George Bourque
ABOM, NCLEC, LDO
george@concord-optical.com

Ocular Dissection Workshop

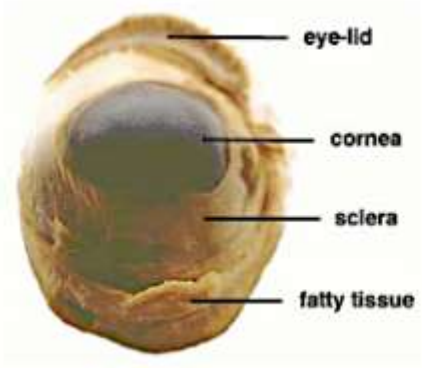
Before we begin, it is CRITICAL to understand that we will be dealing with SHARP OBJECTS and animal specimens. There is always some risk involved with this activity. It is of the utmost importance that each participant be extremely careful with the scissors, scalpels and other items in this workshop. Absolutely NO fooling around is acceptable in this class. Failure to follow safety instructions, or any activities deemed to be unsafe will result in being asked to leave the dissection workshop do so may result in injury. Please use great care and follow ALL instructions for safety.

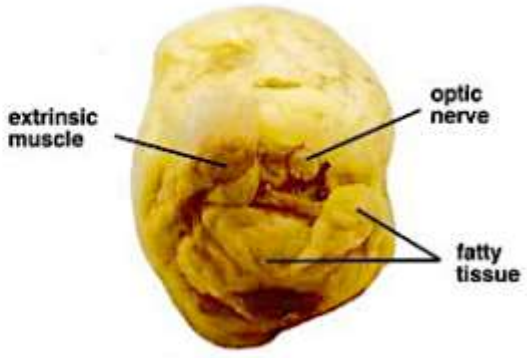
Animal Eye Dissection Materials:

- Gloves
- Dissecting tray
- Plastic bags (2)
- Paper towels (5)
- Newspaper
- Dissecting implements, including scissors, scalpel, foceps, probe, etc)
- Animal Eye, pig and/or cow.

To begin, carefully remove your specimen, place it on your tray and examine it. How does looking at the real thing differ from your previous experience of seeing it in a textbook or in an online resource?

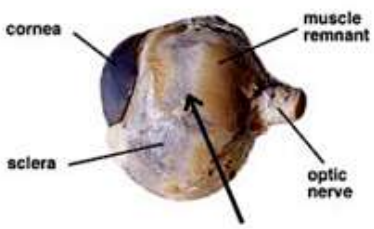
Procedure: 1. Examine the front of the eye and locate the cornea, and sclera. Note the extrinsic/Extraocular muscles and fatty tissue that cover the eye. Next, examine the back of the eye and find the optic nerve, a white, thick cord attached to the back of the eye.



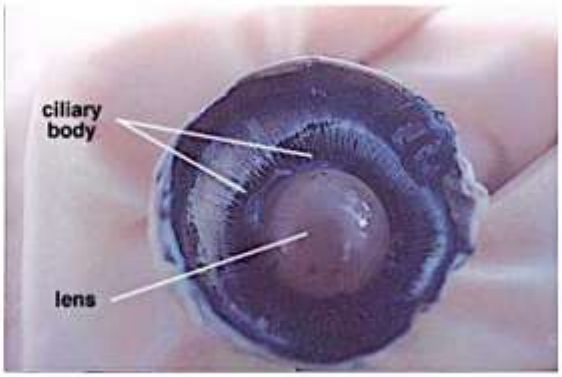
2. Trim the fat and muscles away from the eye, if necessary. DO NOT REMOVE OR SHORTEN THE OPTIC NERVE.

3. Make an incision (cut) in the sclera POSTERIOR (behind) the LImbuts. Cut the sclera all the way around the ball of the eye (See pictures below).



