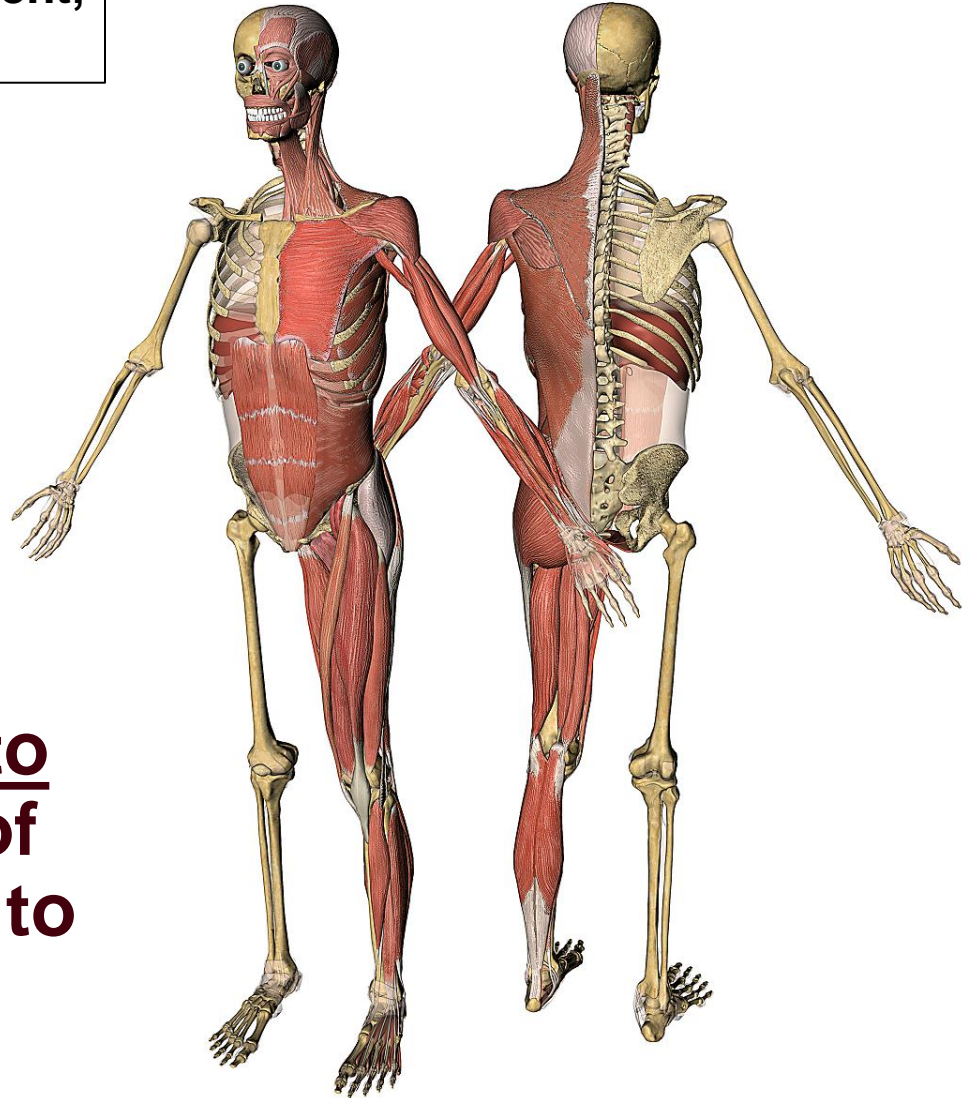


THE MUSCULOSKELETAL SYSTEM

Function(job): provides movement, support and protection in the body.

