Chapter 16 The eyes have it

Short investigation 16.1: Dissecting a bull's eye

Name: .....

Aim

To observe the interior structures of the mammal eye

Materials

Dissection kit, cow's eye, dissection board/tray, newspaper, latex gloves

Method

1. Put on latex gloves and lay out the dissection kit.
2. Place the eye on the dissection board. The board should then be placed on newspaper spread out over the bench.
3. Examine the outside of the eye and identify the location of the following: sclera, cornea, iris, pupil, optic nerve. Draw a diagram of the intact exterior eye showing these parts.
4. With the eye on the dissection board and with the pupil facing you, carefully make a small initial incision with the scalpel across the top of the sclera midway between the front and back. Be very careful to keep your fingers out of the way of the scalpel, as the initial incision can be a little tough.
5. Insert the point of the scissors into the incision and cut around the circumference of the eyeball. DO NOT TRY TO USE THE SCALPEL TO SAW THE EYEBALL IN TWO! Be careful not to cut through the lens inside.
6. Open up the two halves of the eye. Locate the lens and the ciliary muscles. Carefully remove the lens from the eye without squeezing it too much. Hold it up and look through it.
7. Place the lens on the newspaper. Observe the magnification power of the lens on the newsprint. Use the forceps to gently squeeze the sides of the lens.
8. Empty the vitreous humour from the back half of the eye and locate the retina and the point where the optic nerve enters the eye. Use the forceps to lift the retina away from the back of the eye and observe the point where the retina is attached.
9. Locate the tapetum, a shiny blue-green layer that lies under the retina.
10. Clean up thoroughly using disinfectant and seal all waste and used tissue and gloves in a plastic bag for disposal.

Questions

1. Why are the fluids in the eye clear rather than cloudy liquids?

2. The blind spot is a location in the retina where there are no light receptors. What structure enters the back of the eye at that point?

3. Why is the tapetum highly reflective?

4. Describe the image seen through the lens when you:
   (a) held it up and looked through it

   (b) placed it on the newspaper.

5. Describe the effect on the image formed when the edges of the lens were pressed.

Notes:

