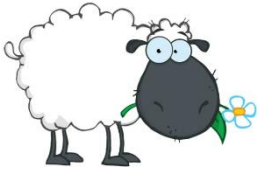


A&P: Sheep's Eye Dissection

Name _____



The anatomy of the eye can be better understood by the actual dissection of the eye. The size and structures of the sheep eye compare similarly to the human eye making it an excellent specimen for dissecting.

Objective: To view the structures of the sheep's eye noting the similarities between it and the human eye.

Materials: Sheep eye, dissecting tray, gloves, dissecting scissors and tweezers, paper towels.

Directions:

Step 1. Rinse the sheep's eye with water to remove the preservative fluid. Blot dry with a paper towel. Examine the exterior parts of the eye. Locate and identify the following structures: **eyelid, cornea, sclera, adipose tissue, and extrinsic muscle fibers.**

Write down 3 observations you made when you examined the eye:

a) _____

b) _____

c) _____

Step 2. Use your scissors to *carefully* trim away the eye-lid, adipose tissue, and extrinsic muscles. Once, the tissues have been removed, you should be able to locate the **optic nerve**. It is a small, stiff, stumpy structure protruding out of the backside of the eyeball.

Step 3: Place the eye in the dissecting tray so that the cornea is on the left and the optic nerve is on the right. Insert the tip of scissors into the sclera less than midway (more anteriorly) between the cornea and the optic nerve and make a small incision. You will notice watery fluid leak out. This is the **aqueous humor** fluid. Keeping the tip of your scissors upward, use small, shallow snipping motion to cut around the eye until the anterior and posterior sides of the eye are now in two sections, or hemispheres.



What did you observe about the density of the sclera? Why is this significant? _____

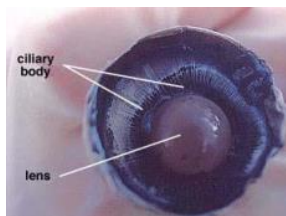
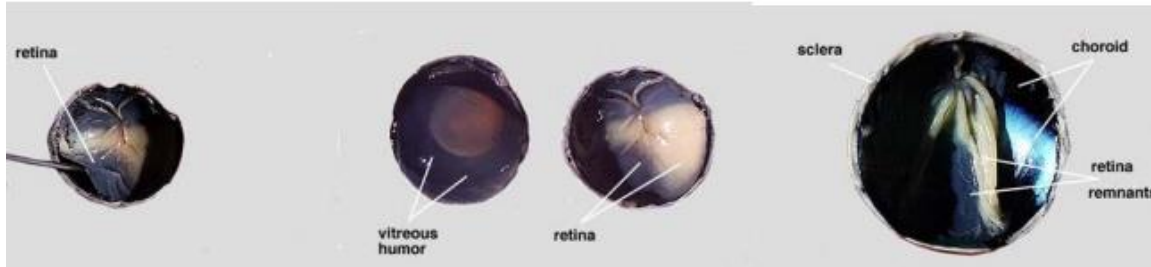
Step 4: Examine the posterior hemisphere. Use your finger to gently sweep out any **vitreous humor**. How would you describe the vitreous humor noting both its color and consistency? _____

Locate the **retina**. It will appear as a thin membrane. It may be folded over on itself. If you pull on it, you'll notice it is firmly attached to the back of the eye at the optic nerve. What is this spot on the retina called?

Using tweezers or fingers, gently pull the retina out and lay it on your tray.

Behind the retina is the **choroid**. In sheep and other animals, the choroid appears as a blue iridescent color due to the presence of the *tapetum lucidum*, a special structure allowing light to reflect back onto the retina. This is a reflecting device found in mammals allowing them to see well in the dark. This causes an animal's eye to shine in the dark. This structure is not found in human eyes.

Peel the choroid away from the sclera and lay it on your tray. All that should remain is the sclera. Lay it on your tray.



Step 5: Examine the anterior hemisphere. Use your finger to gently sweep out any vitreous humor that is present. You should be able to easily remove the **lens**. Press on it and note its firmness. Despite its stiffness, it is also elastic to allow the lens to change shape for focusing.

The muscles that change the shape of the lens are the **ciliary muscles**. These muscles are part of the **ciliary body**, the black structure having the appearance of mushroom-like folds. It produces the aqueous humor.

Carefully peel the ciliary body away from the anterior portion of the eye. On the reverse side, you can see the **iris**, the colored part of the eye. In the center of the iris is a hole. What is the hole called? _____

Lay the ciliary body on your tray.

The **cornea** is now clearly observable. It is normally transparent. State a hypothesis as to why it now appears opaque. _____

Once you have completed the dissection, go through each structure again and be sure you can name them. Then dispose of the parts in the trash, clean your dissecting tray, and wash and dry the dissecting utensils.

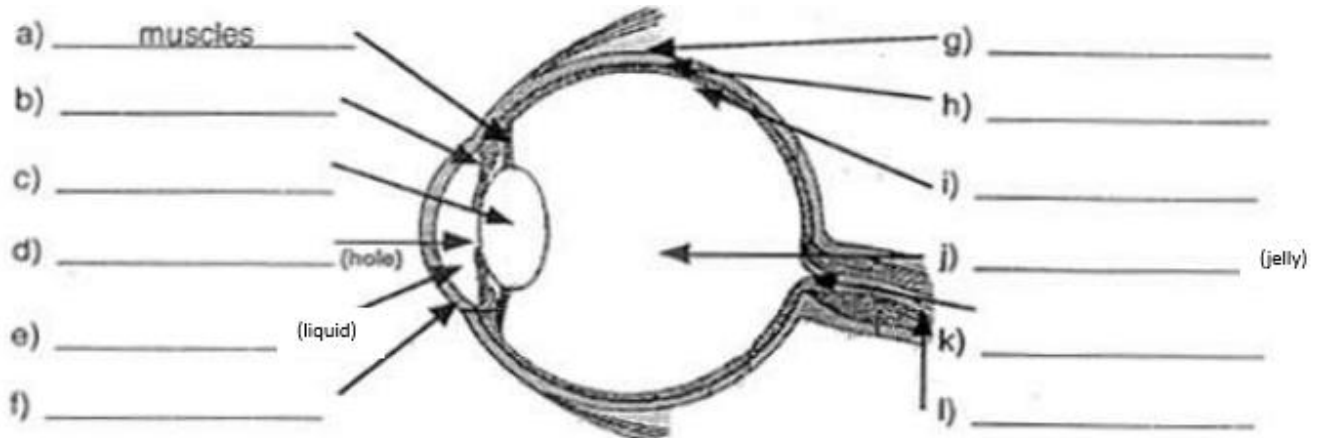
Post-Lab: Answer the following clearly using complete sentences.

1. How do the ciliary muscles help you see?

2. Explain why there is a blind spot in the retina?

3. What is the purpose of the adipose tissue covering the outside of the eye? (Hint: Consider the boney eye socket where the eye is located)

4. Label the diagram of the eye using the boldfaced words:



5. Complete the chart below using your textbooks or notes to help with the basic function.

Eye Structure	Description	Function
Cornea		
Sclera		
Optic Nerve		
Vitreous Humor		
Retina		
Choroid		
Ciliary Body		
Lens		
Iris		
Pupil		