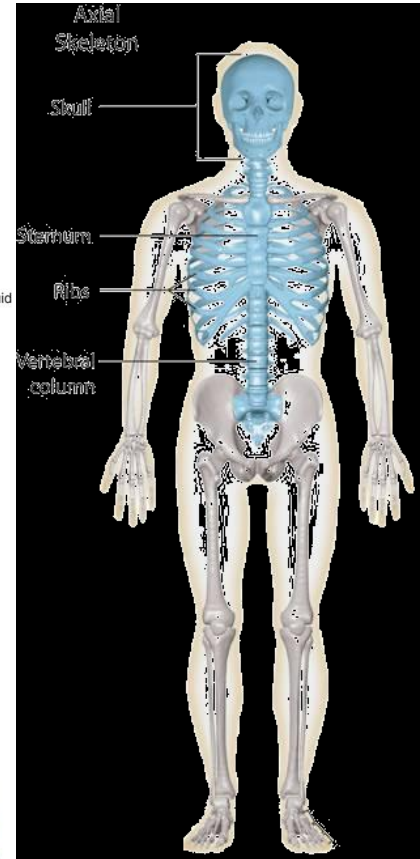
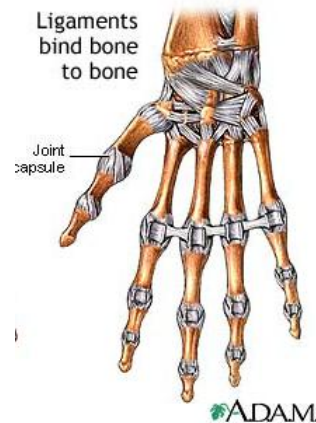
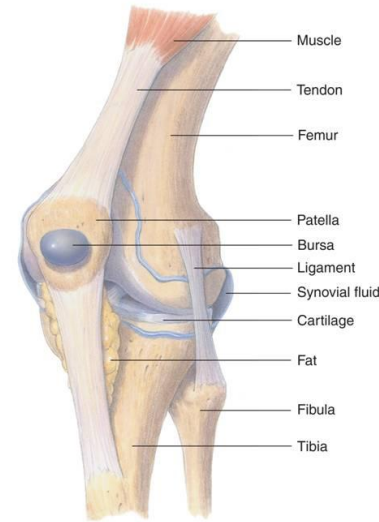
- Our skeleton protects and supports our organs.
- Bones store minerals and are the site of making blood.
- Our muscles allow us to move, and help many of our internal structures to function.



THE SKELETAL SYSTEM

4 main functions:

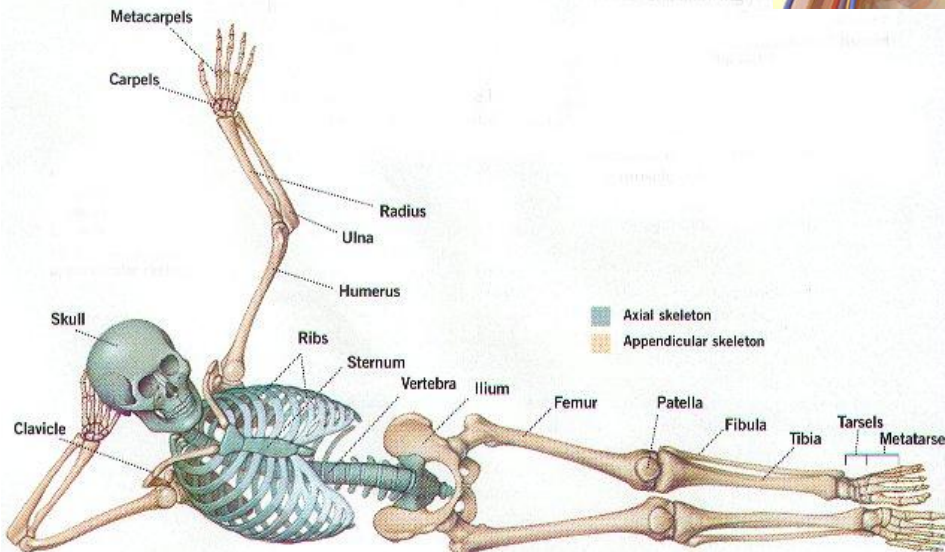
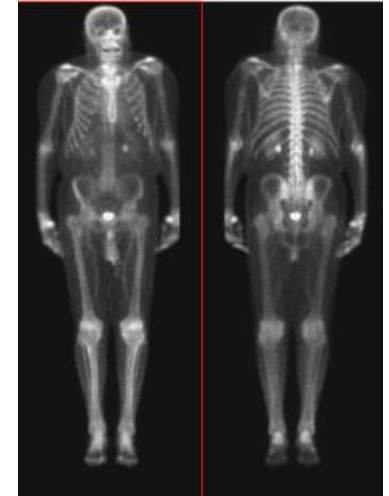
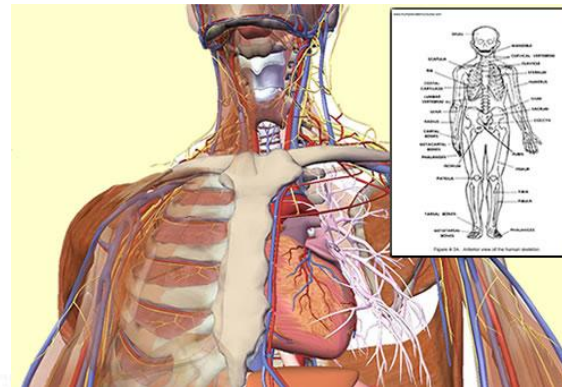
1. Supports the body
2. Protects internal organs
3. Provides for movement with the help of muscles
4. Provides a site for blood cell formation



