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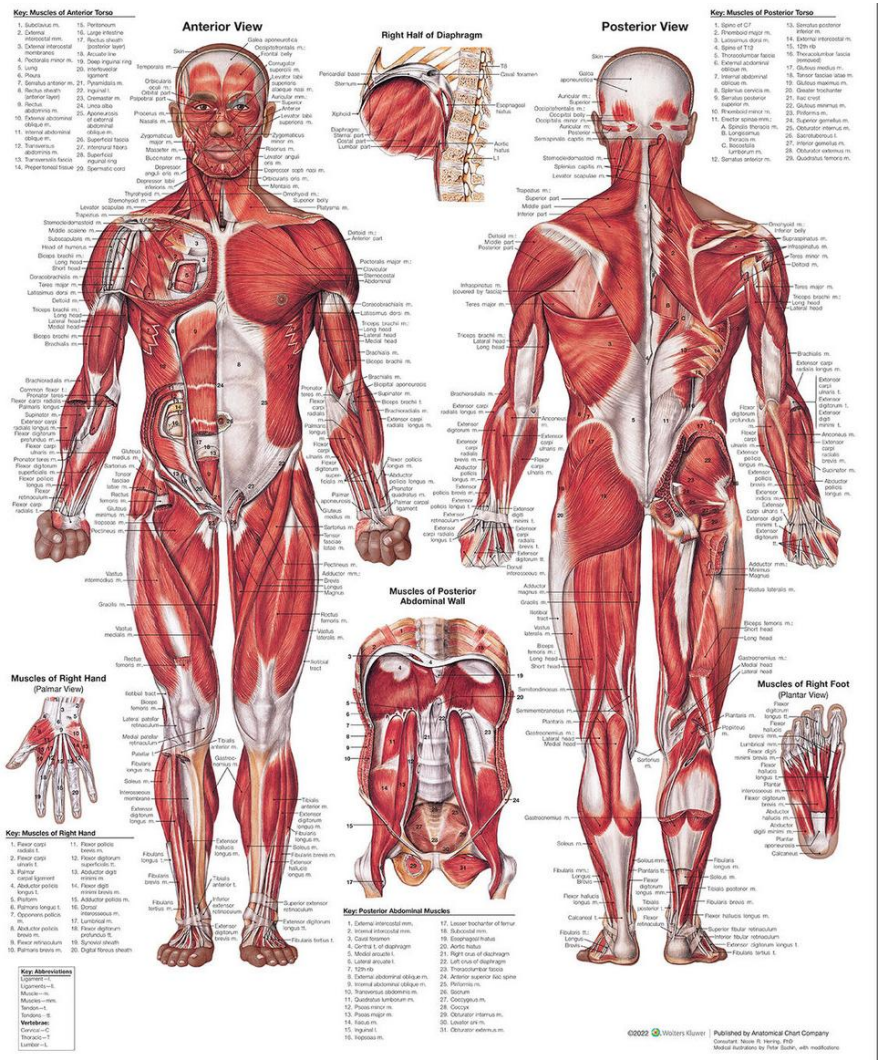
Muscular System Lab.

Human Anatomy Lab Fall Semester

Week No. 4

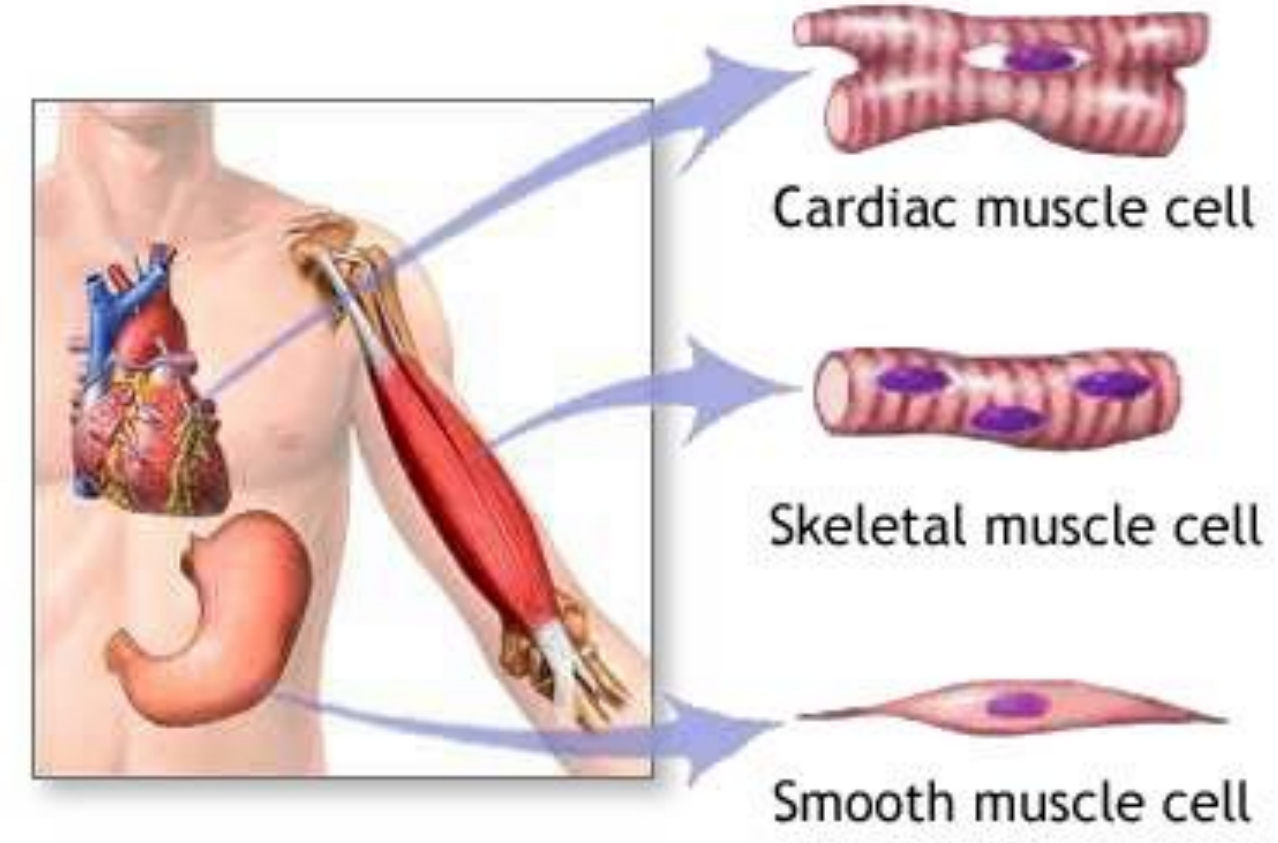
How do skeletal muscles get their names?

