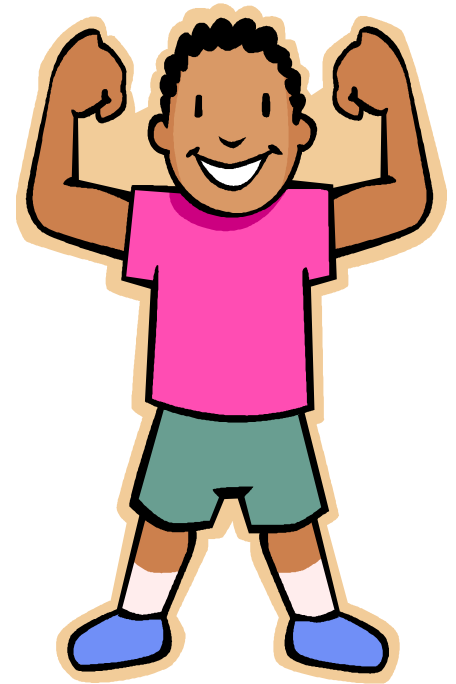




# The Muscular System

## Three Functions:

1. Produce movement
2. Keep body temperature stable
3. Maintain posture



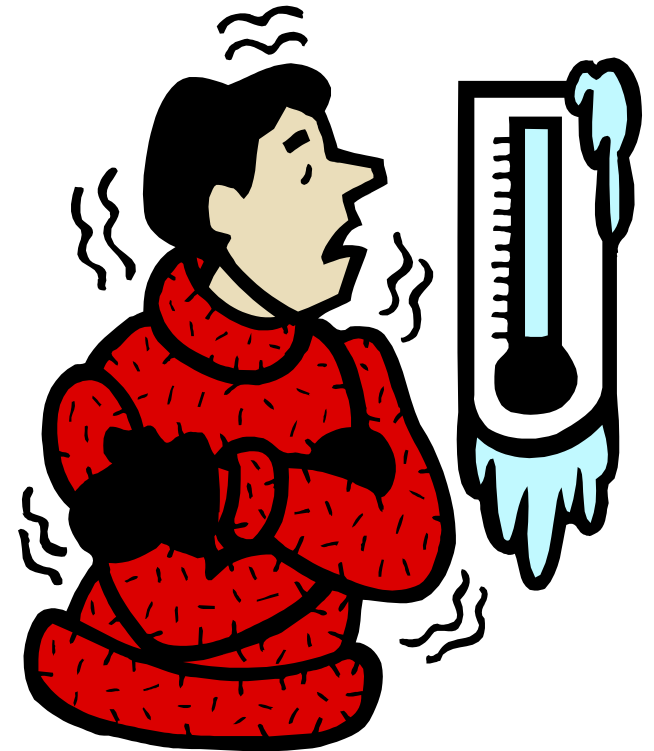
# Movement - muscles that produce movement.

- Muscular system works with skeletal system to allow movement.
- Muscles are made up of individual cells called muscle fibers - contract and relax.
- Work in pairs - one contracts, one relaxes.
- Muscles are attached to bones by stretchy connective tissue called tendons



# Muscles Maintain Body Temperature

- Homeostasis - the balance of body conditions (temperature, water, food, etc.)
- Muscles function to maintain body temperature
- When muscles contract, they release heat.
  - Ex: shivering produces heat.



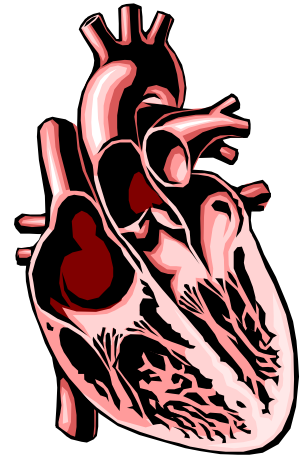
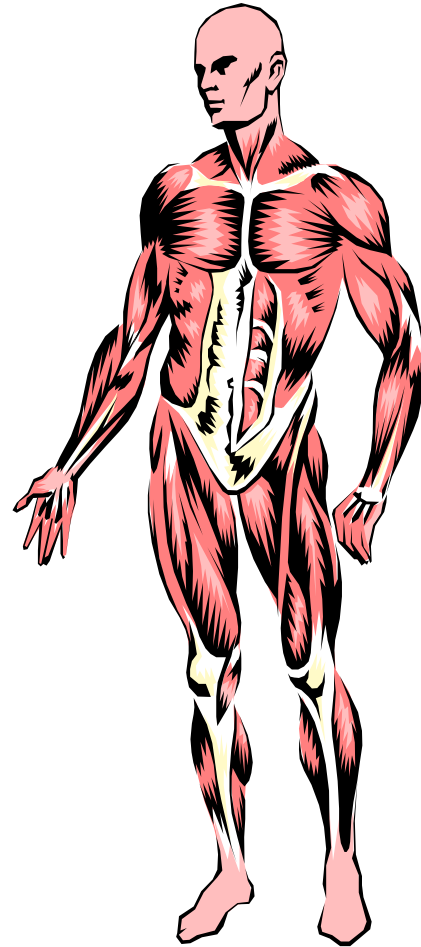
# Maintaining Posture

- Most muscles are always a little bit contracted - makes you stand up straight.
- These muscles only relax when you are unconscious.
- Muscles make adjustments to keep you standing up straight.



