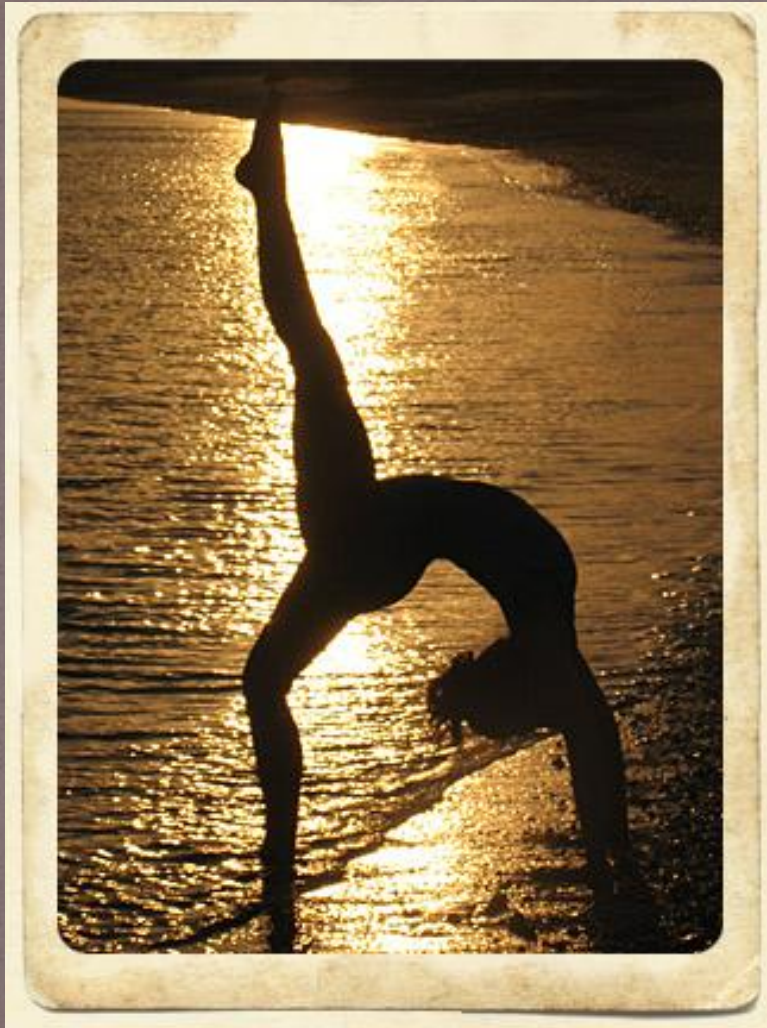
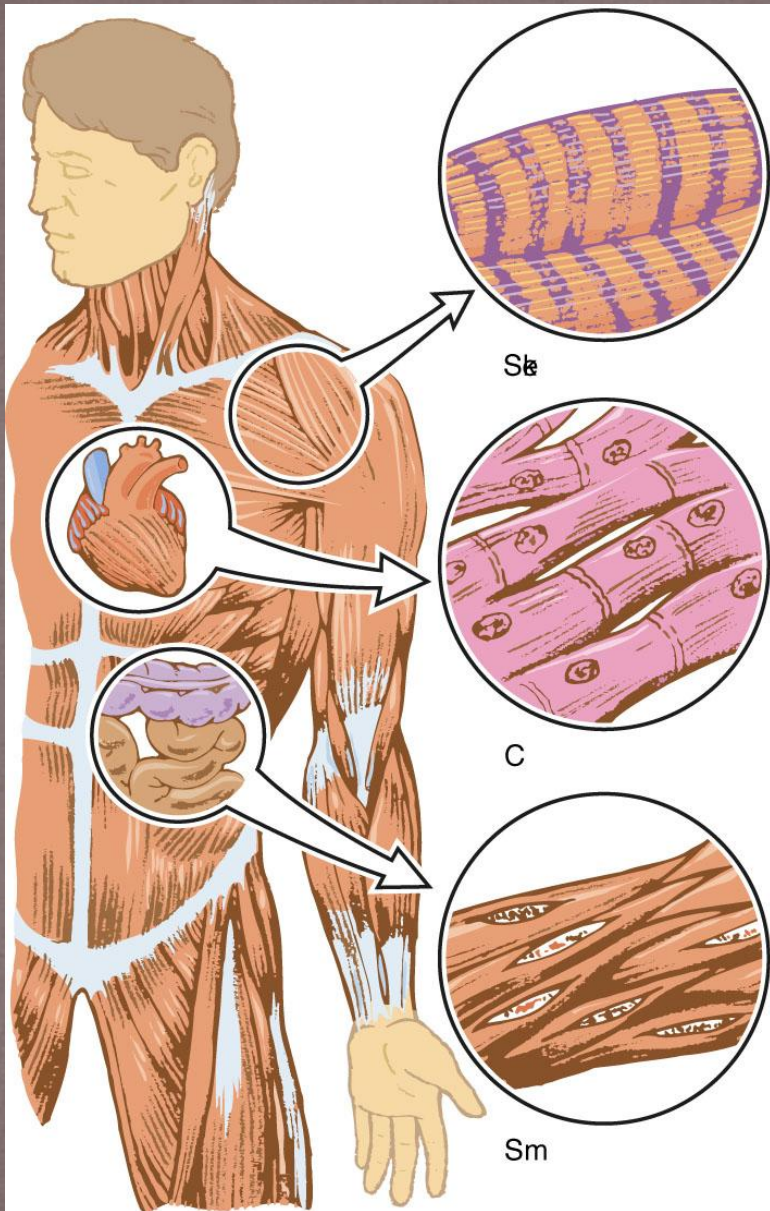


