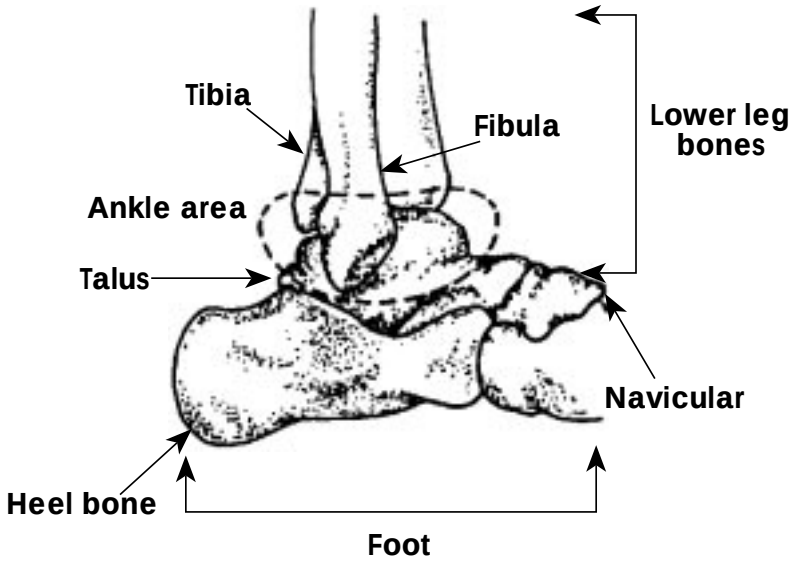
Figure 1

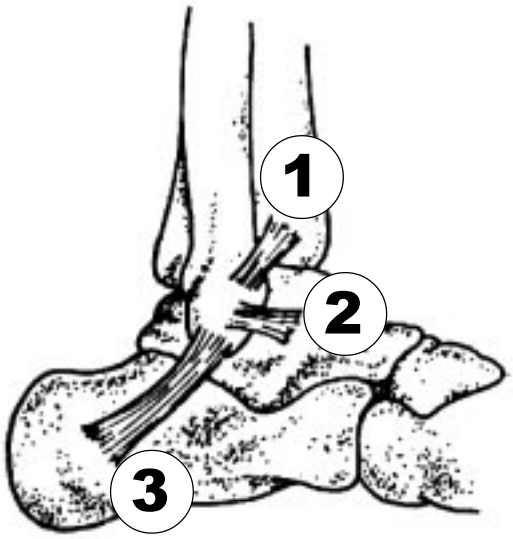
Bones of the Ankle



2. Examine Figure 2. This is a similar drawing of the ankle except that three ligaments have been added. They are marked 1, 2, and 3.

Figure 2

Ligaments of the Ankle



3. Using your collected materials:

   a. color all leg bones in Figure 2 gray.

   b. color all foot bones in Figure 2 blue.

   c. color all ligaments in Figure 2 red.

4. On Figure 2:

   a. label the two bones held together by ligament 1.

   b. label the two bones held together by ligament 2.

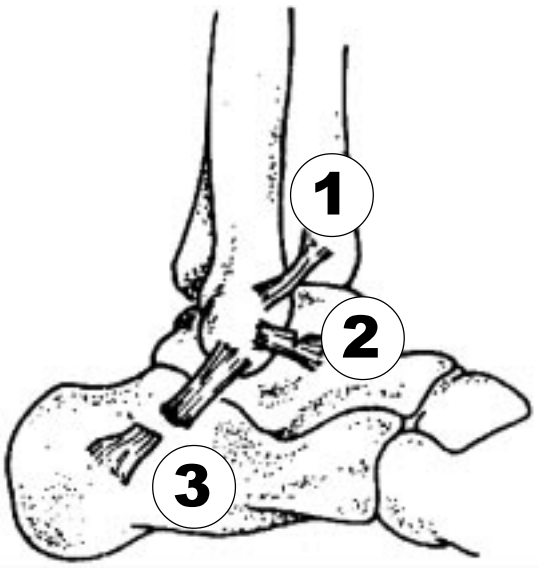
   c. label the two bones held together by ligament 3.

