a partly contractec state. Peak tension in tetanus may be 5 – 10 times greater than in single twitch.

motor unit recruitment

Recruitment is the process in which the number of active motor units increases.
Various motor units in whole muscle are not usually stimulated to contract in unison.

- Some motor units contract while others relax.
- This delays muscle fatigue to sustain whole muscle contraction.
- Weakest motor units are recruited first.
- As a task requires more force, progressively stronger motor units are added.
- This produces smooth muscle movements, no jerks

aerobic training versus strength training

Aerobic training: regular repeated activities such as running, dancing
over time will increase supply of oxygen-rich blood to skeletal muscle for aerobic respiration
builds endurance for prolonged activities

Anaerobic training: weight lifting
relies on anaerobic production of ATP through glycolysis
stimulates synthesis of muscle proteins and hypertrophy
builds muscle strength for short term feats

Interval training incorporates both aerobic and anaerobic activties.

muscle tone

Muscle tone is the small amount of tautness or tension due to weak involuntary contractions of motor units.

- Neurons in brain or spinal cord establish muscle tone.
- If motor neurons are cut, corresponding muscle becomes <u>flaccid</u> = no muscle tone.
- Muscle tone keeps muscle firm but does not produce movement.
- An example is tonic neck posture, holding head erect.
- It's also important in smooth muscle of gut; and in blood vessels to maintain BP.

isotonic and isometric contractions

isotonic contractions for moving body and objects

- concentric = muscle shortens and pulls on tendon to reduce angle at joint
  - ex: picking up a book off the table — biceps shortens
- eccentric isotonic contraction = length of muscle increases during contraction
  - ex: lowering book back onto table — biceps lengthens as it maintains tension — myosin crossbridges resist movement of the load —tends to produce more muscle damage and delayed onset soreness

isometric contractions = tension increase greatly without a change in muscle length
ex: holding a book steady using outstretched arm
—myosin crossbrdges generate tension but muscle doesn't shorten, because force of load equals the muscle tension
—stabilizes a joints while others are moving