THE SKELETAL SYSTEM

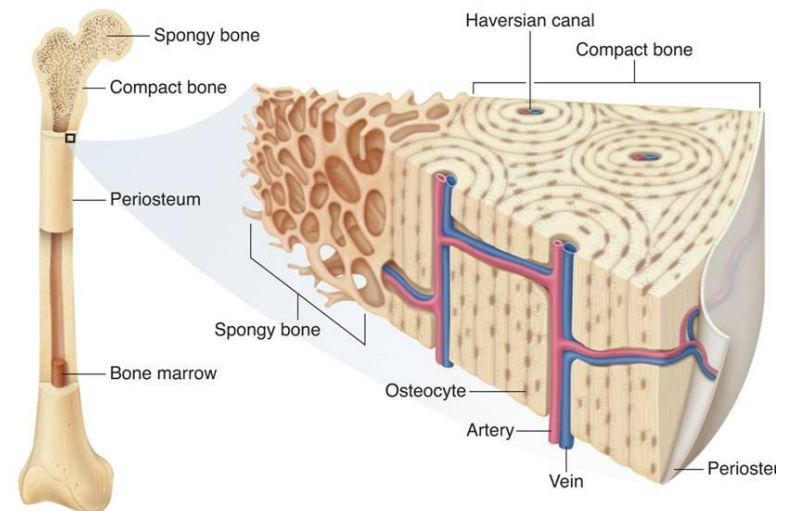
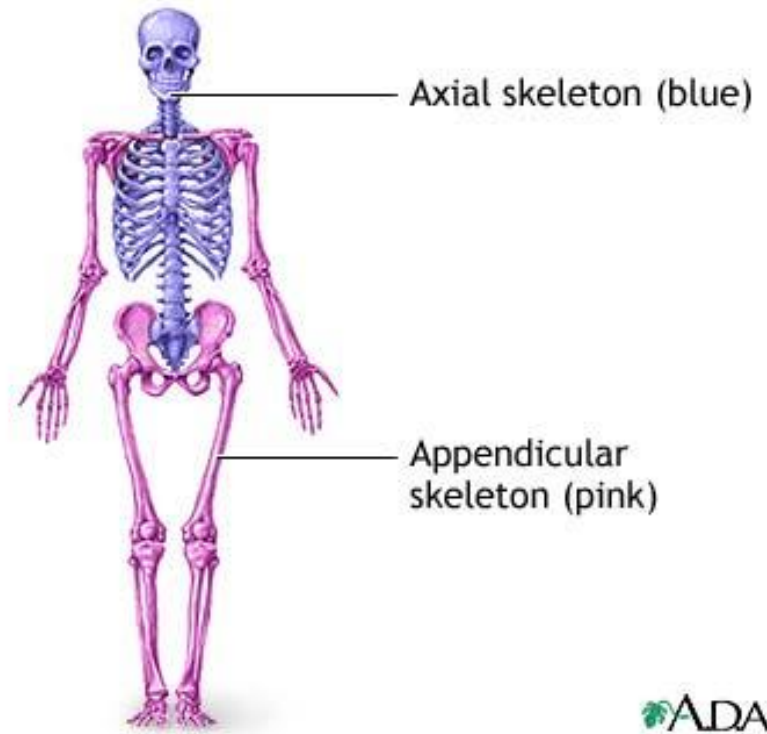
The skeletal system is made up of:

