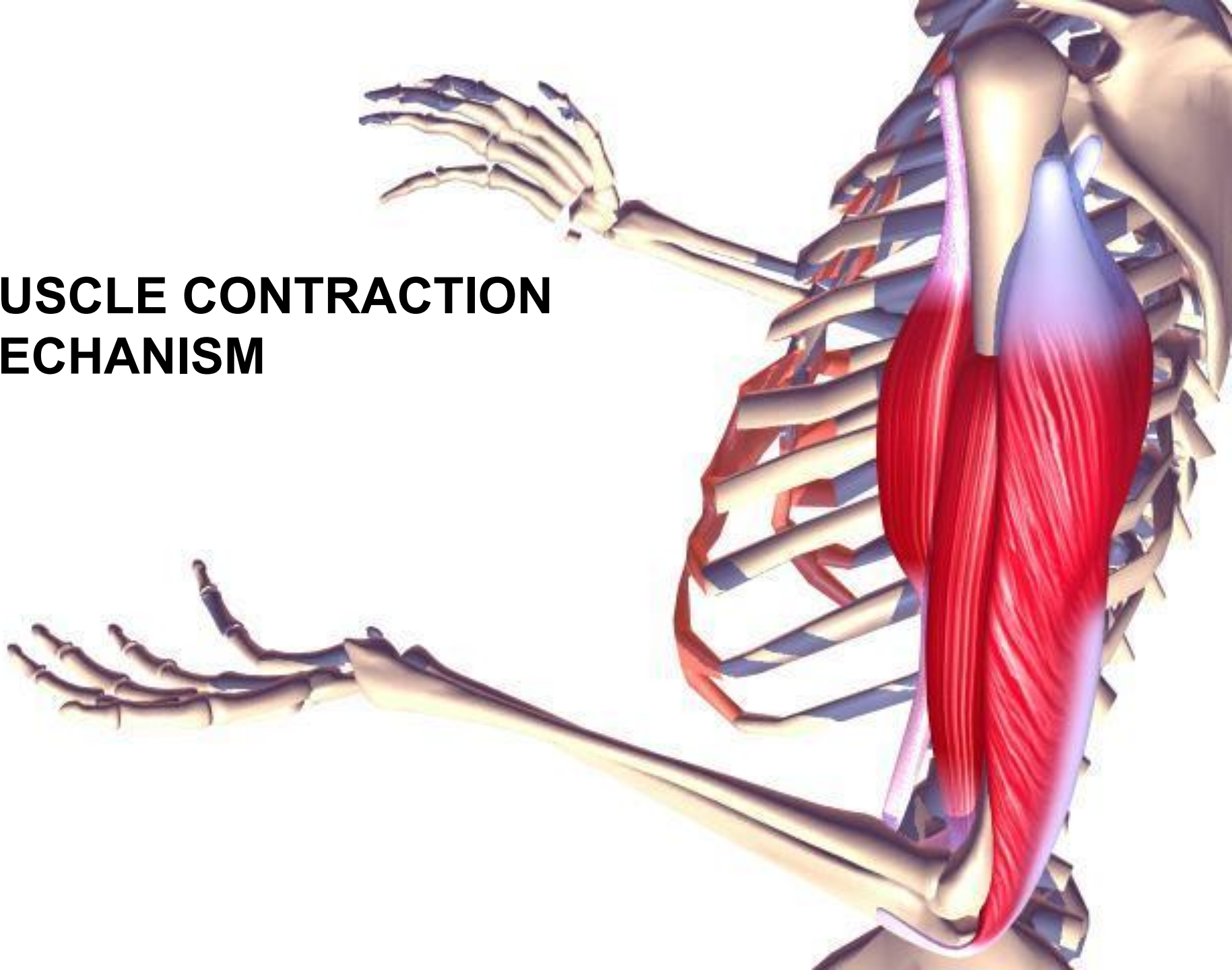
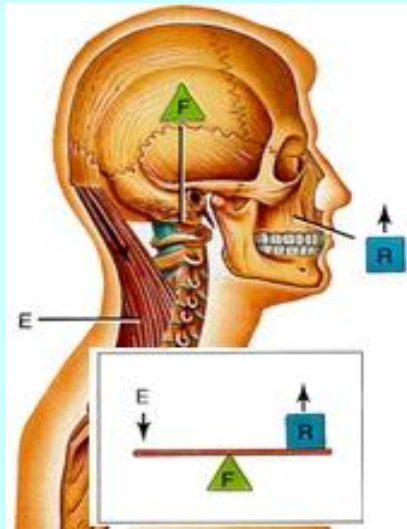


