

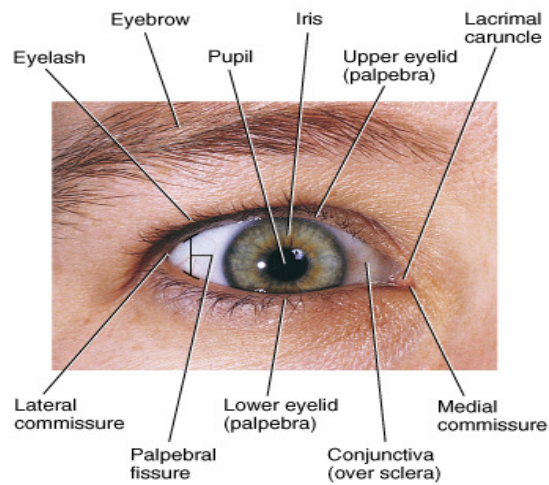
A&P 242 Unit 4

Lecture 5



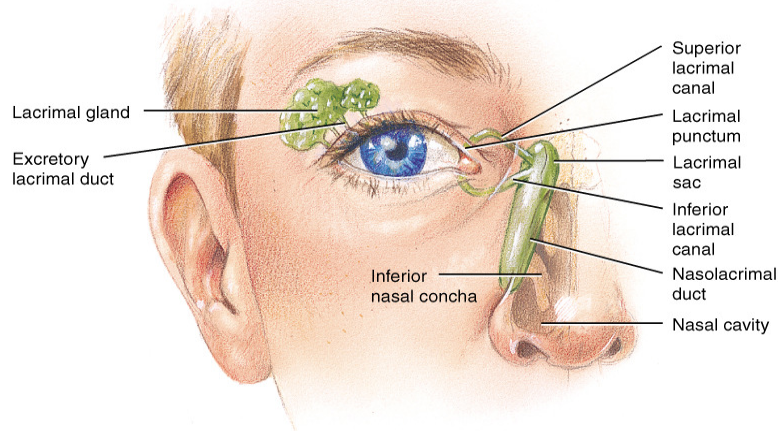
Granule Cell

External Anatomy of the Eye



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Lacrimal Apparatus of the Eye



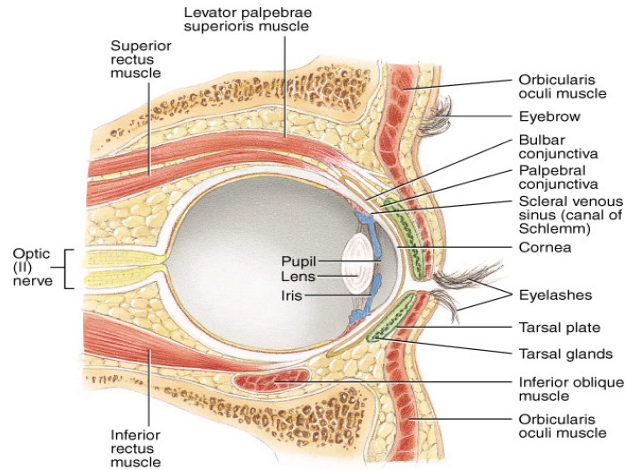
(b) Anterior view of the lacrimal apparatus

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Anatomy of the Eyeball

- **Fibrous Tunic:**
 - Cornea
 - Sclera
- **Vascular Tunic**
 - Choroid coat
 - Ciliary Body (Ciliary muscle, Ciliary process)
 - Iris
- **Nervous Tunic**
 - Retina

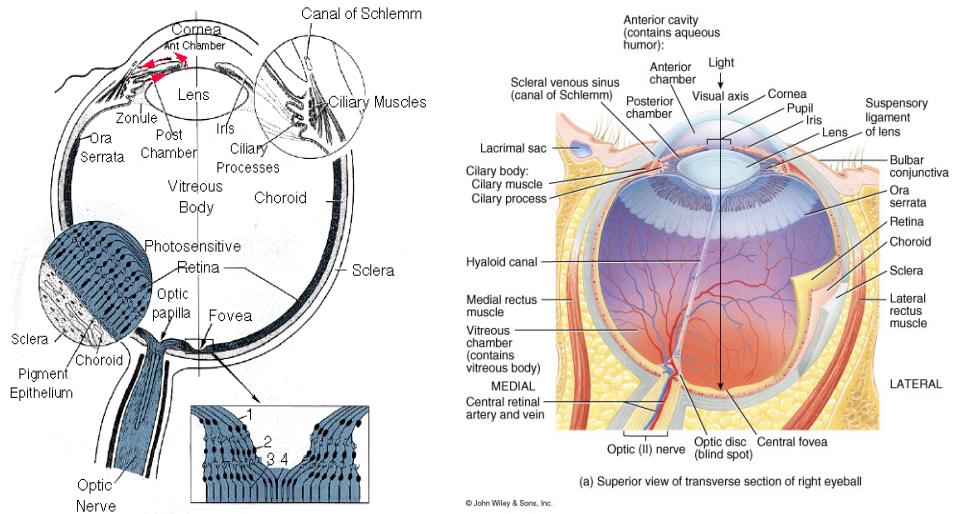
Accessory structures of the Eye from a sagittal view



