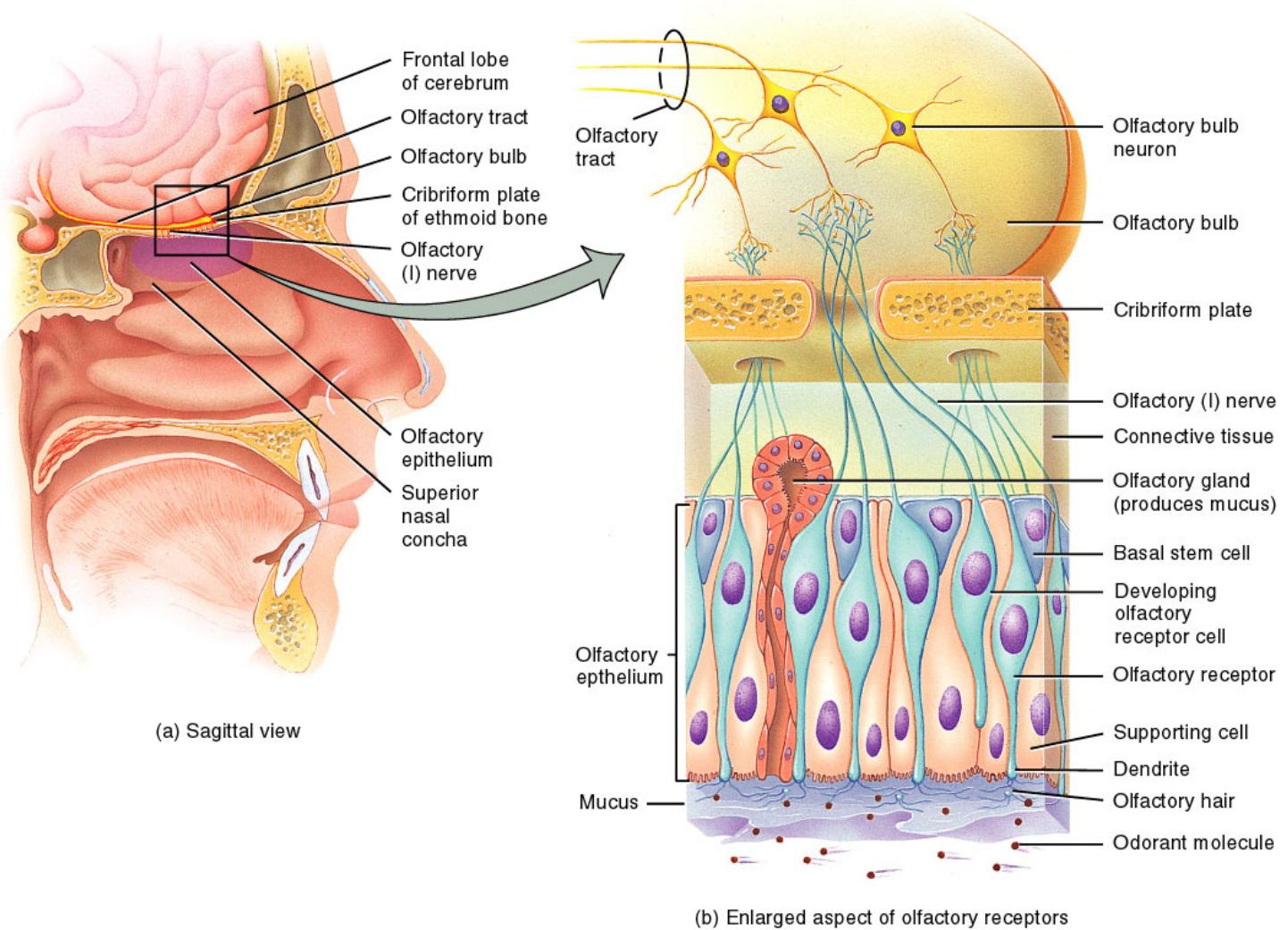


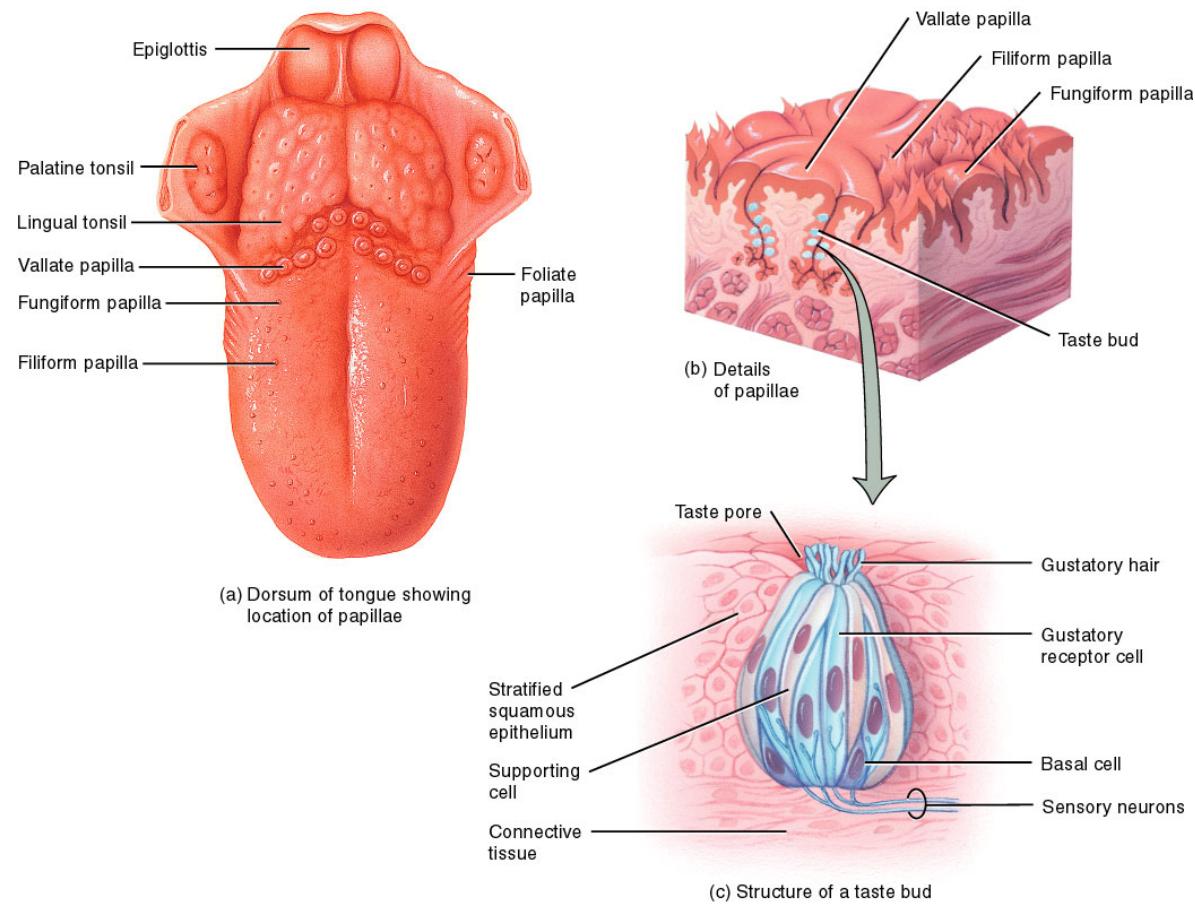
# The Special Senses

[www.fisiokinesiterapia.biz](http://www.fisiokinesiterapia.biz)