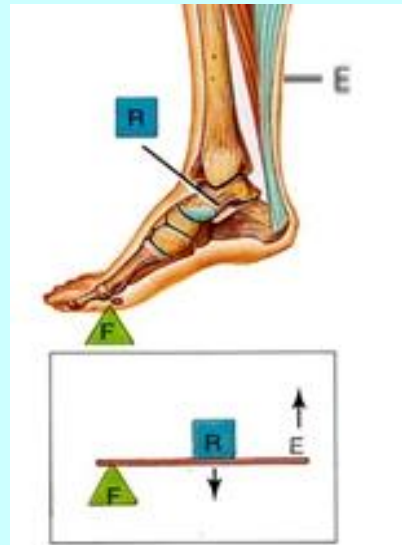
MUSCLE CONTRACTION MECHANISM



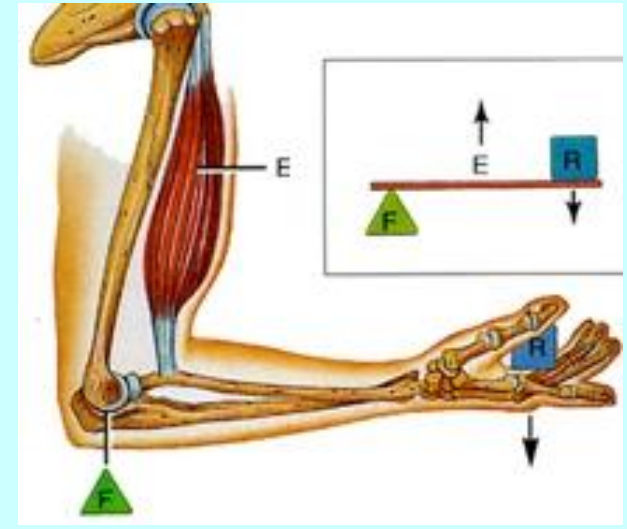
TREE KINDS OF LEVERS



EQUILIBRIUM LEVER



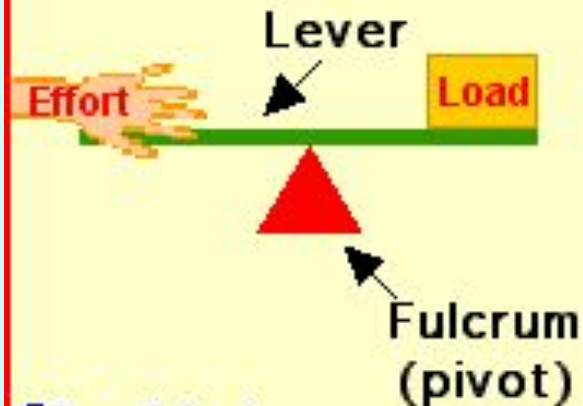
FORCE LEVER



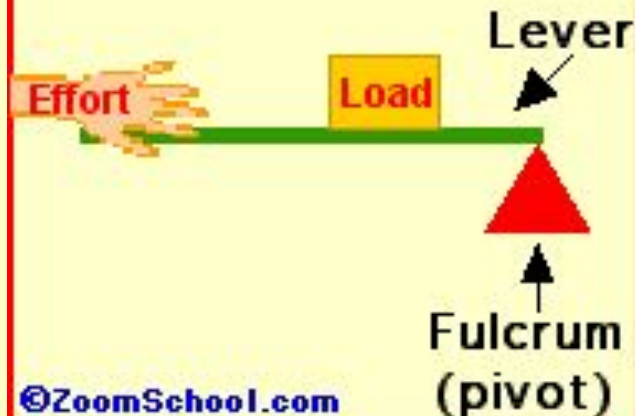
SPEED LEVER



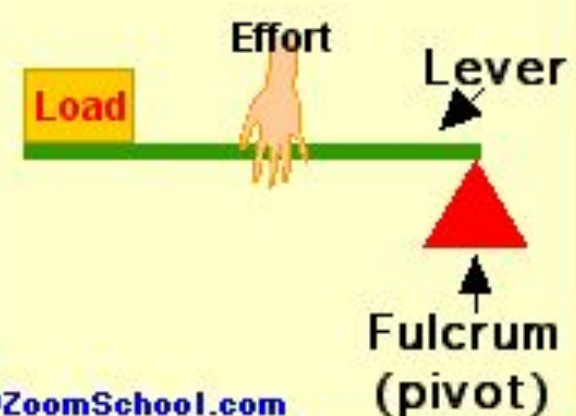
First Class Lever



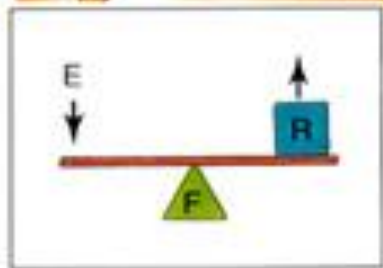
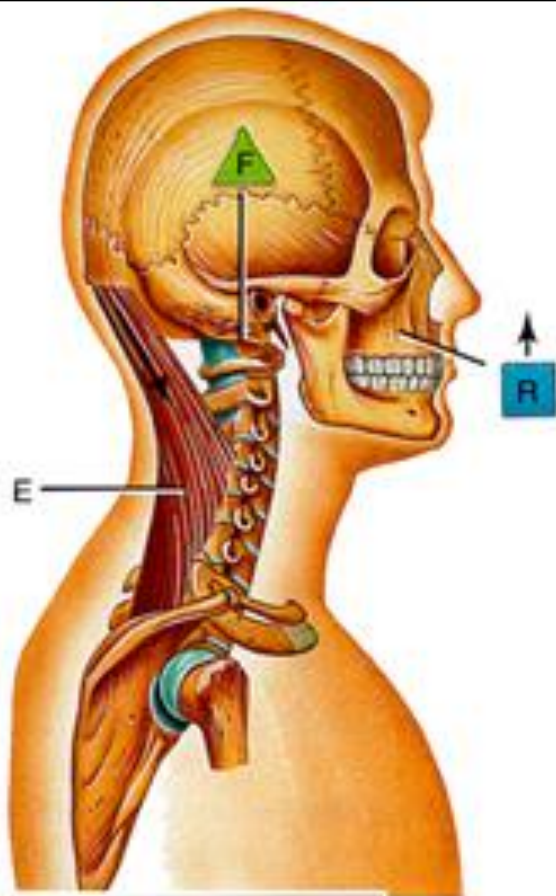
Second Class Lever



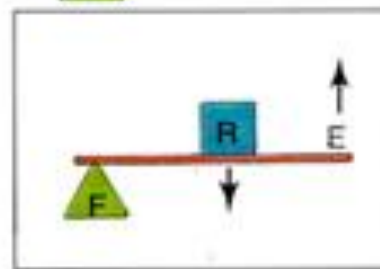
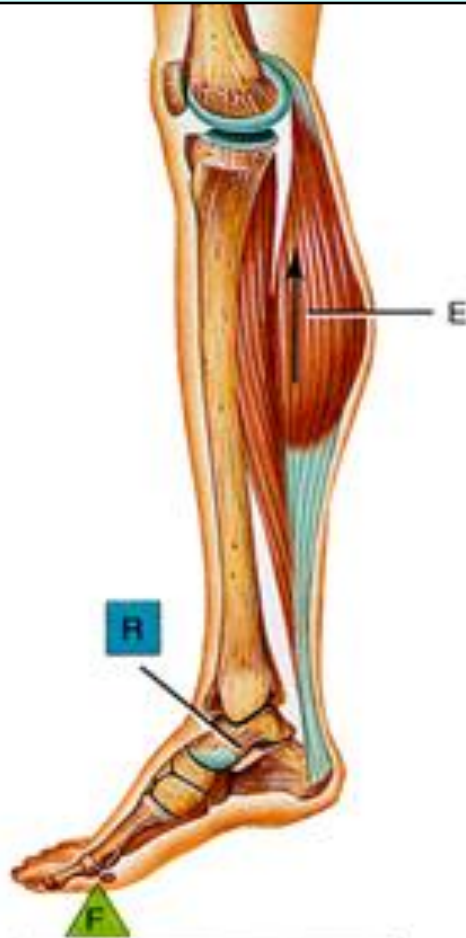
Third Class Lever