muscle introduction notes

MMHS

Anatomy and Physiology





General Characteristics

- 600 muscles in the human body
- Makes up 40% of the body weight
- 3 main types that make up the human body
- Viewed as “the machines” of the body
- Prefixes associated with muscles
 - myo- and mys- = “muscle”
 - Sarco = “Flesh”
 - Globin = “protein”

Muscle Properties

- Muscles can only contract or shorten.
- Muscles can't PUSH, they only PULL.
- Muscles occur in opposing pairs.
 - Prime Mover: causes the main movement.
 - Antagonist: opposes or reverses a movement.

Example: The **Prime Mover** is the *biceps brachii* and the **Antagonist** is the *triceps brachii*.

- Body building adds very little new muscle but instead adds filaments and fluid.

(these additions make muscles work more efficiently).

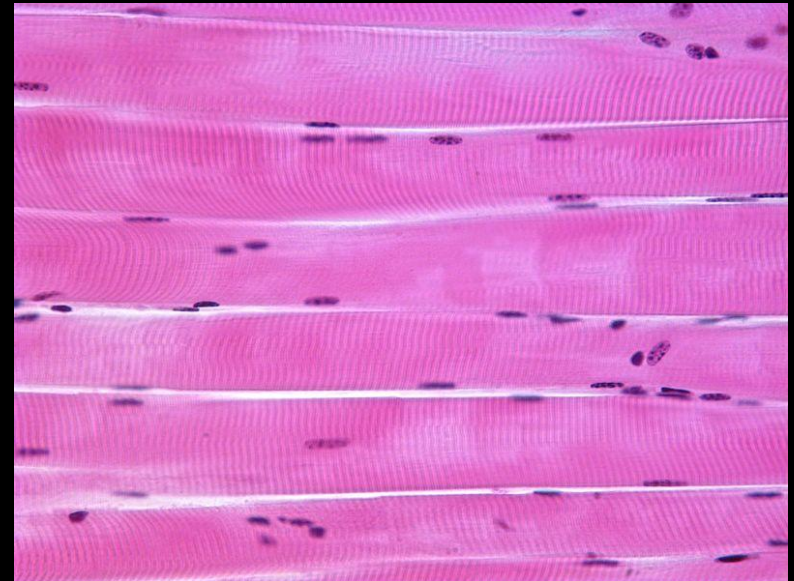
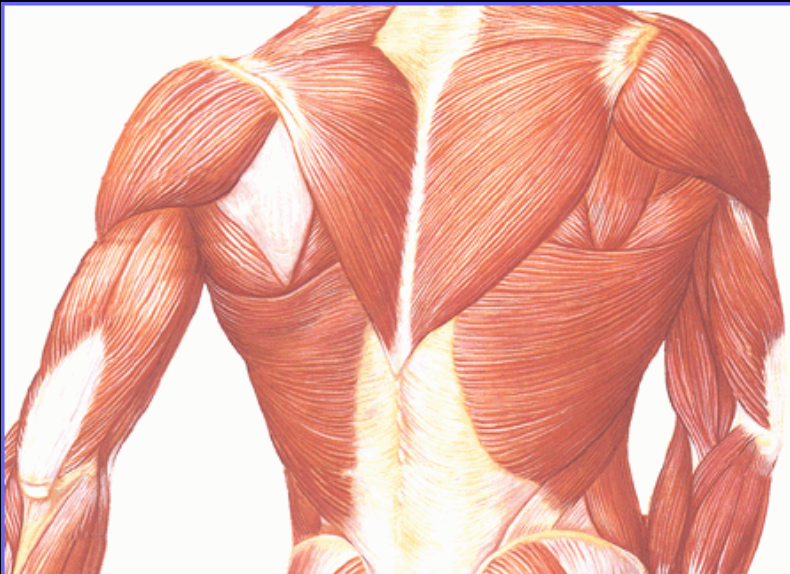
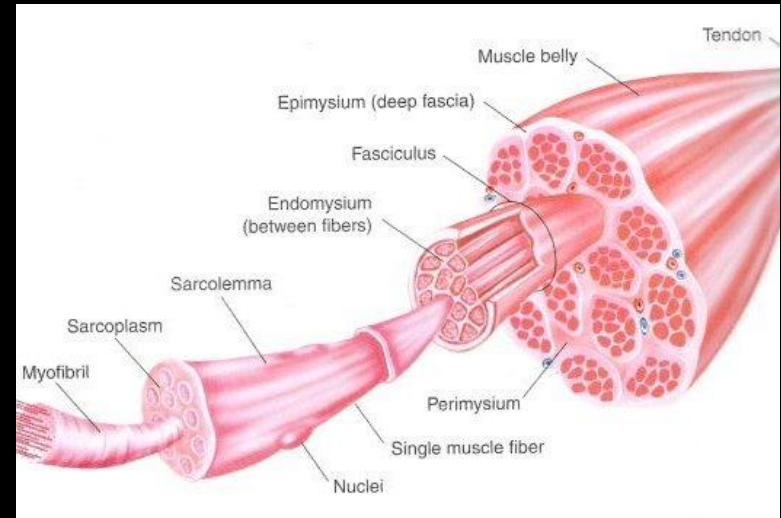
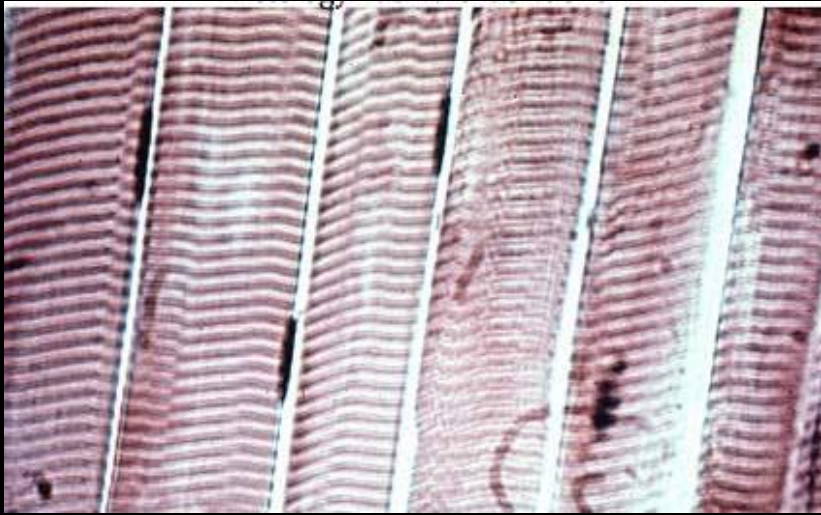
The 3 Types of Muscle

1. Skeletal or Striated Muscle

- a) Long and cylindrical with many nuclei (=multinucleate)
- b) Under both Voluntary and Involuntary Movement
- Tendons attach muscle to bone at 2 points.
 - a) Origin: stationary muscle point (anchor)
 - b) Insertion: movable attachment point
- Skeletal Muscles occur in pairs that have opposing motion.
 - a) Flexors: decrease the angle between parts.
 - b) Extensors: increase the angle between parts.