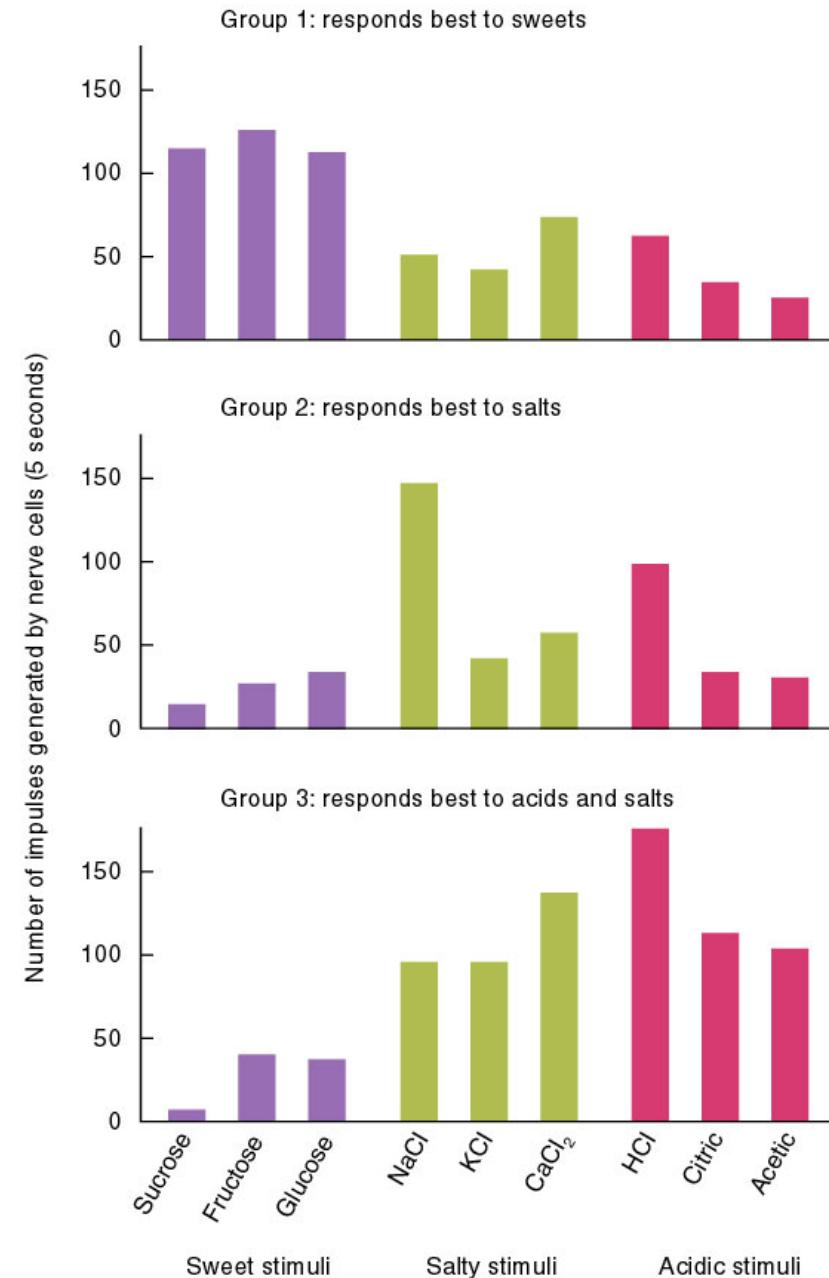
# Smell

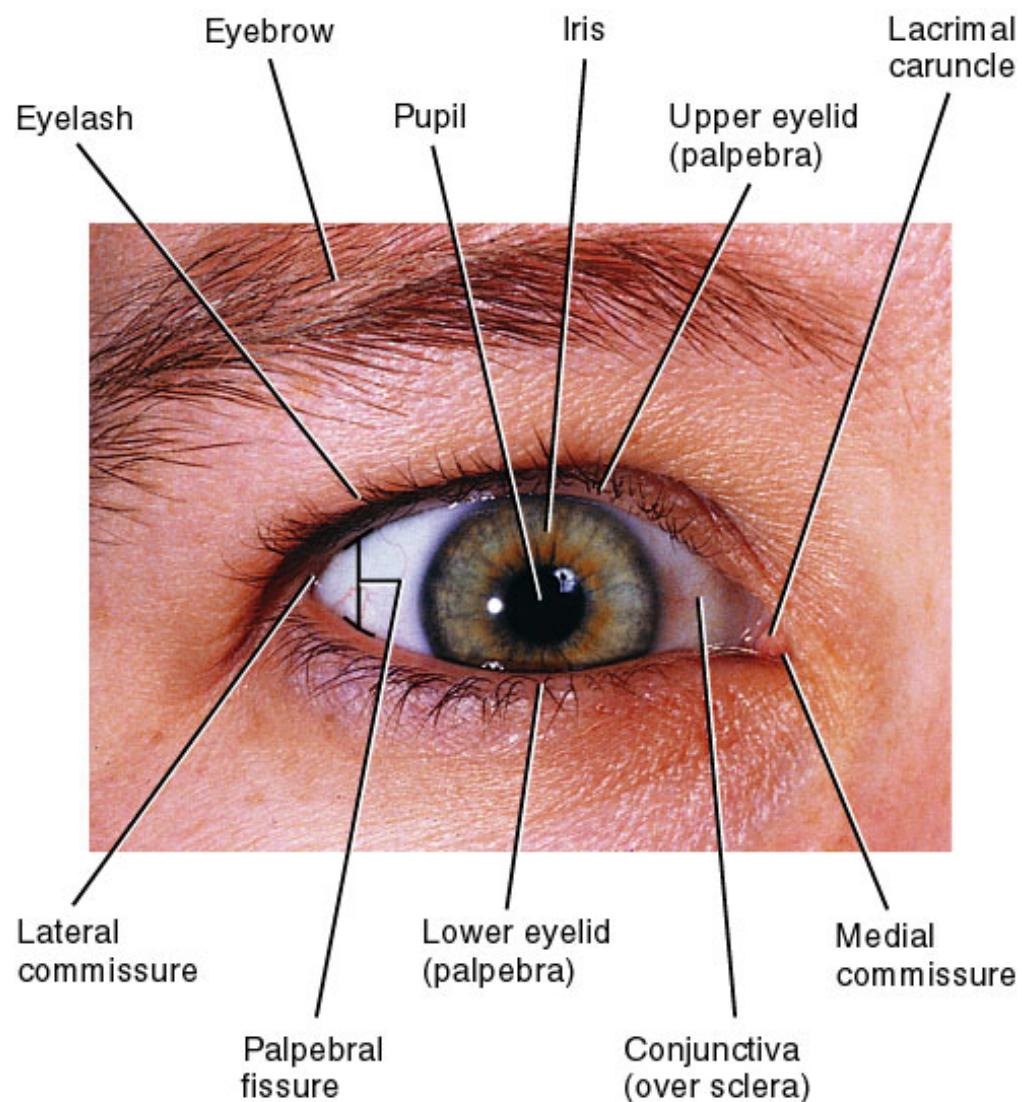


# Taste



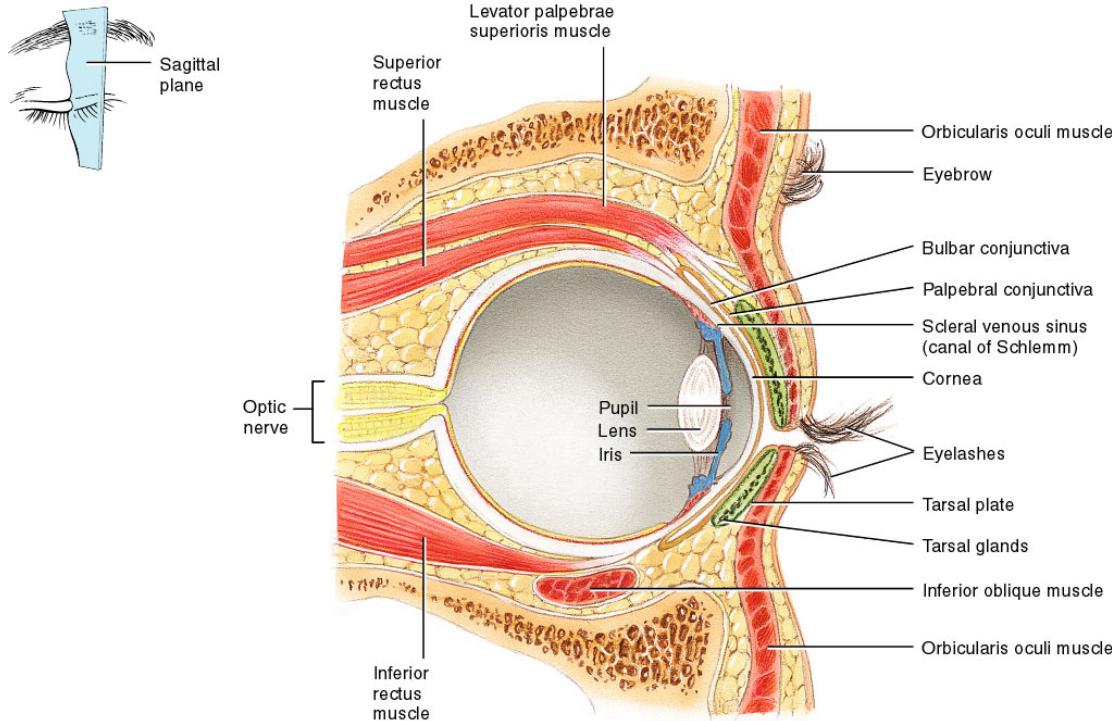
# Effects of Different tastes on neurons



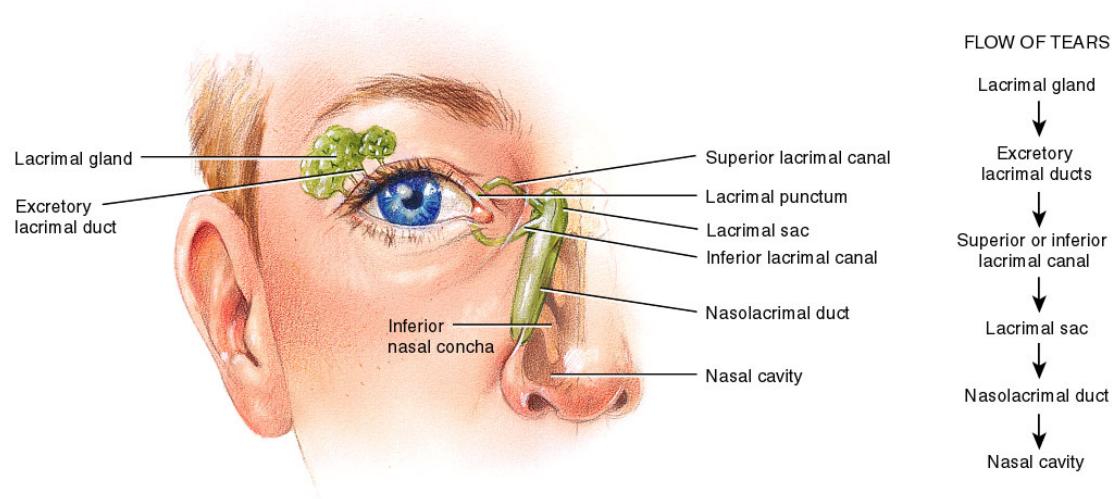


# Eye terminology

- Lacrimal apparatus
- Lysozymes
- Meibomian glands
- Extrinsic eye muscles



(a) Sagittal section of eye and its accessory structures



(b) Anterior view of the lacrimal apparatus

# Tunics

## Fibrous tunic

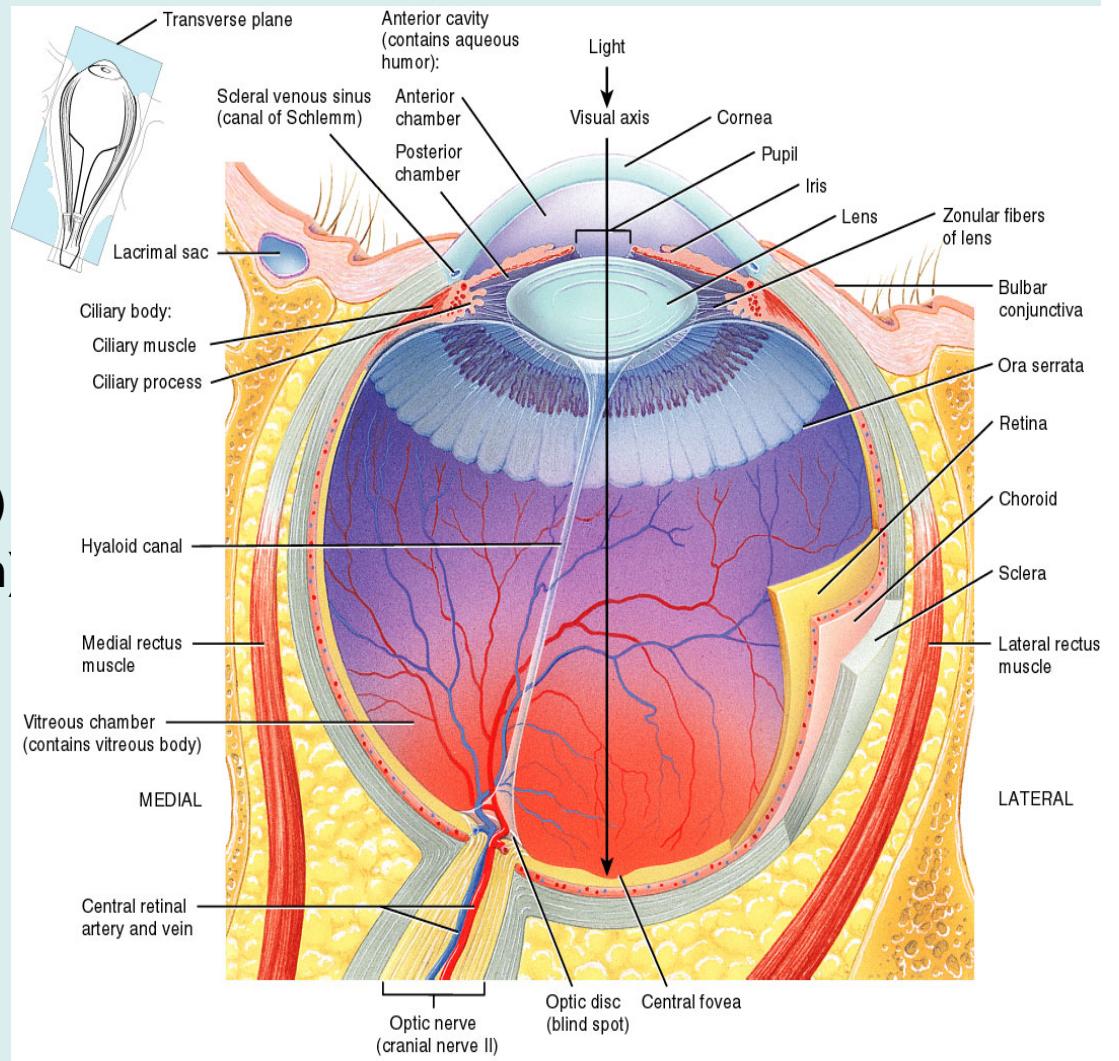
- Cornea (cover)
- Sclera (white)