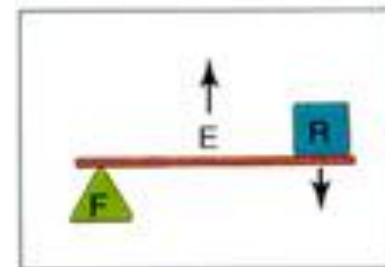
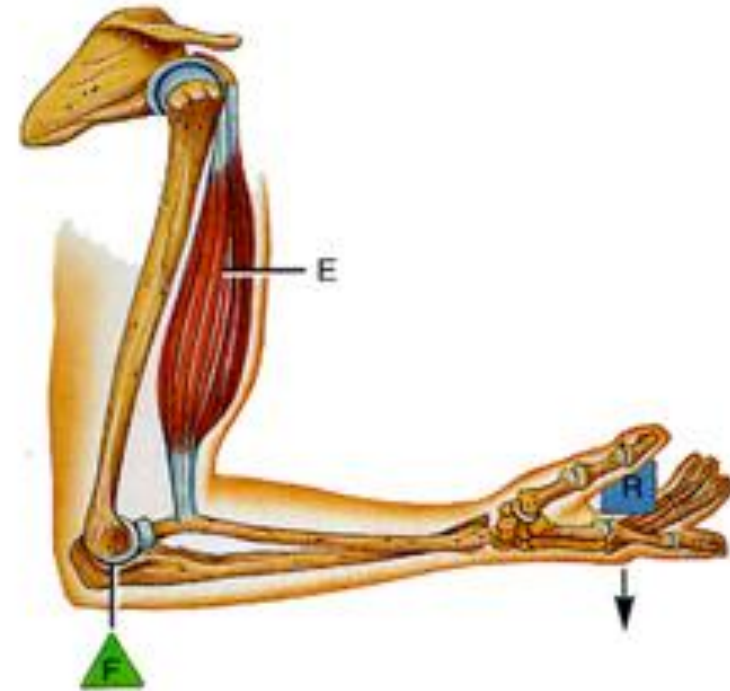
LEVERS IN ORGANISM



(a) First-class lever



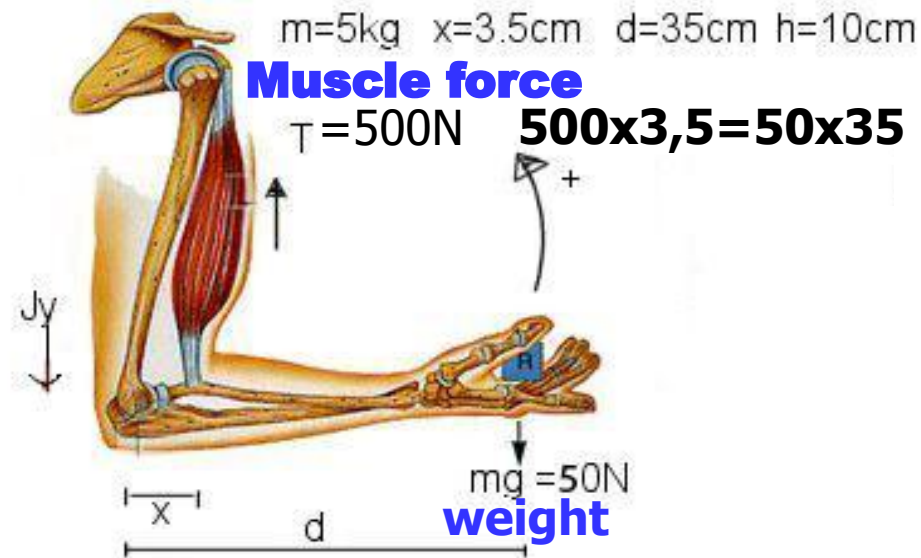
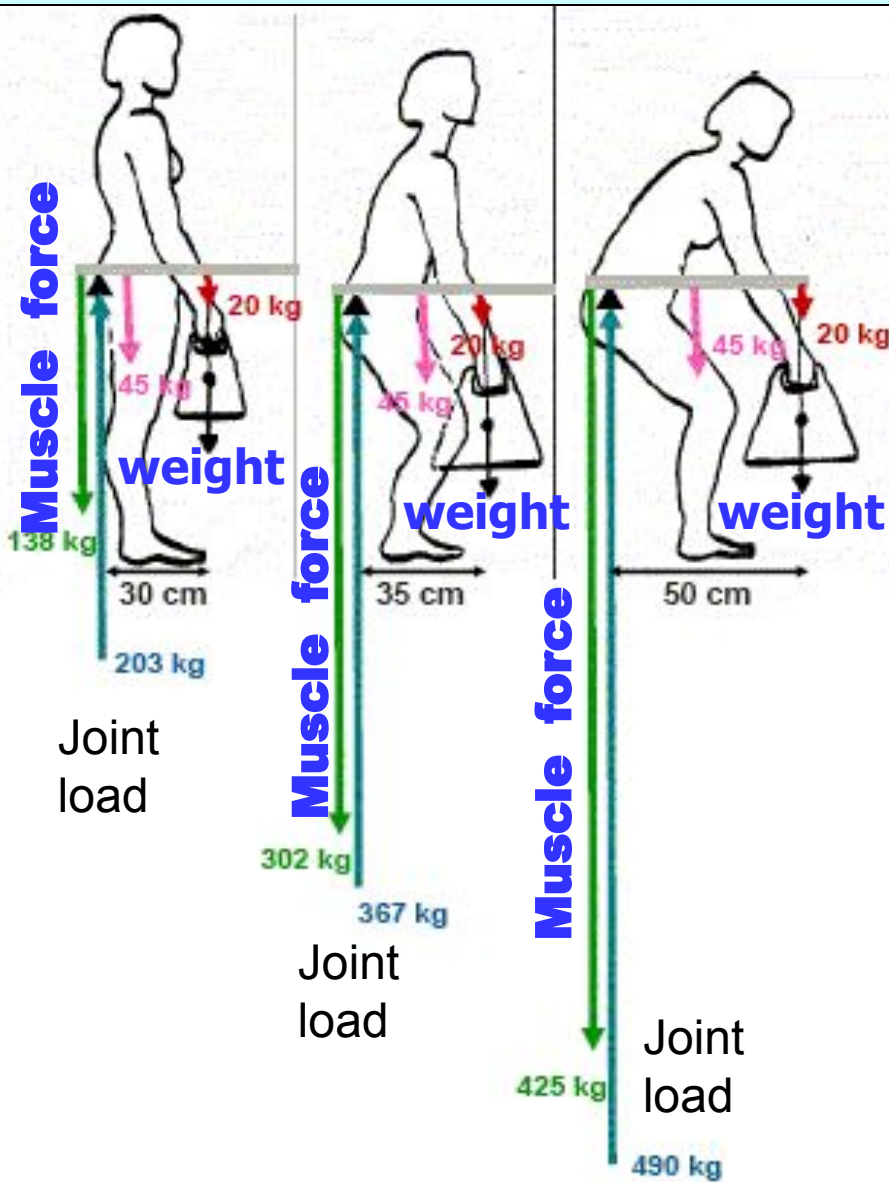
(b) Second-class lever



