

Reading Guide for Week8 Imaging the Body, Fall 05

Lower arm, skeletal variations, Muscle function and contraction

The four basic properties of all muscles

Explain these in your own words.

Skeletal muscles

How do they differ from both cardiac and smooth muscles? Know the specifics.

Five functions of skeletal muscle

Be able to explain in your own words.

Connections between muscles, connective tissue and bone

Be able to explain the anatomy of these connections in words that you can clearly understand (ie. You don't need to know all the names of the various connective tissue layers around the muscles, but you do need to know their functions.)

Microanatomy of muscle fiber cells

Understand the various unique features of muscle fiber cells. Be able to succinctly summarize the organization of sarcomeres (be able to identify and understand the role of: mitochondria, sarcoplasmic reticulum, myofibrils, sarcolemma, transverse tubules). You don't need to know the names of all the various lines and proteins. However, you should understand the difference between thin and thick filaments and the dominant protein associated with each one. You should also know the physical arrangement of the thick and thin fibers.

Muscle contraction

Outline the sliding filament theory. Be able to explain the role of calcium and ATP in the contraction cycle. Know how nerve impulses travel through the muscle.

Study Questions #6 for Week8 Imaging the Body, Fall 05

These are due Wed, Nov 16th at the beginning of class. **Write your answers neatly and legibly on a separate piece of paper that you will turn in.** Be prepared to discuss your answers. You may need to access outside resources to completely answer these questions.

1. Go to the Links page of the ITB website (<http://academic.evergreen.edu/curricular/imagingthebody/links.html>) and work through the three links on muscle contraction.
2. How do skeletal muscle cells end up multinucleate? What function do you think this serves?
3. What do muscle fiber cells need to contract and where do they get what they need?
4. What does glycogen look like and what is its purpose?