## Vascular Tunic

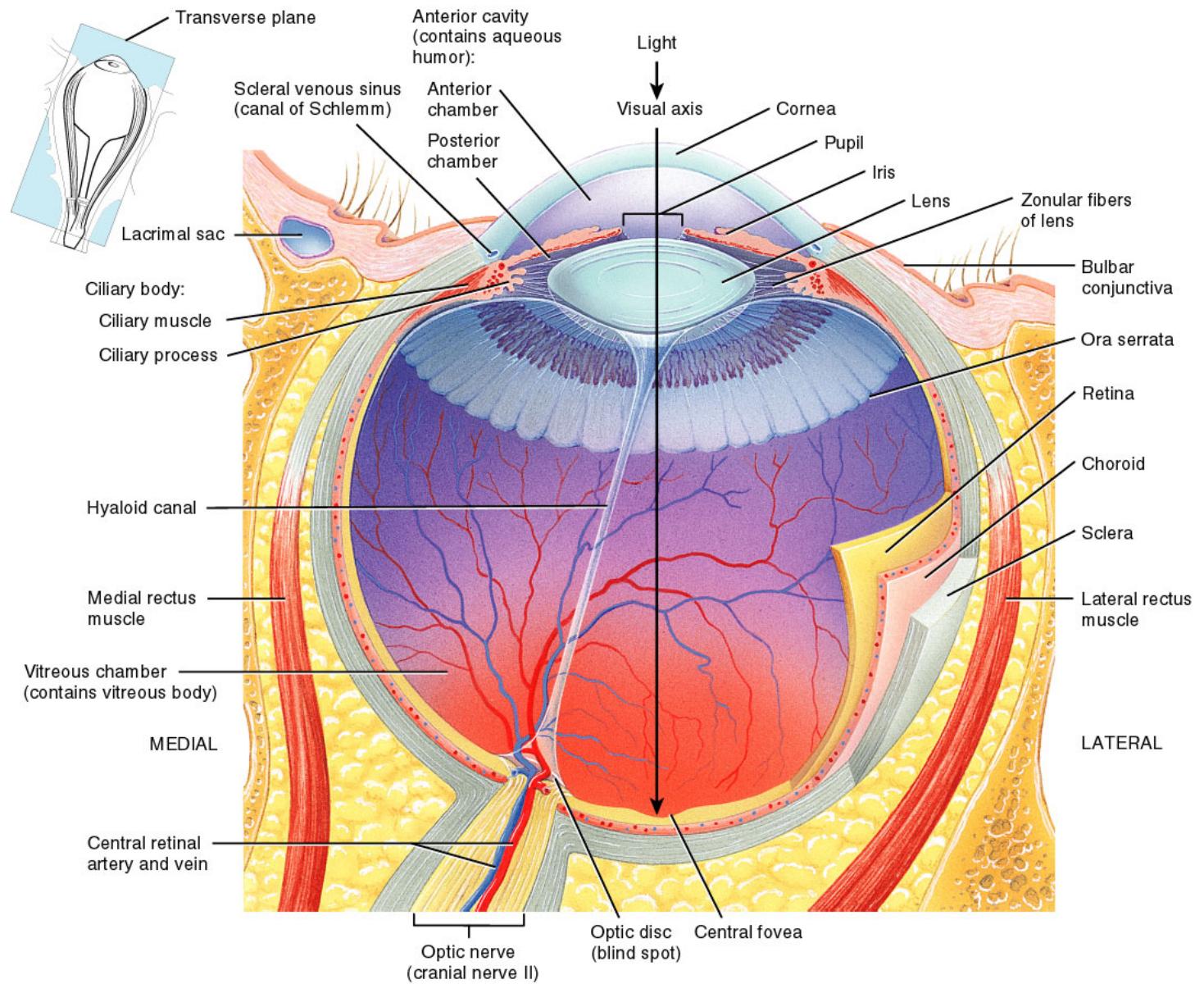
- Choroid (vascular)
- Iris (colored)
- Ciliary body (muscle)
- Pupil (light regulation)

## Retina

- Photoreceptor layer
- Rods and cones
- Fovea centralis
- Optic disc

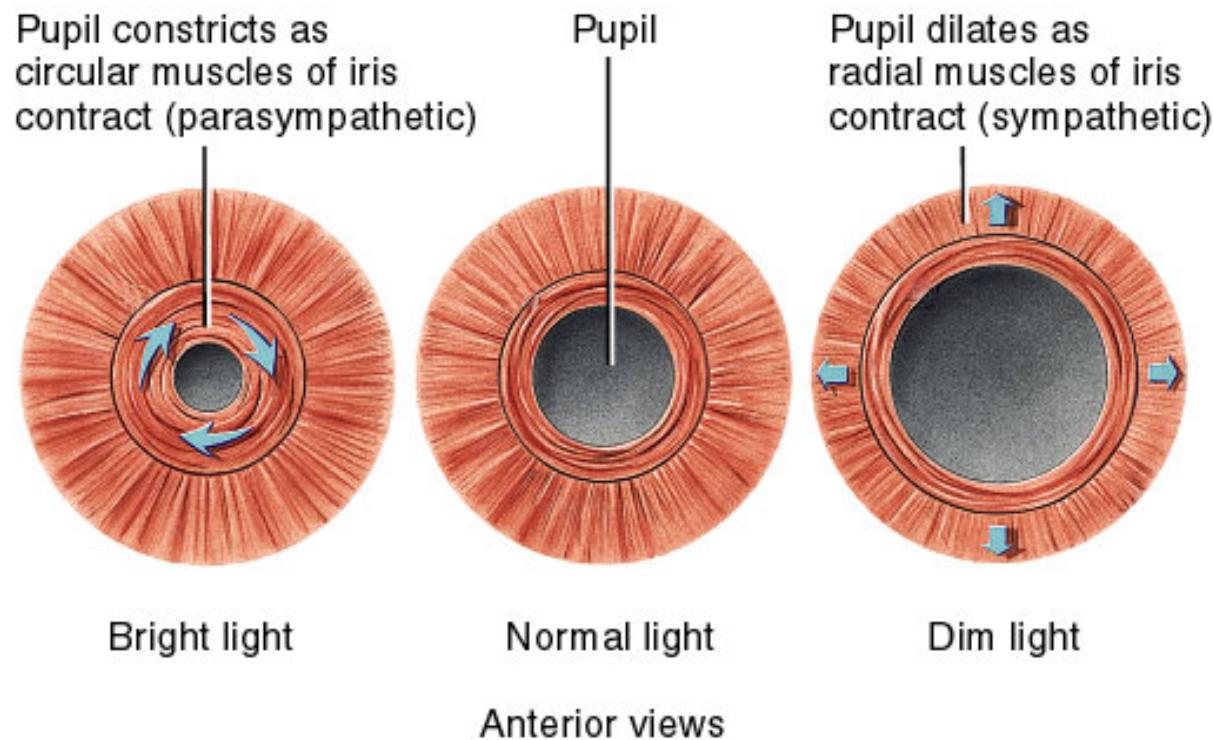


(a) Superior view of transverse section of right eyeball



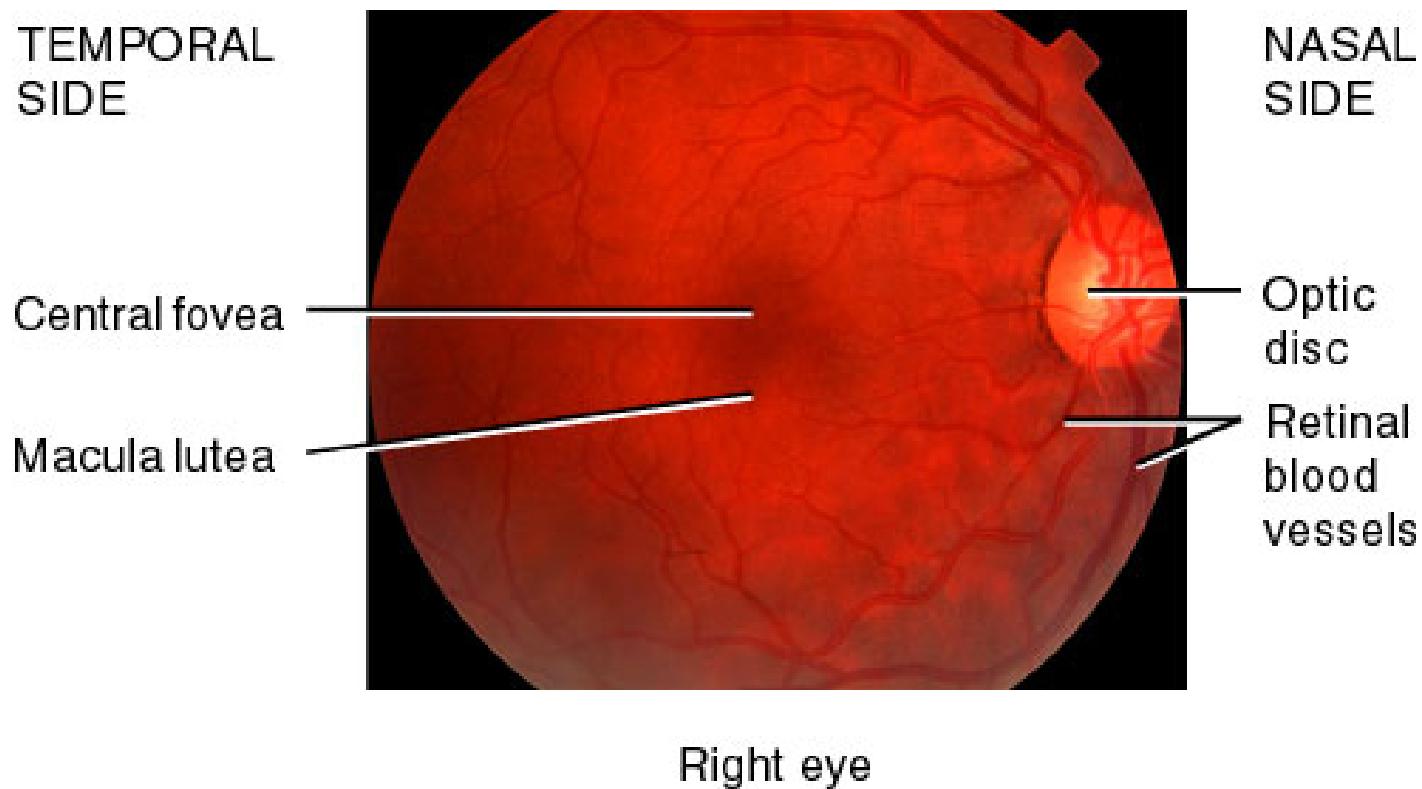
(a) Superior view of transverse section of right eyeball