(a) Sagittal section of eye and its accessory structures

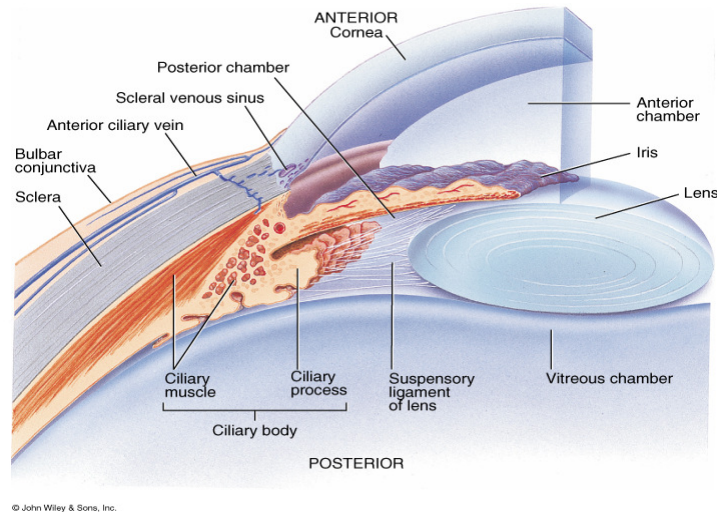
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Internal Anatomy of the Eye



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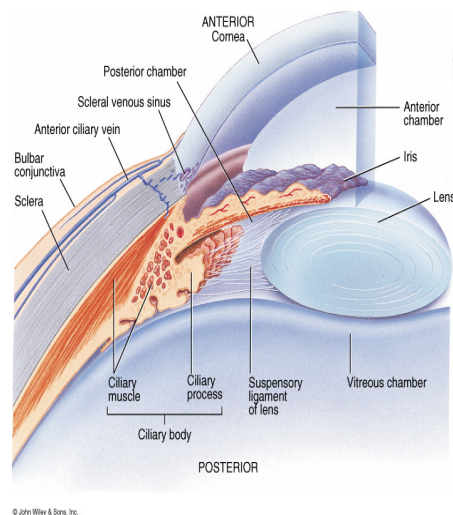
Detail view of the anterior anatomy of the eye



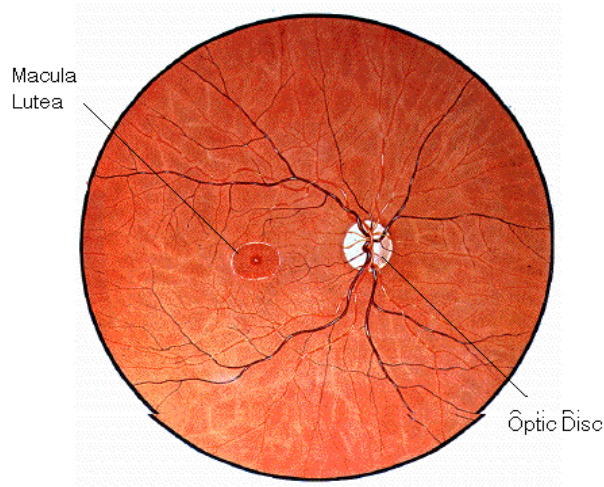
Production of Aqueous Humor and Intraocular pressure

1. **Ciliary Process:**
Produces Aqueous Humor
2. **Posterior Chamber:**
Aqueous Humor flows from this chamber through the pupil in Anterior Chamber
3. **Canal of Schlemm**
Reabsorbs Aqueous Humor