1. Location
2. Function
3. Shape
4. Size
5. Direction
6. Number of origins
7. Location of origin and insertion



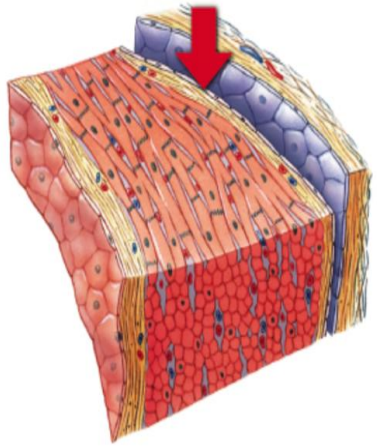
- However,
- ***not all muscles are named by the above methods!***

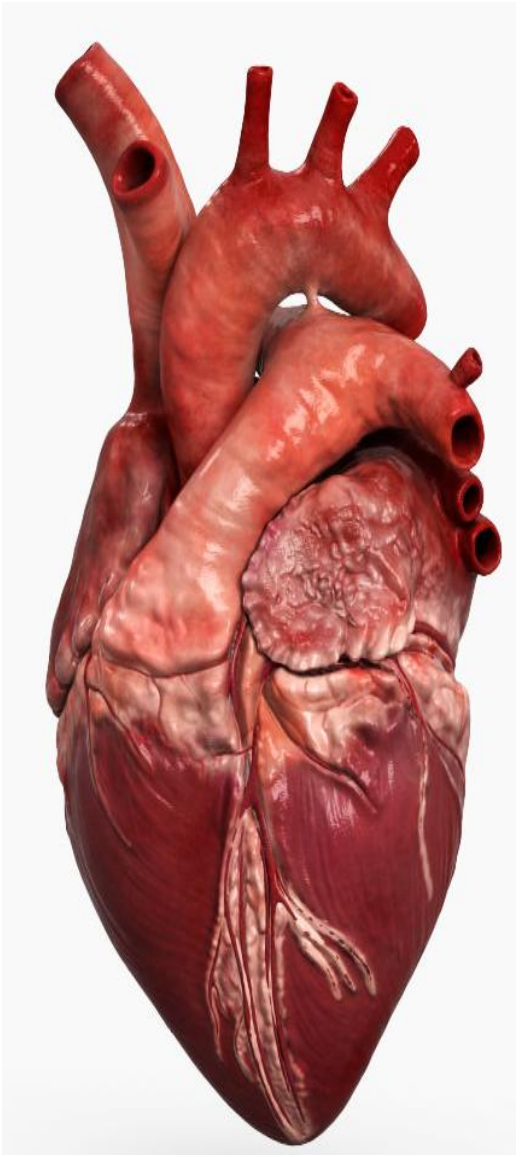
Types of Muscle Tissue:



Types of Muscle Tissue:

1.Cardiac



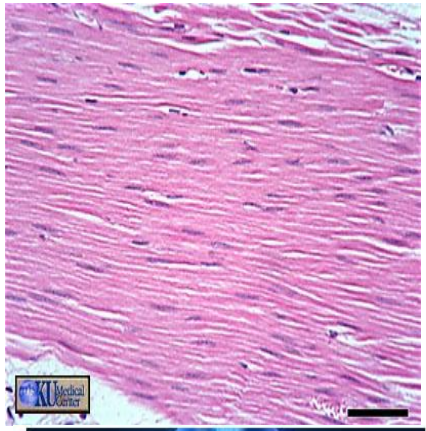


- Form walls of heart
- Contract to circulate blood
- Involuntary: function without conscious thought or control

Types of Muscle Tissue:

2. Visceral (Smooth)

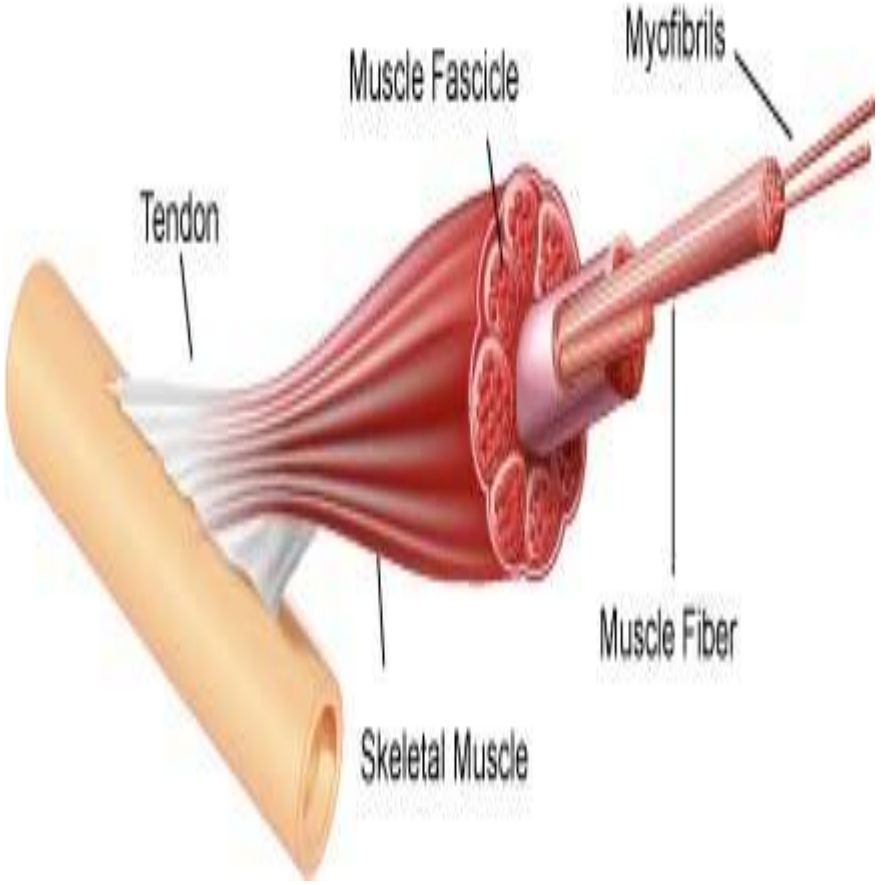
- Found in the **internal organs of the body** such as the digestive system, respiratory system, blood vessels, and eyes.
- Contract to cause movement in these systems
- **Involuntary**: function without conscious thought or control



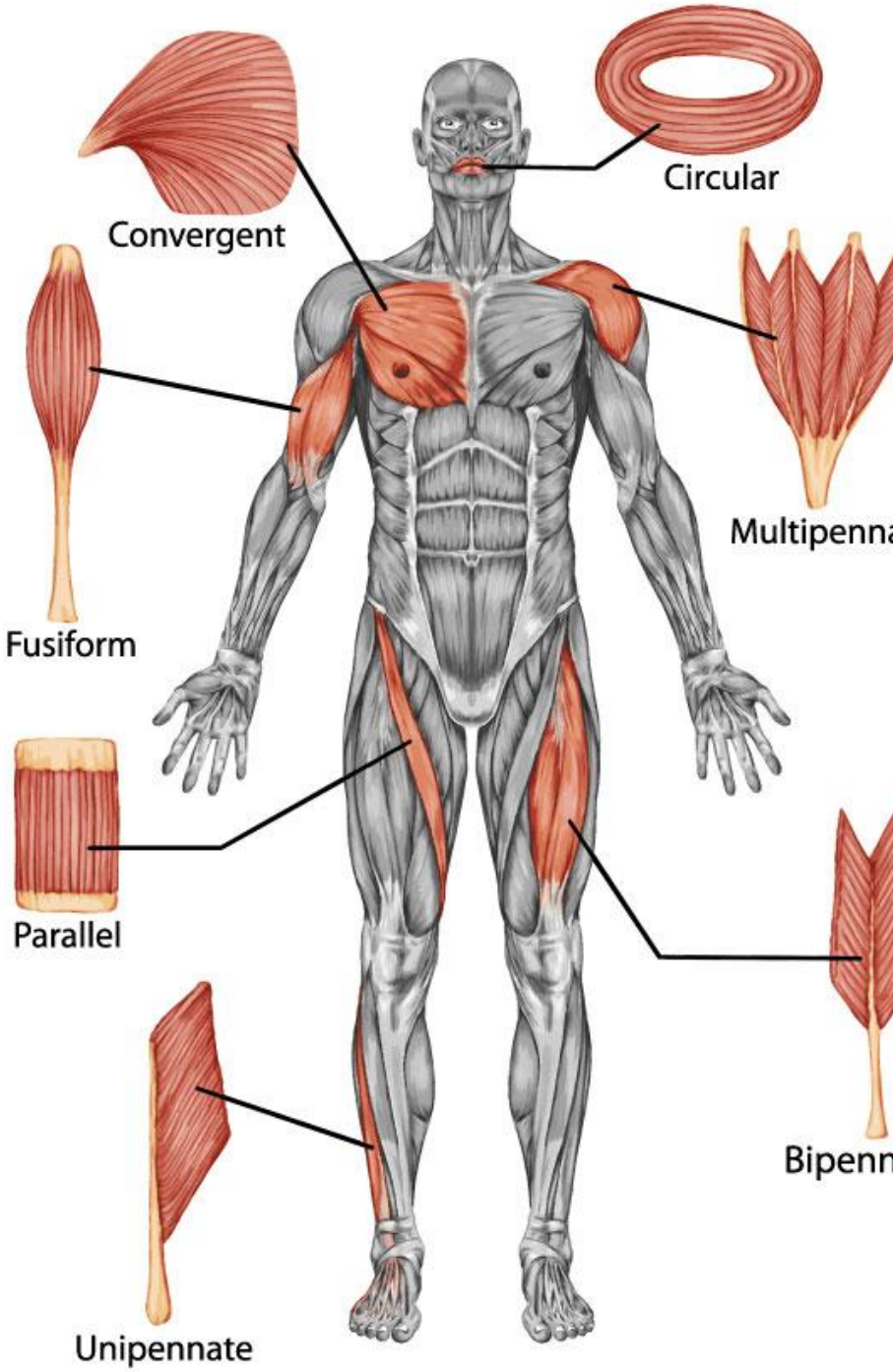
Types of Muscle Tissue:

3. Skeletal

- Attached to bones
- Makes up 40% of body weight
- Responsible for locomotion, facial expressions, posture, respiratory movements, other types of body movement
- Voluntary in action; controlled by somatic motor neurons



Shapes of the Muscle



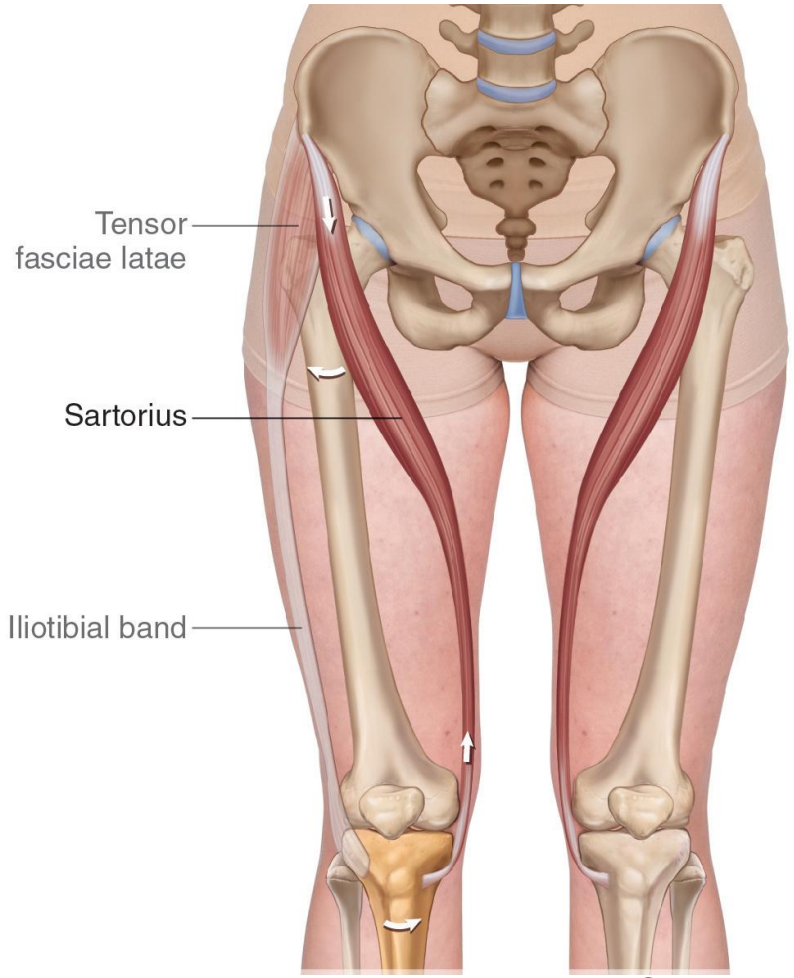
Shapes of the Muscle

1. Parallel Muscles

Description: Fibers run parallel to the length of the muscle.

Function: Good for a wide range of motion.

Examples: Sartorius (in the thigh)