1. Bones
2. Cartilage
3. Ligaments



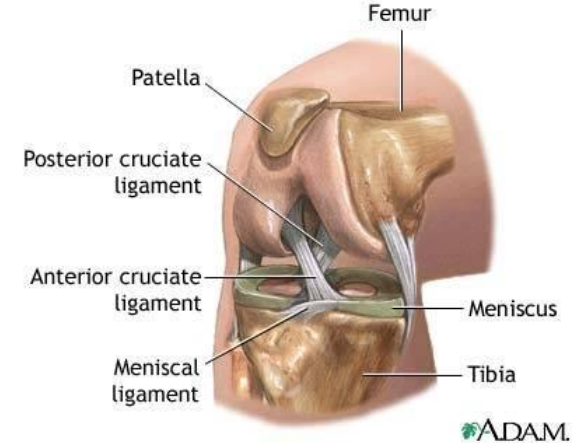
BONES

- Human body has 206 bones.
- Skeleton has 2 main parts:
 - Axial (skull, vertebrae, rib cage)
 - Appendicular (arms, legs, pelvis, shoulders)
- Bones are living cells – they have canals in them, with blood vessels and nerves.
- Bone marrow soft tissue found in cavities in the bone
 - red bone marrow = makes red blood cells, some white blood cells and platelets.
 - yellow bone marrow = made up of fat cells



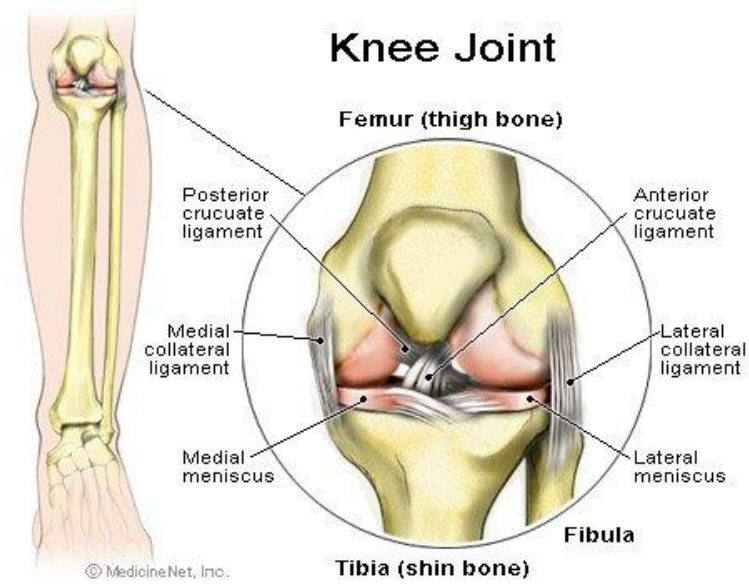
CARTILAGE & LIGAMENTS

- **Cartilage** is a connective tissue that is like soft bone.
- found in the ear, nose
- found between bones in joints.
- Embryo skeleton is almost all cartilage – ossifies (replaced by bone) as they develop.