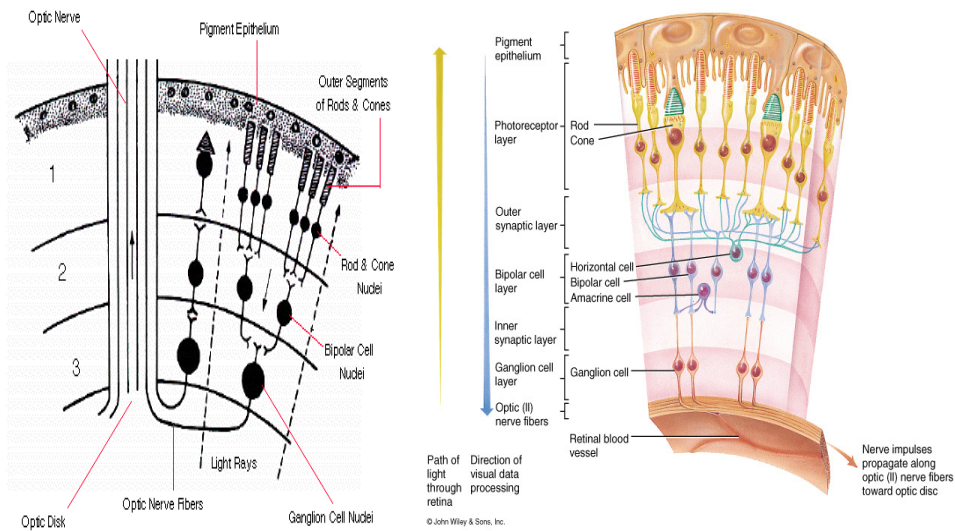
Glaucoma:
Increase in intraocular pressure due to build up of Aqueous Humor



Ophthalmoscopic view of the retina showing the location of the Macula to the Optic Disc