5. Examine Figure 3 showing the three types of sprains. They are as follows:

   first-degree sprain—ligaments are only stretched.
   second-degree sprain—ligaments are only partly torn.
   third-degree sprain—ligaments are torn completely.

Figure 3

Sprained Ankle Ligament



6. Using your materials and Figure 3:

   a. color the first-degree sprain gray.

   b. color the second-degree sprain blue.

   c. color the third-degree sprain red.

7. Examine Figure 4. This is a drawing of the bones and ligaments of the shoulder. Using your materials:

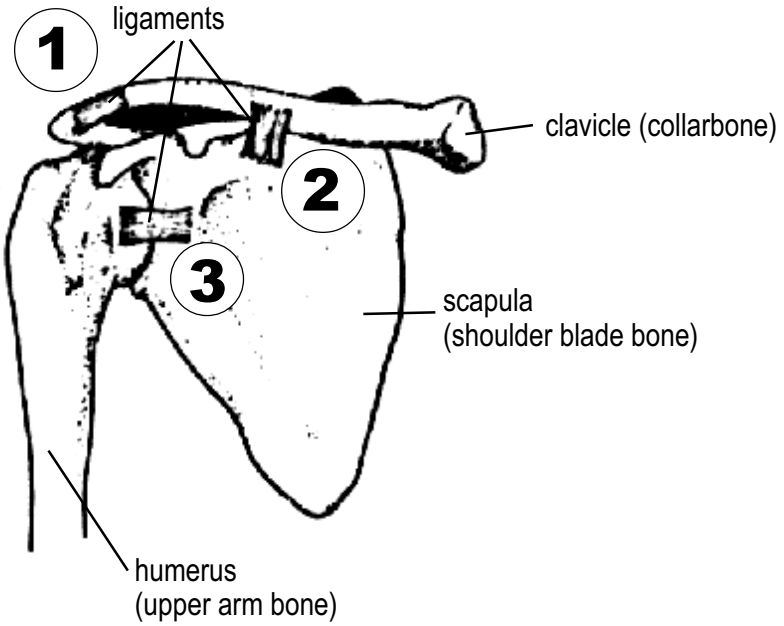
   a. color all shoulder bones gray.

   b. color all upper arm bones blue.

   c. color all ligaments red.

Figure 4

Ligaments of the Shoulder



8. Circle the two bones held together by ligament 1 in red. Circle the two bones held together by ligament 2 in blue.

9. Examine the incomplete drawing of the shoulder in Figure 5. Finish the drawing by doing the following:

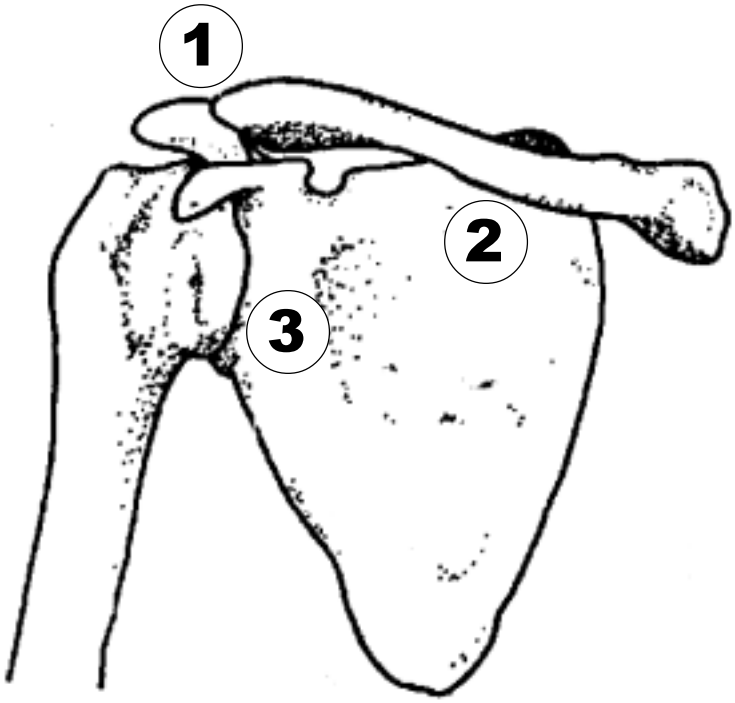
   a. drawing in a second-degree sprain of ligament 1.