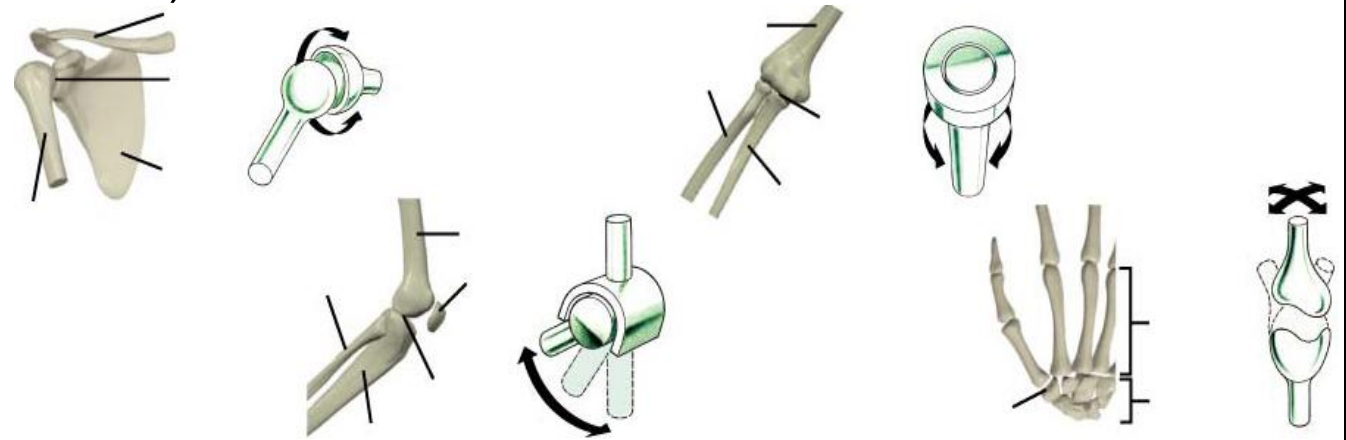


CARTILAGE & LIGAMENTS

- **Ligaments** are strips of tough connective tissue (group of cells) that connect bone to bone.
- **Joints**: where bone attaches to bone.



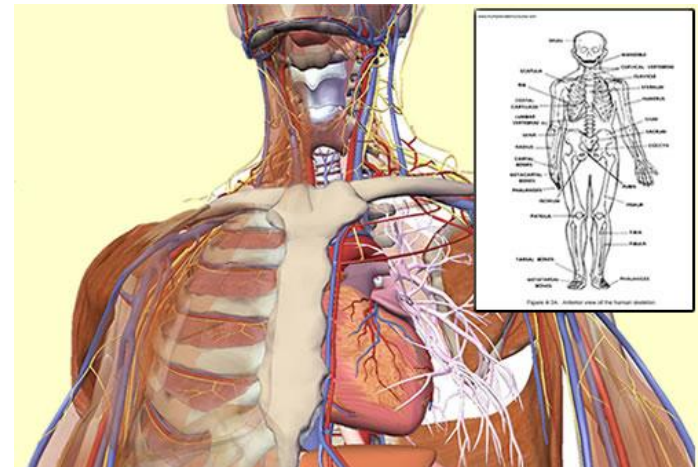
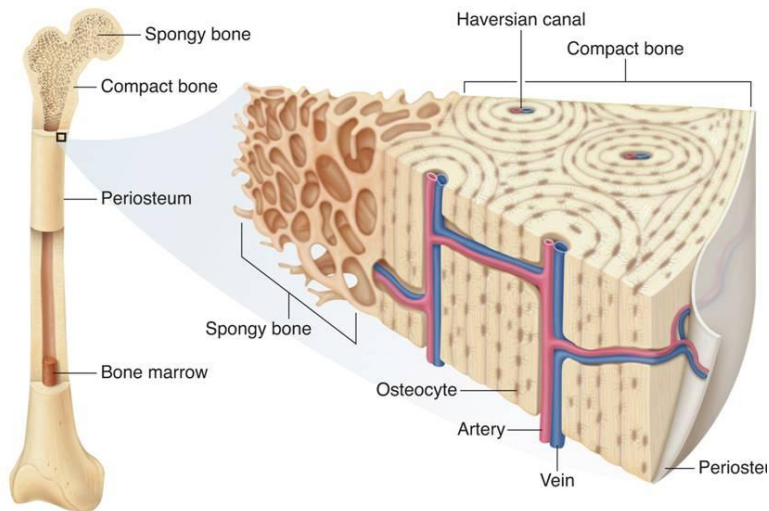
- Hinge (knee)
- Ball and socket (shoulder)
- Pivot (elbow)
- Saddle (hand)



WHAT OTHER BODY SYSTEMS DOES THE SKELETAL SYSTEM WORK WITH ?

