# Eye Anatomy

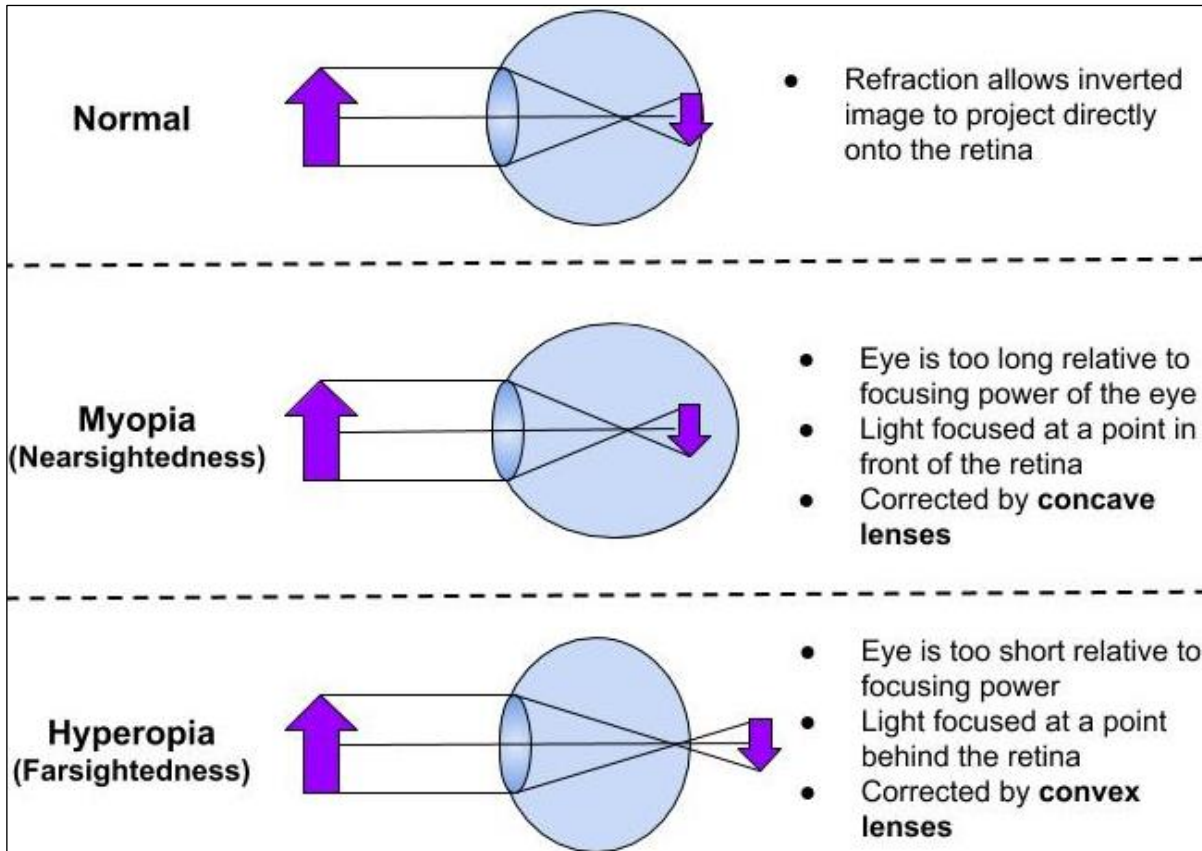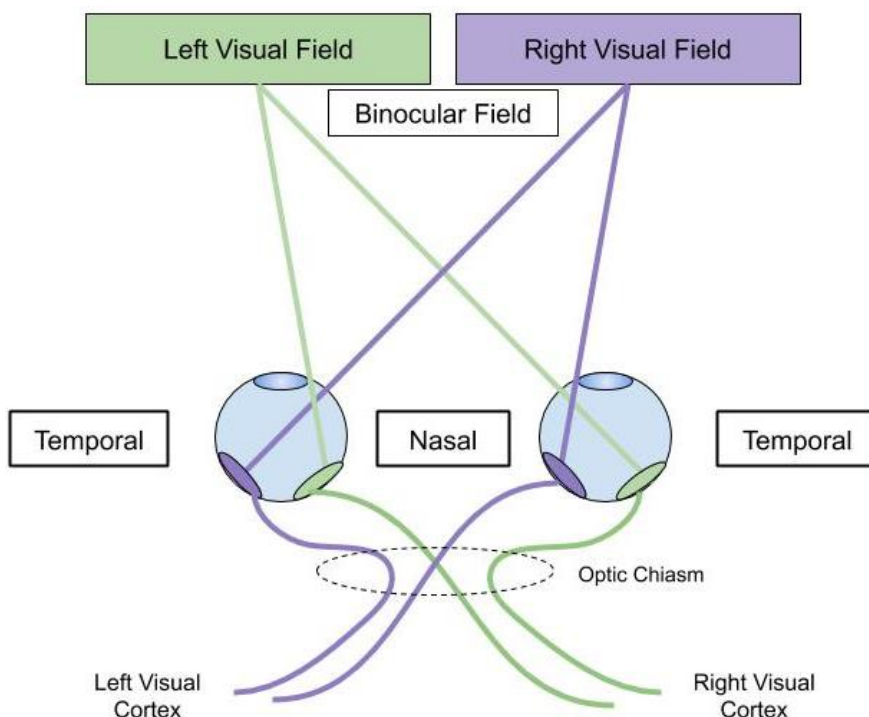| Structure	Function
Cornea	Outermost lens of the eye responsible for the majority of light refraction
Aqueous humor	Fluid that adds refractive power
Iris/Pupil	Colored tissue that regulates the amount of light entering the eye through the central pupil. ⭐ **Key concept**: The pupil dilates in low light conditions and constricts in high light conditions
Lens	Focuses light, bends to allow accommodation ⭐ **Key concept:** Accommodation: altering the lens so the eye can focus on both near and far objects.
Ciliary Body	Changes shape of lens during accommodation
Vitreous humor	Jelly-like substance that fills the inner eye
Sclera	Tough outer coat for protection and muscle attachment
Retina	Light sensitive layer over the back of the eye containing **photoreceptors**
Macula/Fovea	Area of the retina with high visual acuity due to high concentration of cones
Optic nerve	Carries information from the retina to the occipital lobe of the brain. The **blind spot** is where the nerve exits the eye.
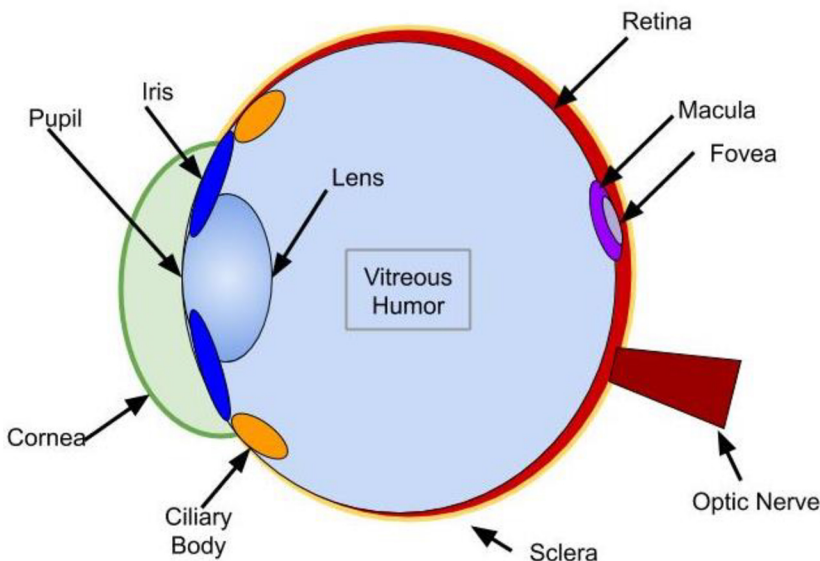
Comparison of Photoreceptors