# Responses of Pupil to Light

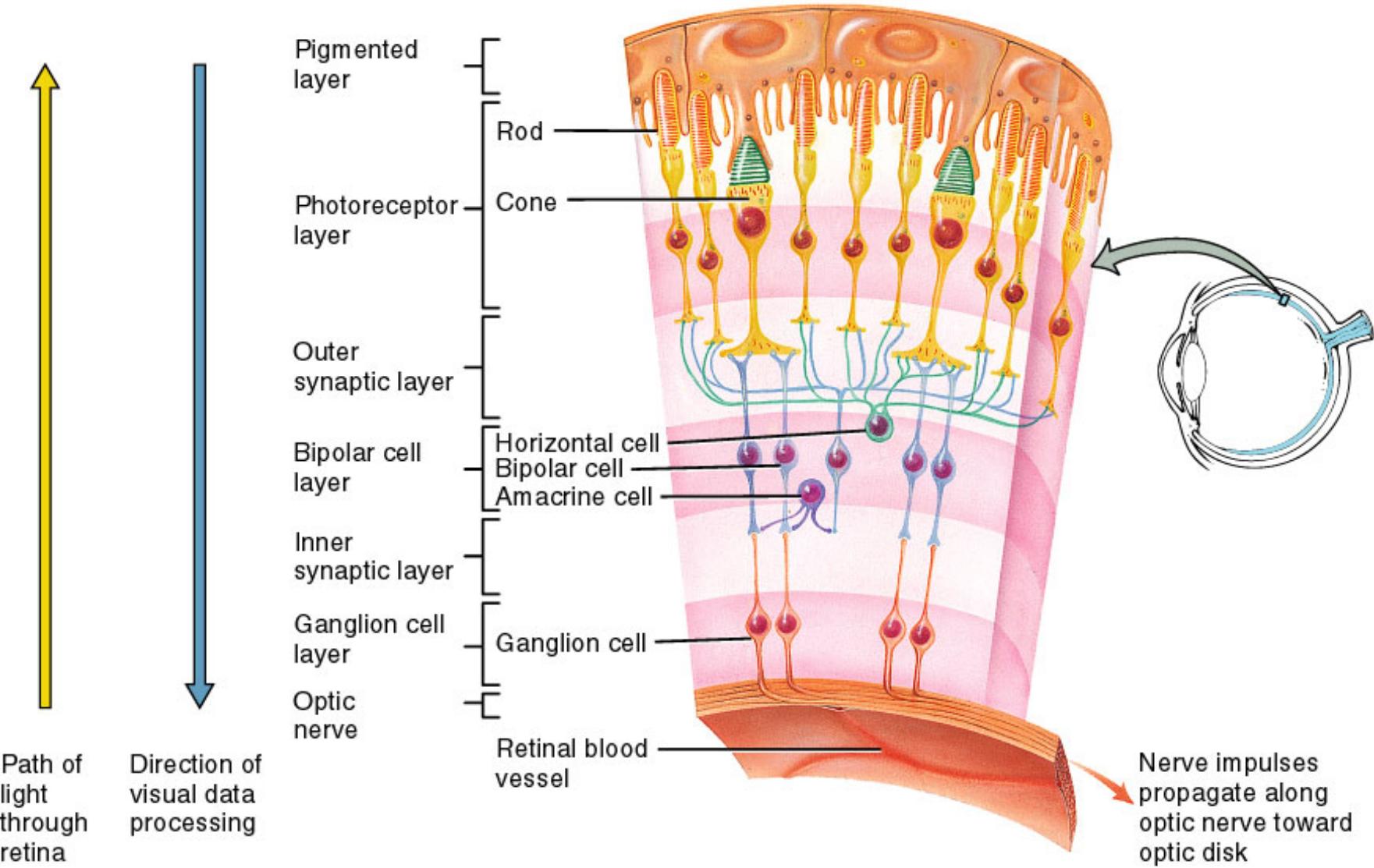


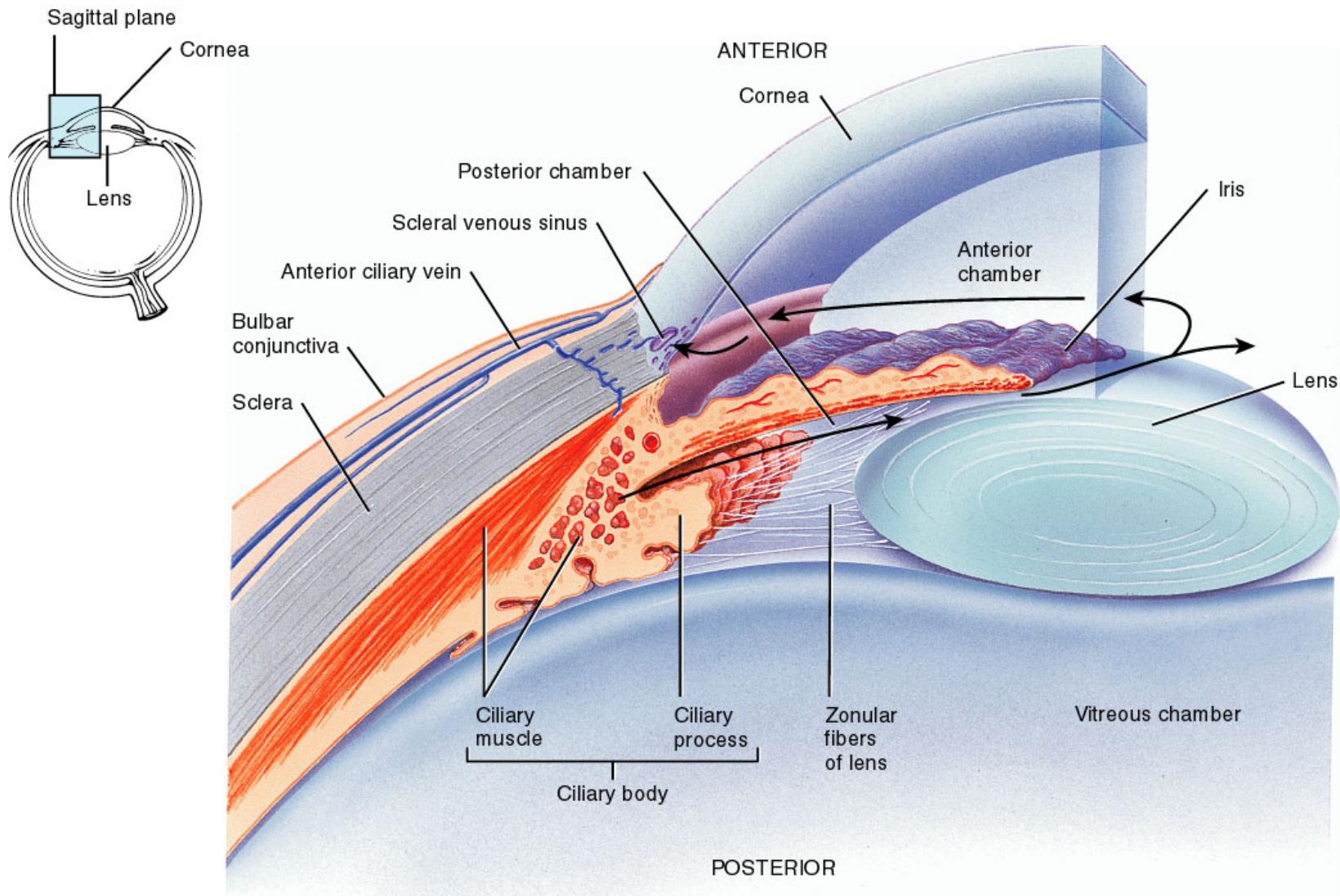
16.07

# Normal Retina

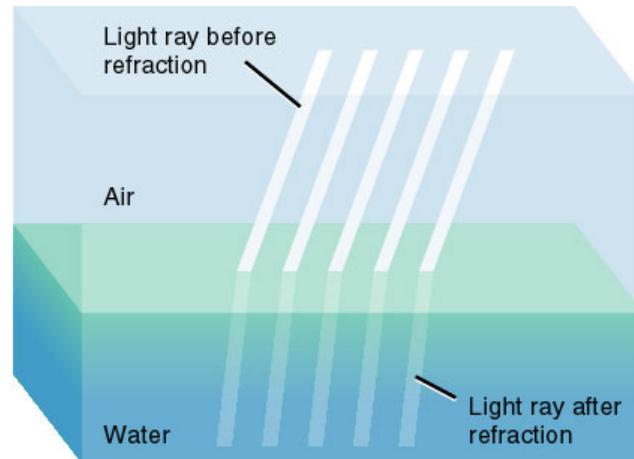


16.08

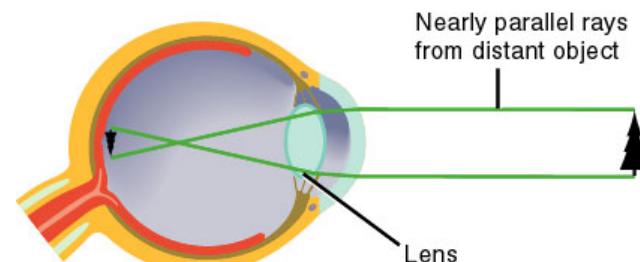




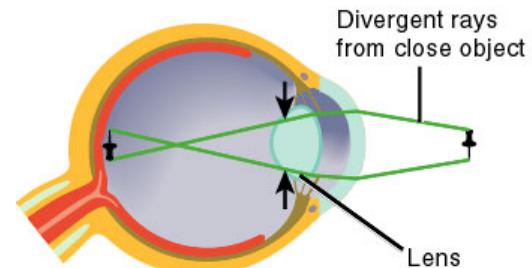
# Refraction of Light Rays



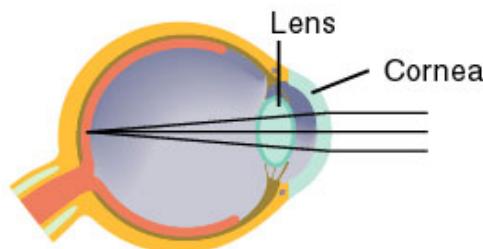
(a) Refraction of light rays



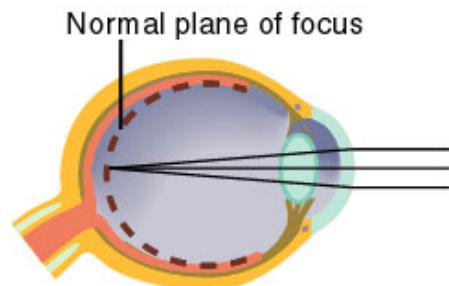
(b) Viewing distant object



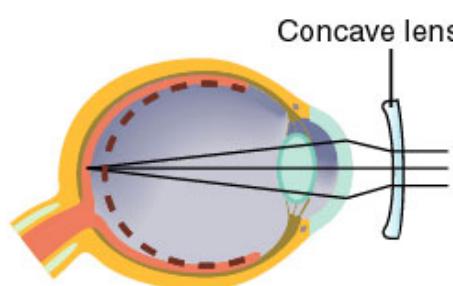
(c) Accommodation



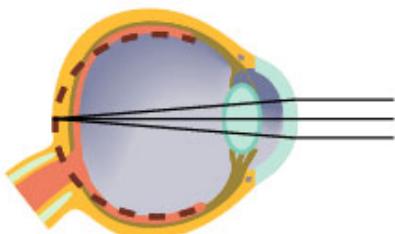
(a) Normal (emmetropic) eye



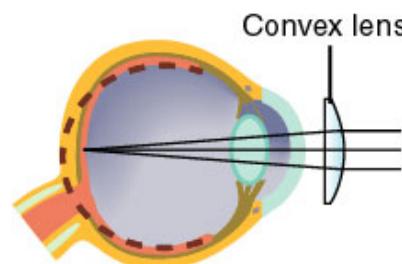
(b) Nearsighted (myopic) eye,  
uncorrected