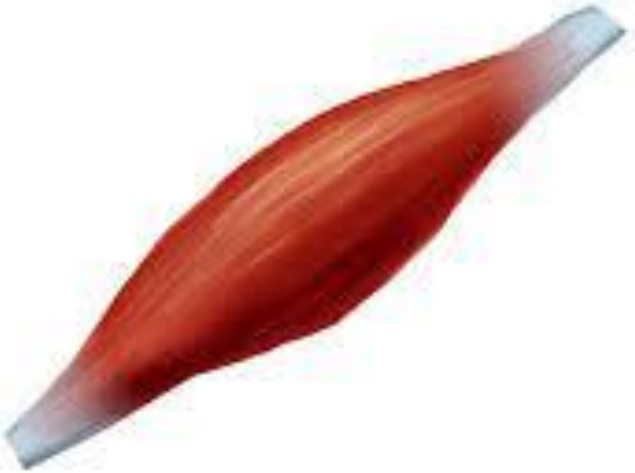
Shapes of the Muscle

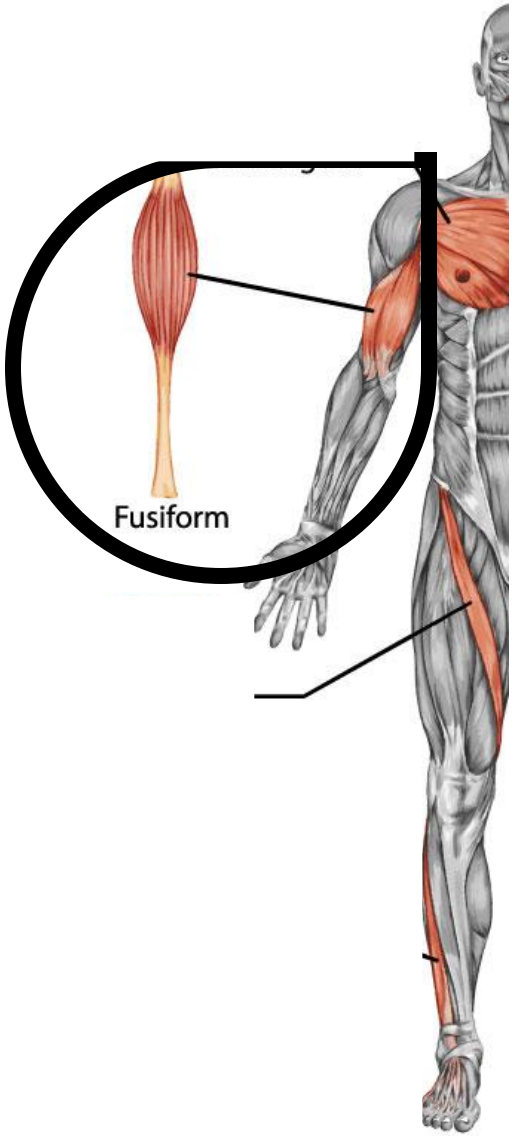
2. Fusiform Muscles

•**Description**: Similar to parallel muscles but with a central, swollen belly that tapers at both ends.

•**Function**: Allows for powerful contractions while maintaining a good range of motion.

•**Examples**: Biceps brachii, brachialis





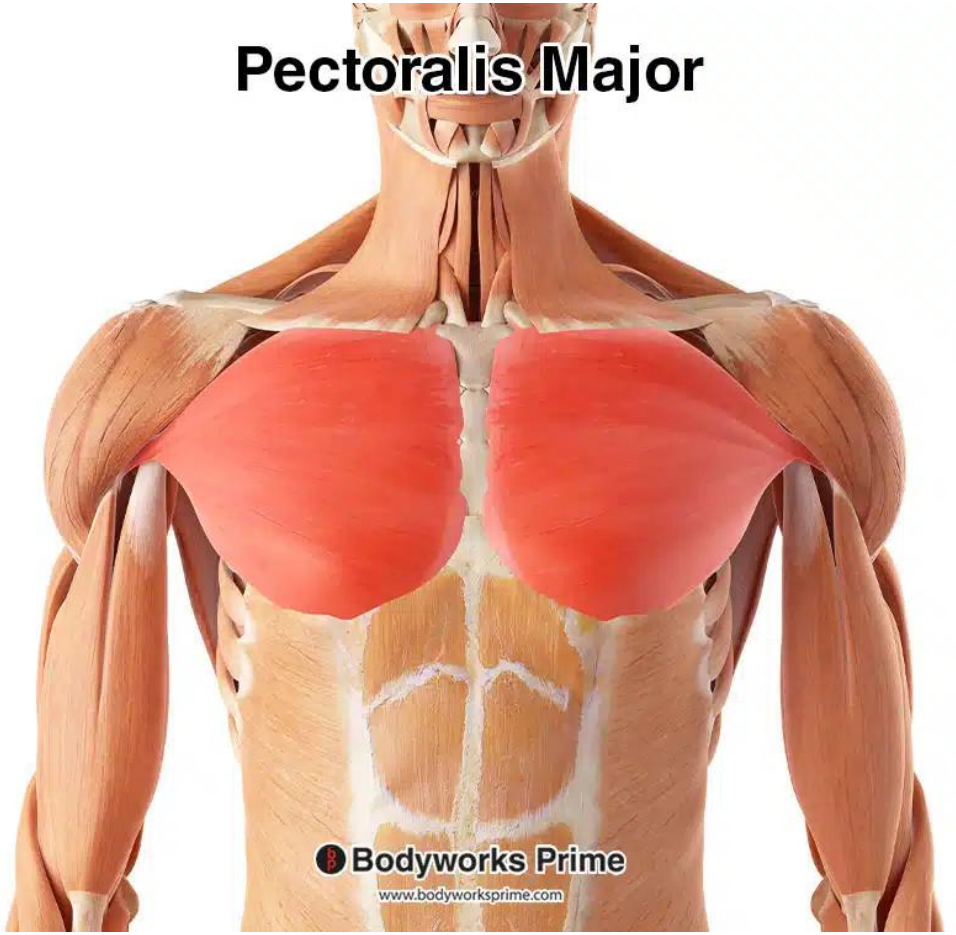
Shapes of the Muscle

3. Convergent Muscles

•**Description**: Muscle fibers converge toward a single attachment point, resembling a triangle or fan shape.

•**Function**: Versatile in movement; can pull in multiple directions.

