

LABORATORY EXERCISE 34 EYE STRUCTURE

Figure Labels

FIG. 34.1

1. Lacrimal gland
2. Superior and inferior canaliculi
3. Lacrimal sac
4. Nasolacrimal duct

FIG. 34.2

1. Superior oblique
2. Superior rectus
3. Medial rectus
4. Lateral rectus
5. Inferior rectus
6. Inferior oblique

FIG. 34.3

1. Pupil
2. Iris
3. Ciliary body
4. Suspensory ligaments
5. Lens
6. Cornea
7. Aqueous humor
8. Anterior cavity
9. Retina
10. Choroid coat
11. Sclera
12. Vitreous humor
13. Fovea centralis
14. Optic nerve
15. Optic disc
16. Posterior cavity



Critical Thinking Application Answers

The delicate retina is only located next to the choroid coat by the pressure maintained by the vitreous humor. Any alteration of this pressure could allow the retina to detach as was easily observed during the dissection. No connective tissue was observed between the inner and middle tunics of the eye.

Laboratory Report Answers

PART A

1. b
2. j
3. e
4. d
5. g
6. l
7. h
8. f
9. a
10. i
11. k
12. c
13. Cornea, aqueous humor, pupil of iris, lens, vitreous humor, retina
14. More rods than cones; rods stimulated by dim light; cones enable perception of color [other answers could be acceptable.]

PART B

1. The outer tunic/layer (sclera) is toughest.
2. Dense (fibrous) connective tissue.
3. The pupil of the dissected eye probably was elliptical in shape, and the human pupil is round.
4. Aqueous humor occurs between the cornea and the lens.
5. The dark pigment absorbs excess light and keeps the eye dark inside.
6. The lens is biconvex, flexible, and transparent. It may be firm and opaque in a preserved eye.
7. The vitreous humor is a transparent, jellylike fluid.

PART C (FIG. 34.11)

1. Aqueous humor
2. Lens
3. Cornea
4. Iris
5. Conjunctiva
6. Retina/inner tunic
7. Vitreous humor
8. Optic disc
9. Optic nerve
10. Choroid coat/middle tunic
11. Sclera/outer tunic

LABORATORY EXERCISE 35 VISUAL TESTS AND DEMONSTRATIONS



Critical Thinking Application Answers

When using both eyes for observations, if the image of a small object falls on the optic disc of one eye, the object is still seen by the other eye. This can be confirmed because the blind-spot demonstration will not work with both eyes open.

Laboratory Report Answers

PART A

1. (experimental results)
2. (experimental results)
3. (experimental results)
4. (experimental results)
5.
 - a. A person with 20/70 vision can see from 20 feet what the normal eye sees from 70 feet. This person has less than normal vision.
 - b. A person with 20/10 vision can see from 20 feet what the normal eye sees from 10 feet. This person has better than normal vision.
 - c. Astigmatism results in blurred vision because some parts of the image on the retina are in focus, while other parts are not in focus.
 - d. The elastic quality of the lens tends to decrease with age.
 - e. The retina is lacking cones that are sensitive to red or green wave lengths (an X-linked/sex-linked trait).

PART B

1. (experimental results)
2.
 - a. The optic disc lacks receptors (rods and cones) and thus creates a blind spot in the retina.
 - b. The photopupillary reflex involves the constriction of the pupil in response to exposure to bright light.
 - c. The photopupillary reflex occurs in both eyes even when one eye is shielded from the light; however, the shielded eye may not show as much change as the exposed one.
 - d. When an eye is focused on a close object, the pupil constricts.
 - e. When the eyes are focused on a close object, they converge toward the midline.