(c) Nearsighted (myopic) eye,  
corrected



(d) Farsighted (hypermetropic)  
eye, uncorrected

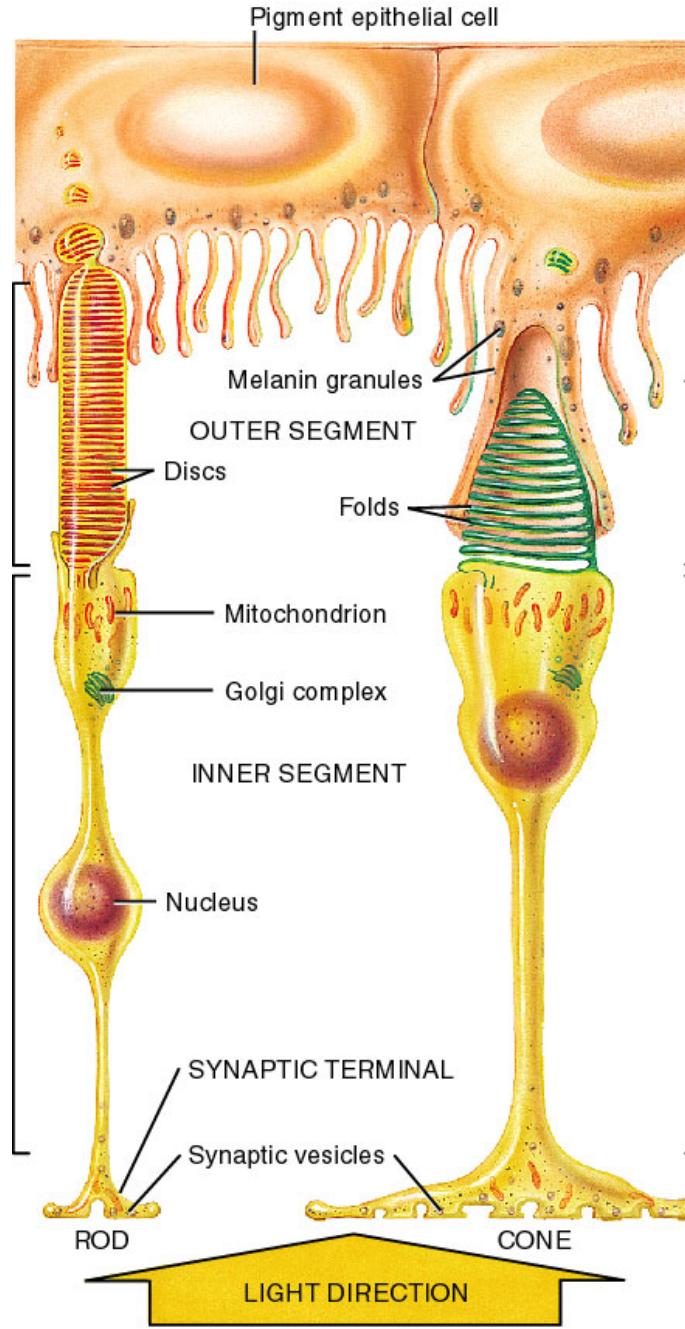


(e) Farsighted (hypermetropic)  
eye, corrected

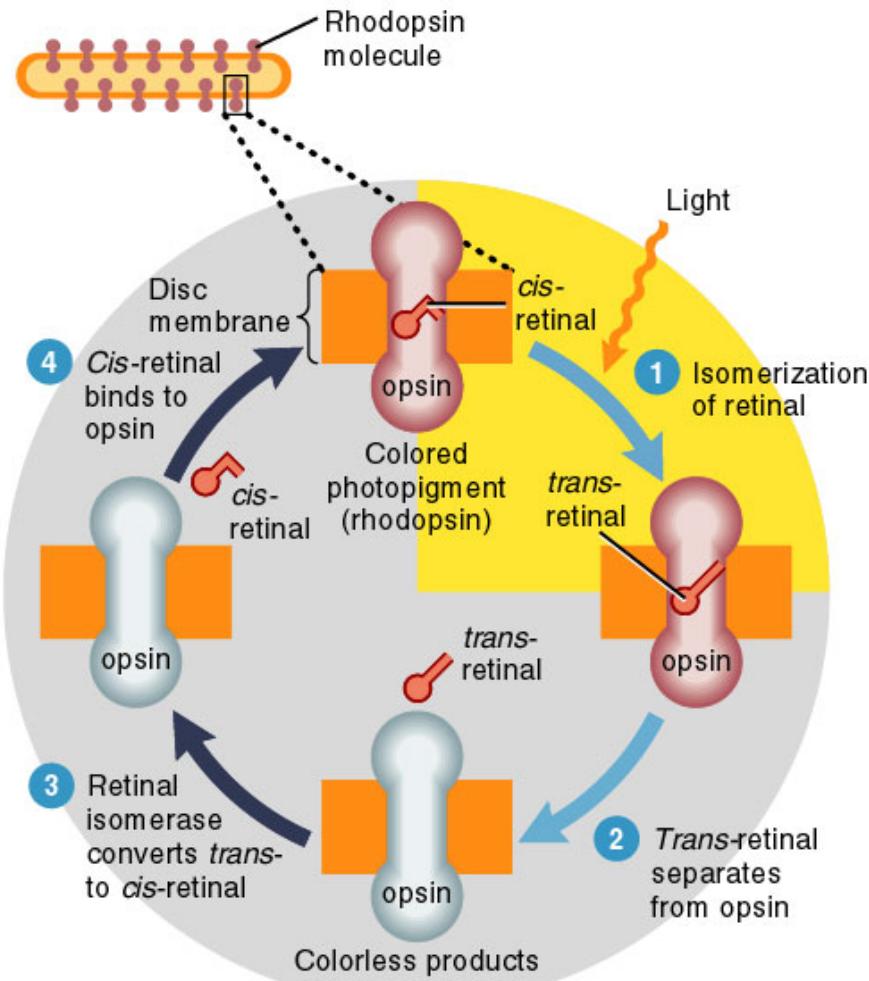
# Rods and Cones

Rods for B & W  
vision (120 million)

Cones for color  
vision (6 million)  
Most in the  
Fovea

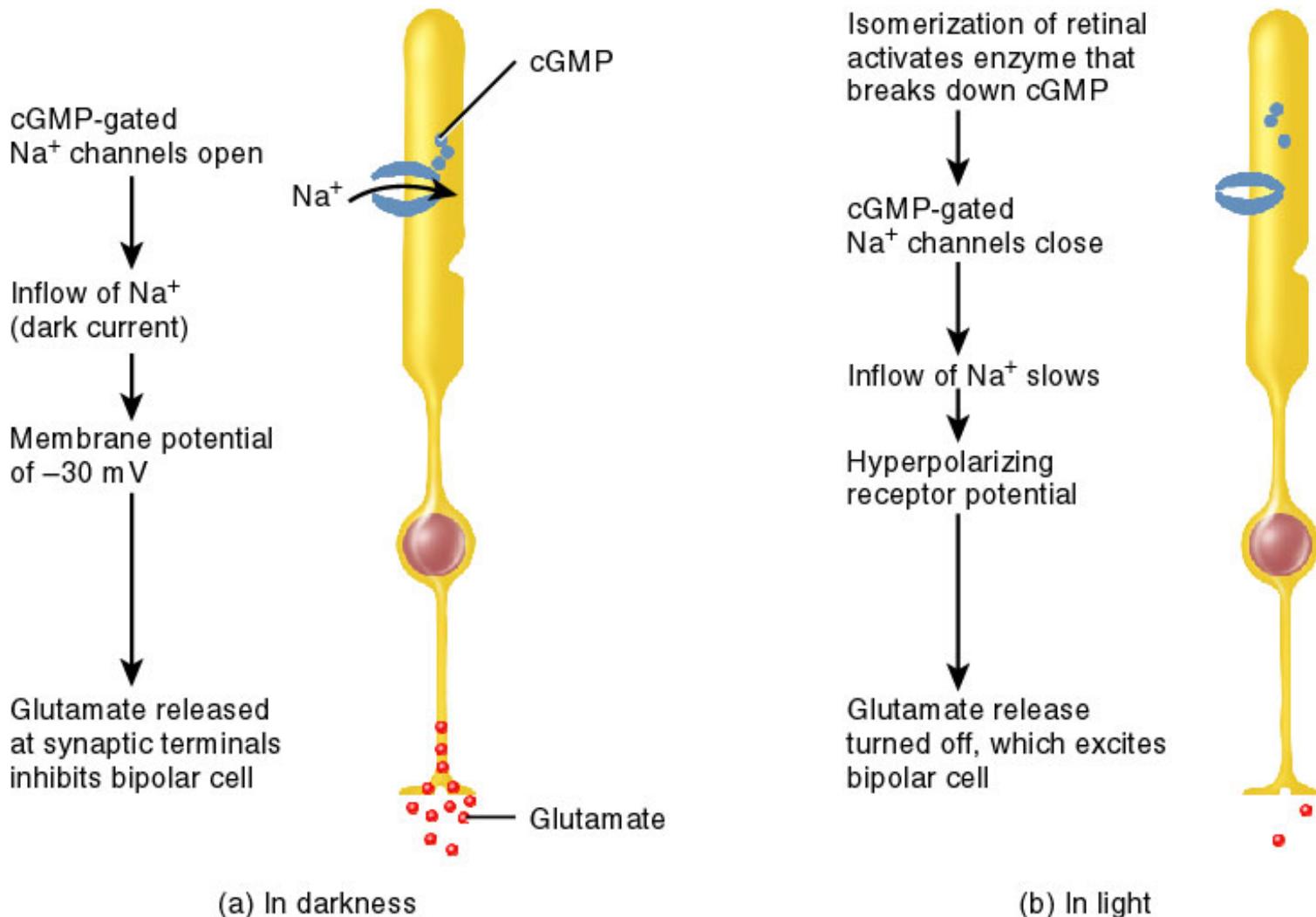


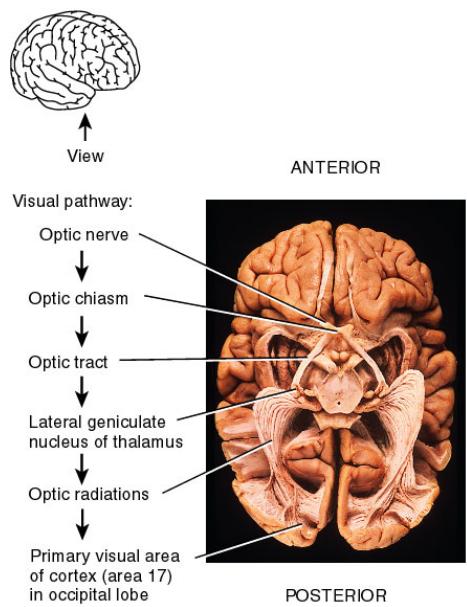
Rod disc in outer segment



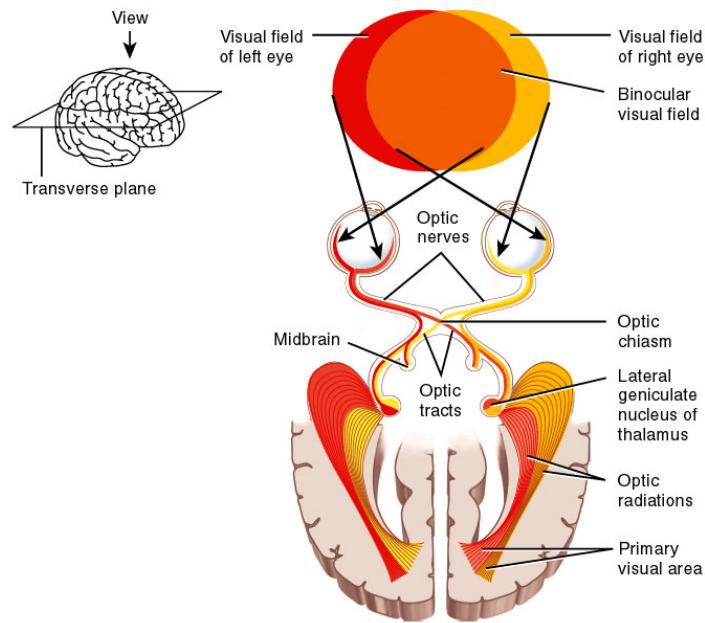
# Image Formation

- Refraction of Light Rays
- Accommodation of the Lens
- Constriction of the Pupil
- Convergence

