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Lab Procedures

No food or drinks allowed on the benchtops
Always keep your hair pulled back by a hairtie or rubber band
Claim one drawer per bench of four students. Be sure and have at least 2 keys, or tell your benchmate the combination of the lock. You must be able to get into your drawer in the event the person who brought in the lock does not show up for class.

Disposal and Removal of Blades:

Do not attempt remove the blade with your hands
To remove the blade, using a forceps, lift the handle-end of the blade and slide it forward
Place the blade into the RED plastic container
If the blade breaks during lab, place the fragments into the container, using a forceps. DO NOT handle blade fragments with your gloved fingers

Use soap and water to clean the benchtop of any fat and oils. Spread disinfectant and wipe dry.

When Cleaning the Dissecting Trays:

DO NOT dump any solid tissues into the sink. Wash the dissecting tray with soap and water, removing all fat and oils. Wipe the tray dry. When done, place the dissecting tray into the drying rack NEATLY!

Cat Dissection Tips and Clean Up:

The cats are stored in the cabinets at the back of the classroom. Your instructors name is on your cabinet.

Pull out the drawer and remove your cat.

Cut open the plastic bag at one end. DO NOT cut the bag lengthwise. You will need to reuse the bag by sliding the cat back into the bag when done.

Remove the cat over a metal tray being sure not to spill any excess fluid. The excess fluid in the bag may be poured down the sink.
Lab Procedures

When finished with the dissection, wrap the cat in wet paper towels so it will not dry out, slide the cat back into the plastic bag, then close up the end of the bag in order to fit a rubberband around it.

Wrap a rubberband very tightly (at least 3-4 times) around the end of the bag. Then place the bagged cat back onto its shelf in the cabinet.
HUMAN EYE

A. Lens
B. Cornea
C. Ora Serrata
D. Pupil

A simple cut down the center of the eye should suffice.

Observe the lens, which, in Figure 1.1, is separated from the rest of the eye. The cornea bends, refracts, and focuses light rays. The ora serrata is the junction between the retina and the ciliary body. Light progresses through the circular opening of the eye, called the pupil.

Figure 1.1

A. Sclera
B. Choroid
C. Optic Disk
D. Cornea
E. Retina
F. Ciliary Muscles
F. Lens

The sclera is commonly referred to as the white of the eye. It is visible externally, and serves as a tough outer covering. Light passes through the cornea to the retina, where nerve impulses are sent to the brain.

Figure 1.2
HUMAN EYE

A. Cornea
B. Pupil
C. Lens
D. Choroid (peeled back)
E. Sclera
F. Retina

The cornea is a transparent, dome shaped window covering the frontal area of the eye. It serves as a refracting surface, providing about 66% of the eye's focusing power. The pupil, as you probably know, is the opening in the center of the iris. The size of the pupil determines the amount of light that enters the eye.

COW EYE

In Figure 1.4, you can see the first probe resting on the retina, the gooey yellow layer. The second probe is resting on the choroid, or the vascular tunic layer.

A. Sclera
B. Adipose (fatty) cushion
THE MICROSCOPE

Figure 2.1 shows a typical compound microscope. The compound light microscope uses two lenses to form an image. A light source passes directly through the specimen instead of reflecting off of it as in a typical dissection microscope. A compound microscope is generally used when viewing thin specimens and provides fairly great magnification.

Figure 2.2
A. Fine Focus Knob
B. Stage Adjustment
C. Microscope body
D. Clips

Figure 2.3
A. On/Off Switch
B. Power Cord
C. Brightness Knob
D. Light Source

A. Eyepiece
B. Diopter Ring
C. Objective Lens
D. Coarse Focus Knob
E. Condenser Focus
F. Daylight Filter
G. Stage
MICROSCOPE CARE

The microscope must be used with care and caution, for it is an expensive and delicate instrument. You will be expected to learn to use it correctly and care for it appropriately. Improper use of the microscope will result in the loss of your privilege to use it in the classroom.

When using the microscope:

1. Clear the table of any fluid containers, bags, or other items that may crowd and obstruct the instrument. Place all personal items in a location that will not obstruct the walkspace between tables.

2. With the dustcover on, carefully remove the microscope from the cart, holding the arm handle with one hand and supporting the base with the other hand. Transport the microscope upright and not in a tilted manner.

3. Make sure the yellow electrical cord is plugged into the floor outlet. Remove the dustcover, and plug the microscope cord into the electrical outlet located at the end of one of the paired tables.

4. Your instructor will distribute slides to you and your group. Place your slidebox towards the center of the table. After use of the slides, return them to the original position within a slide container.

5. When moving the microscope, do not drag it across the table—always lift by the arm.

6. Use only lens paper to clean the lenses.

When you have completed your use of the microscope:

1. Lower the stage and remove the slide, returning your slide to the box.

2. Turn the shortest objective lens to the focusing position. (i.e. in line with the body tube)

3. Bring the brightness of the light down and turn off the light of the microscope.

4. Do not wrap the electrical cord around the microscope. Depending on the microscope you use, wrap the cord loosely and securely with a rubber band if necessary.

5. Replace the dustcover over the scope.

6. Return the microscope to the cart.

7. Your instructor will collect the slide boxes.

Thank you for your cooperation to preserve our valuable equipment.
SHEEP BRAIN

A. Occipital Lobe of Cerebral Hemisphere
B. Superior Colliculi of Corpora Quadrigemina
C. Inferior Colliculi of Corpora Quadrigemina
D. Cerebellum

Figure 3.1 shows the dorsal midbrain structures of the sheep brain exposed. Identify the cerebellum, which, unlike a human cerebellum, is not divided longitudinally. Identify the corpora quadrigemina which appear as four rounded structures: two superior and two inferior.

