

I. Muscular System (ADAM download username: BHSdownload password: catfight)

A. A. Intro

1. 600+ muscles in the human body (most tiny, in face, vertebrae, forearms/hands)
2. Heaviest system (40% of mass)

B. B. Functions

1. Voluntary - body movement

- Not required*
- a) Locomotion, eye movement, blinking, tongue movement, speech, facial expressions.
 - b) Maintain posture
 - c) Reflexes (auditory and visual)
- Stop if Pass out*

2. Involuntary -

- Life Functions*
- a) Circulation of blood
 - b) Digestive movements
 - (1) Peristalsis - move from one end to the other.
 - c) Breathing
 - d) Regulation of lumen size (diameter of hollow tubes)
 - e) Reg. Of pupil size, focus of eye
 - f) Somatic (touch) reflexes
- Continue if Passed out*

❖ Explain how you could determine if a particular physical motion was voluntary or involuntary?

C. Types of Muscle

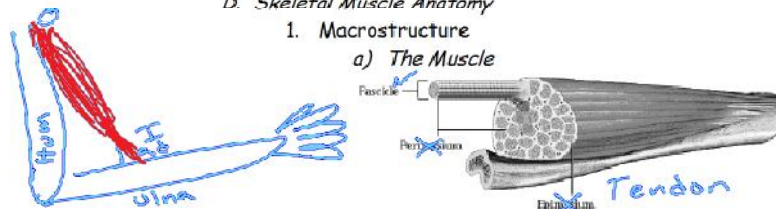
1. * SEE TISSUE LAB

❖ What are the three types of muscle tissue (tissue lab) and the functions of each?

D. Skeletal Muscle Anatomy

1. Macrostructure

a) The Muscle



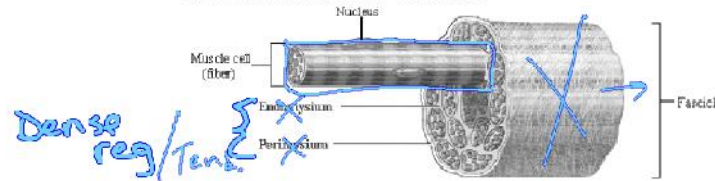
b) Tendons

- 1) Origin - the tendon on the unaffected bone
- 2) Insertion - the tendon on the affected bone

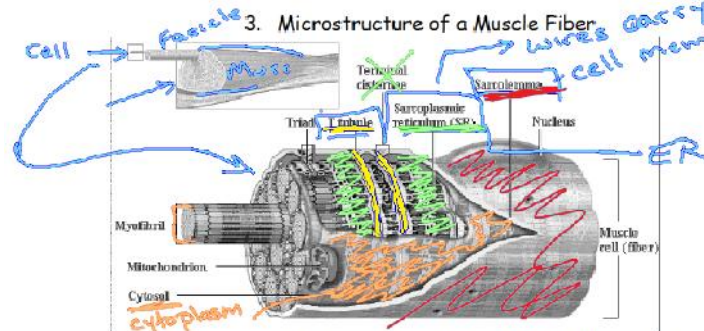
❖ Skeleton muscles are joined to bone by tough connective tissue called Tendon which are made of Dense Reg tissue (yes, tissue lab again).

❖ How do you tell the origin of a muscle from its insertion?

2. Microstructure of a Fascicle



❖ What is the collective function of the "mesiums", the perimesium, epimysium, and endomysium in the belly of the muscle?



❖ Explain the association of a Myofibril, a muscle fiber, a fascicle and a muscle.

4.

a) Cellular Specializations

- ✓ (1) Electrical conductivity - muscle fibers conduct electricity through their sarcolemma (cell membrane), sarcoplasmic reticulum (ER) and T tubules.
- ✓ (2) Energy production - have huge numbers of mitochondria to produce ATP.
- ✓ (3) Protein synthesis - have many nuclei to provide a lot of RNA for protein synthesis demands.

❖ What common function do the Sarcolemma, Sarcoplasmic reticulum and T tubules perform in a muscle cell?

b) Myofibril Protein arrangement

- (1) Packed with protein, virtually no typical cytoplasm
- (2) Overlapping Actin and Myosin create striations.