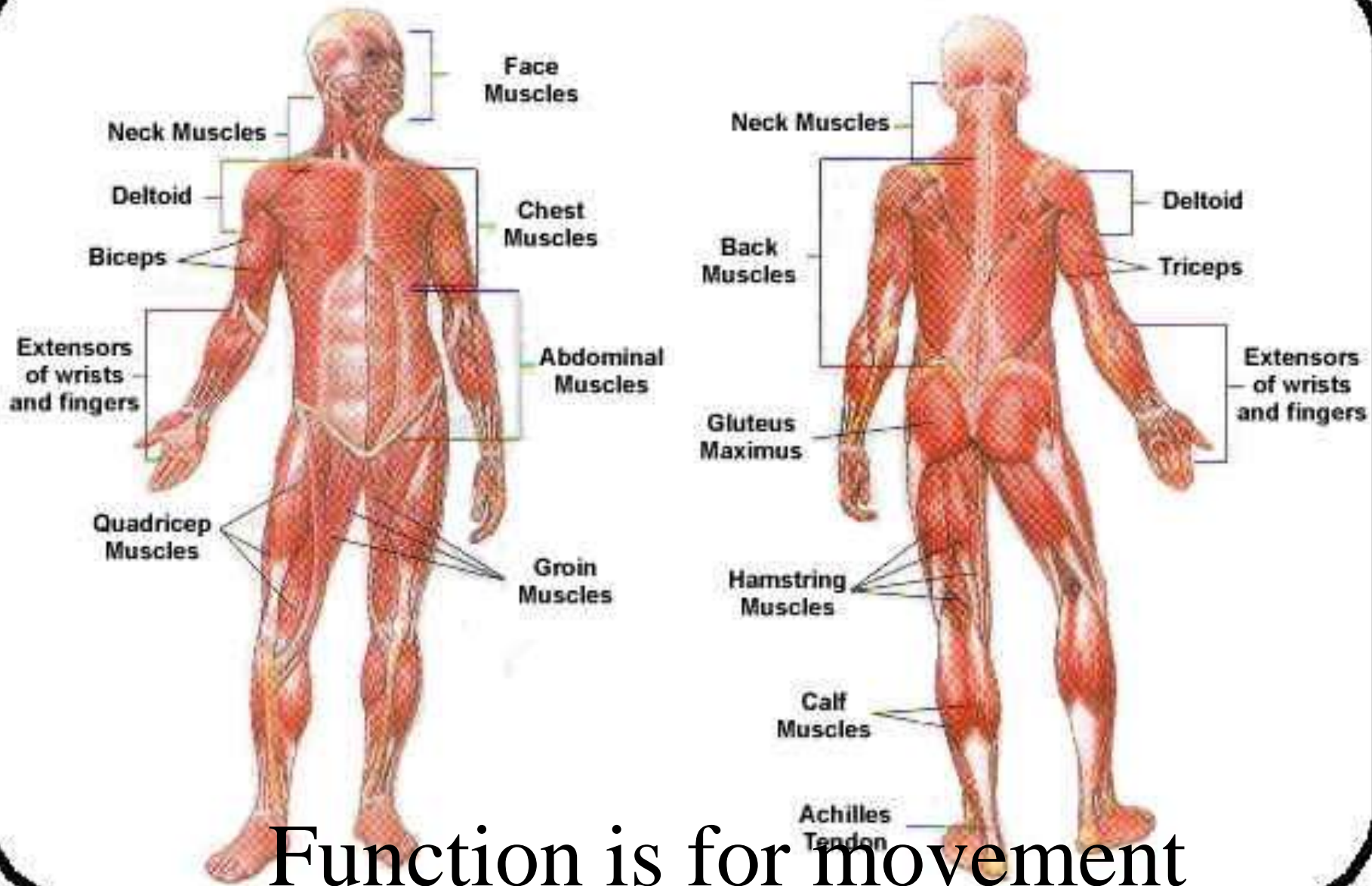
.

