

Activity 8: Knee, Ankle, and Foot

Activity 1:

Locate on the skeleton, on a fellow classmate, and on yourself all of the bones of the lower extremity. Include the bony landmarks of medial and lateral epicondyles of the femur, the medial and lateral malleoli of the tibia and fibula, the patella (superior and inferior aspects), the tibial tuberosity, and the calcaneus. The knee joint itself is usually identified by finding the crease or fold between the tibia and the femur. (You can also look for these landmarks on either of the Primal Software Programs used in this laboratory.)

Activity 2: muscle identification

Locate the following muscles on your partner. If you are not sure you are palpating the correct muscle, provide some resistance so the subject is performing an isometric contraction of the muscle. Use your textbook to determine the approximate location of the muscle belly and determine the resistance action. Before you leave lab today, your instructor will test you on your ability to identify the location of these muscles. Recreate this table ON A SEPARATE SHEET OF PAPER.

Muscle	Location of muscle belly	Resistance/Action
Vastus lateralis		
Vastus medialis		
Gastrocnemius		
Tibialis anterior		
Peroneus longus		

From the Primal Interactive Anatomy: Foot & Ankle CD-ROM, locate all of the muscles that produce plantarflexion or dorsiflexion of the ankle and those that produce inversion or eversion of the foot.

Find the primary medial and lateral ligaments that cross the ankle joint.

Try to identify the muscles and ligaments that could be injured during an inversion ankle sprain (rolling the ankle).

Activity 3:

From the Primal Interactive Sports Injuries: Knee CD-Rom, navigate to the “Sport Injuries” tab. Choose “Acute Injuries” and read through the sections on “Mechanisms of soft tissue injuries” and “Anterior Cruciate Ligament Injuries”. What are the primary mechanisms from which ACL injuries occur? What are the primary jobs of the ACL? What are the different methods of Repairing an ACL injury?

Activity 4:

Answer the following questions:

1. What muscles will be important for foot and ankle stability during an instep soccer kick (identify those for the kicking foot and for the plant foot)?
2. What lower body strength training exercise would target/stimulate the most musculature around the most joints? (Include hip in answer.) Explain.
3. Describe the function of the gastrocnemius and the tibialis anterior during a running stride.
4. Why are leg curls different when performed with the ankle plantarflexed as opposed to dorsiflexed? (Or is there no difference and explain why...)