# Different Types of Muscles

- All 3 types of muscles contract and relax
- Skeletal (Voluntary)
  - Smooth (Involuntary)
  - Cardiac muscle





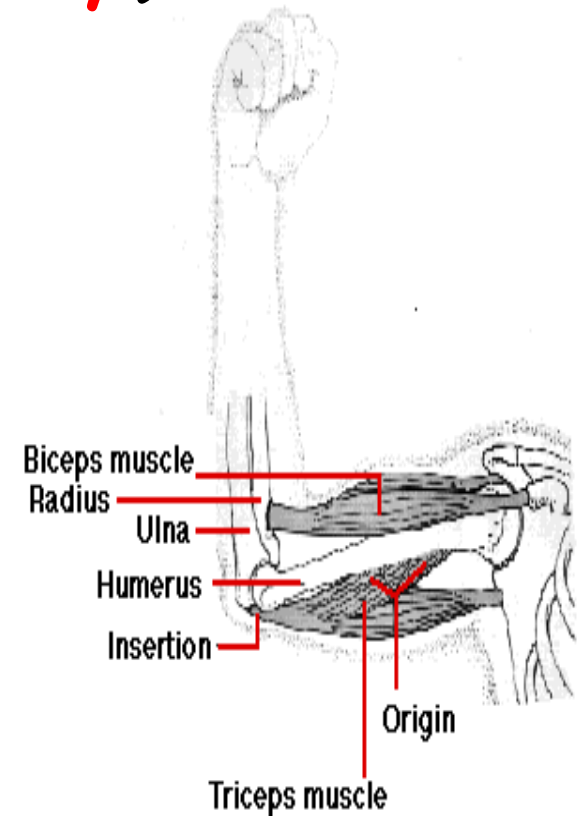
# Skeletal Muscle (Voluntary)

- Muscles that are attached to our skeleton
- Perform voluntary movement:
  - Movement you choose to make.

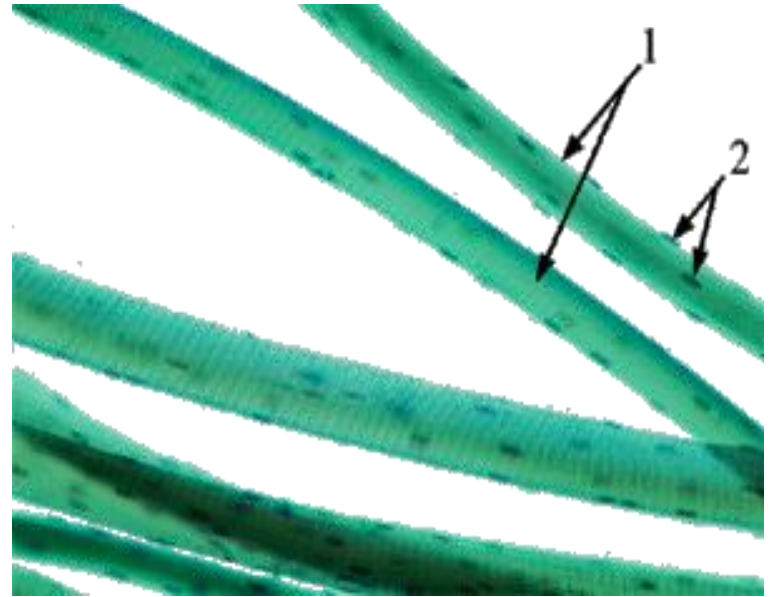
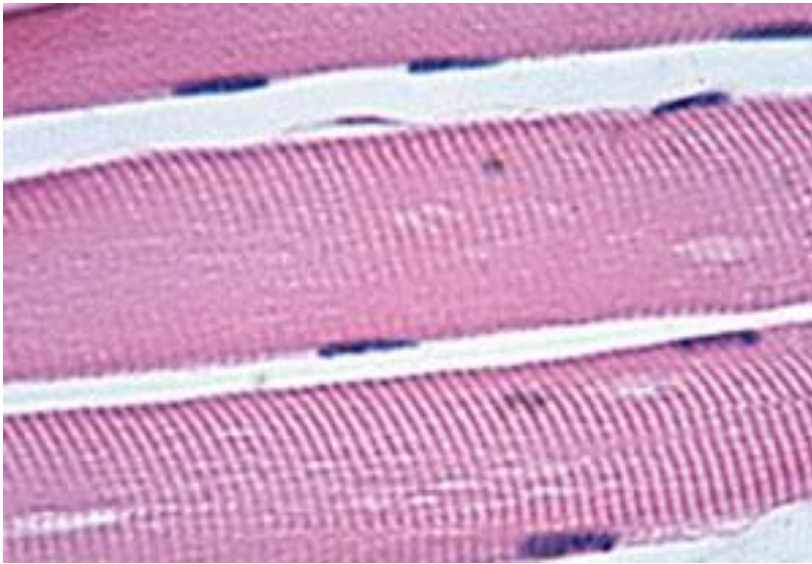
long fibers:

