

1. If the increased angles of pinnation result in decreased force transmission, why do “force” specialized muscles typically have high degrees of pinnation?

2. “Series / parallel [circle one] sarcomere arrangement results in ↑ contraction speed (velocity of shortening).”

3. Draw a length/tension curve for a sarcomere (label your axes):



You are taking a tour of the biology building at a college that a friend of yours is attending.... You happen upon a physiology lab class where a student has just successfully isolated a skeletal muscle from a frog. The muscle is attached to a fixed/rigid clamp at the top, and has a weight hanging from the bottom end of the muscle. *Answer either 4(a&b) or 5. Be sure to label your axes (units not necessary)!*

4a. Draw a line representing what will happen to contraction velocity if the weight is increased progressively: **b.** Now draw a line on the same graph (above) for a muscle from a “trained” frog (it competed in jumping contests regularly):

5. Show (with two different lines) what will happen to force (tension) as the frequency of stimulation is increased progressively in a slow/red fiber (solid line) and in a fast/white fiber (dotted line):

