Anatomy of the Eye

Health Care Technology Unit
ORBIS Flying Eye Hospital
Anatomy of the eye

- Macula
- Aqueous Humor
- Iris
- Cornea
- Lens
- Choroid
- Retina
- Sclera
- Vitreous Humor
- Optic Nerve
Key anatomy of

• **Cornea**: protective outer layer, triggers blink reflex, tear duct secretion, and 2/3 of total refraction.

• **Aqueous Humor**: clear fluid behind the cornea.

• **Iris**: (pupil) constricts and dilates

• **Retina**: coats the back of the eye, image sensor (specialized cells: cones and rods)

• **Lens**: flexible, transparent, provides 1/3 refraction that focuses an image on the retina.

• **Vitreous Humor**: semi-gelatinous material filling the volume between the lens and the retina.
Anatomy of the eye
Anatomy of the eye: Anterior segment

- Cornea
- Ciliary process
- Ciliary muscle
- Zonular fibers
- Aqueous humor
- Iris
- Lens
- Capsula
Anatomy of the eye (detail): Cornea (5 layers)

Epithelium
Bowman’s membrane
Stroma
Descemet’s membrane
Endothelium

1 cell thickness (3 à 4000 cells/mm² when born)

Thickness = 500 µm at center, 700 to 800 µm on sides
Dioptric power = 40 (total eye = 60 diopters)

Epithelium regenerates every 2 to 8 days

**Endothelium is an unicellular layer that never regenerates** (3 to 4000 cells /mm² at birth)
Anatomy of the eye: Posterior segment

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Anatomy of the eye (detail): Posterior segment

Ora serrata = anterior limit of retina
Six sub-specialties of Ophthalmology

1. Cornea & Cataract
   - Cataract
   - Corneal Diseases

2. Retina & Vitreous
   - Retinal Detachment
   - Macular Diseases
   - Diabetic Retinopathy
Six sub-specialties of ophthalmology

3. Glaucoma

4. Oculoplastics (trauma, birth defects, tumors, cosmetics)

5. Pediatrics & Strabismus

6. Neuro-ophthalmology (optic disk, optic nerve, brain)
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