	Rods	Cones
Used for	Night vision, low resolution	Day vision, high resolution
Primary location	Periphery of retina	Central retina: macula and fovea
Relative number	More	Fewer
Colors Perceived	None	Red, Blue, Green

Light is refracted (bent) as it passes sequentially through the cornea, aqueous humor, lens, and vitreous humor. Errors in refraction cause visual defects which can be corrected by contacts or glasses. Two kinds of refractive error, myopia and hyperopia, are described below.

The Eye

Normal
- Refraction allows inverted image to project directly onto the retina

Myopia (Nearsightedness)
- Eye is too long relative to focusing power of the eye
- Light focused at a point in front of the retina
- Corrected by **concave lenses**

Hyperopia (Farsightedness)
- Eye is too short relative to focusing power
- Light focused at a point behind the retina
- Corrected by **convex lenses**

Visual Fields

Left Visual Field

Right Visual Field

Binocular Field

Temporal

Nasal

Temporal

Optic Chiasm

Left Visual Cortex

Right Visual Cortex

Key Points: Visual Fields

1. Each eye receives input from **both** visual fields
- Left visual field → left nasal and right temporal retinae
- Right visual field → left temporal and right nasal retinae

2. The visual cortex receives information from the **opposite** eye:
- Right visual cortex → left visual field
- Left visual cortex → right visual field

3. Binocular vision:
- Overlap in visual fields allows for **depth perception** and **3-D vision**
- Improves visual acuity because you receive input from both eyes

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