(c) Third-class lever

LEVERS IN ORGANISM

ПРАВИЛО ВАЖЕЛЯ

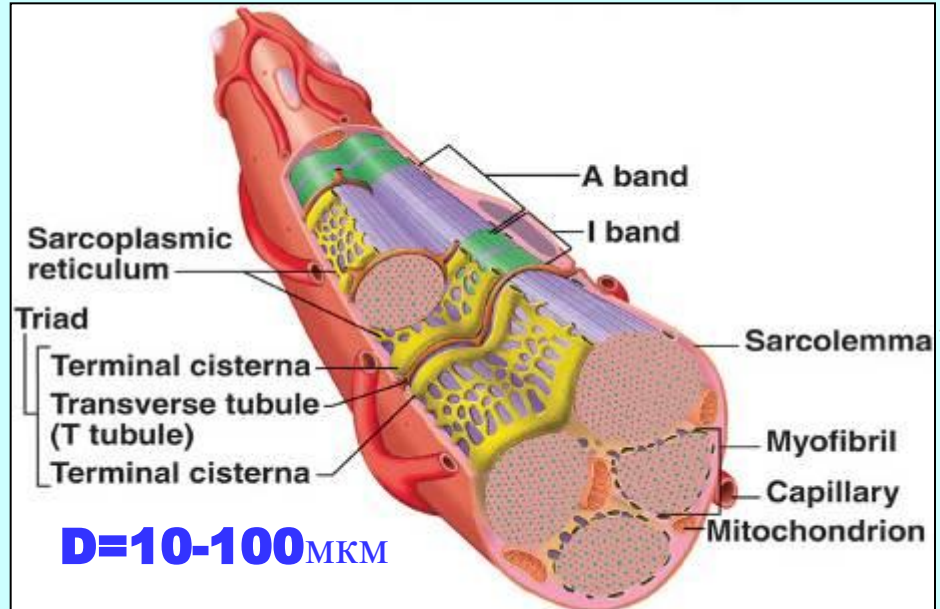
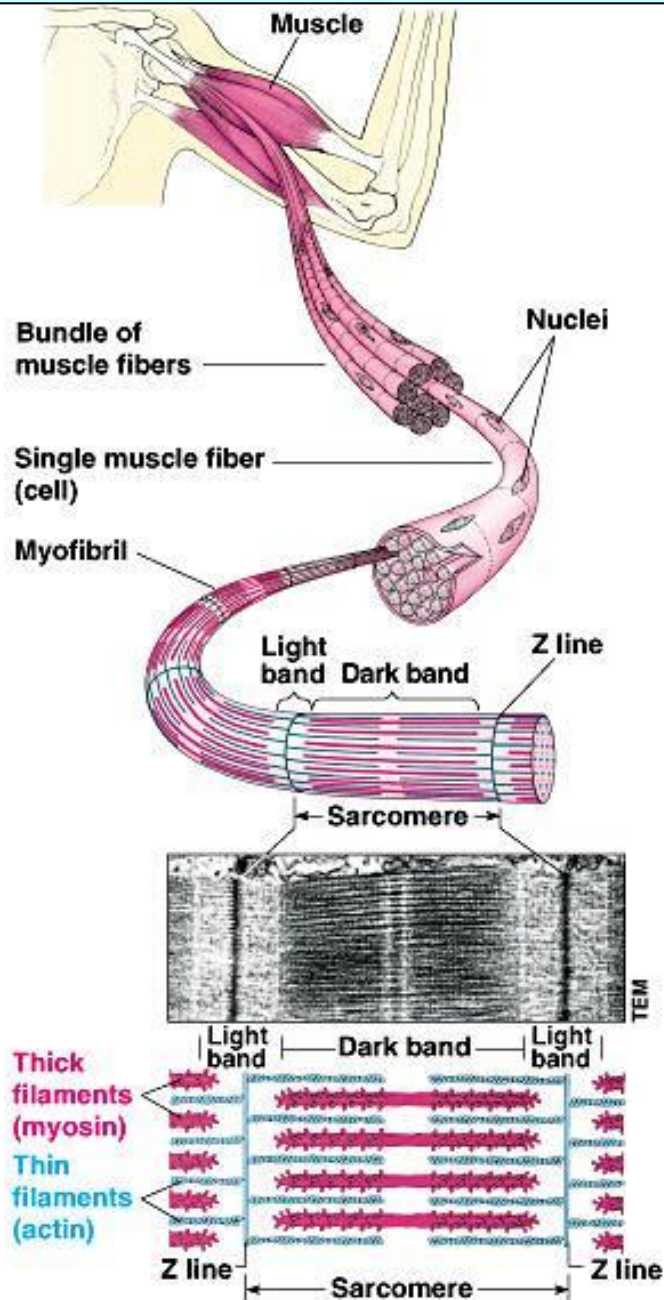




