The Eye (ocul/o; opthalm/o; opt/o)
“off-thalm”
Ch. 10 – Medical Terminology

I. Anatomy → KNOW Fig. 10.1

A. Accessory structures

1. eyelids (palpebrae; cf = blephar/o) & eyelashes
   - two types of sebaceous glands
   - Meibomian glands (tarsal glands): inner surface, large
     - keep cornea moist
   - Glands of Zeis: smaller, at base of lashes

   - may droop due to loss of elasticity = blepharochalasis (dermatochalasis)
     or
due to paralysis = blepharoptosis (ptosis)
     ≠ opt -osis

2. lacrimal apparatus (lacrim/o; dacry/o = tear) → Fig. 10-2

   lacrimal glands - produce tears laterally
   ↓
lacrimal duct
   ↓
lacrimal sac (dacryocyst)
   ↓
nasolacrimal duct → drain medially into nasal cavity

   dacrtyoadenitis vs. dacryocystitis
   epiphora = “falling upon”, excessive tearing due to blockage of drainage

3. conjunctiva is mucous membrane lining eyelid and partially covering eyeball
   - inflammation = pinkeye (conjunctivitis)
   - blood vessels dilate = bloodshot eyes

4. Extrinsic (extraocular) muscles move eyeball
   -imbalance causes strabismus or (heterotropia) → Fig. 10-10
     “squinting” ← “other” ← “turning”

   → p. 496: TEXT IS WRONG (says “intraocular muscles” cause)

   esotropia → inward
   exotropia → outward

   (Don’t confuse with entropion/ectropion = inward/outward turning of eyelid)
   - NOT only cause of amblyopia (= lazy eye)

B. Eyeball
- 3 layers
1. Fibrous layer - outermost
  - sclera – “whites” of eye
    -- posterior 2/3
  - cornea (**kerat/o**)
    -- transparent anterior 1/3
    -- curved: helps focus light

2. Vascular layer - middle
  - choroid - dark, vascular membrane lining sclera
  - ciliary body (**cycl/o**) → text art misleading
    • ciliary muscle – the anterior, donut-like ring of muscle which alters lens thickness for focusing
    • ciliary processes – vascular projections that secrete aqueous humor
  - iris (**irid/o**)- anterior colored flap from ciliary body that defines pupil
    (Iris was the Greek goddess of the rainbow)

3. Retina - innermost
  - lines posterior 2/3
    photoreceptor layer -- rods (black and white)
    - cones (color)
  - macula lutea - pigmented center of retina (Fig. 10.12 & 10.13)
    - spot yellow
  - fovea centralis - depression in center of macula lutea.
    - has only cones → point of sharpest vision
  - optic disc (blind spot) - point of exit of optic nerve
    - no photoreceptors

4. Interior of eyeball
  - lens (**phac/o, phak/o**) divides into anterior & posterior portions
    ▶ anterior portion has aqueous humor (= fluid)
      - functions as colorless “blood” for cornea & lens
    ▶ posterior portion with vitreous humor (vitreous body)
      - holds retina against posterior wall (fundus)
  - iris divides anterior cavity into
    - posterior chamber -- produces aqueous humor
    - anterior chamber -- reabsorbs it every 90 minutes

5. Flow of aqueous humor

  ciliary → posterior → pupil → anterior → trabecular → canal of chamber meshwork Schlemm
- any interference with this leads to **glaucoma**: increased intraocular pressure
  - 10% of blindness cases in US
  - 2nd leading cause worldwide

- diagnosed with a **tonometer** (Fig. 10-15)
- treated with drugs to decrease production/increase reabsorption or **iridotomy** → provides alternate path for drainage

### II. Clinical → See Fig. 10.6

A. Refractive errors (Fig. 10-3)
   - due to improper bending of light
     - astigmatism → due to irregular curvature
     - hyperopia = focus “beyond” retina = “far-sightedness”
     - myopia = focus in front of retina = “near-sightedness”
   - fixed with corrective lenses or “contacts”

B. cataracts = cloudy areas in lens
   - fixed via:
     - phacoemulsification → intraocular lens (IOL) implant → pseudophakia or extraction

C. retinal detachment
   - reattached via lasers or cryoretinopexy and/or scleral buckling

![Before and After](image)

The best acronym **not** in your text: PORN = progressive outer retinal necrosis
   (herpes zoster: more common in HIV)