•**Examples**: Pectoralis major



Shapes of the Muscle

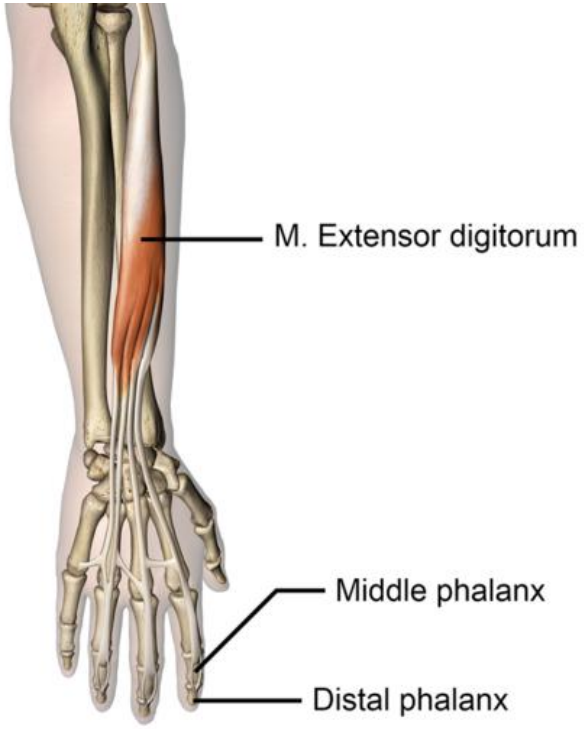
4. Pennate Muscles

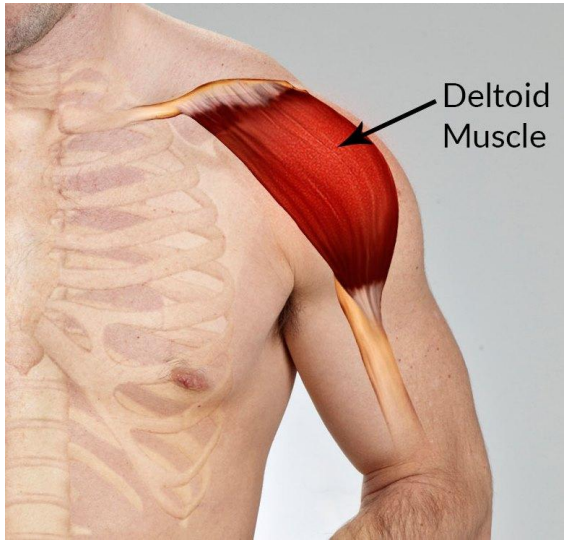
•**Description**: Fibers are short and attached to a central tendon at an angle, resembling a feather.

•**Function**: Allows for more fibers in a smaller space, generating more force.

•**Types**:

- **Unipennate**: Fibers on one side of the tendon (e.g., extensor digitorum).
- **Bipennate**: Fibers on both sides of the tendon (e.g., rectus femoris).
- **Multipennate**: Multiple tendons with fibers branching (e.g., deltoid)





Shapes of the Muscle

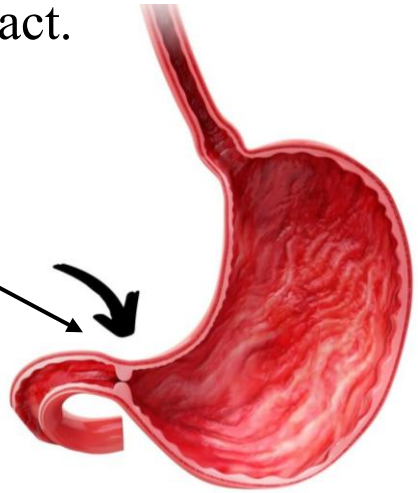
5. Circular Muscles (Sphincters)

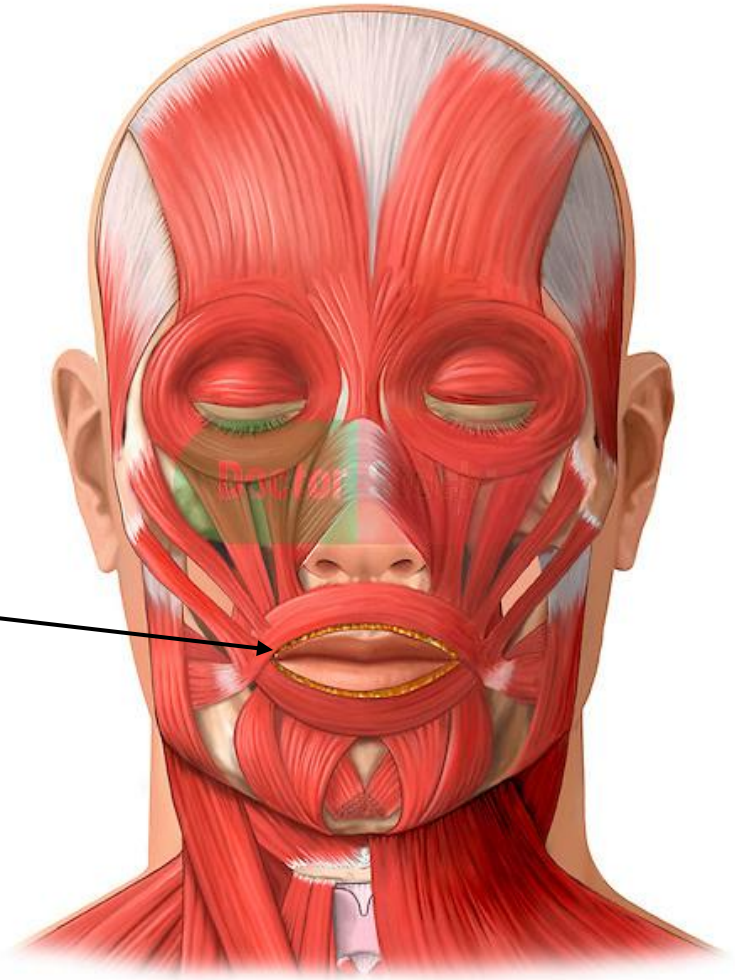
Description: Arranged in concentric circles around an opening.

Function: Control the opening and closing of passageways.

Examples:

- Orbicularis oris (around the mouth),
- sphincters in the digestive tract.