1. _____

2. _____

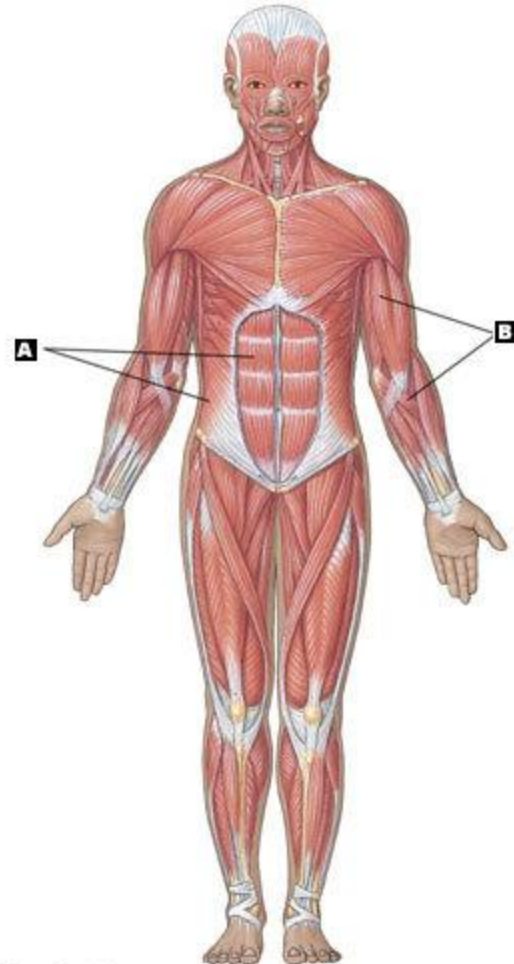


THE MUSCULAR SYSTEM

Main function:

1. Provides for movement.

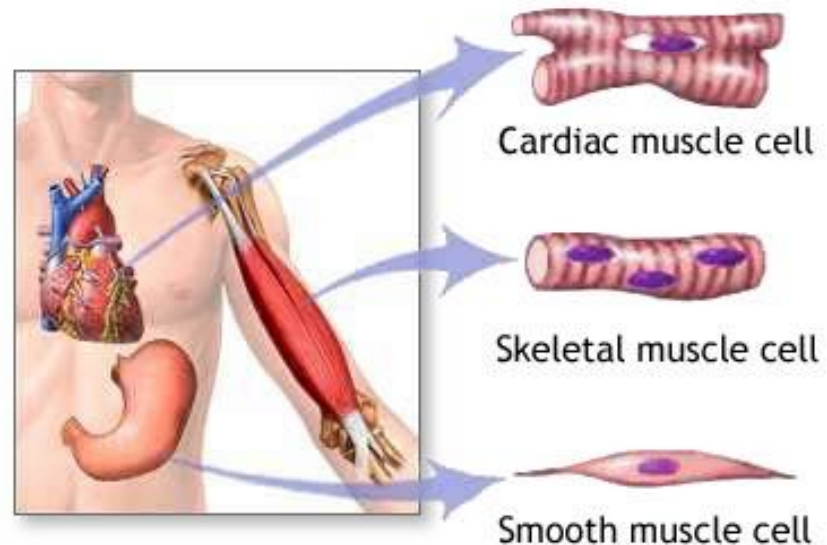
Skeletons cannot move on their own – muscles provide movement.



THE MUSCULAR SYSTEM

The muscular system is made up of 3 types of tissue:

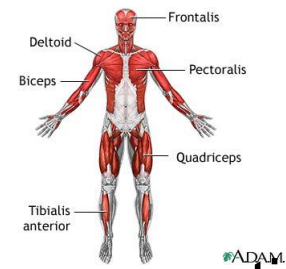
1. Skeletal muscle
2. Smooth muscle
3. Cardiac muscle