   b. drawing in a third-degree sprain of ligament 2.

   c. drawing in a normal ligament holding the humerus to the scapula.

Figure 5

Sprains of the Shoulder



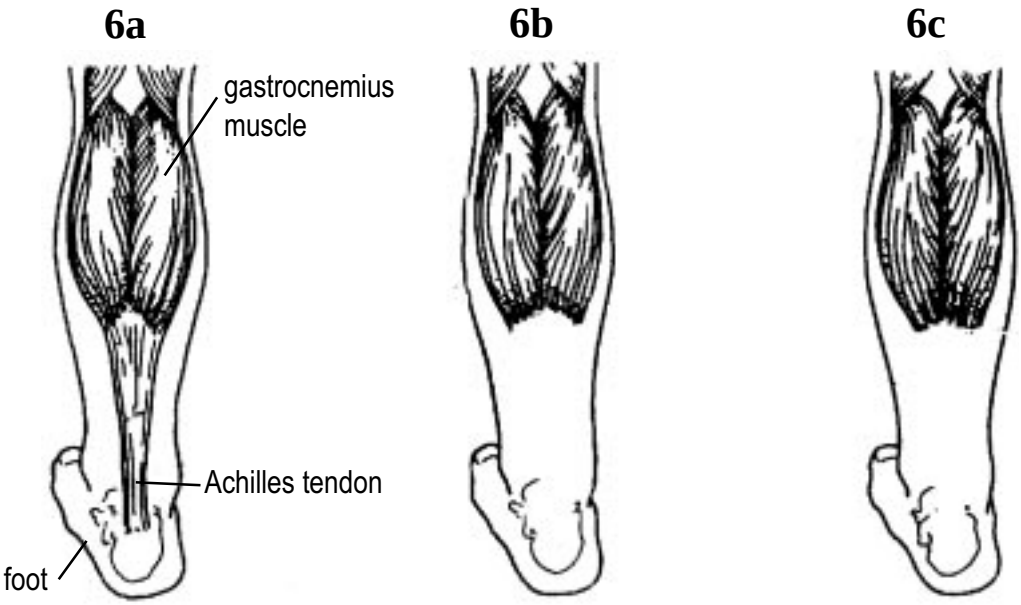
Lab Activity: Part 2: Totally Torn Tendons—Tendonitis

1. Locate your calf muscle—your *gastrocnemius* muscle. Run your hand down your calf until you nearly reach the back of your heel. You should now be able to feel a thick cord at the back of your heel. This cord is a tendon—your *Achilles* tendon.

2. Examine Figure 6a. This drawing shows an actual view of the back of a person's leg. The skin has been removed.

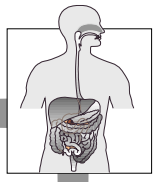
Figure 6

The Calf Muscle



3. Finish Figure 6b by showing what a totally torn Achilles tendon would look like. Draw an arrow pointing to the torn area and label it.

4. Finish Figure 6c by showing what tendonitis of the Achilles tendon would look like. Tendonitis is a soreness of the tendon. It is caused by small tears that occur along the tendon. Draw an arrow pointing to the tears and label them.



