Lab #3 (week of 1/30): Joints and Muscles

1. **Pre-lab reading**
   a. Lab handout
   b. Text sections 30.3, 30.7

2. **Quiz #2** will cover the skeletal system, including identifying bones from charts, articulated skeletons, disarticulated skeletons

3. **Homework #1 due** (2 articles/resources for project)

4. No new homework assigned (homework #2 = project presentation)

Next lab (week of 2/6) = Lab #4: Joint/Muscle Presentations

1. No pre-lab reading

2. **Quiz #3** covers joints & muscles

3. **Homework 2** comprises joint/muscle presentation

4. **Homework 3-5** (nutrition diary) assigned (separate instructions provided)

List of Terms for Lab #3
(Know location, type of joint; location, action of muscles; descriptions of actions; structures/functions associated with synovial joints)

- joint capsule
- articular cartilage
- synovial membrane
- synovial fluid
- pads of cartilage
- fat pads
- bursae
- ligament
- tendon
- hinge joint
- pivot joint
- ball and socket joint
- adduction
- abduction
- rotation
- flexion
- extension
- pronation
- supination
- shoulder
- elbow
- wrist
- hip
- knee

- ankle
- pectoralis
- biceps brachii (biceps)
- triceps brachii (triceps)
- deltoid
- trapezius
- latissimus dorsi
- adductor longus
- sartorius
- quadriceps femoris (quadriceps)
- tibialis
- gluteus maximus
- gastrocnemius
- erector spinae
- splenius
- semispinalis
- transversus abdominus
- internal oblique
- external oblique
- rectus abdominus
Activity/Question to answer: Lay prone on the floor. Place your forearms flat on the floor with your fingertips touching just under your chin and elbows about as far apart as your shoulders. Extend your legs straight out behind you and place the balls of your feet on the floor. Lift your body off the floor, supporting your weight on your arms and on the balls of your feet only. Experiment with tightening your arm, back, and abdominal muscles. Write a description of what muscles you felt working during the exercise. Using that description, defend the statement that abdominal muscles are postural muscles that help stabilize the back.
**Pectoralis major**
- Draws arm forward and toward the body

**Serratus anterior**
- Helps raise arm
- Contributes to pushes
- Draws shoulder blade forward

**Biceps brachii**
- Bends forearm at elbow

**Rectus abdominus**
- Compresses abdomen
- Bends backbone
- Compresses chest cavity

**External oblique**
- Lateral rotation of trunk
- Compresses abdomen

**Adductor longus**
- Flexes thigh
- Rotates thigh laterally
- Draws thigh toward body

**Sartorius**
- Bends thigh at hip
- Bends lower leg at knee
- Rotates thigh outward

**Quadriceps group**
- Flexes thigh at hips
- Extends leg at knee

**Tibialis anterior**
- Flexes foot toward knee

**Deltoid**
- Raises arm

**Trapezius**
- Lifts shoulder blade
- Braces shoulder
- Draws head back

**Triceps brachii**
- Straightens forearm at elbow

**Latissimus dorsi**
- Rotates and draws arm backward and toward body

**Gluteus maximus**
- Extends thigh
- Rotates thigh laterally

**Hamstring group**
- Draws thigh backward
- Bends knee

**Gastrocnemius**
- Bends lower leg at knee
- Bends foot away from knee

**Achilles tendon**
- Connects gastrocnemius muscle to heel
Figures from Martini, Fundamentals of Anatomy & Physiology 6/e, Benjamin Cummings.