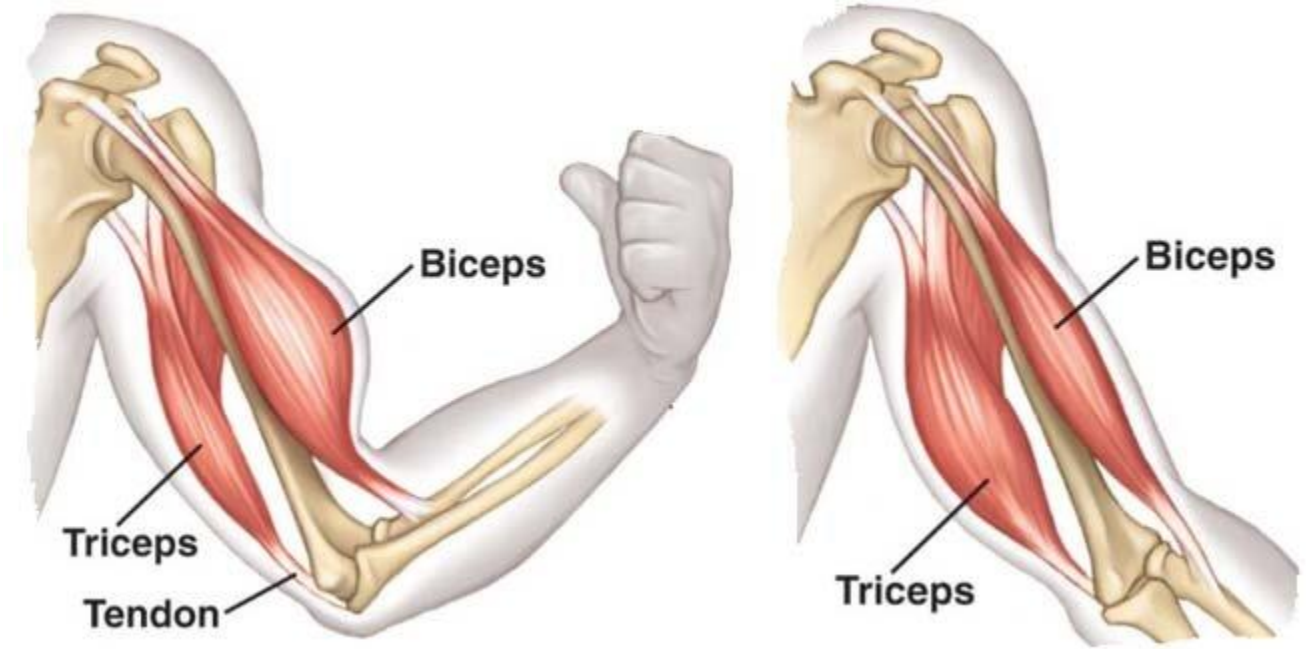
Shapes of the Muscle

6. Multi-headed Muscles

Description: Muscles that have multiple origins or heads.

Function: Allow for more complex movements and increased strength.

Examples: Biceps brachii (two heads), triceps brachii (three heads).



Methods of Attachment to Bones:

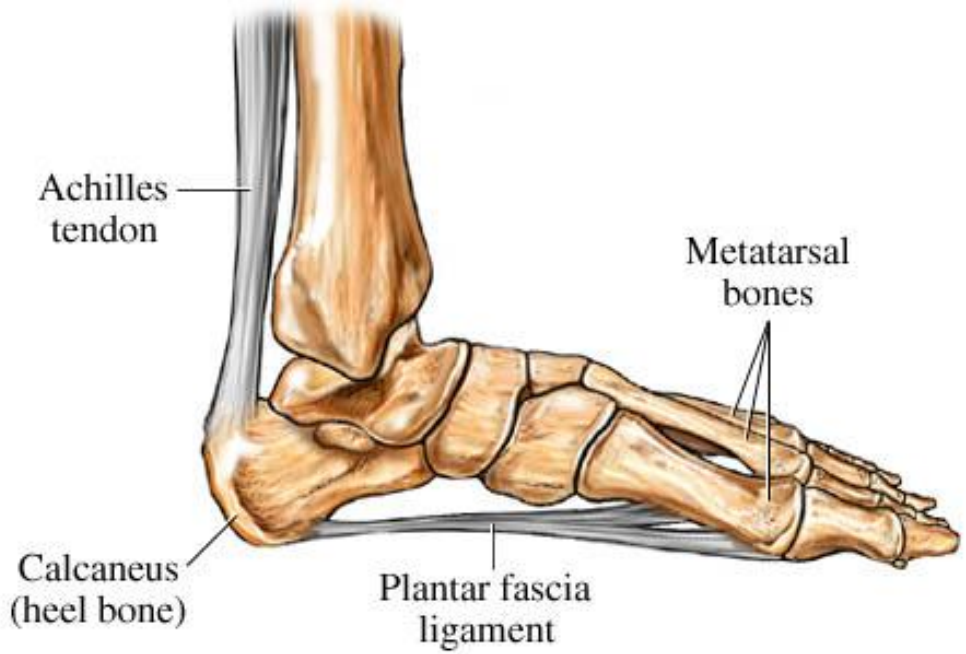
1. Tendon

- Strong, tough connective tissue cord
- **Example**: Achilles tendon which attaches the gastrocnemius muscle on the calf of the leg to the heel bone.