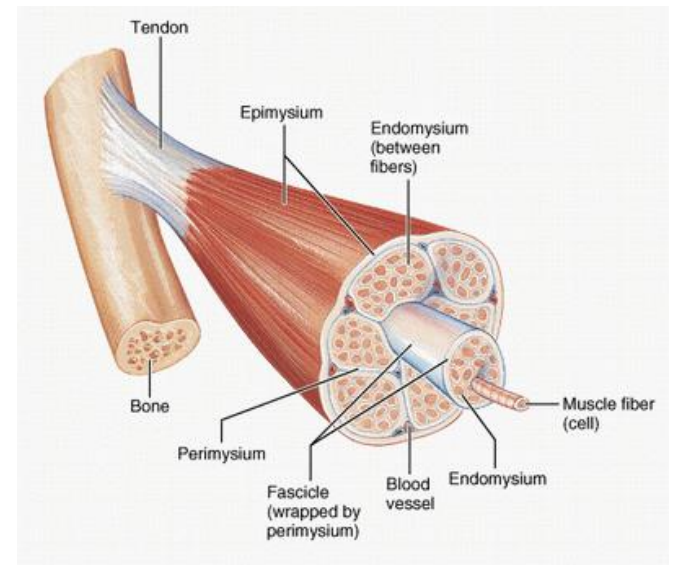
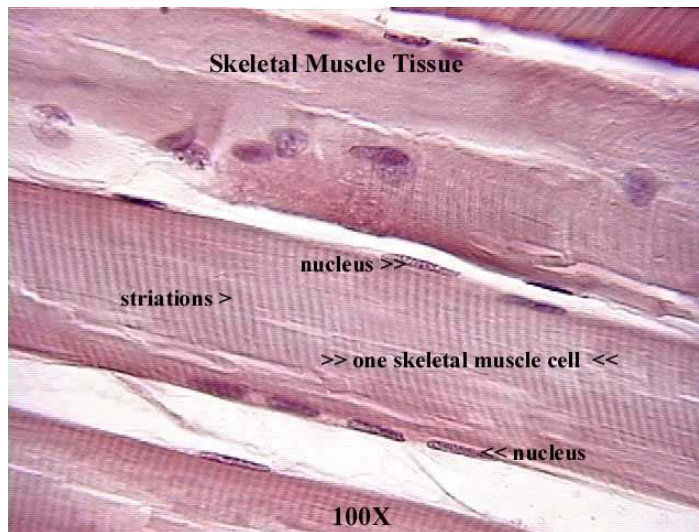
TYPES OF MUSCLE CELLS

	Skeletal	Smooth	Cardiac
Function			
Location			
Nuclei			
Striation (striped)?			
Contraction type			
Example			

SKELETAL MUSCLE

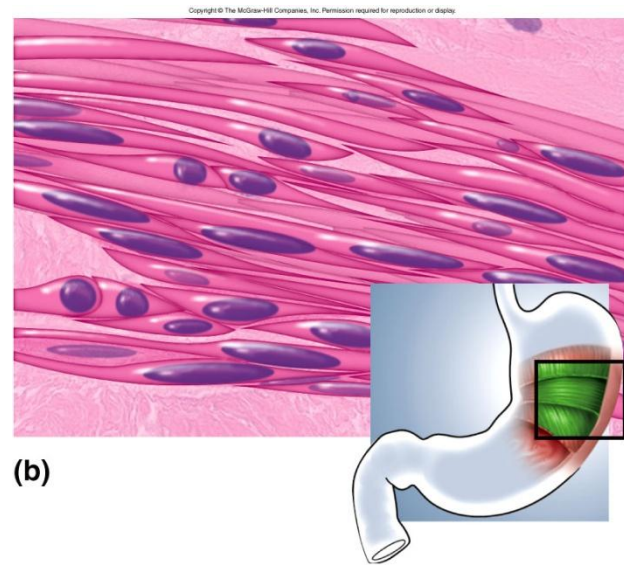
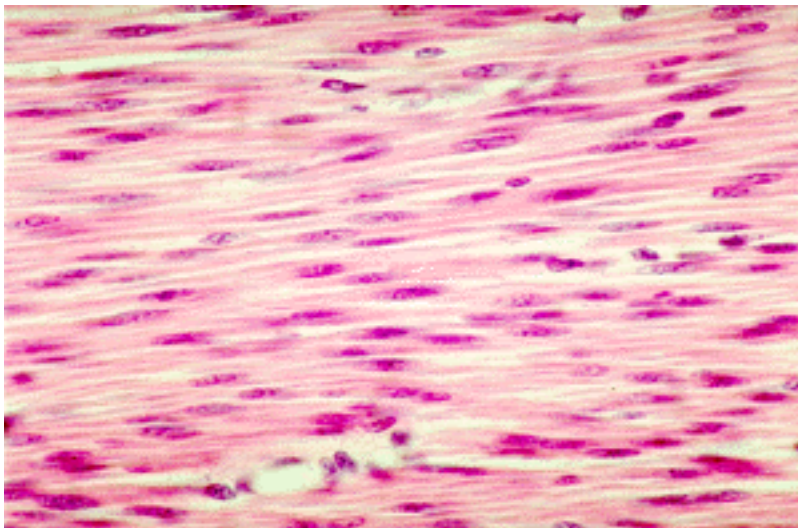


- Skeletal muscles are attached to the bone by connective tissues called tendons
- They are responsible for voluntary movement
- Skeletal muscles are striated (alternating light and dark bands)
- Skeletal muscle cells are large, have many nuclei, and vary in size.