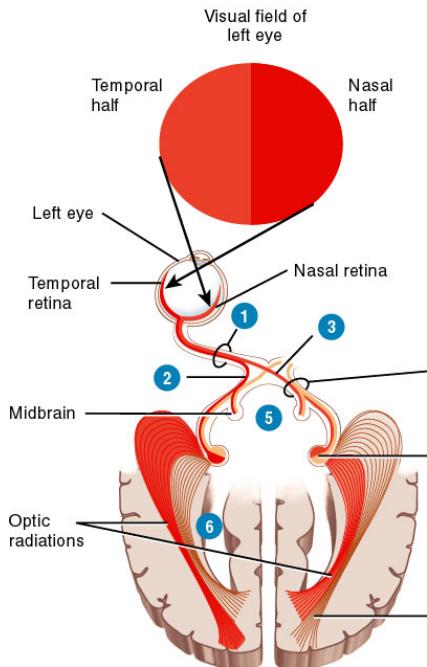




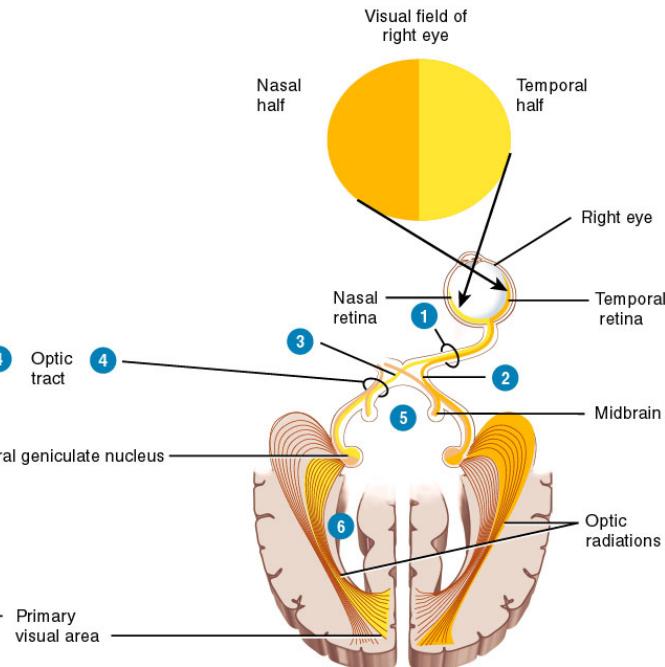
(a) Inferior view



(b) Superior view of transverse section through eyeballs and brain



(c) Left eye and its pathways

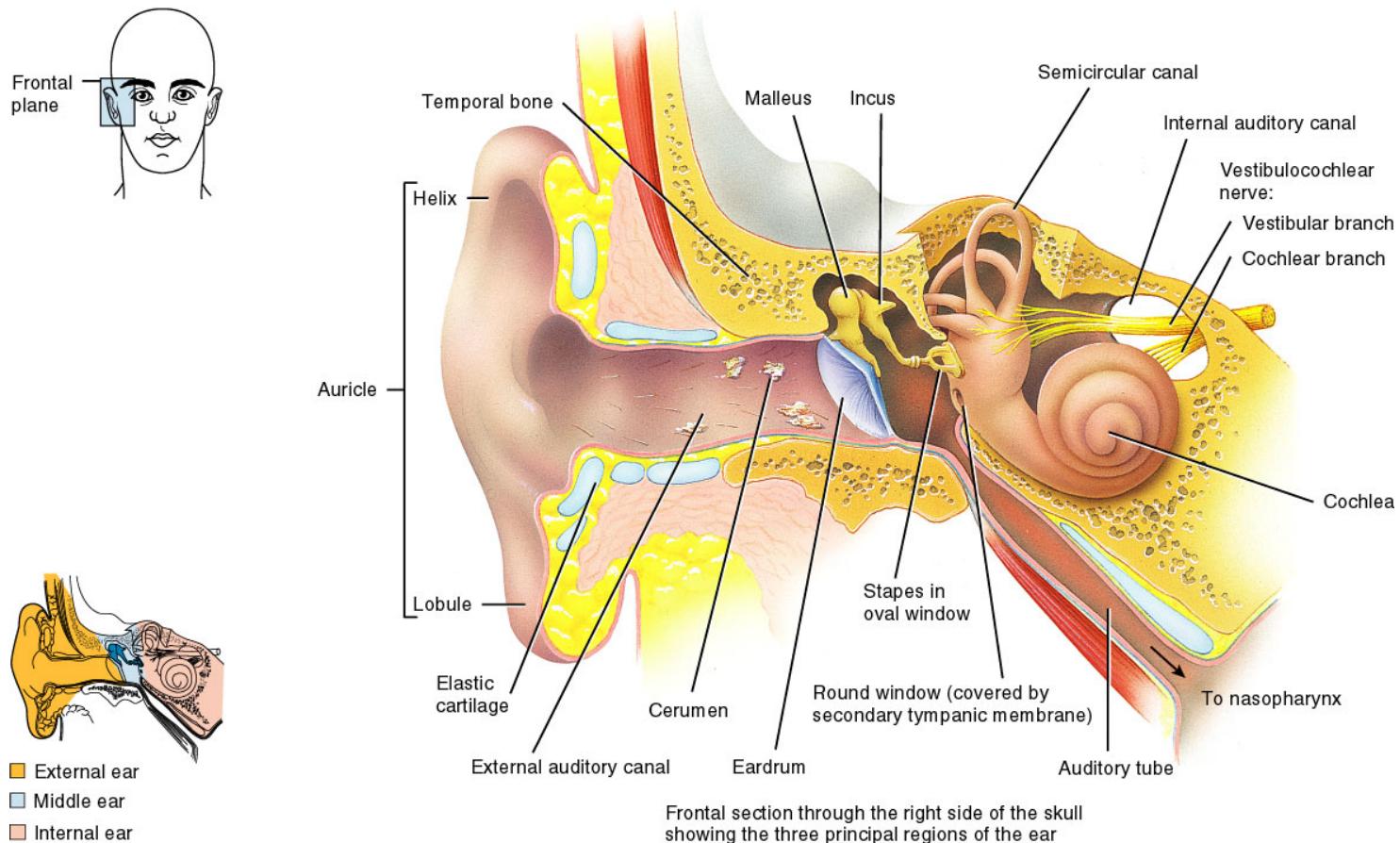


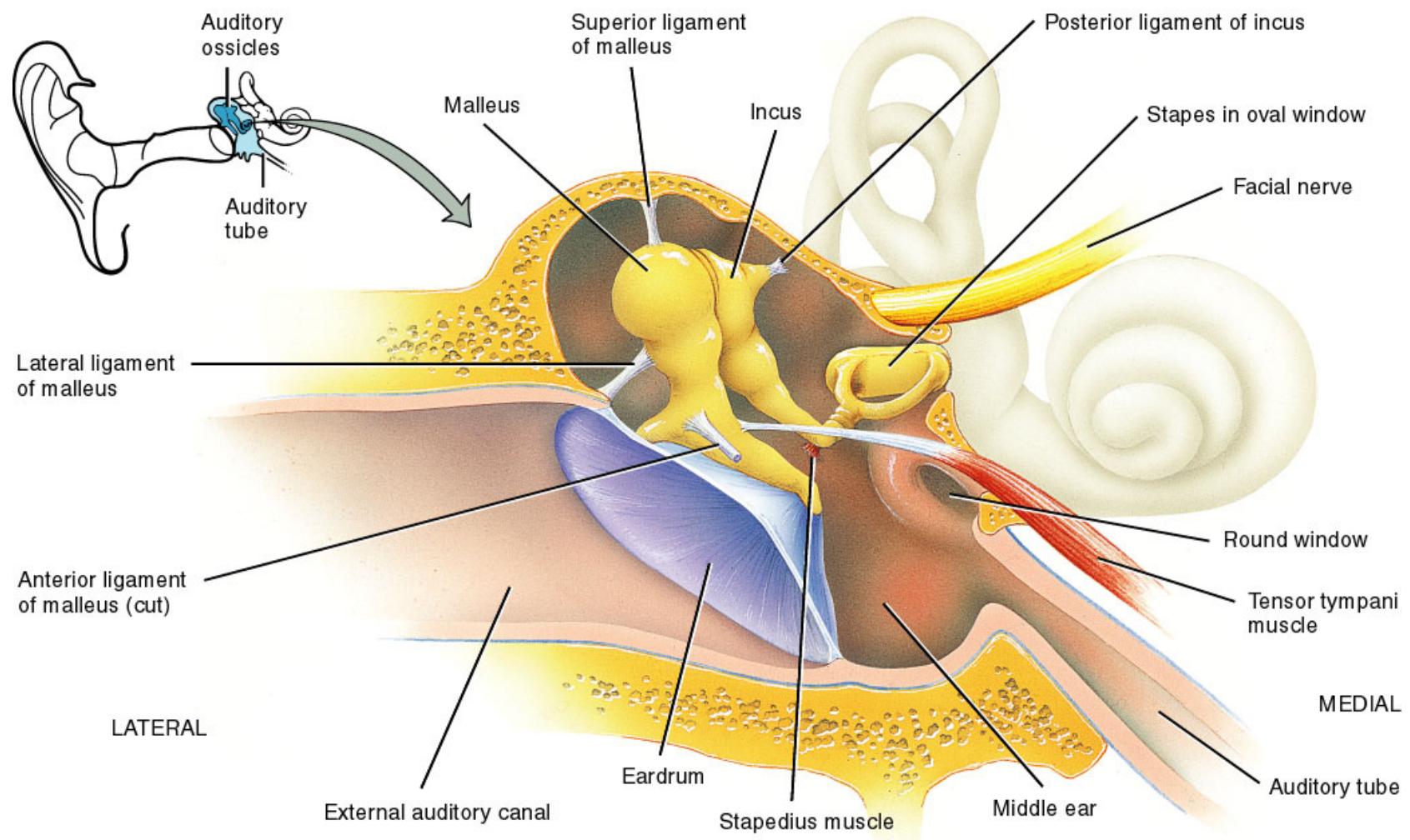
(d) Right eye and its pathways

# Image Problems

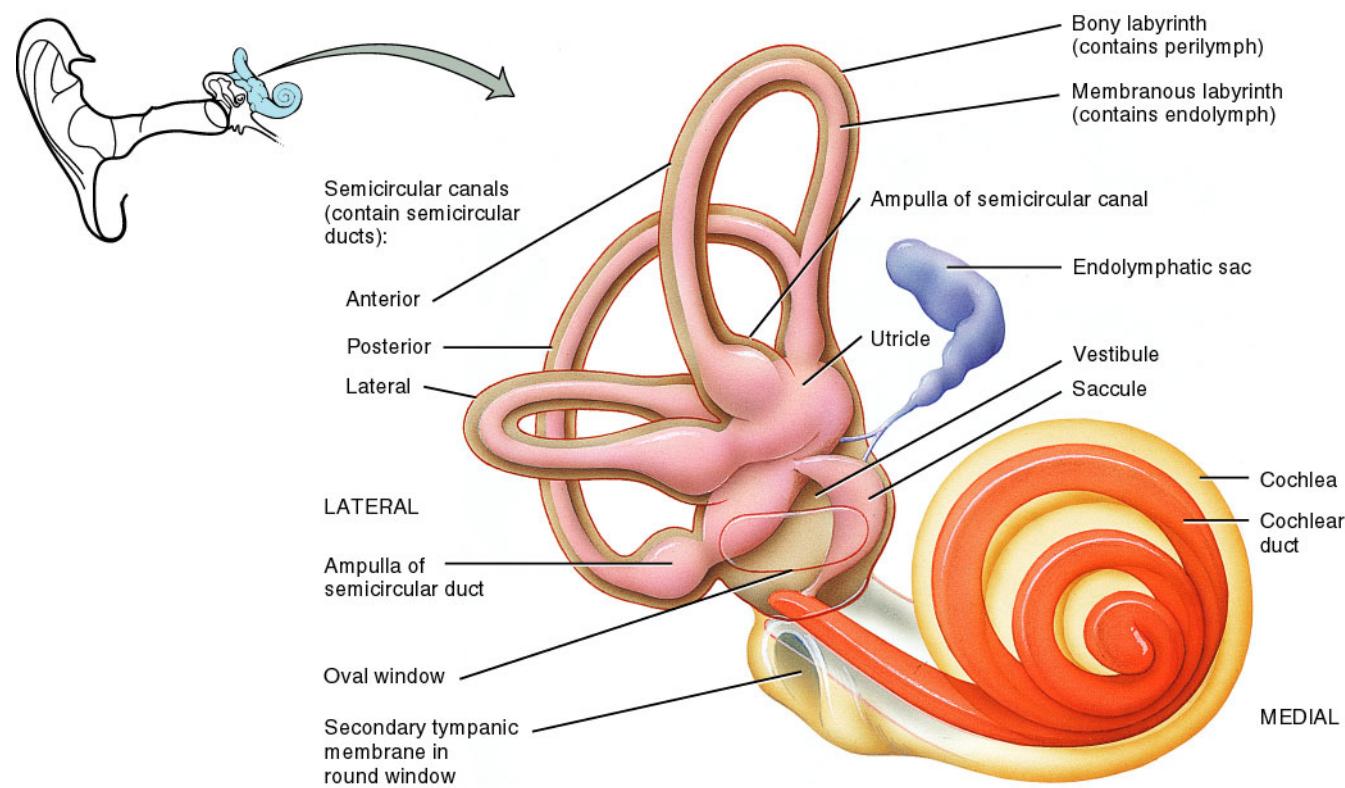
- Cataracts
- Age-related macular disease
- Presbyopia (loss of lens elasticity)
- Color Blindness
- Light and dark adaptation

