

Muscular System Lab

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Types of Muscle Tissue

After examining

- three muscle cell models
- glass slides of muscle cell types (if available)

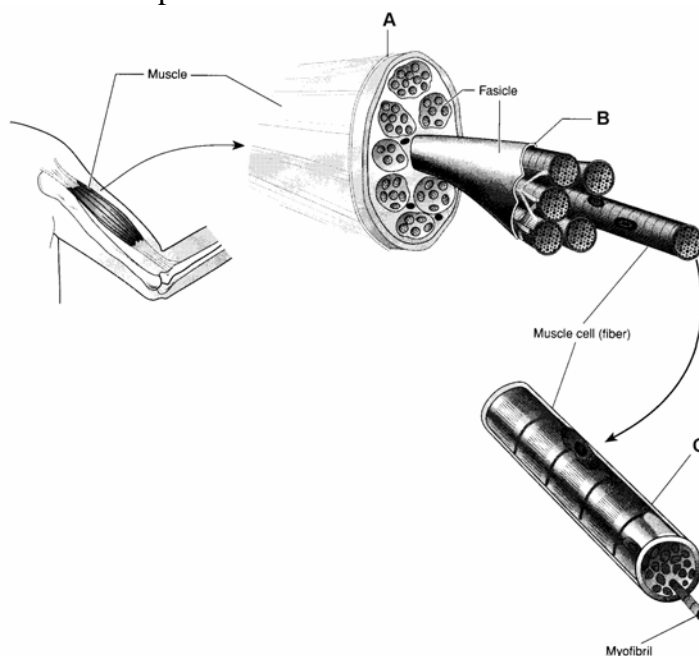
Draw the three types of muscle tissue. Be sure to label the prominent structures of each.

Use of notes/textbook can make things much easier.

1. Skeletal Muscle (voluntary)
 - Draw several cells showing their
 - striations
 - multiple nuclei
 - cylindrical shape
2. Cardiac Muscle (involuntary)
 - Draw several cells showing their
 - striations
 - single nucleus
 - branching
 - intercalated discs
3. Smooth Muscle (involuntary)
 - Draw one cell showing its
 - lack of striations
 - single nucleus
 - spindle shape

Focusing the power of muscle cells – Connective tissue wrappings

Label (A-C) the three levels of connective tissue (CT) which contribute to the tremendous power of our muscles.



Identify:

CT A _____

CT B _____

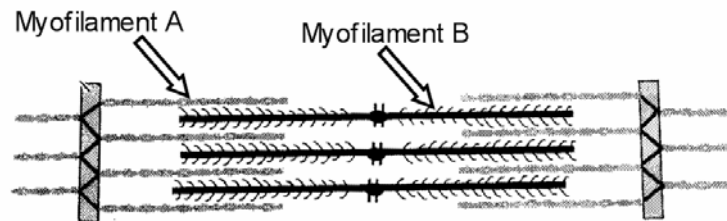
CT C _____

Which layer of CT is the coarsest and tapers to form a tendon?

Which layer of CT is the most delicate and surrounds each muscle cell? _____

Sliding Filament Theory

Muscle cells are packed with contractile proteins called myofilaments that slide past each other using energy from ATP molecules to pull them along. The sliding filament theory states that small proteins on the thick filaments (B) grab the thin proteins (A) and pull them together, thereby shortening the muscle cell. When multiplied many times in many cells and focused by the CT wrappings you then have muscle power. (Consult your notes/textbook for more info).



Sarcomere

Identify these two parts of a sarcomere in a **relaxed** state:

Myofilament A: _____

Myofilament B: _____

Now draw a sarcomere in a **contracted** state →

Skeletal Muscles

Refer to your notes and analyze the skeletal muscles discussed in class. Identify their respective locations and demonstrate their actions on yourself or your partner. Be prepared to demonstrate an action of any these muscles when called upon.

- orbicularis oculi
- orbicularis oris
- zygomaticus
- buccinator
- masseter
- temporalis
- sternocleidomastoid
- trapezius
- latissimus dorsi
- pectoralis major
- rectus abdominus
- gluteus maximus
- deltoid
- biceps brachii
- triceps brachii
- quadriceps group
- hamstring group
- gastrocnemius