Example: The *biceps brachii* is the flexor and the *triceps brachii* is the extensor.

Skeletal Muscle



Muscle Properties

4 Main Properties of Skeletal Muscles

1. Contractibility: shorten with force.
2. Elasticity: will return to its original form.
3. Excitability: responds to a stimulus (nerve)
4. Extensibility: can be stretched.

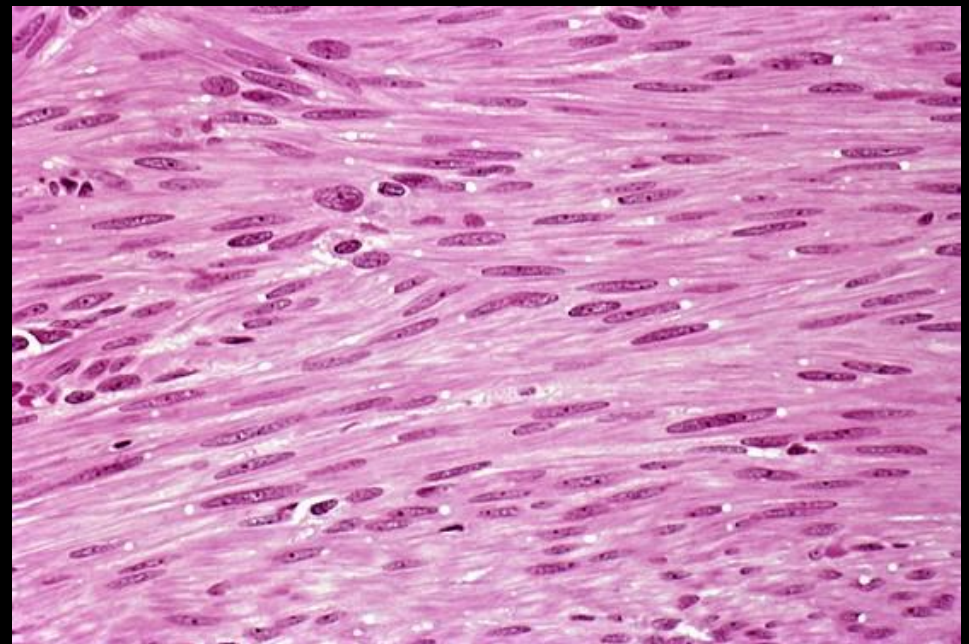
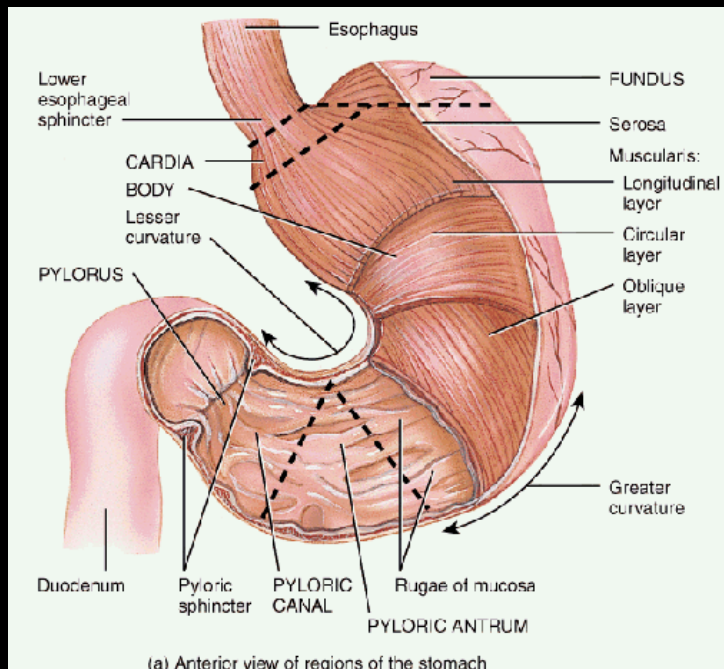
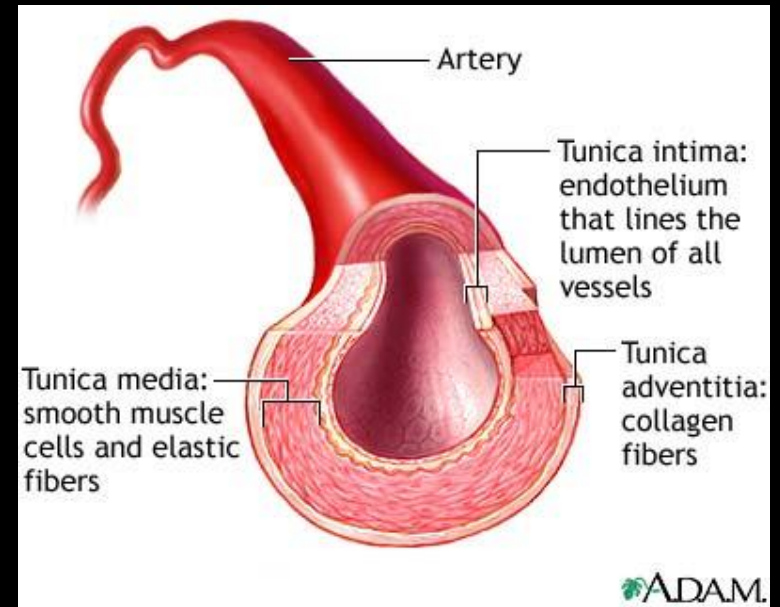
3 Types of Muscles

