

heavy chain

- isoform affects function
- composed of tail & head
- actin & ATP binding site

light chain

- regulatory functions
- stiffening of neck

tension & elasticity come from myofibrils, connective tissue, contractile proteins

titin has over 34 thousand amino acids

out of 4 actinins, 2 are in skeletal muscles

- ACTN1 in all muscle fiber types

- ACTN3 in only type II fibers

- has multiple alleles - ^{RR}strong, ^{RX}intermediate, ^{XX}nonsense

Cross-bridge cycling

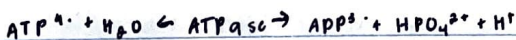
thin thick
- actin & myosin = contractile proteins (filaments)

- binding = muscle flexion = cross-bridge

- myosin has to be activated before actin can bind to it

if ATP OR ADP & phosphate are both connected, then bond between actin & myosin is weak

- releasing phosphate makes the bond stronger



where does strength come from?

- produced with actin-myosin bonds
- how many muscle fibers
- how much actin & myosin
- how well the cross-bridges are functioning

factors that influence muscle force generation

- length/tension, force/velocity, muscle fiber types, motor unit recruitment