

## BIOL 244L HUMAN ANATOMY AND PHYSIOLOGY LABORATORY

### I. CAT DISSECTION.

In most cases, BIOL 244L follows 243L, and the cat dissection is well underway with study of muscles, the respiratory system, and the circulatory system. If starting 244L with fresh dissection specimens, we will start with preparation of the cat for the second semester's studies.

**A. Dissection Technique.** Prior to beginning a dissection of a region, read the instructions and study the figures to get an advance idea of what structures you will encounter. In working with muscles, this time to get through them to expose deeper structures, separate muscles along natural planes of division between adjacent muscles. Use scissors and forceps to trim away the overlying fat and **fascia** (collagenous connective tissue under the skin that encloses, supports, and separates muscles), and look for the direction of the muscle fibers. Note: the fascia can be tough, and you may have to scrape, pull, and tear to remove it. The fascia will tend to be clear or translucent while the muscle tissue will be pink or flesh tone in color. Be attentive that you are not tearing up muscle tissue as you remove fascia. Look for changes in direction of fibers; these indicate different layers of muscles and different individual muscles lying close together. Try to slip a blunt tipped dissecting probe or the flat edge of a scalpel handle between two separate layers ("blunt dissection"). If they separate easily, then you have separated two different muscles. Avoid cutting or forcing a separation; rather find the natural planes of connective tissue divisions. If you must cut a muscle to see deeper structures, for example nerves, cut through the belly of the muscle at right angles to the fiber direction. Leave the cut portions attached, so you can see the origin and insertion of the cut muscle and restore the relationships of the muscle if needed. You also have a right and left side of the cat to work with. You can do a superficial dissection on one side and a deep dissection on the other. Avoid cutting large nerves or blood vessels. Dissection, although it gets bad press these days, is an art and vastly more effective for learning than looking at diagrams. An artful dissection will allow you to see all the structures you have worked through still in place, so you can go over them again.

Work in small groups. Pick up a dissecting tray and, from the instructor, sign out a dissection kit for the group from the front of the lab. Each dissecting kit should contain a scalpel, dissecting probe, pair of scissors, and a pair of forceps. Check it back in when you are finished. There are 3 cats available for each lab bench. Rotate people doing the dissection, so everyone can have a hand at it, and be sure that all members of your group get to see the structures and work at identifying them. Gloves and aprons are available. Place several layers of newspapers on the work area to absorb fluids.

**B. Skinning the Cat:** There is more than one way, but the following is recommended. Note that the skin has already been opened at the cat's neck, and also on the side of its belly. This was done so that the blood vessels could be injected with colored rubber material to make study of the vascular system easier. You will need to leave the skin on the cat around the edges of these areas, because these openings are stitched shut with string through the skin.

Scissors are the safest for cutting skin, because it is easy to control how deep they cut. (A scalpel might cut more than you want!). Your dissecting kits have fine scissors, but these are too fine for cutting the furry skin. Instead use the pairs of heavy scissors available to be checked out from the instructor for the major skinning operation.

First, if it has not been done already, wash the cat in the sink at the rear of the lab to remove excess preservative. If the cat is out of the bag it was shipped in, then it has already been washed. Get a dissecting tray, and place the cat on its back at the workstation. The overall plan for skinning today is to skin one side of the cat but, and this is important: **leave the skin attached along the back so the skin can be used to wrap up the cat after each dissection. This will help prevent it from drying out in between our**

**dissection sessions and we will be working with these cats for a long time.** Make a midventral cut through the skin (but not through the thoracic or abdominal wall (if in doubt, ask the instructor). Extend the cut from the jaw to the anus. If your cat is a female, on the side you choose to dissect today (either the right or left side), cut the skin laterally around the nipples and underlying mammary glands, which lie between the skin and the superficial muscles of the abdomen. Leave this skin patch with the mammary glands intact for future study. Again, on the side you choose to dissect today, cut the skin from the midventral incision out along the fore and hind limb to the level of the elbow and knee. At the elbow and knee, cut the skin around the limbs, so the upper part of the limbs can be skinned. Separate the skin from the underlying muscles using blunt dissection. Make additional cuts as necessary to free the skin from the torso and legs, but leave it attached all along the top of the back for the present. Also, leave the skin intact around the mouth, eyes, ears, and feet. A few cutaneous muscles will stick to the skin when you are peeling the skin off. These are muscles that move the skin. It is all right to remove them with the skin, but ask the instructor to confirm that they are indeed cutaneous muscles, because if other underlying muscles are thin, they may be pulled away with the skin and become disrupted for study.

**C. Posterior Trunk.** To expose the abdominal cavity contents, make a short (about 1 inch) long incision in the lateral abdominal wall parallel to the body axis. The old abdominal incision made by the supplier for injecting the vascular system is a good place to start this new incision. Cut through the abdominal wall but not into the abdominal organs.