5. What body parts are held together by ligaments? _____

_____

6. Are ligaments a part of the muscular system or the skeletal system?

_____

7. What type of sprain probably takes the least time to heal?

_____

8. What type of sprain takes the most time to heal? _____

_____

9. Describe what one might have to do to cause a sprain. _____

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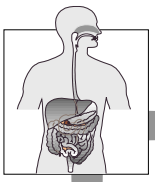


Practice

Use the list below to write the correct term for each definition on the line provided.

arteries	**larynx**	**saliva**
bile	**organ**	**spongy bone**
bones	**periosteum**	**veins**
cartilage	**platelets**	**voluntary muscles**
enzymes	**red blood cells**	**white blood cells**
epiglottis		

_____ 1. a body structure made up of a number of cell tissues that works as a unit to perform a specific function

_____ 2. a fluid released from glands in the mouth that soaks into food and helps in chewing, swallowing, and digesting

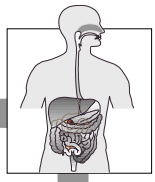
_____ 3. a soft, flexible substance that sometimes hardens into bone as it ages

_____ 4. a substance produced in the liver and stored in the gall bladder that works specifically to dissolve fat in the small intestine

_____ 5. a tough layer of tissue covering the outside of the bone

_____ 6. also known as the voice box; a structure in the windpipe in which the vocal cords vibrate with passing air to make sound

_____ 7. blood vessels that contain blood traveling away from the heart



_____ 8. blood vessels that contain blood traveling back to the heart

_____ 9. proteins that speed up chemical reactions; speed up the breakdown of food into molecules

_____ 10. larger than red blood cells, their most important function is to surround and destroy microorganisms that invade the body

_____ 11. little flap of tissue in the throat that protects the opening to the windpipe

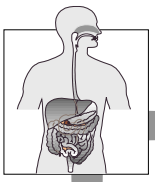
_____ 12. muscles you choose to use at will

_____ 13. pieces of larger cells formed in the bone marrow that have no nuclei and are even smaller than red blood cells; they work with proteins in the plasma to clot the blood

_____ 14. sections of the skeleton; serve as framework for the body, anchors for the muscles, factories for blood cells, storage places for calcium

_____ 15. small, disk-shaped cells containing hemoglobin; they deliver oxygen to body cells and pick up carbon dioxide

_____ 16. has many small holes; strong, like solid bone, but more lightweight; found at the end of bones



Practice

Use the list below to write the correct term for each definition on the line provided.

atria	**involuntary muscles**	**tendons**
bronchi	**ligaments**	**urea**
capillaries	**nephrons**	**urethra**
diaphragm	**plasma**	**urine**
esophagus	**solid bone**	**ventricle**
hemoglobin		

_____ 1. strong fibers that attach muscles to bone

_____ 2. the bottom chamber of both sides of the heart

_____ 3. the dome-shaped muscle at the base of the chest cavity that contracts and lowers to draw oxygen into the lungs, then relaxes and lowers to push carbon dioxide out

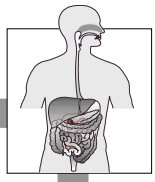
_____ 4. the liquid part of the blood

_____ 5. the protein that colors red blood cells and allows them to carry oxygen to the tissues

_____ 6. the passageway out of the body for urine

_____ 7. the top chamber of both sides of the heart

_____ 8. the tube that carries food to the stomach



_____ 9. the two branches of the windpipe that descend to the right and left lungs

_____ 10. muscles that operate completely outside of conscious thought, whether we want them to do so or not

_____ 11. tiny blood vessels where pickup of wastes and delivery of oxygen and food takes place; connect arteries to veins

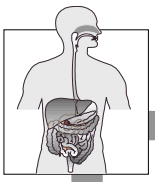
_____ 12. tiny filtering units in the kidneys

_____ 13. tough fibers that help hold bones together

_____ 14. a waste product that is made up of leftover parts of used proteins and is high in nitrogen

_____ 15. urea and other waste substances that are collected in the bladder

_____ 16. very dense and strong; a storage place for calcium; usually found around the edges of bones



Word Check