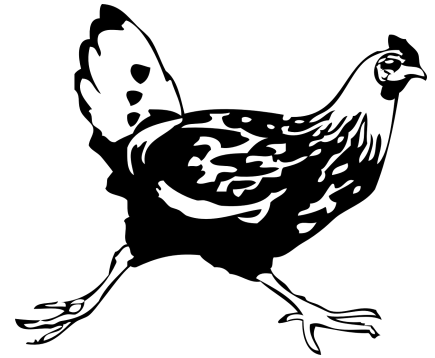


Chicken Wing Dissection

The chicken wing is a good model to study for the anatomy of the human arm. The major structures are homologous between the wing and the arm and it is a readily available specimen. In this lab you will be dissecting a chicken wing to learn more about the relationship between bones, joints, cartilage, ligaments, muscles and tendons.



Raw chicken may contain salmonella bacteria. To avoid contamination with bacteria, wear gloves, wash your work area when finished, and thoroughly wash your hands when done.

Procedure

1. Carefully observe your chicken wing.
Consider whether your wing is from the right side or left side of the chicken. Be prepared to explain how you determined this.
2. Examine the wing at the point where it was removed from the body. When the wing was removed it may have been pulled off the body or cut off the body. If the wing was pulled off, then you should be able to see articular cartilage at the point where it was attached (this should look like an opalescent white cap on the end of the bone).
3. Study the outside surface of the wing. Examine the web-like skin between the bones. The bumps on the skin are where the quills of the feather pass through the skin. You will now need to remove the skin from the wing (do not remove skin from the wing tip.)
4. Start at the proximal end of the wing using scissors. Remove skin from the lateral (thick) side first. In order to

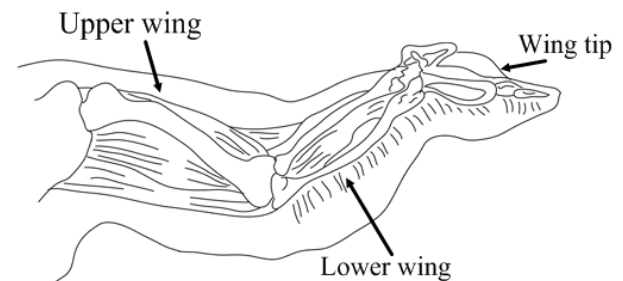
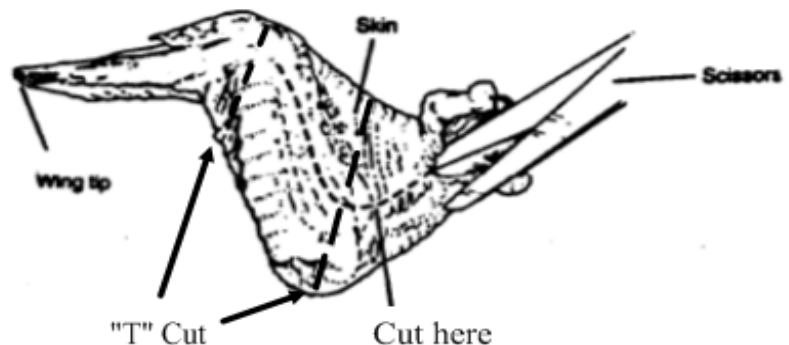
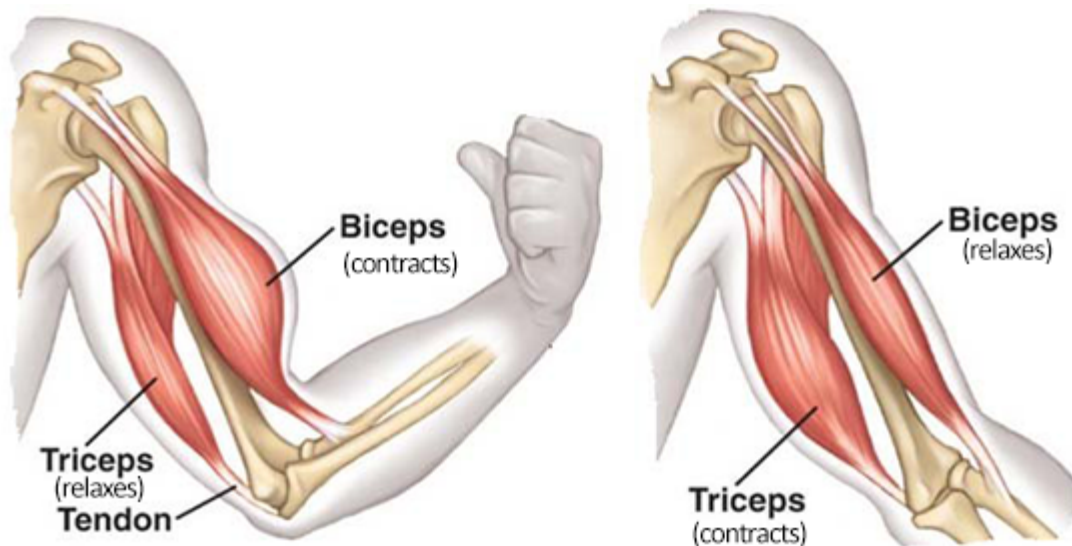