# Hearing and Equilibrium

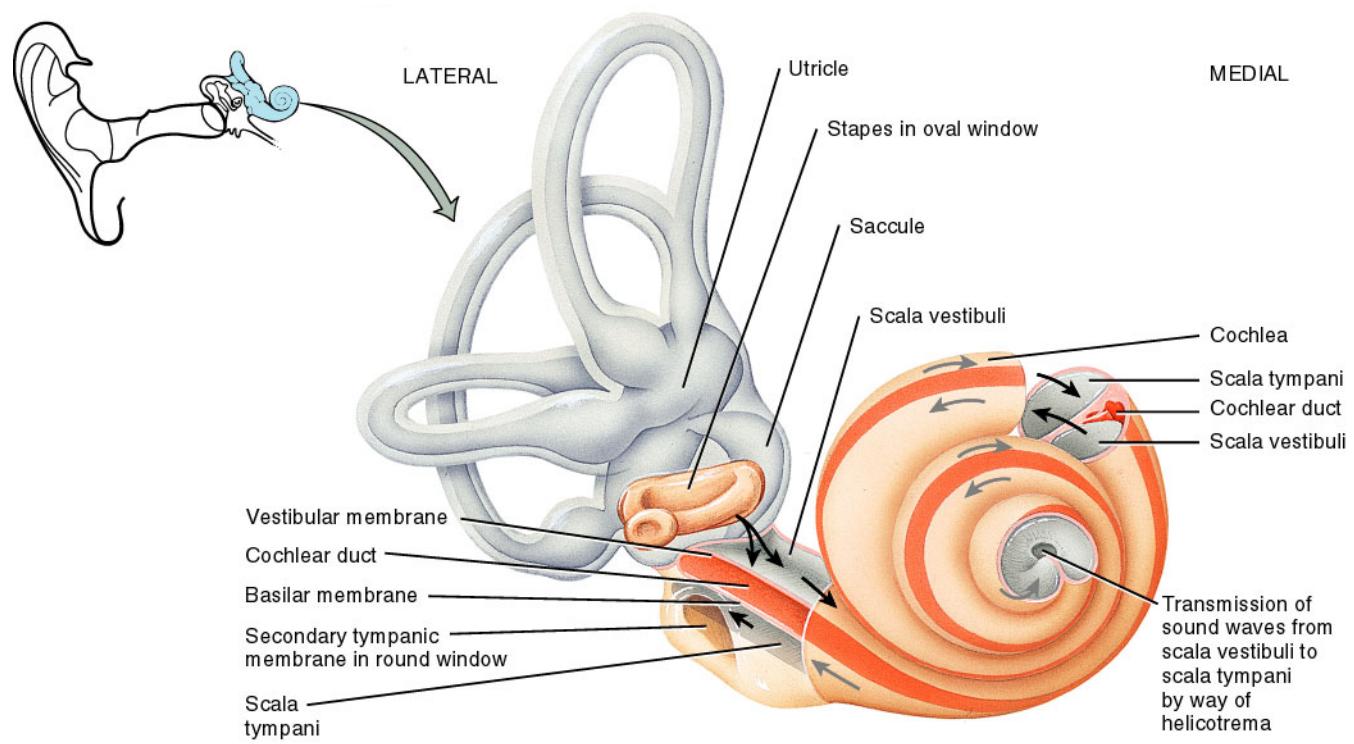




Frontal section showing location of auditory ossicles

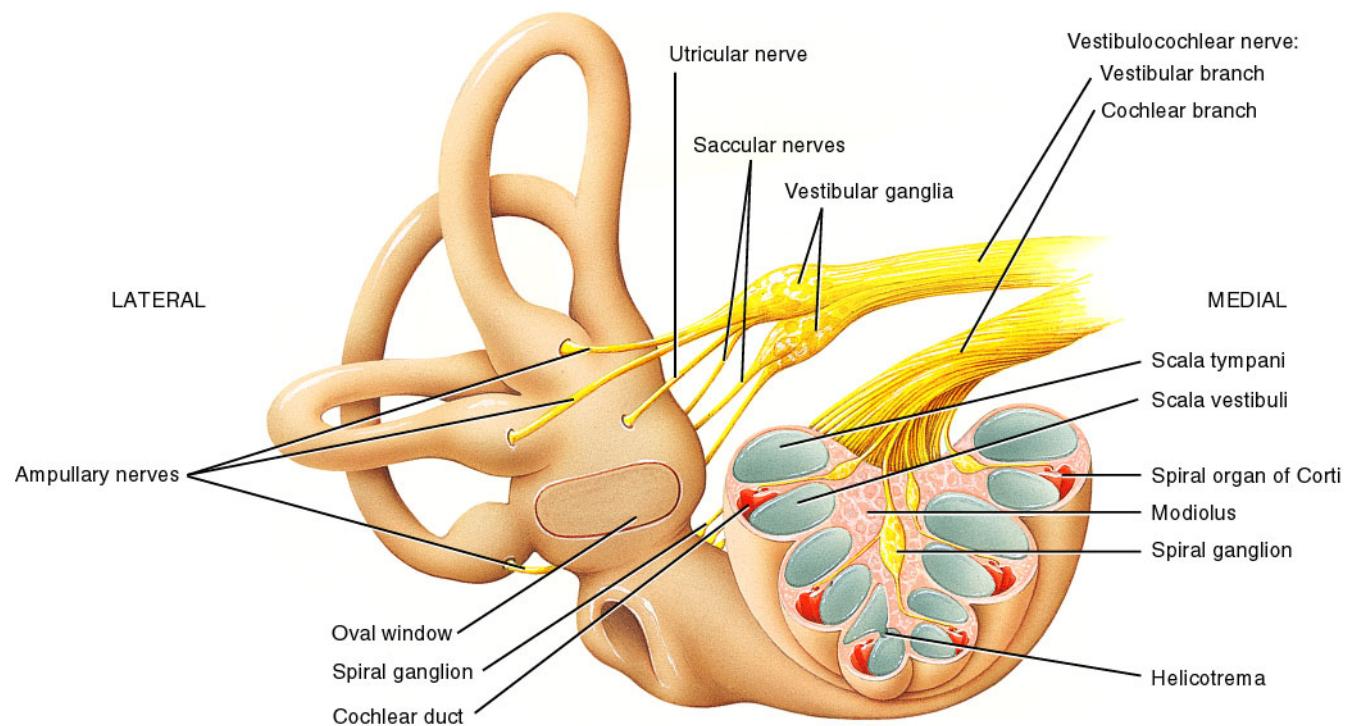


16.19



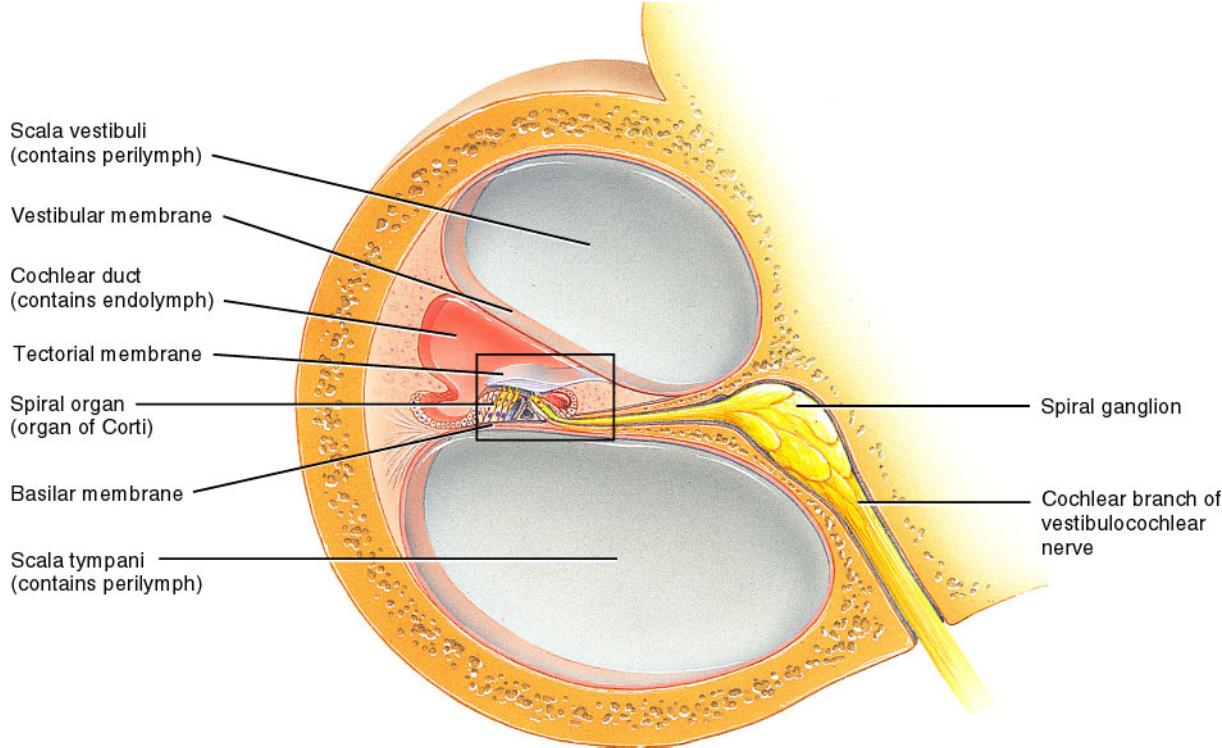
(a) Sections through the cochlea

16.20a



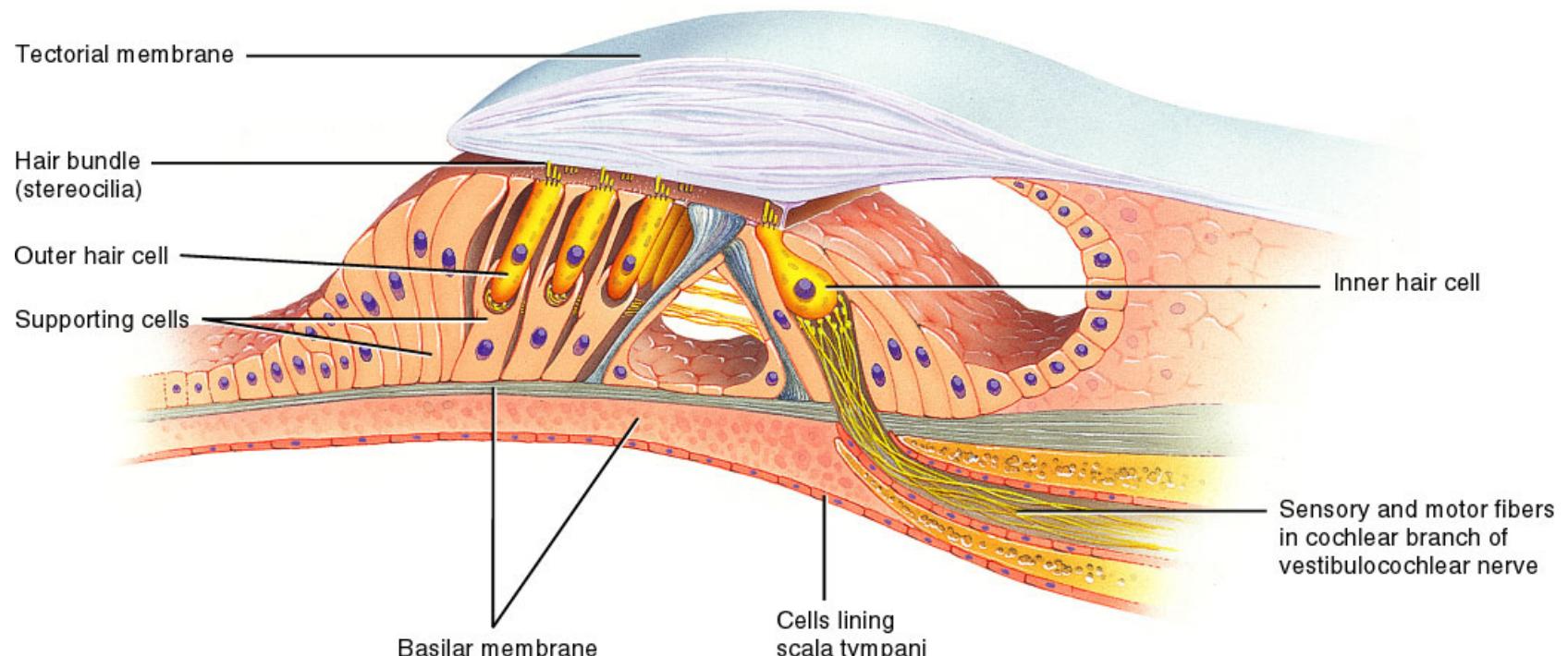
(b) Components of the vestibulocochlear nerve (cranial nerve VIII)

