

## TOPIC: FASCICLE ARRANGEMENTS

- *Recall*: Fascicles are groups of muscle \_\_\_\_\_ bound by perimysium.
- Length of fibers  $\approx$  \_\_\_\_\_ of contraction.
- Number of fibers  $\approx$  \_\_\_\_\_ of contraction.

**1. Parallel:** fibers run \_\_\_\_\_ of muscle.

- E.g., sartorius

• *Fusiform*: \_\_\_\_\_ shaped.

- E.g., bicep brachii



**2. Convergent:** Origin \_\_\_\_\_ than insertion.

- E.g., Pectoralis Major



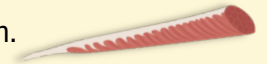
**3. Circular (\_\_\_\_\_):** Wrap an \_\_\_\_\_.

- E.g., Orbicularis Oculi



**4. Pennate:** Short fibers run at an \_\_\_\_\_ from one side of a tendon.

- E.g., Extensor Digitorum Longus



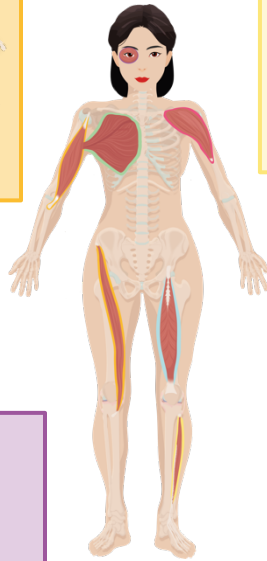
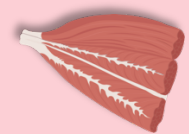
**5. Bipennate:** Fibers extend from \_\_\_\_\_ sides of a central tendon.

- E.g., Rectus Femoris

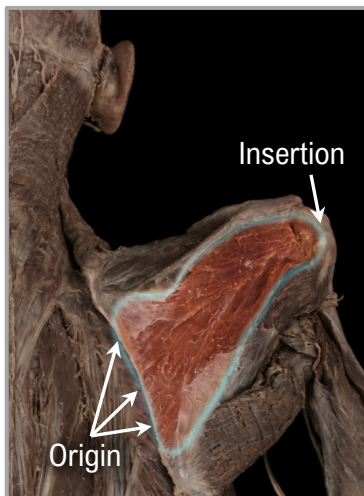


**6. Multipennate:** Fibers extend from \_\_\_\_\_ tendon.

- E.g., Deltoid



**EXAMPLE:** Below is an image of the muscles of the back in a cadaver. The infraspinatus is highlighted.



- Based on the image, what type of fascicle arrangement does the infraspinatus appear to have? \_\_\_\_\_
- Is this fascicle arrangement optimized for force generation or for range of movement?  
\_\_\_\_\_

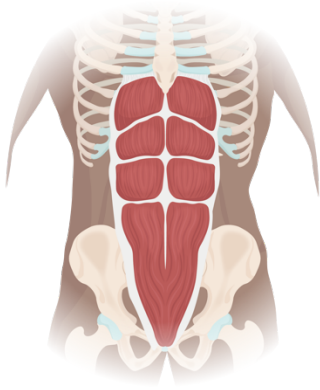
**PRACTICE:** Which fascicle arrangement is most well suited to a muscle that needs to generate a lot of force over a small distance?

- Unipennate.
- Multipennate.
- Circular.
- Fusiform.

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**PRACTICE:** Four muscles are shown below. Based on their fascicle arrangement, which muscle doesn't belong in the group?

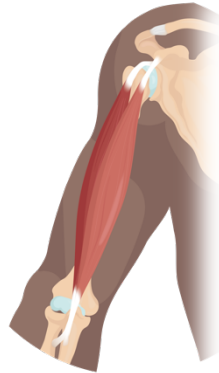
a) Rectus Abdominis.



b) Interossei.



c) Bicep Brachii.



d) Sternocleidomastoid.