# MUSCULAR SYSTEM

- Half our weight is muscle
- Muscles work in a very simple way. All they do is tighten up and relax



# Muscular system



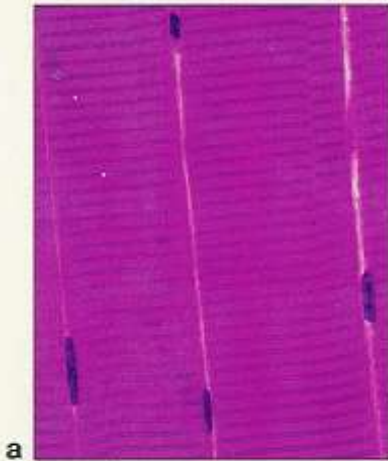
Function is for movement

# Types of muscles

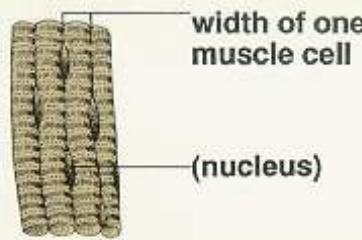
- Voluntary muscles
  - Ones that you consciously control
- Involuntary muscles
  - Can't consciously control

# Three types of muscle tissue

- Skeletal (striated) - moves skeleton
- Smooth (nonstriated) – intestines
- Cardiac (striated) – heart



a

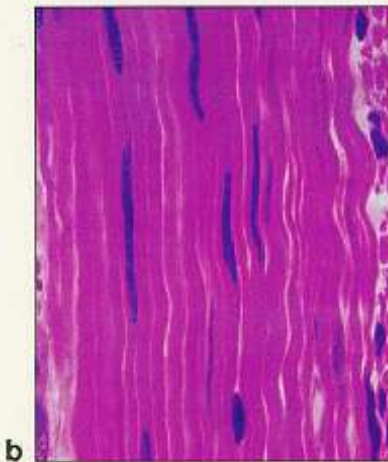


**TYPE:** Skeletal muscle

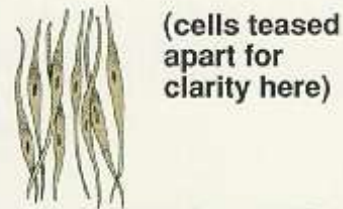
**DESCRIPTION:** Long, striated cells with multiple nuclei

**COMMON LOCATIONS:** In skeletal muscles

**FUNCTION:** Contraction for voluntary movements



b

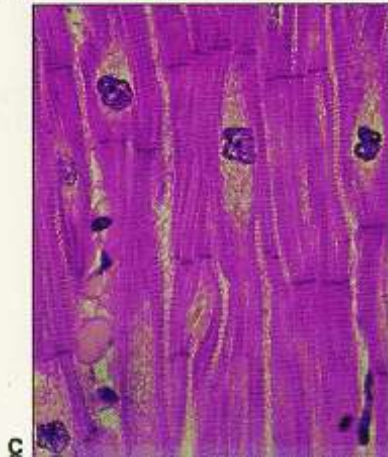


**TYPE:** Smooth muscle

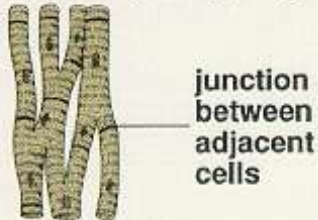
**DESCRIPTION:** Long, spindle-shaped cells, each with a single nucleus