16.20b



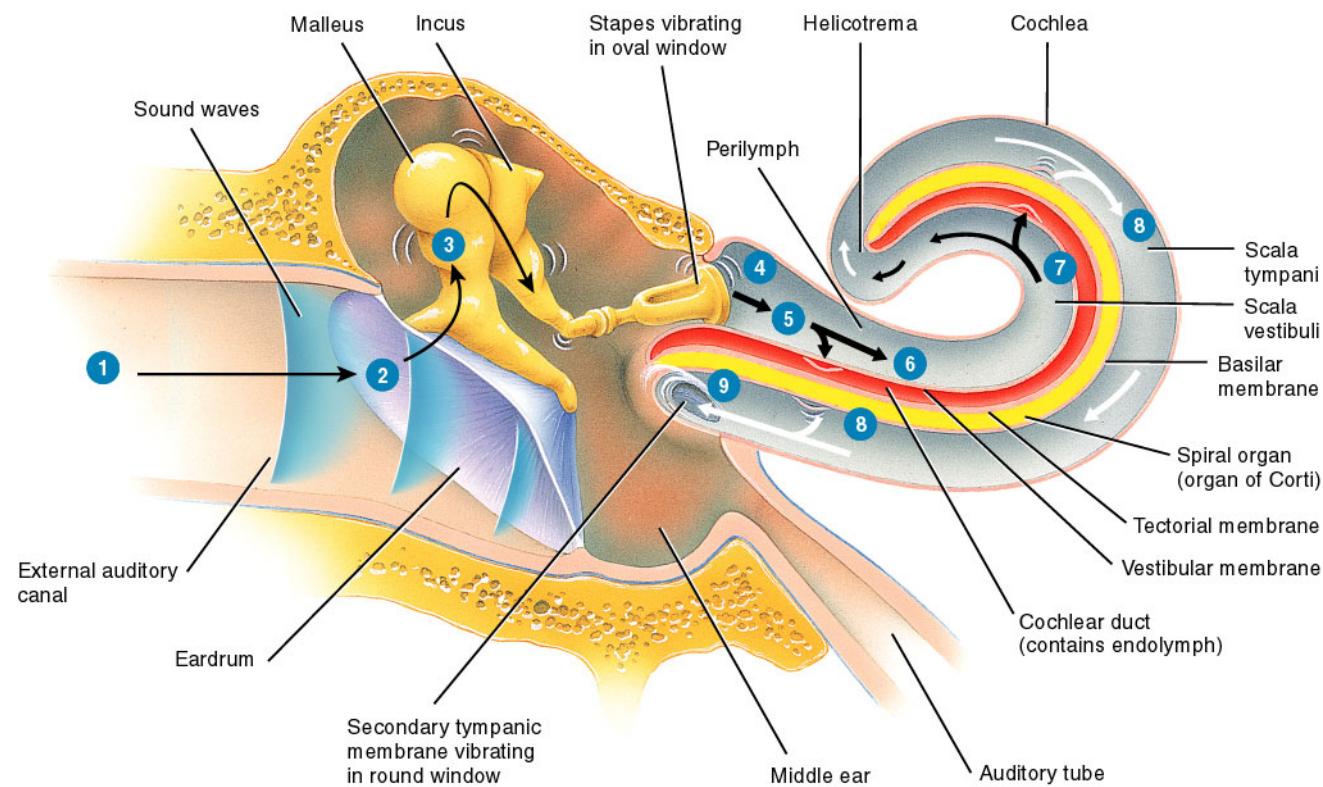
(c) Section through one turn of the cochlea

16.20c



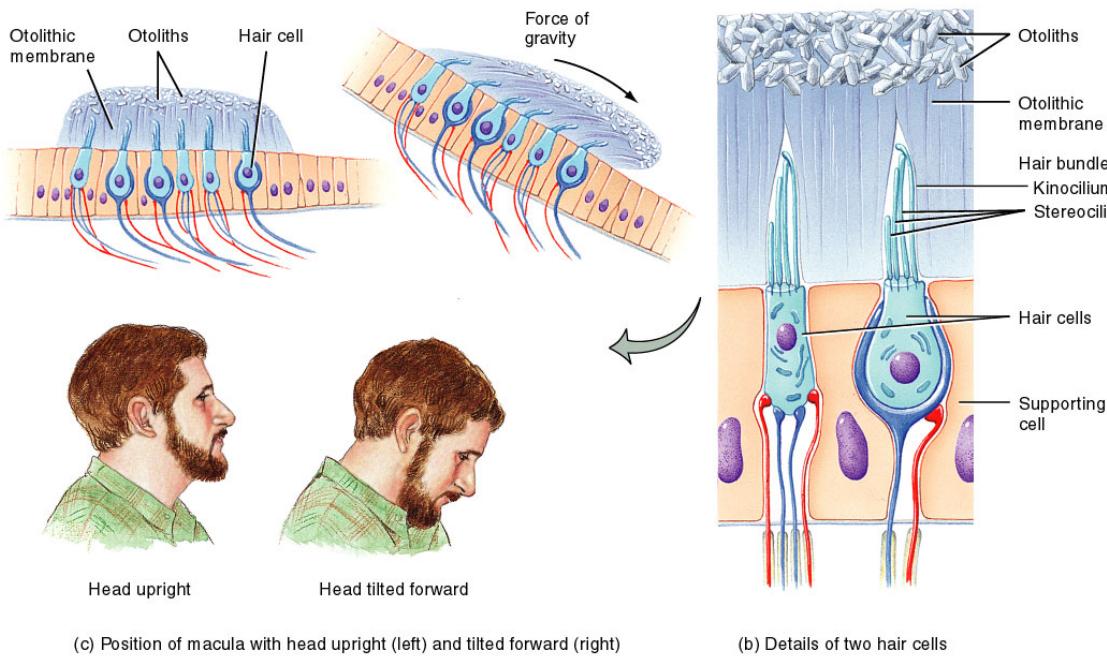
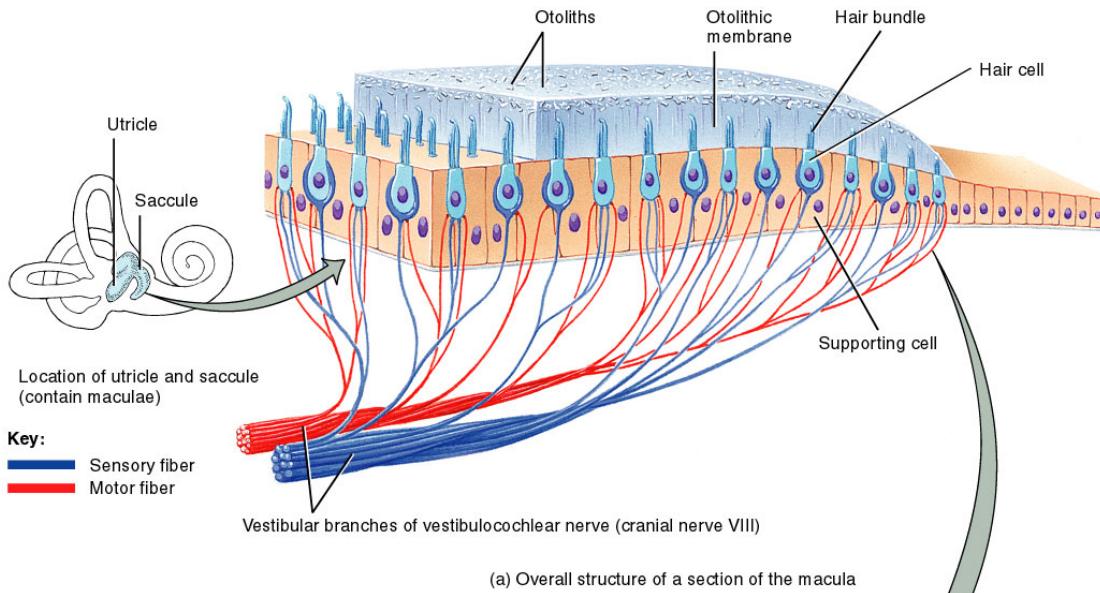
(d) Enlargement of spiral organ (organ of Corti)

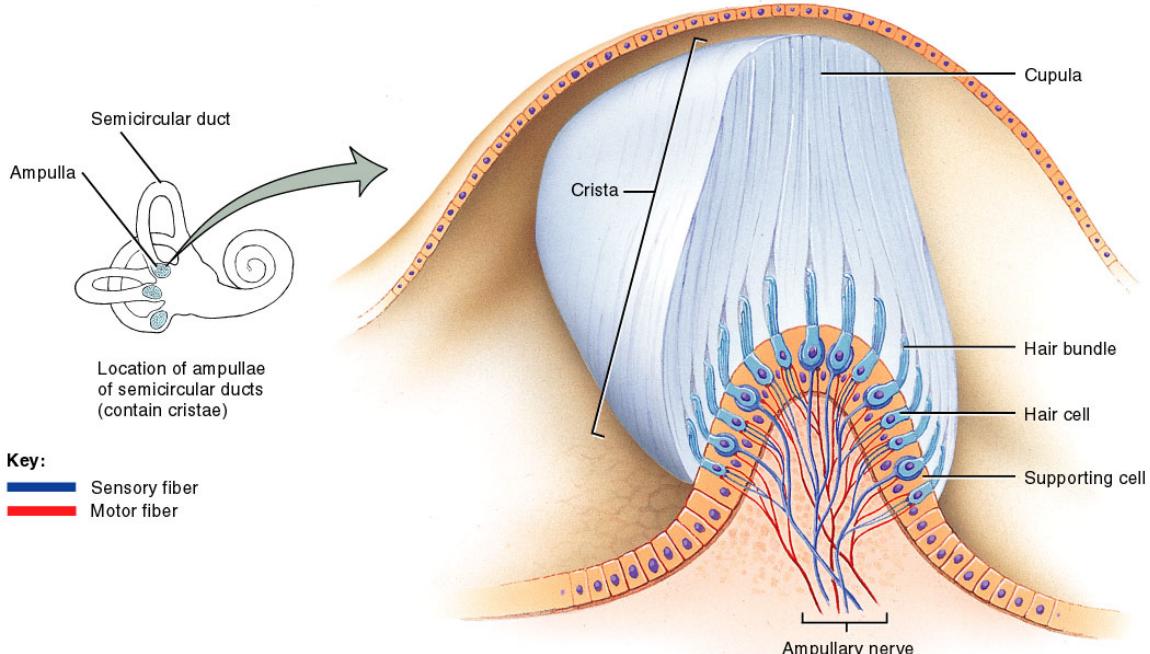
16.20d



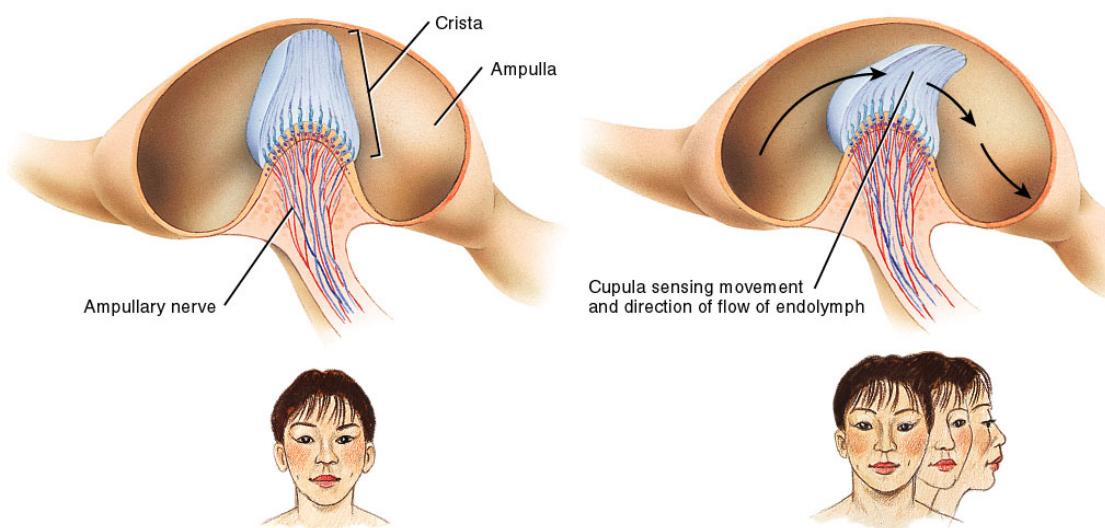
16.21

# Otoliths





(a) Details of a crista



(b) Position of a crista with the head in the still position (left) and when the head rotates (right)

# Words to Know

- |                      |                |
|----------------------|----------------|
| • Cataracts          | Conjunctivitis |
| • Glaucoma           | Keratitis      |
| • Deafness           | Otalgia        |
| • Meniere's syndrome | Tinnitus       |
| • Otitis media       | Vertigo        |
| • Anosmia            | Myopia         |
| • Blepharitis        | Hypermetropia  |
| • Astigmatism        | Presbyopia     |

# More Words

- Hyposmia
- Gustation
- Taste aversion