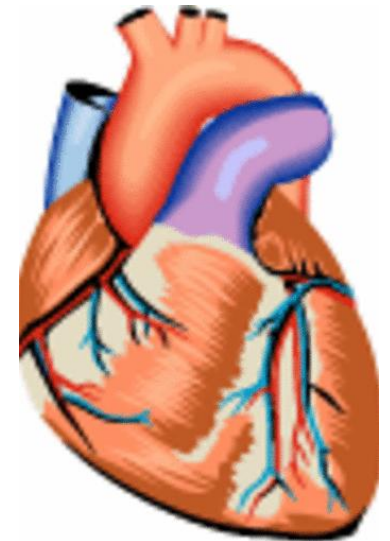
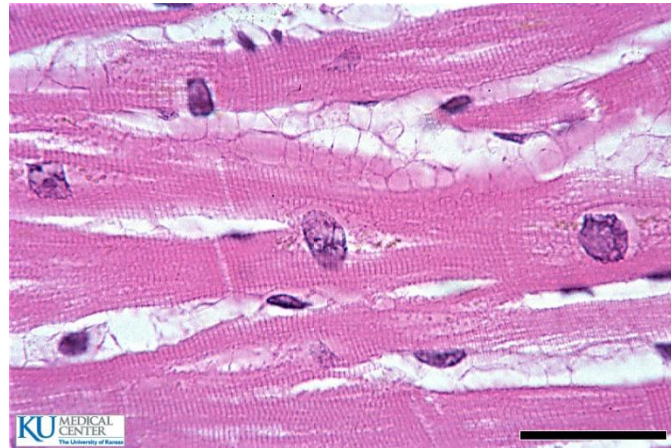
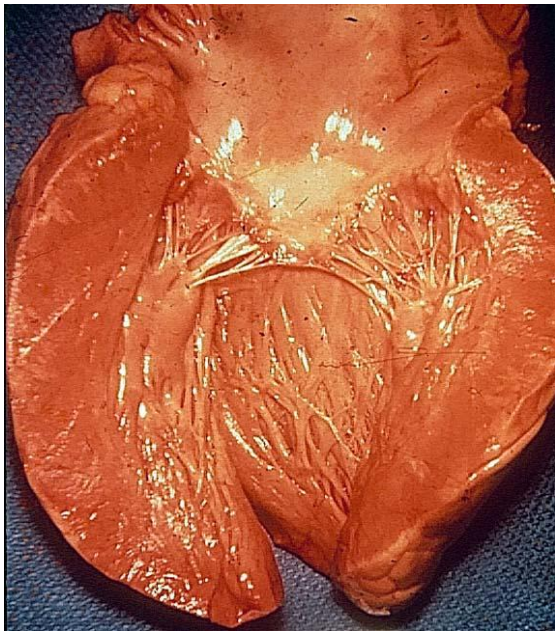
SMOOTH MUSCLE

- Smooth muscles are **not** under voluntary control (involuntary)
- Most of your organs are made out of smooth muscle
 - Smooth muscles move food through your digestive system.
 - They also control blood flow through your circulatory system
- Smooth muscle cells are spindle-shaped, have 1 nucleus, and are NOT striated



CARDIAC MUSCLE

- Cardiac muscles make up the heart
- Cardiac muscles is usually not under voluntary control (involuntary)
- Cardiac muscle cells are striated and usually only have 1 nucleus



TYPES OF MUSCLE CELLS

	Skeletal	Smooth	Cardiac
Function	Movement	Internal movement, control	Pump heart
Location	Attached to bone (tendons)	Organs, lining	Heart
Nuclei	Many	One	One
Striated (striped)?	Yes	No	Yes
Contraction type	Voluntary	Involuntary	Involuntary
Example	Tendons	Esophagus (peristalsis)	Myocardium (heart muscle)