Methods of Attachment to Bones:

2. Fascia

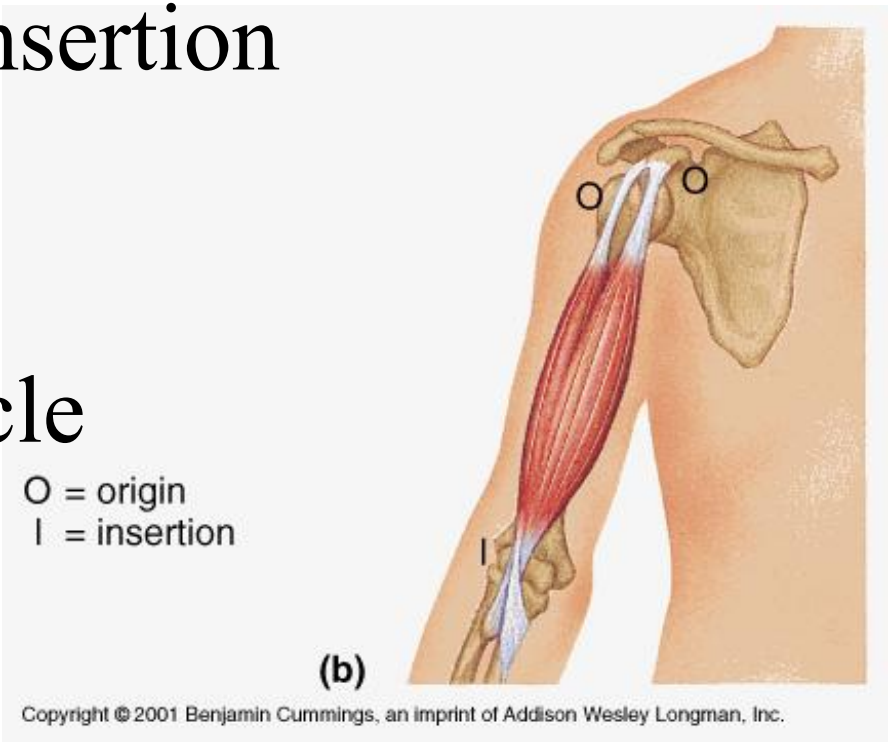
- Tough, sheetlike membrane
- Covers and protects tissue
- Example: lumbodorsal fascia which surrounds the deep muscles of the trunk and back



Methods of Attachment to Bones:

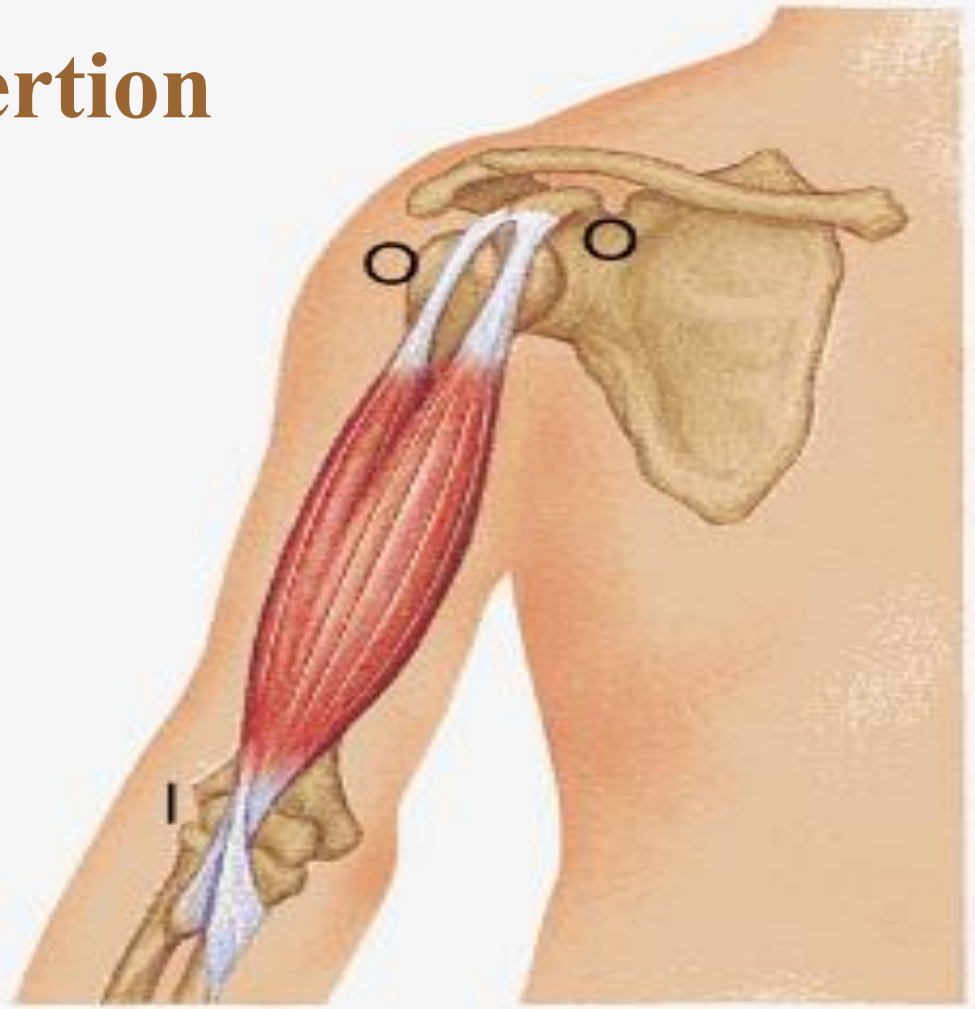
3. Origin and Insertion

- When muscles attach to bones, one end becomes the origin and one end the insertion
- Origin: end that does not move
- Insertion: end that moves when muscle contracts



Methods of Attachment to Bones:

3. Origin and Insertion



O = origin
I = insertion

(b)


QUESTIONS?
COMMENTS?
CONCERNS?