Skeletal muscles



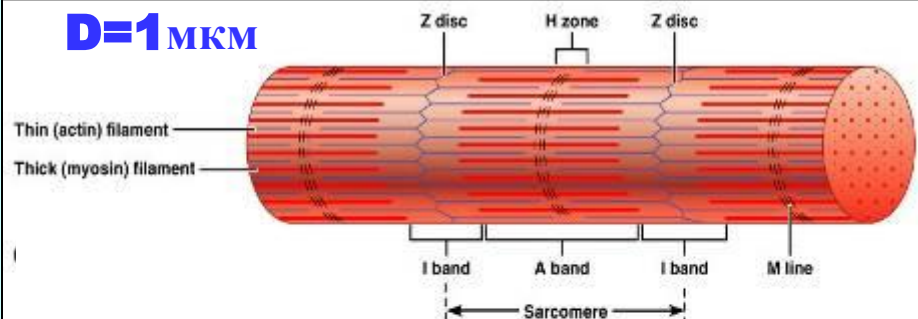
SKELETAL MUSCLE STRUCTURE



D=10-100 MKM

FIBER

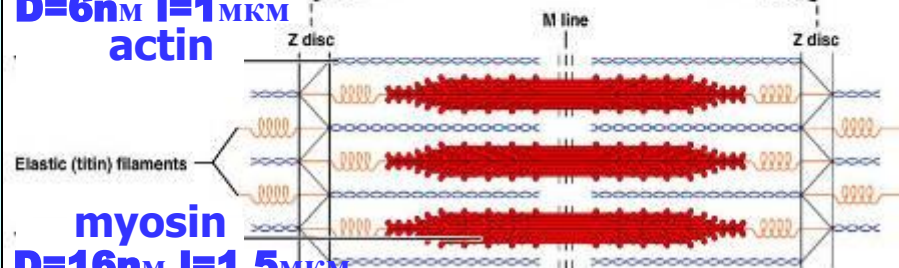
D=1 MKM



myofibril

D=6nM I=1 MKM
actin

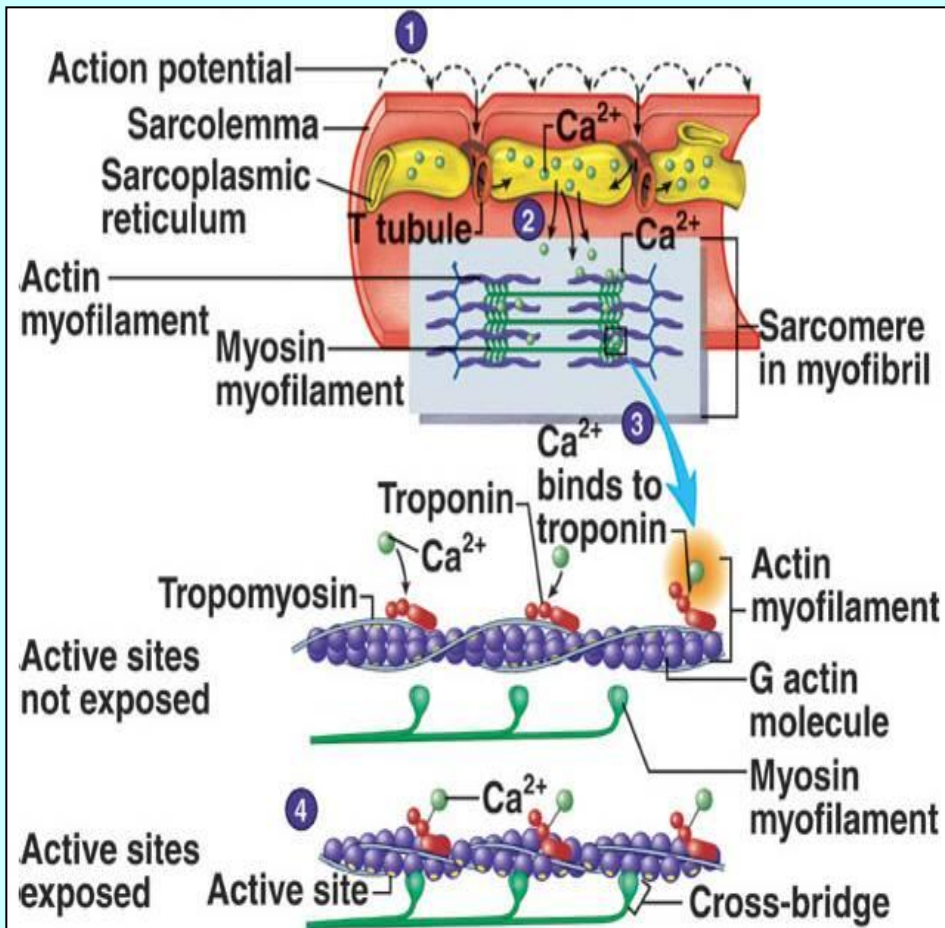
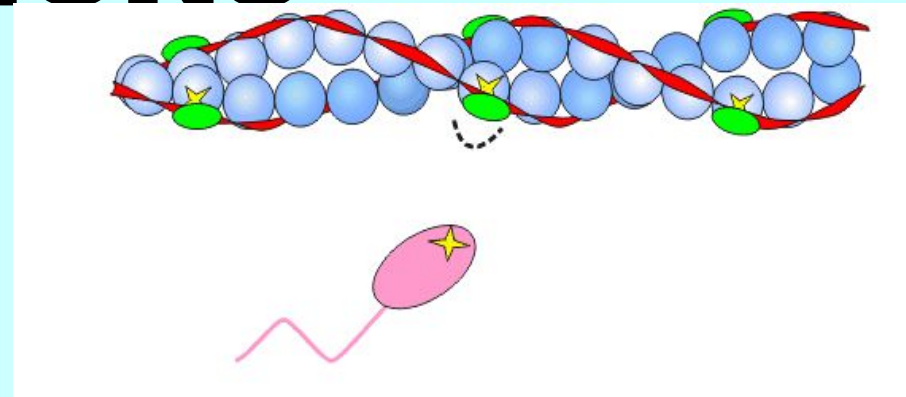
myosin
D=16nM I=1,5 MKM