slow-twitch muscles – allow to move slowly

fast-twitch muscles – allow to move quickly

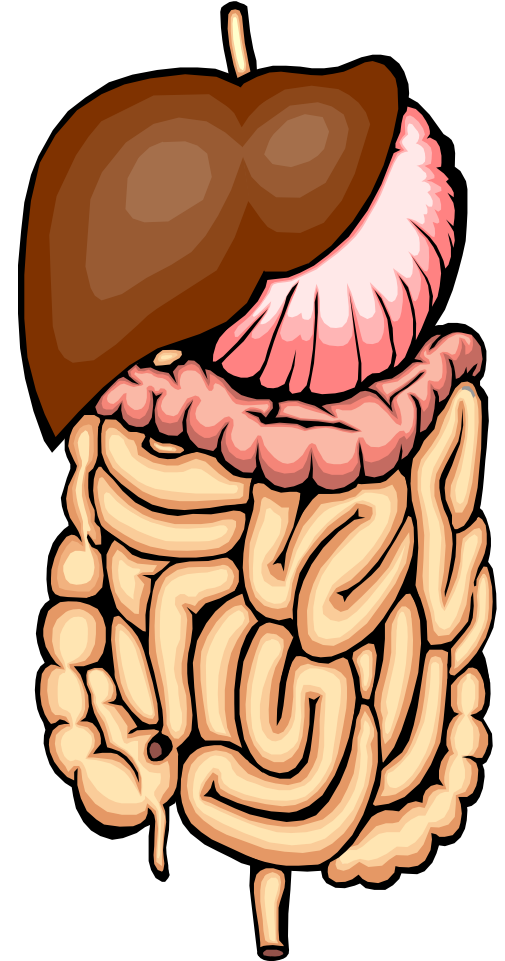


# Skeletal Muscle Tissue



# Smooth Muscle - Involuntary

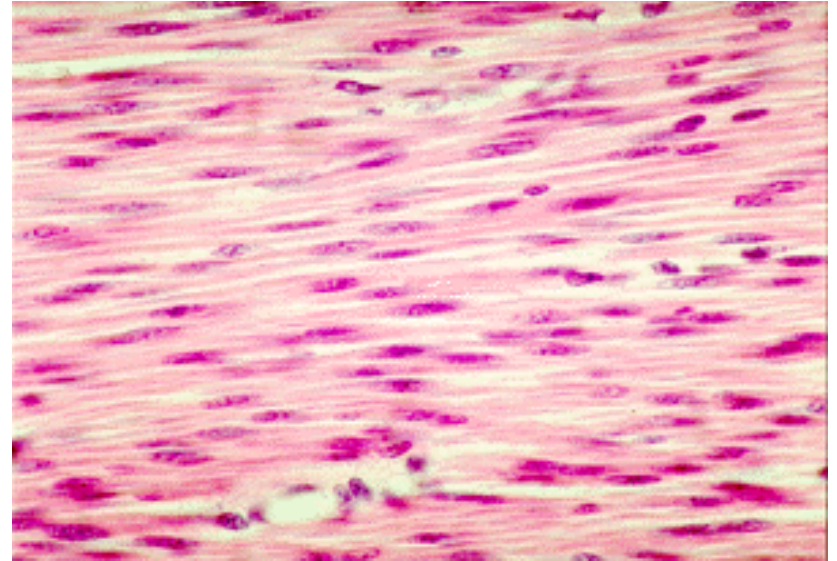
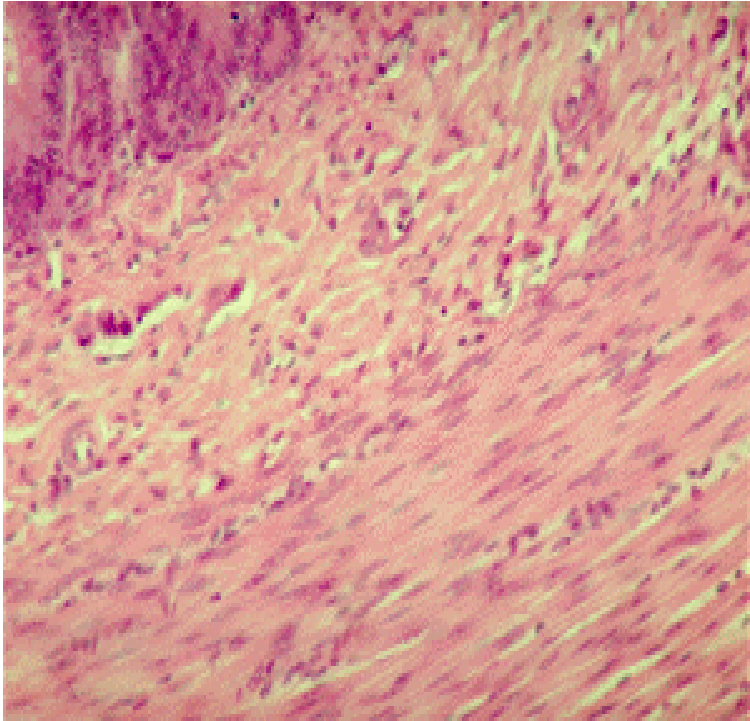
- Found inside some organs, such as intestines and stomach.
- Perform automatic movement - work without you knowing it.
  - Ex: push food along digestive system.
  - Fibers not as long as skeletal muscle fibers.
  - Not fast-twitch.
  - Smooth muscles contract slowly