Figure 3.2

A. Cerebellum
B. Cerebral Hemisphere
C. Corpus Callosum
D. Corpora Quadrigemina
E. Pons
F. Medulla Oblongata
G. Fornix

Divide the sheep brain into two hemispheres by cutting along the longitudinal fissure of the brain. Observe the two halves of the cerebellum and continue to identify the pons and medulla oblongata, which lie anterior to the fourth ventricle. The corpus callosum, in the mammalian brain, connects the left and right central hemispheres of the brain. The corpus quadrigemina, which is shown in Figure 3.1, is also seen in Figure 3.2 anterior to the cerebellum. The pons is the portion of the brain that is anterior to the medulla oblongata.
Figure 3.3 shows the inferior view of the intact sheep brain. Turn the brain to identify the named structures above. The optic nerve is the carrier for visual impulses from the retina of the eye. Identify first, the pons, and move lower to the medulla oblongata. These are both structures composed mostly of fiber tracts.

Figure 3.4

Identify the structures shown in Figure 3.4

The cerebral hemispheres are the most superior portion of the brain. There are elevated portions, called gyri, which are separated by additional grooves that are called sulci. The frontal lobule is considered the emotional control center and is also home to our individual personalities. The occipital lobule is responsible for visual perception.
SHEEP HEART

A. Aorta
B. Apex
C. Left Ventricle
D. Right Ventricle
E. Left Atrium (beneath fat)
F. Right Atrium (beneath fat)

Examine the external surface of the heart, and notice the accumulation of fats, or adipose tissue. Identify the apex of the heart. In this position, notice the arched aorta extending from the superior portion of the heart.

Figure 4.1

A. Chordae Tendinae
B. Left Atrium
C. Left Ventricle
D. Adipose Tissue

Figure 4.2

A. Right Ventricle
B. Bicuspid Valve
C. Chordae Tendinae
D. Papillary Muscles
E. Interventricular Septum

Figure 4.3
EXTERNAL AND INTERNAL MUSCLES

Figure 5.1

Figure 5.1 shows the outer and inner abdominal muscles of the cat. Examine the rectus abdominis, the most superficial abdominal muscle in the cat. This is a long band of muscle about one inch wide that runs immediately lateral to the midline of the body. The external oblique is a sheet of muscle directly running inferior to the rectus abdominis. Observe the deeper internal oblique and the pectoralis major in the chestal area of the cat.

Figure 5.2

Figure 5.2 is simply a closer look of the abdominal muscles. The four different layers can clearly be distinguished in this photo.

A. Transversus Abdominis
B. Rectus Abdominis
C. Internal Oblique
D. External Oblique

Figure 5.3

Figure 5.3 shows the inner right thigh of the cat. Examine the muscles noted below.

A. Gastrocnemius
B. Semimembranosus
C. Sartorius
D. Rectus Femoris
E. Adductor Longus
Examine the thigh muscles of the cat. The biceps femoris is a very large and powerful muscle that covers most of the surface of the leg. A small part of the semitendinosus can be seen beneath and medially to the biceps femoris.

The gastrocnemius, which is part of the triceps surae, is the largest muscle on the lower limb of the leg. Notice the extensor digitorum longus, which lies anterior to the fibularis muscle.

Pull out the cut gluteus maximus to expose the gluteus medius lying beneath it. This is the largest gluteus muscle in the cat. Notice the semimembranosus and semitendinosus. The semimembranosus is a large muscle lying medial to the semitendinosus. It is best seen in an anterior view of the thigh rather than in a posterior view, as shown in Figure 5.6.
SUPERIOR MUSCLES OF THE CAT

A. Triceps: Lateral, Medial, and Long heads
B. Brachialis
C. Clavodeltoid
D. Extensor digitorum

Figure 5.7 shows a posterior view of the upper arm of the cat. Examine the three heads of the triceps brachii, which originate from the humerus and scapula and insert into the olecranon process of the ulna. Next, observe the brachialis. Identify its origin on the humerus and its insertion on the ulna.

Figure 5.8

A. Rhomboid Capitus
B. Supraspinatus
C. Infraspinatus
D. Clavotrapezius
E. Rhomboideus

Figure 5.9

A. Trapezius
B. Spinodeltoid
C. Deltoid
D. Latissimus dorsi

Observe the deep muscles of the superior view of the cat. The rhomboid capitis, although not seen in the human body, can be seen clearly in the cat. Note the supraspinatus and infraspinatus muscles, which are quite similar to the muscles seen in humans. Both muscles originate from the lateral scapula and insert onto the humerus.
The Digestive System

A. Heart
B. Liver
C. Large Intestine
D. Small Intestine
E. Bladder
F. Stomach

Examine the organs shown in Figure 6.1. Identify the large liver inferior to the heart. It is a reddish brown color. Locate the Small and Large intestine and attempt to find the ascending and descending colon. The bladder is near the base of the abdominopelvic region of the cat. Search for the urethra, which should be traced from the bladder to the urogenital sinus in the female and the proximal end of the cavernous tissue of the penis in the male. Retrace the organs back to the stomach and move the liver slightly to expose the rugae (folds) of the stomach.

Figure 6.1

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Acknowledgements:
"Man in the Chair" Artist: Cory Fuhr (Vancouver BC) From the collection of Greg and M. Rose Jabin
Photos provided by: Elizabeth Dover, Joanne Lupson"