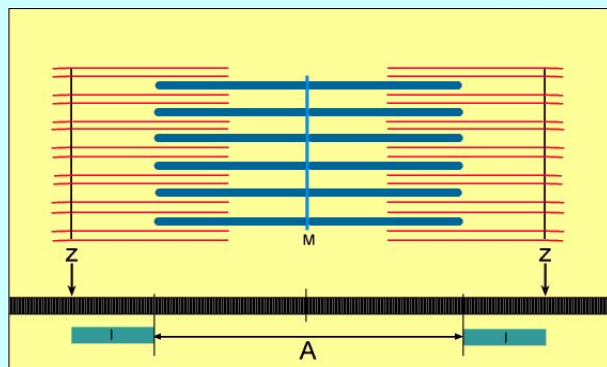
**Sarco-
mere**

MECHANISM OF CONTRACTION

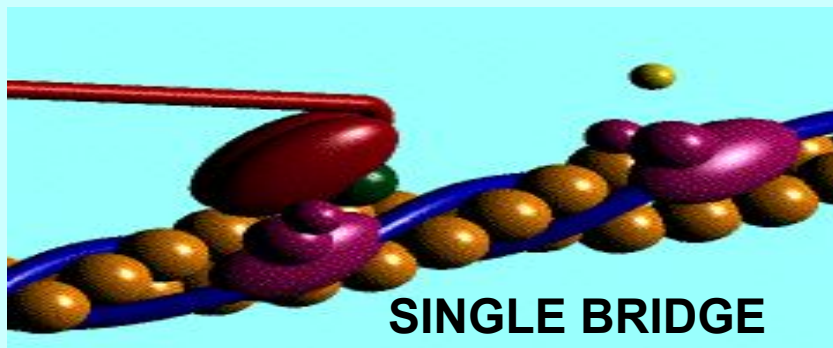
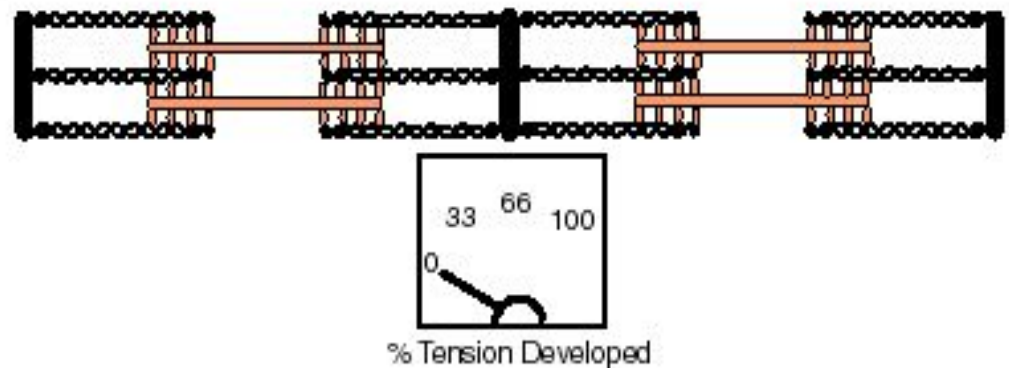
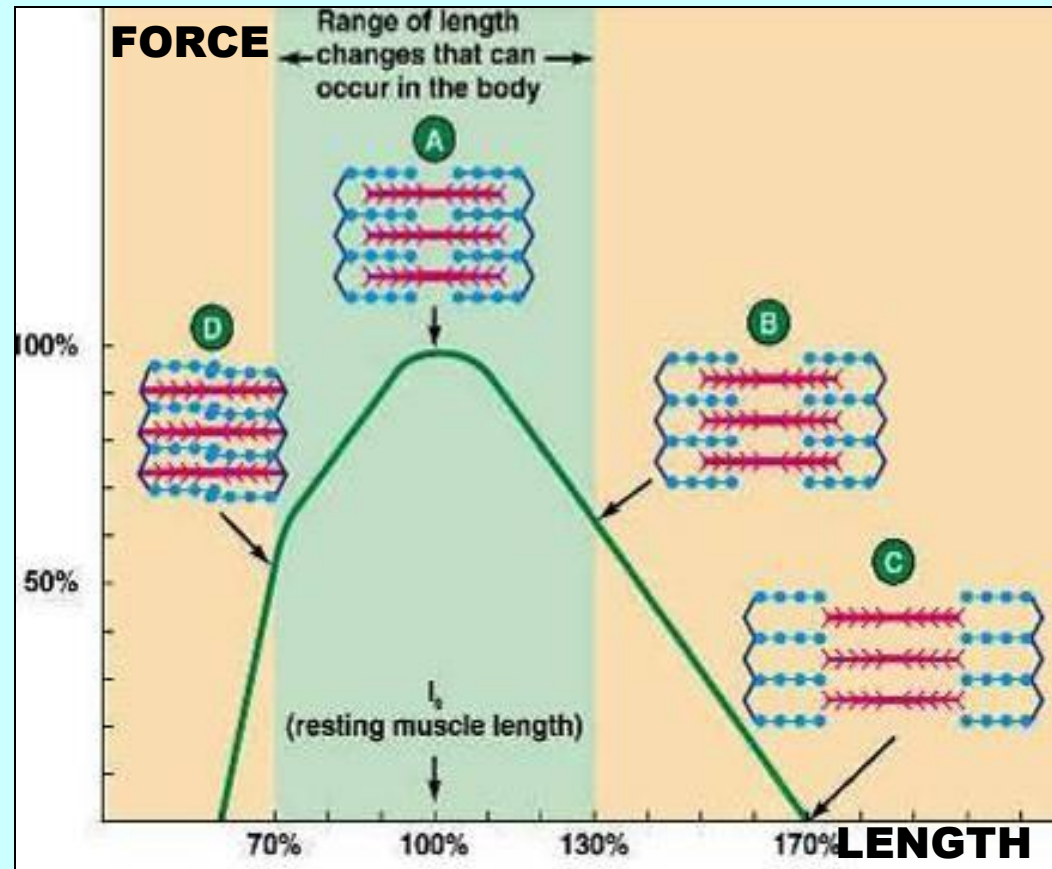
Ca²⁺ IONS