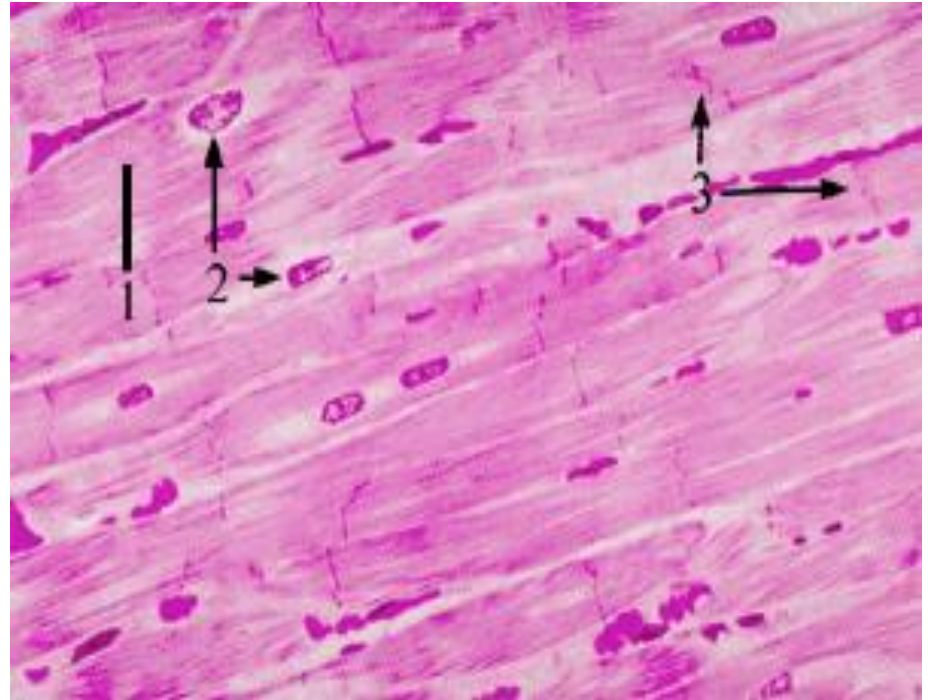
# Smooth Muscle Tissue

- Small intestine muscle tissue



# Cardiac Muscle

- Heart is a Cardiac Muscle
- Moves without conscious control.
- Contracts slowly.



Picture of Cardiac  
Muscle Tissue

# Allowing Bones to Move

- Skeletal muscles are attached to bones by strong tissues called **tendons**.
- Tendons on the end of each muscle attach firmly to the bone.
- As fibers in muscles contract, they shorten and pull the tendon. The tendon pulls the bone and makes it move.
  - Do this:
    - **Place your left arm, stretched out flat in front of you on a table. Place the fingers of your right hand just above your left elbow. Bend your elbow and raise and lower your left arm. You are contracting your biceps. Can you feel the muscle pull on the tendon?**
- Exercise regularly, the muscles will get bigger.