**COMMON LOCATIONS:** In hollow organs (e.g., stomach)

**FUNCTION:** Propulsion of substances along internal passageways



c



**TYPE:** Cardiac muscle

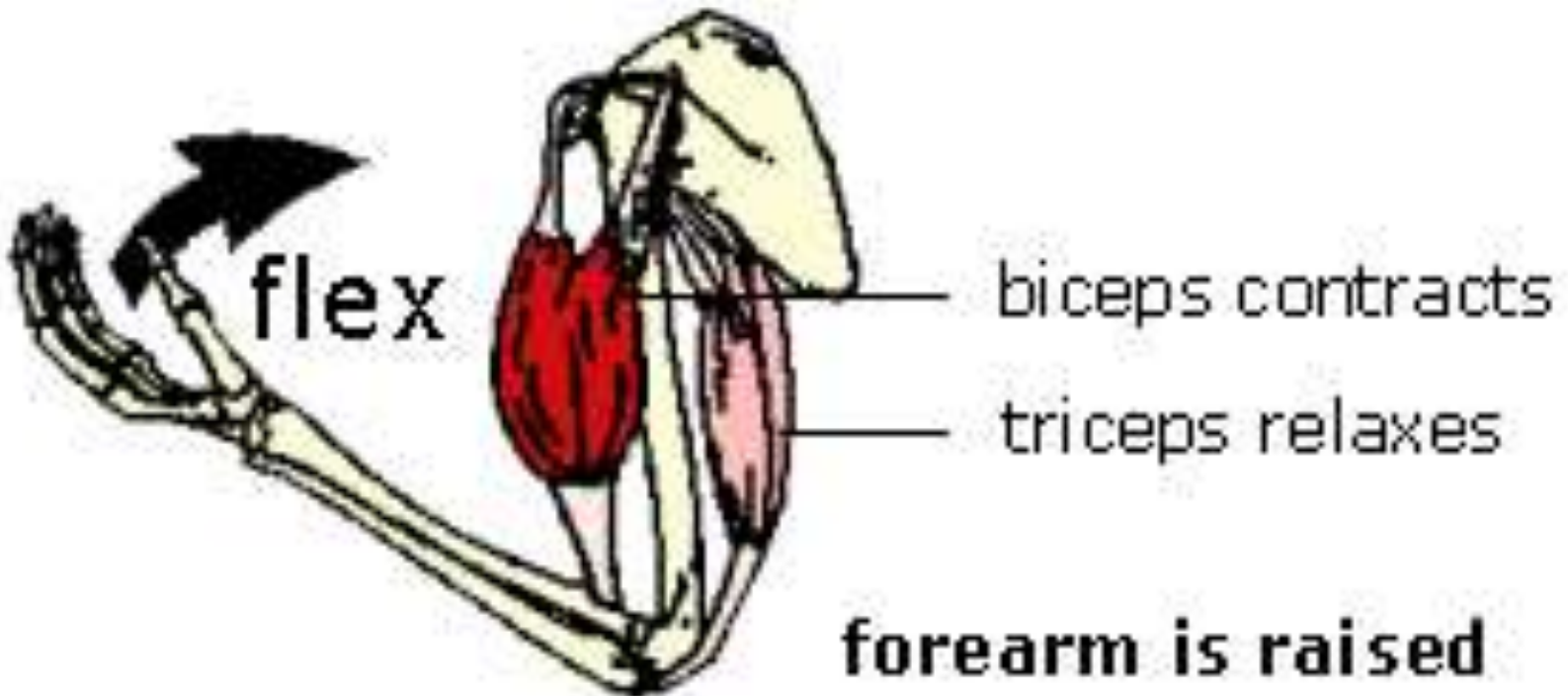
**DESCRIPTION:** Branching, striated cells fused at plasma membranes

**COMMON LOCATIONS:** Wall of heart

**FUNCTION:** Pumping of blood in the circulatory system

# Muscle Use and Development

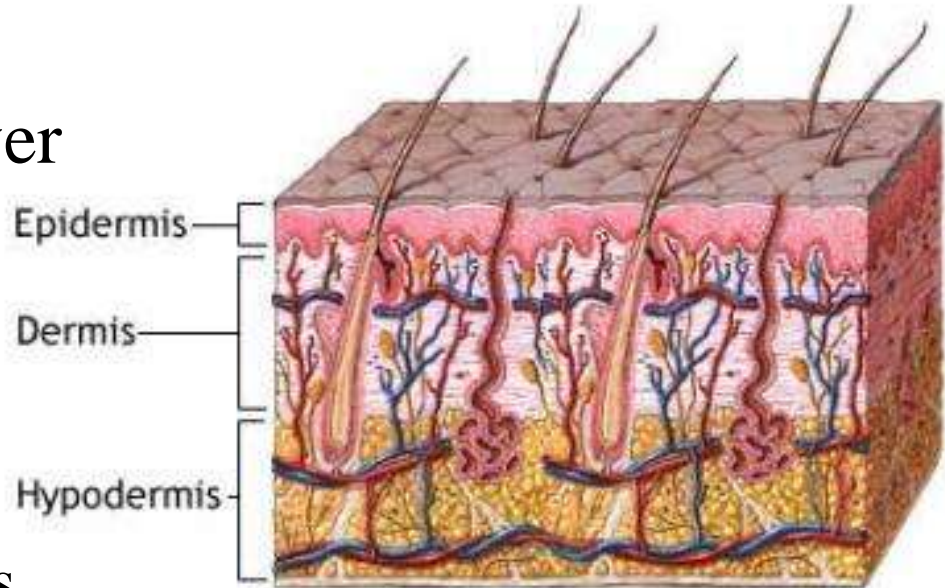
- Antagonistic pairs
- Get stronger by use





# Skin

- Layers
  - Epidermis – outer layer
    - Gives skin color
    - Protects the dermis
  - Dermis
    - Alive
    - Contains sweat glands, hair follicles, blood vessels, oil glands, muscles
  - Hypodermis
    - Fat tissue under the dermis



# Function of the skin

- Protection
  - Excretion
  - Cooling (Temperature)
  - Formation of vitamin D
- Sensory organ