Figure 1



prevent cutting through underlying muscles, always pull up on the scissors before each cut (work carefully and slowly).

5. Cut along the bone until the elbow joint is reached.
6. Cut across the wing forming a “T” shaped cut
7. Pull up on the skin and using either the point of a probe, the handle of a probe, or your finger, tear the connective tissue holding the skin onto the wing (this takes some patience).
8. When the upper wing is fully skinned, continue cutting from the elbow joint to the wrist joint (the beginning of the wing tip). Remove the skin from the lower wing.
9. Observe the muscles in the wing. The muscles are contained within semi-transparent connective tissue membranes, and resemble bundles of pink tissue.
10. To demonstrate which muscles are flexors (contract) and which are extensors (relax) it is necessary to loosely hold the wing horizontally by the upper wing bone. Pull on an upper wing muscle with your fingers and note whether the wing flexes (contracts) or extends (relaxes). Repeat with the other upper wing muscles.

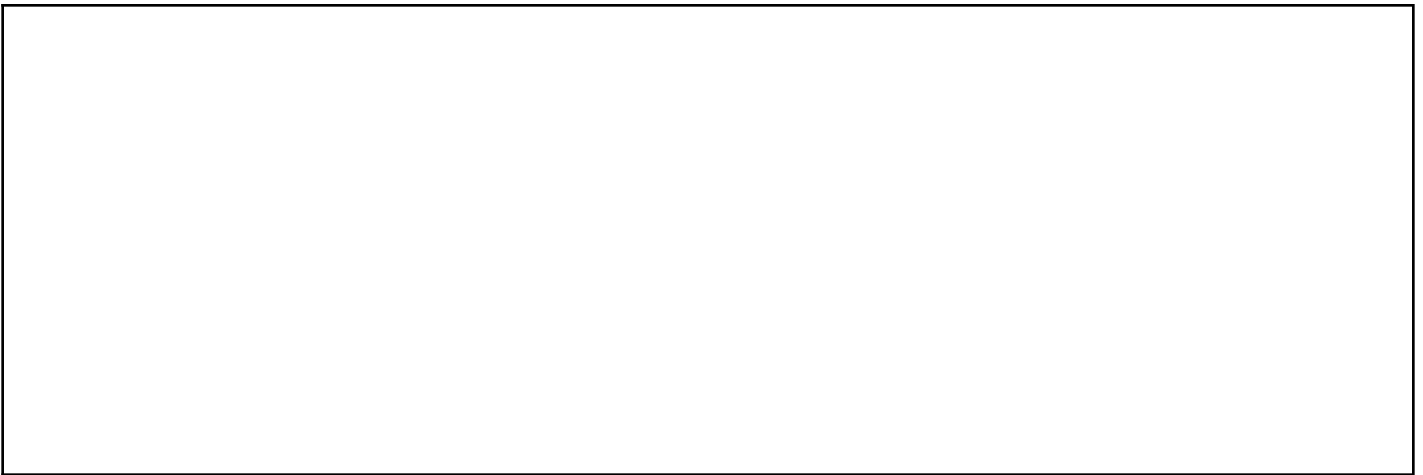


11. Observe the white **tendons** connecting the muscles to the bones. Carefully observe the attachment point where the tendon meets the bone.
12. Look for blood vessels in the wing. Blood vessels will appear as thin brownish-red threads.
13. Bend and straighten the joints of the wing to see how the bones all fit together and move in relation to each other. **Draw the chicken wing with muscles. Label the muscles.**