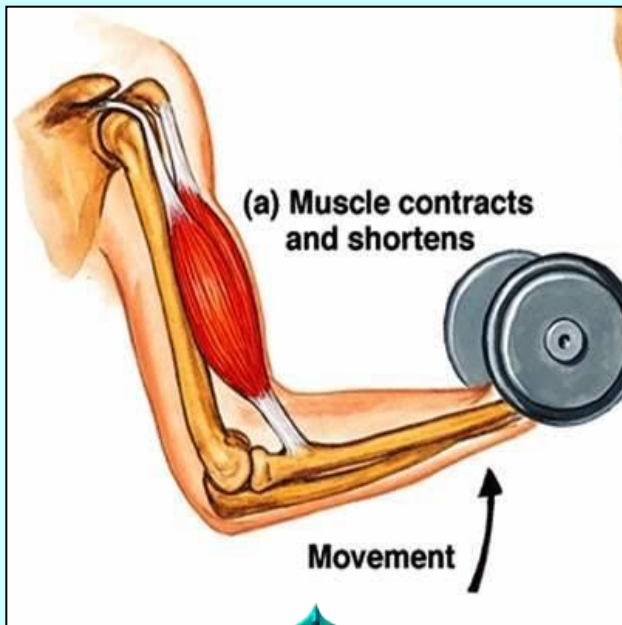
SARCOMERE CONTRACTION



SARCOMERE LENGTH & FORCE CORRELATION

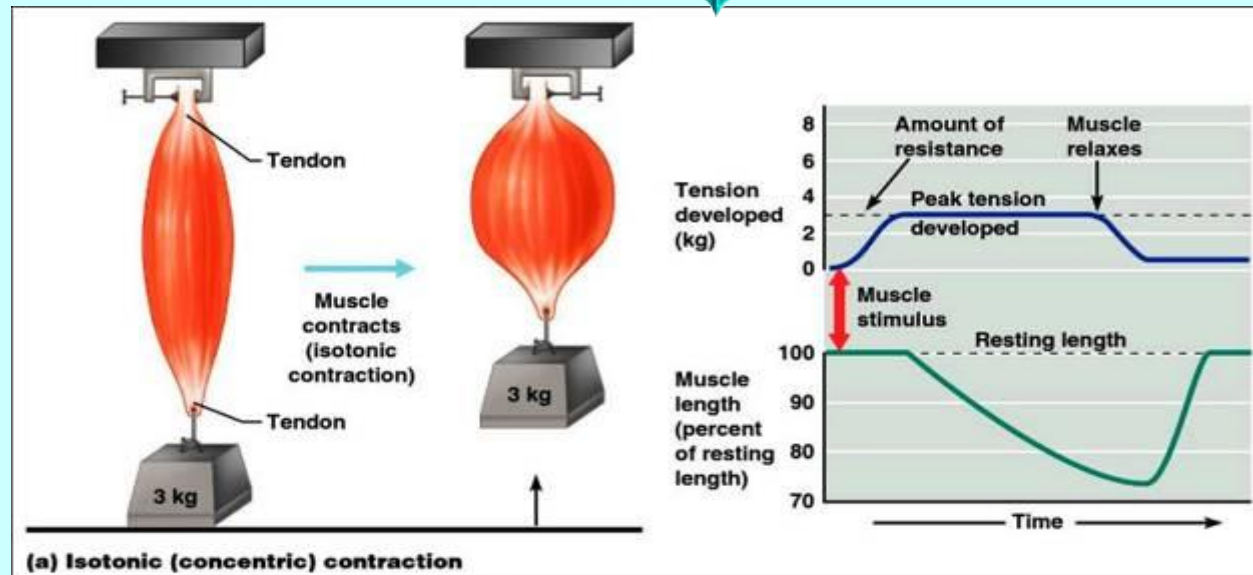


DYNAMIC WORK, ISOTONIC & AUXOTONIC CONTRACTION



DYNAMIC WORK

ISOTONIC CONTRACTION



ISOTONIC CONTRACTION

Isotonic contraction is a type of muscle contraction in which the muscle changes length while the tension remains constant.

There are two types of isotonic contraction: concentric and eccentric.

Concentric isotonic contraction occurs when the muscle shortens while the tension remains constant.

Eccentric isotonic contraction occurs when the muscle lengthens while the tension remains constant.

Isotonic contractions are common in many types of physical activity, including walking, running, and lifting weights.

Isotonic contractions are also used in many types of physical therapy and rehabilitation exercises.