2. Smooth Muscle

- a. Spindle-shaped with 1 nucleus (uninucleate)
- b. Involuntary Movement
- c. Located in digestive, urinary tracts, and vascular system.

Peristalsis: the term for the rhythmic, synchronized contraction of smooth muscle.

Skeletal Muscle

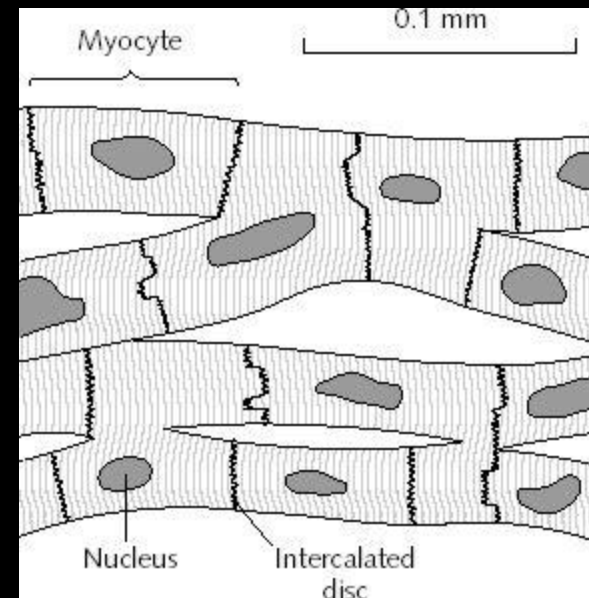
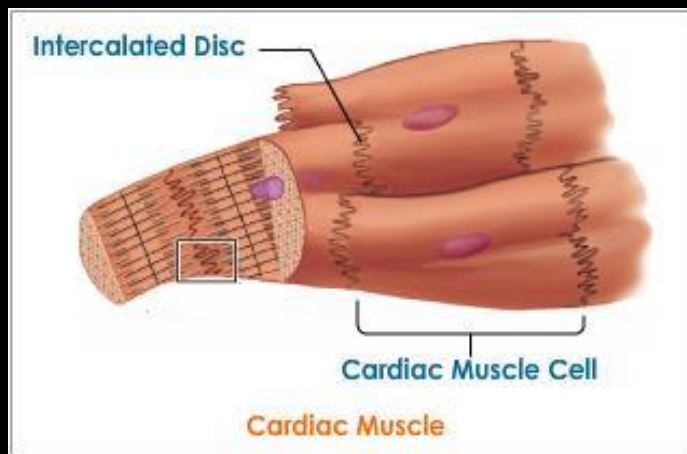
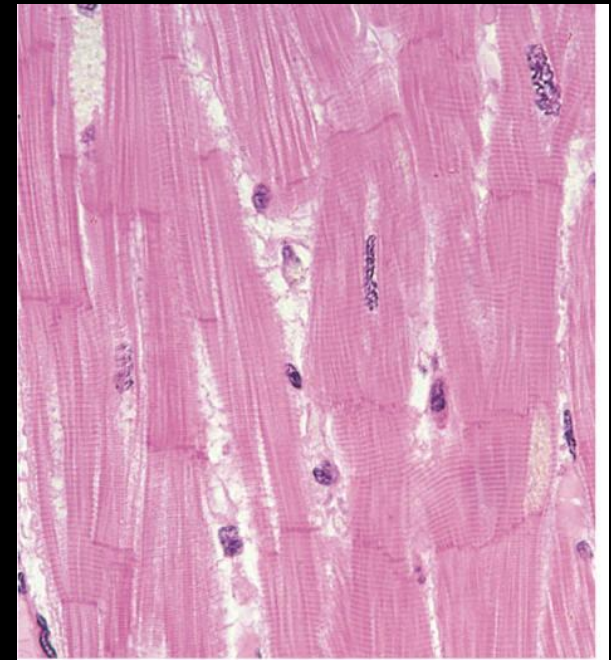
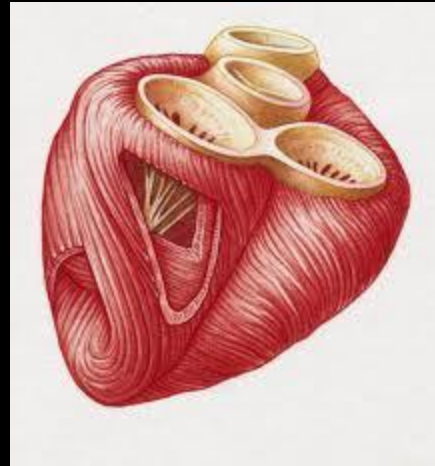
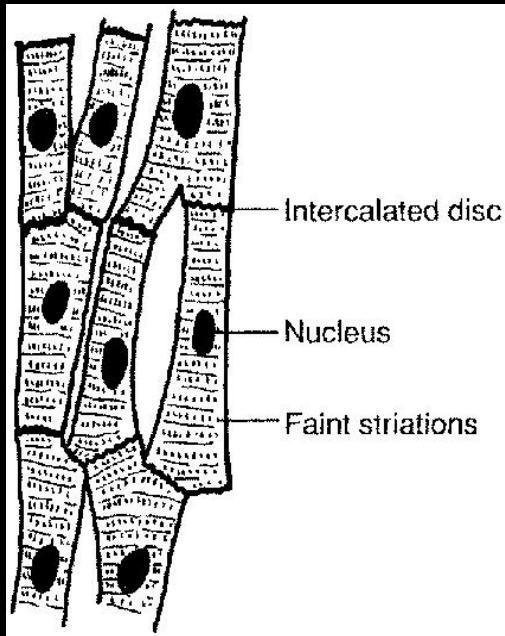


3 Types of muscle

3. Cardiac or Myocardium

- a) Found only in heart tissue.
- b) Striated with 1 nucleus and intercalated discs.
- c) Involuntary (about 86,400 beats/day)
- d) Pacemakers (SA node of right atrium) artificially controls the rhythm of the heart.

Cardiac Muscle



The Beauty of Human Movement



YOGA



The Beauty of Human Movement



Capoeira

The Beauty of Human Movement



Capoeira



The Beauty of Human Movement



Surfing



The Beauty of Human Movement

