Ch 9. Skeletal Muscular System 09/02/2010 19:16:00

- ← Three types
  - Skeletal
  - Cardiac
  - Smooth

Function

  - Excitability- respond to stimulus
  - Contractibility- shorten and exert tension
  - Extensibility- can contract even when stretched
  - Elasticity- rebound length

- ← Skeletal Muscle
  - Produces movement
  - Maintains posture and position
  - Supports soft tissues
  - Guards orfices
  - Maintain body temperature

- ← Organization
  - The organ
  - Groups of fibers within a muscle- fasicles
  - Inside the fascles are the muscle fibers (or cells)
  - Organ→ fascicle→ fiber→ myofibrils→ myofilaments

Connective Tissue layers

- Epimysium- outer layer covers the whole muscle organ
- Perimysium- covers the fascicle find blood vessels and nerves
- Endomysium- surrounds the muscle fibers/cells
- Contain the muscle and have the nerves and arteries within them
- Converge to form tendons (muscle to bone attachment)
  - Flattened is an aponeuroses
  - Interwoven into periosteum and bone

← Features of skeletal muscles

- Large cylindrical muscle fibers
- Multinucleated
- Striated
- Voluntary
- Satellite cells help in repair- limited but possible
- Sacrolemma is the membrane
- Sacroplasm is the cytoplasm

← A muscle fiber

- Myofibrils in sacroplasm (all red dots)
- Blue nuclei (multi)
- An abundance of mitochondria
- Membrane= sacrolemma

- Invagination of sacrolemma is **transverse tubules** which carry electrical impulses (nerve impulses)
- Inside myofibrils are myofilaments
- Myofibrils surrounded by sacroplasmic reticulum
    - Internal membrane system
- one myofibril is as long as fiber and is attached to sacrolemma
- cisterna- swollen parts of reticulum near t-tubules

← Myofilaments

- Sacromere- one unit in a myofilament
    - Goes from z line to z line
- Thin filament- actin (red lines)
    - Have active site on them
- Thick filament- myosin (purple lines)
    - Has a tail and head
    - Moveable head
- A band- band where thick filaments reach (only thick)
    - Bumps on a band- heads of myosin
- M line- the middle where actin and myosin meet in the sacromere
- I band= thin filaments
- Z line- boundaries of the sacromere
- Cross bridges= head of myosin

← Sliding filament theory