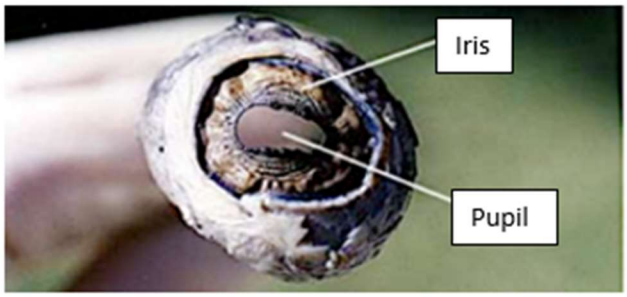



4. Observe the front half of the eye. The vitreous humor, a jellylike material, fills the central cavity (space) inside the eye. It may fall out when you separate the eye. Remove the vitreous humor to see the lens and ciliary muscles. Remove the lens. Note the shape, size, and color of the lens.

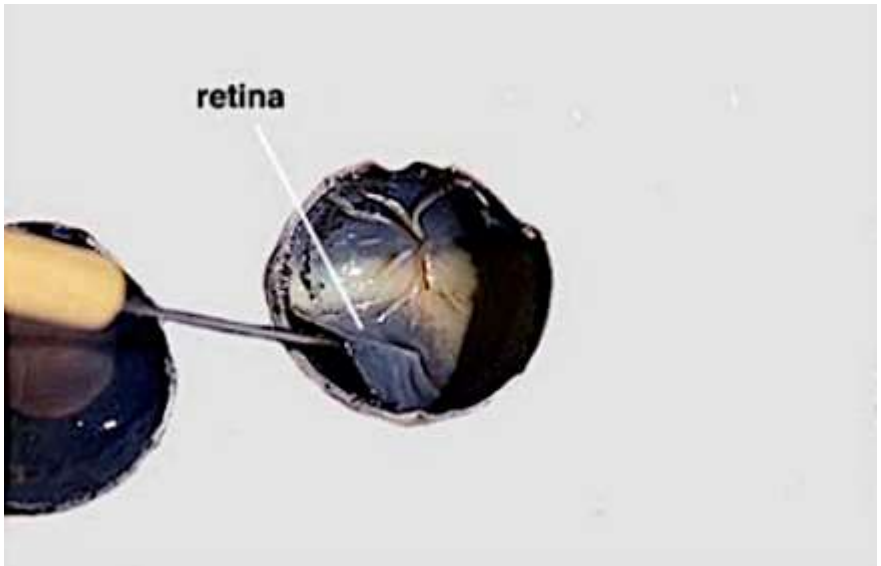



5. When the lens is removed, you can see the pupil, which is an opening that allows light to enter the eye. Note that Both the Crystalline lens AND the Cornea are both NOT transparent. Why is this? In the case of the crystalline lens, this would be very similar to having a HYPER-mature cataract. How would this affect a patients vision?

6. Remove the cornea from the eye as shown below. Make a small slit at the boundary between the cornea and sclera. Then insert the scissors into the slip and cut all the way around the cornea to remove it. Carefully observe the front side of the iris and pupil.


7. Now, observe the back half of the eye. The retina lines the back of the eye. Use your probe to lift and pull the retina back from the underlying choroid layer. See the photograph below. Where is the retina most firmly attached to the choroid?



Questions:

1. The cornea is the first structure that light passes through to get to the retina. In this case, the cornea is very cloudy. Why?

2. Note that Both the Crystalline lens AND the Cornea are both NOT transparent. Why is this? In the case of the crystalline lens, this would be very similar to having a HYPER-mature cataract. How would this affect a patients vision?

4. What is the jelly-like fluid that fills the space between the retina and the lens, and makes up 80% of the eye's volume?

5. What are the two components of the Fibrous tunic of the eye?

6. The retina in a human or pigs eye tends to have an orange hue…why is that NOT the case here?

7. Which structure sends visual information from the retina to the brain?

8. What is the colored, circular muscle (part of the vascular tunic) is responsible for human eye color and adjusts in size to regulate the amount of light entering the eye.

9. Which are there more of in the human eye, rods or cones? _____

10. What two structures provide the focusing/refracting power of the eye?

11. What was the most interesting part of this dissection?
_____
_____
_____
_____