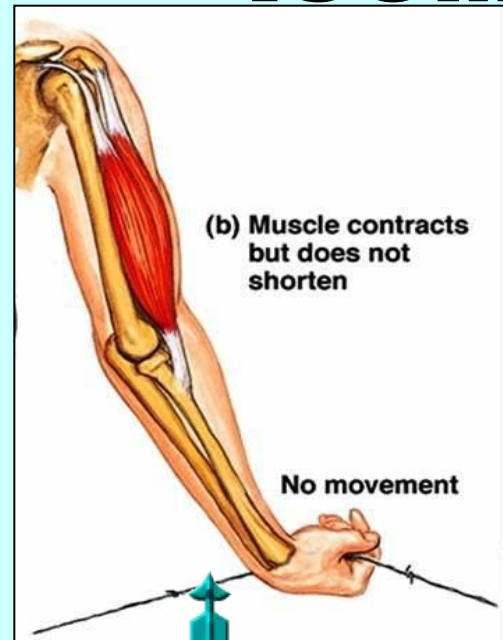
Isotonic contractions are important for building strength and endurance.

Isotonic contractions are also important for maintaining a healthy weight.

Isotonic contractions are a key component of many types of physical fitness programs.

STATIC WORK

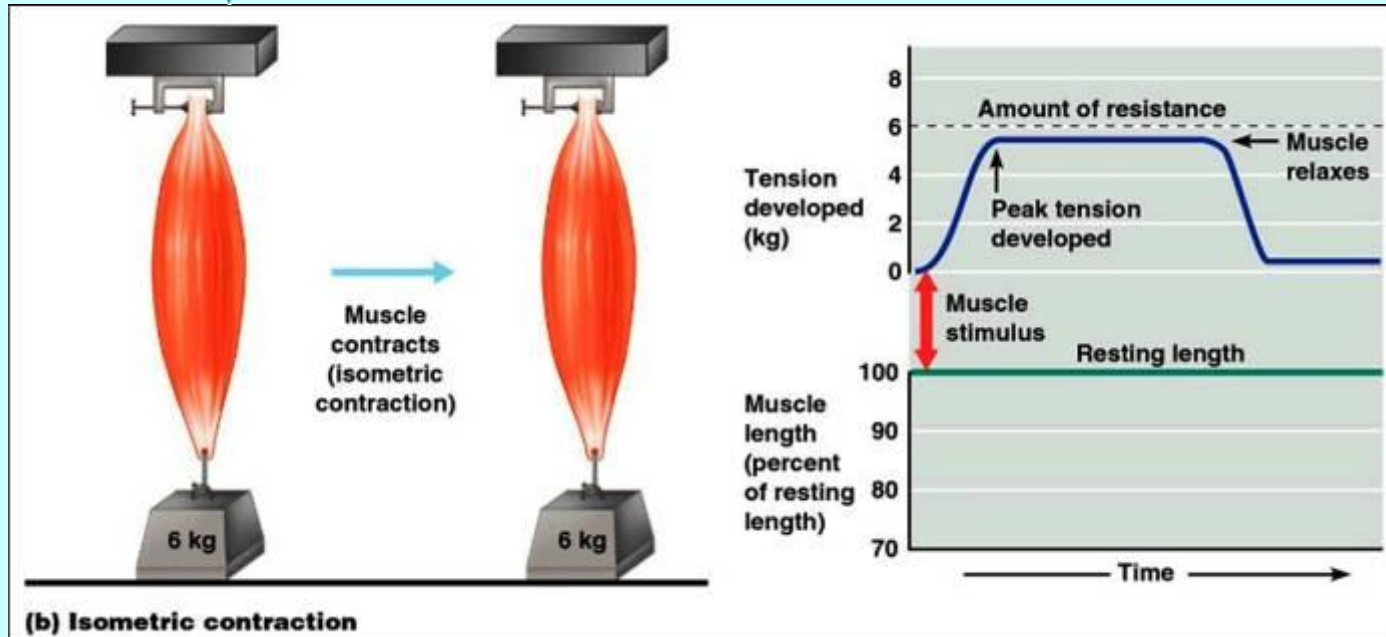
ISOMETRIC CONTRACTION



STATIC WORK

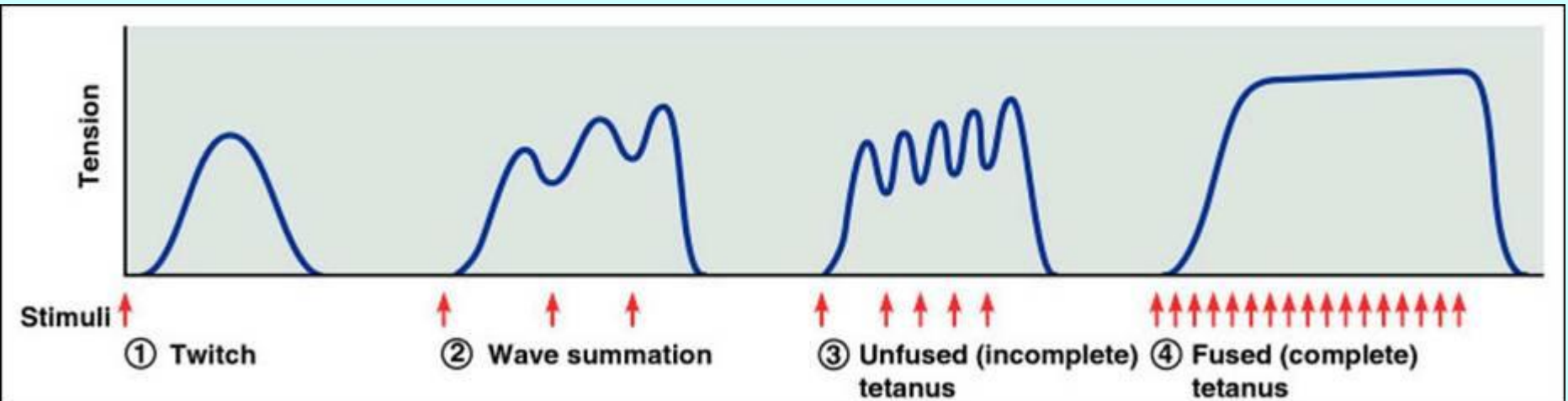
ISOMETRIC CONTRACTION

$$S = 0, \quad A = F \quad S = 0$$



ISOMETRIC CONTRACTION

MUSCLE CONTRACTION RATES



MUSCLE ELECTROSTIMULATION

MUSCLE STRUCTURE & FUNCTIONING