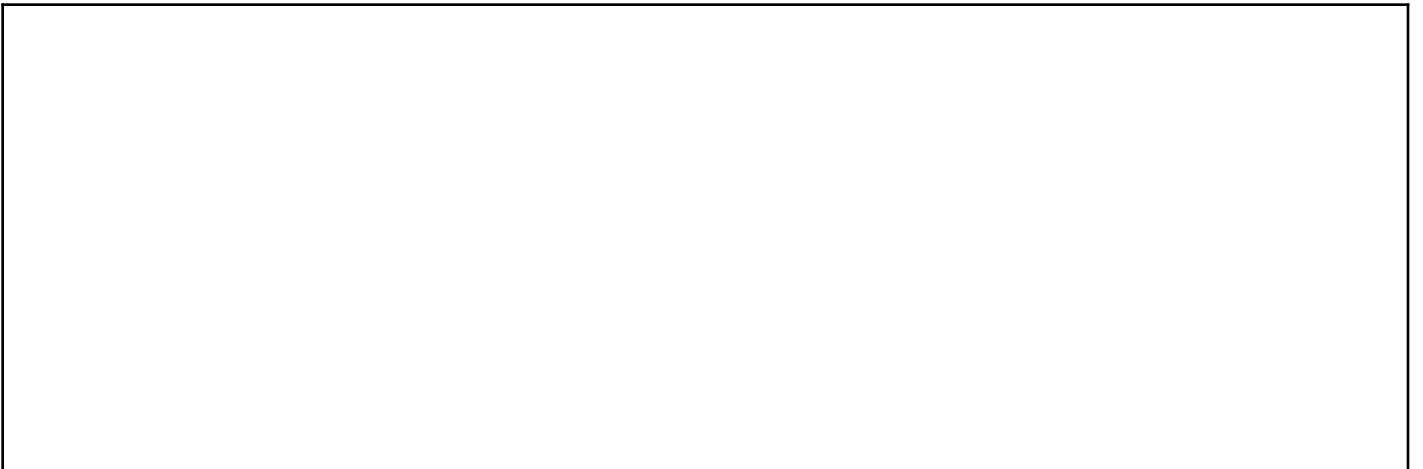
14. Remove the muscles and their tendons. Remove all the muscles so the clean bones and their ligaments are fully exposed. It should now be possible to see short white bands of tissue connecting the bones at a joint. These bands are the ligaments.
15. Observe the shiny white caps of tissue at the ends of the bones at the elbow joint. This tissue is the articular (hyaline) cartilage.
16. Draw another diagram without the muscle, draw the wing bones with their associated cartilages and ligaments. In this diagram, **label the bones of the wing, cartilage and the ligaments.**
17. Dispose of the wing and all removed tissue in the provided trash bag. Clean the surface of your work station and tools. Place your gloves in the trash bag and wash hands with soap.

Drawings and Observations

Chicken Wing with Muscles



Chicken Wing with Bones



Questions:

1. Was your wing from the right side or left side of the chicken's body? How do you know?

2. How is the chicken wing **similar** to a human arm?

3. How is the chicken wing **different** from a human arm?

4. Based on your observations, explain the role of muscles, tendons, bones, cartilage, and joints in the back-and-forth movement of the chicken wing.

5. Compare and contrast tendons and ligaments.

6. What is one additional concept that you learned from this lab?