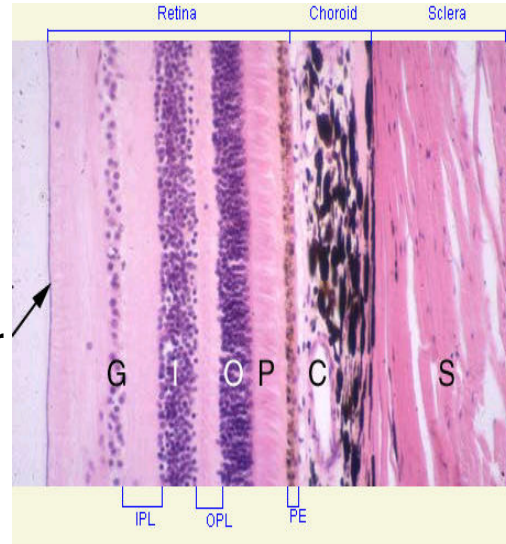


Histology of the retina of the eye

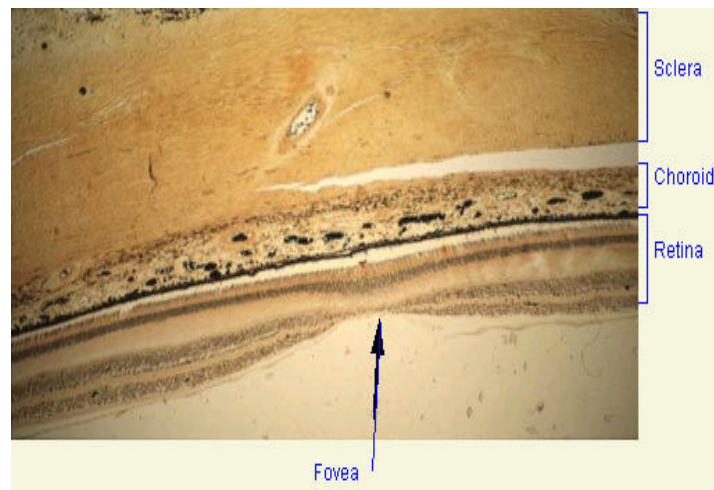


Photomicroscopic view of the Histology of the Eye

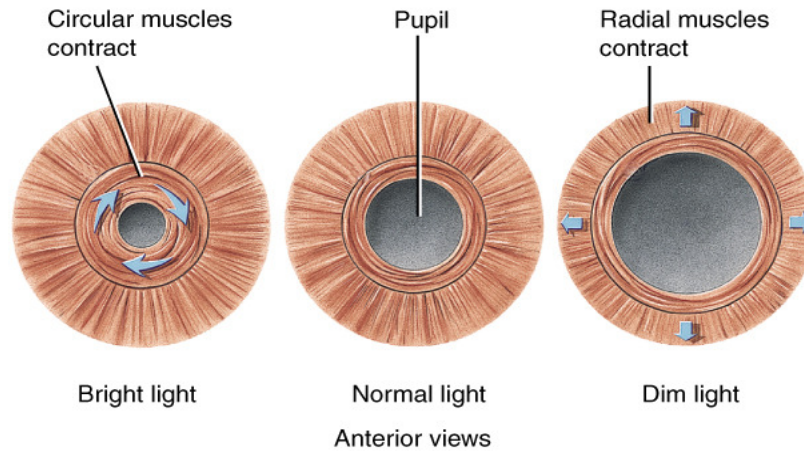
- S = Sclera**
- C = Choroid coat**
- PE = Pigmented epithelium**
- P = Outer segments of rods and cones**
- O = Nuclei of rods and cones**
- OPL = Outer synaptic layer**
- I = Nuclei of bipolar neurons**
- PL = Inner synaptic layer**
- G = Ganglion cell layer**



Photomicroscopic view of the Histology of the Eye showing the location of the central fovea

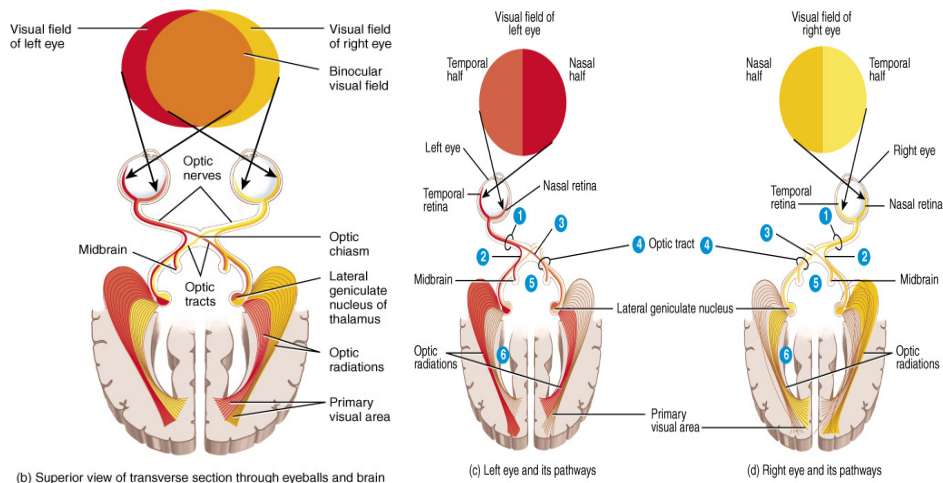


Intrinsic Eye Muscles and their response to light



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The Visual Pathway



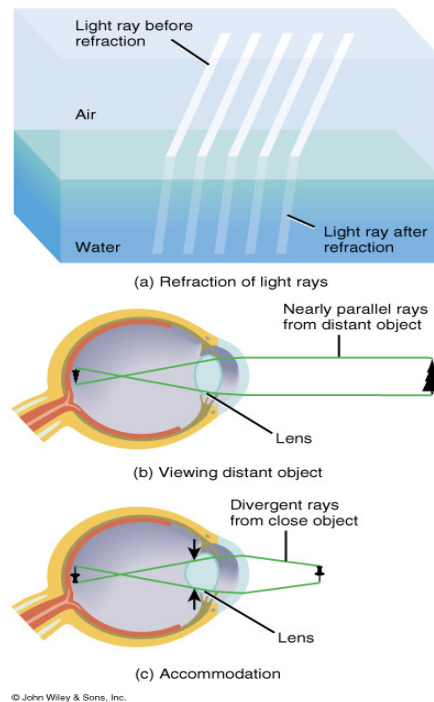
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Light Refractory

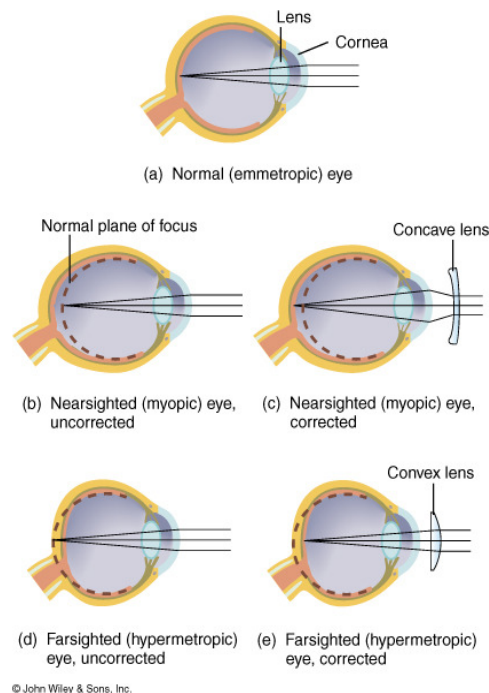
Pathway:

1. Bulbar Conjunctiva
2. Cornea
3. Aqueous Humor
4. Lens
5. Vitreous Humor
6. Ganglion Cell Layer
7. Inner Synaptic Layer
8. Bipolar Layer
9. Outer Synaptic Layer
10. Photoreceptor Layer



Abnormalities of The Eye:

1. Myopic - nearsighted
2. Hypermetropic - Farsighted
3. Presbyopia - age-related failure of lens to accommodate
4. Astigmatism - Distorted vision due to irregular-shaped lens or cornea
5. Color Blindness - genetic defect that causes dysfunction of cones



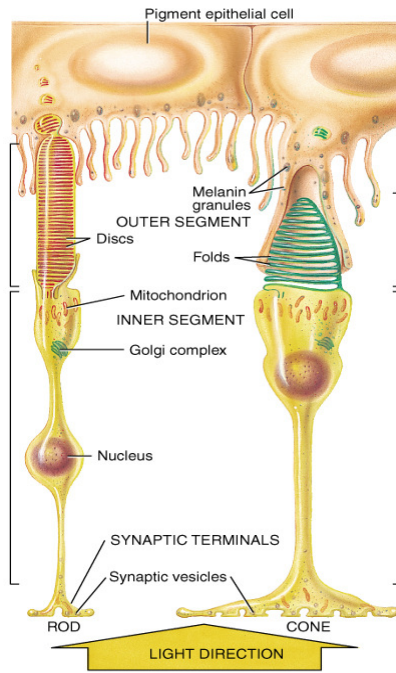
Accommodation of the Lens for near vision

- **Ciliary muscles contract**
- **Ciliary body pulls forward and inward**
- **Tension on suspensory ligaments of lens is decreased**
- **Lens becomes thicker (rounder) due to its elasticity**
- **Pupils constricts**

Accommodation of the Lens for far vision

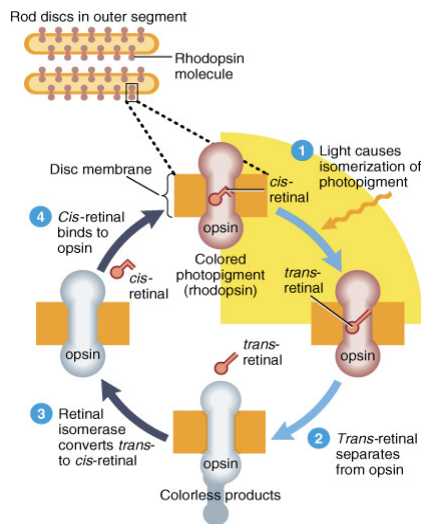
- **Ciliary muscles relaxes**
- **Ciliary body returns to its resting state, backward and outward**
- **Tension on suspensory ligaments of lens is increased**
- **Lens becomes thinner (flatter) due to its elasticity**
- **Pupils dilate**

Anatomy of Rods and Cones

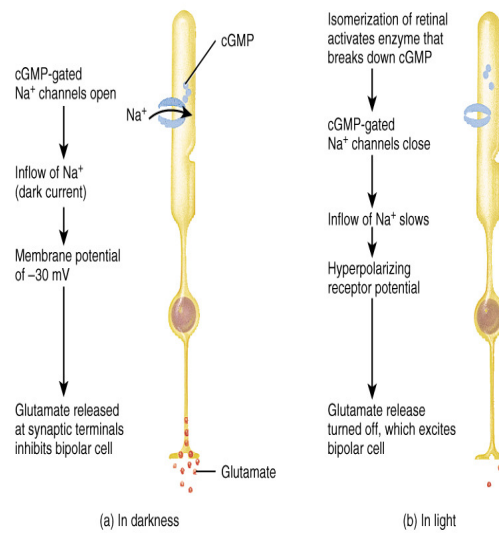


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Physiology of Rods and Photopigments



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Visual Pathway

- 1. Cones**
- 2. Bipolar neurons**
- 3. Ganglion cell's axon forms the optic nerve**
- 4. Optic nerve to the Optic Chiasm**
- 5. Optic tract**
- 6. Lateral geniculate nuclei of the thalamus**
- 7. Optic Radiations**
- 8. Primary visual areas of the occipital lobes**