

Preserving Our Vision

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4.2 million Americans
are blind or have
reduced vision

Only death and cancer
are more feared than
vision loss

Most causes of vision
loss are now treatable if
diagnosed and treated
early

Age Related Eye Disease

Incidence in US Population

	2013	2030
• Blindness(<20/200)	1.3 M	2.2 M
• Vis. Impaired (<20/40)	2.9 M	5 M
• Cataract	24 M	39 M
• Glaucoma	2.7 M	4.3 M
• Diabetic Retinopathy	7.7 M	11.3 M
• Macular Degeneration	2.1 M	3.7 M

National Eye Institute 2013

Common Eye Diseases

Cataract

Glaucoma

Diabetic Eye Disease

Macular Degeneration

Posterior Vitreous Detachment

(Floaters, Retinal Tears, Detachments)

The Face of Cataracts...



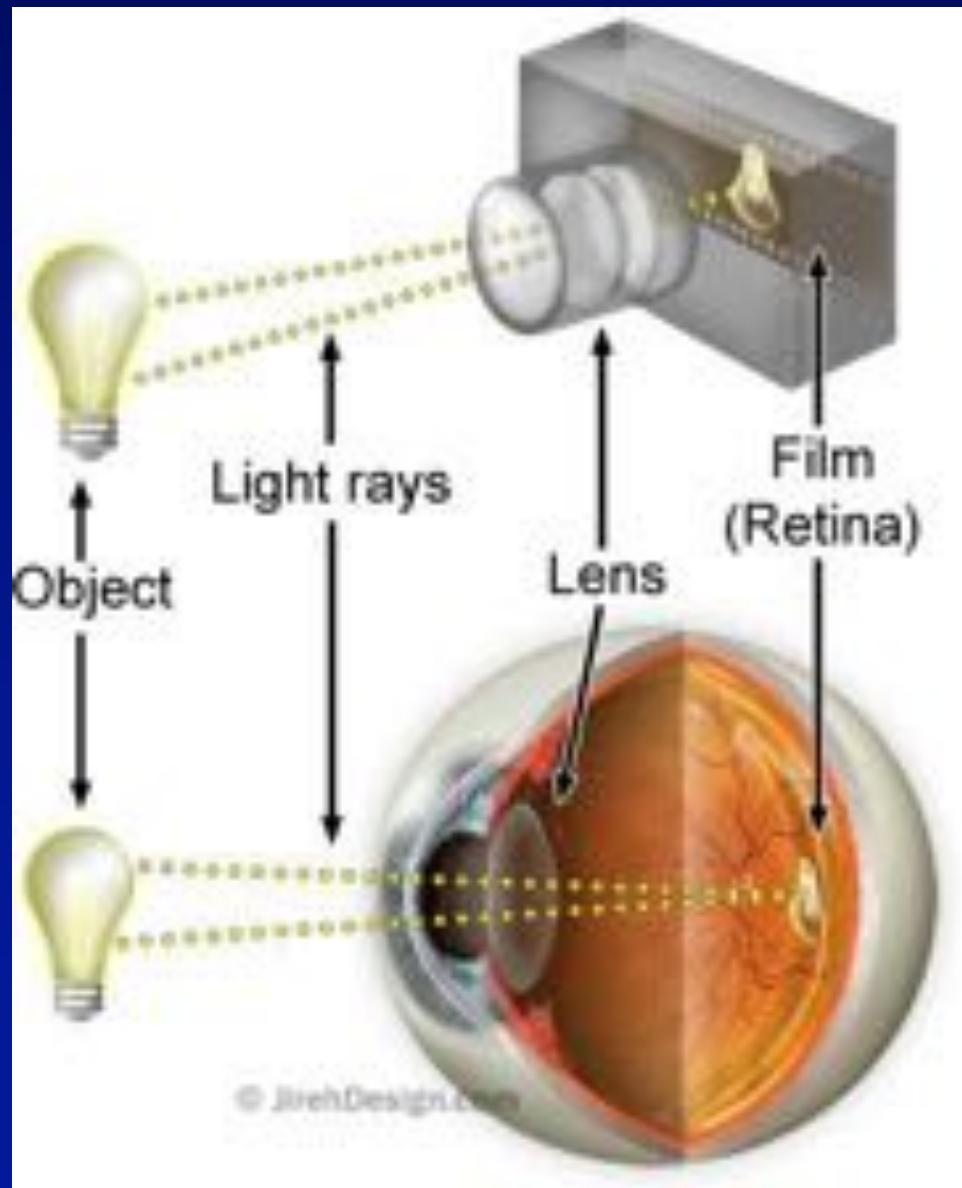


Normal

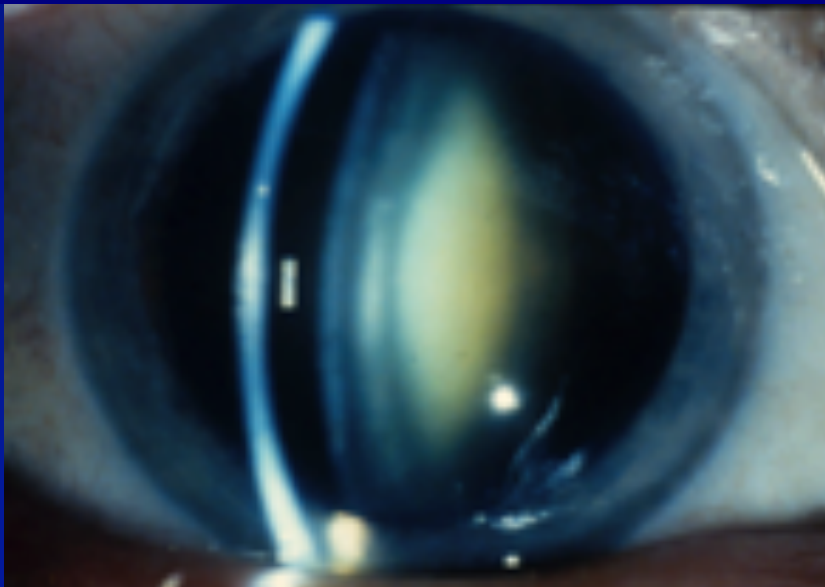
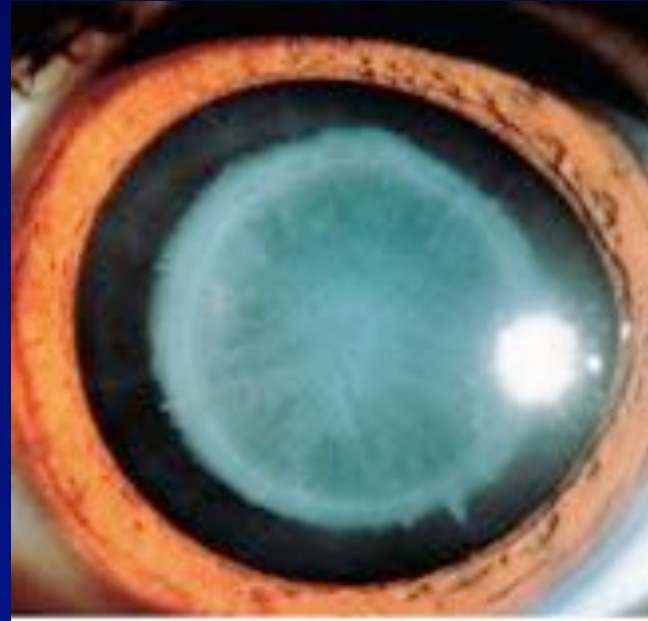
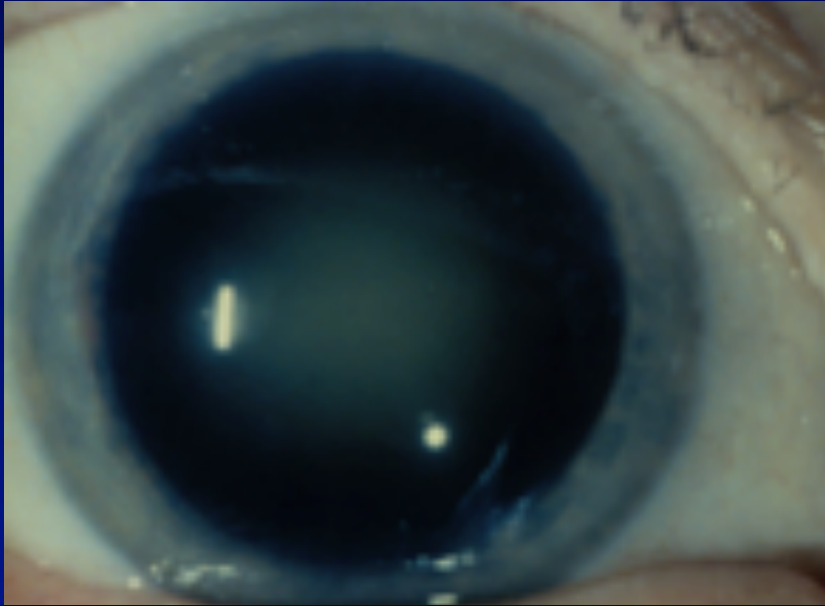


Cataract

The Eye Is Like A Camera



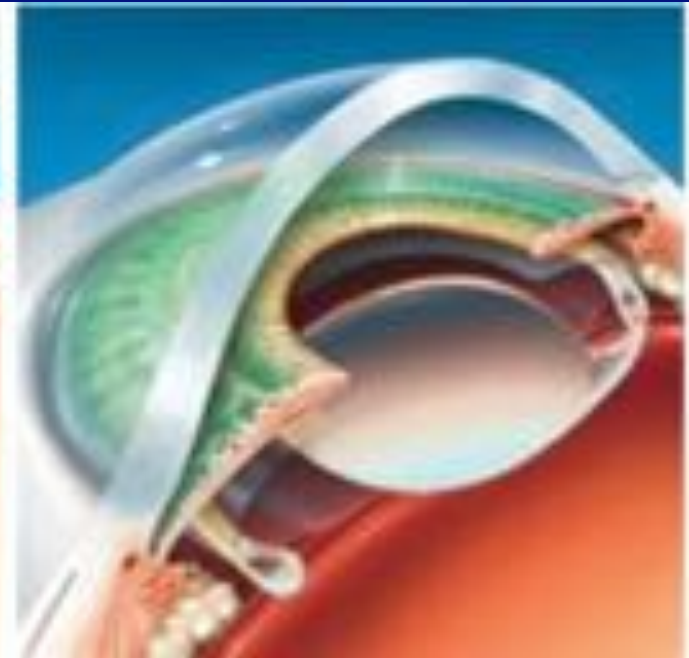
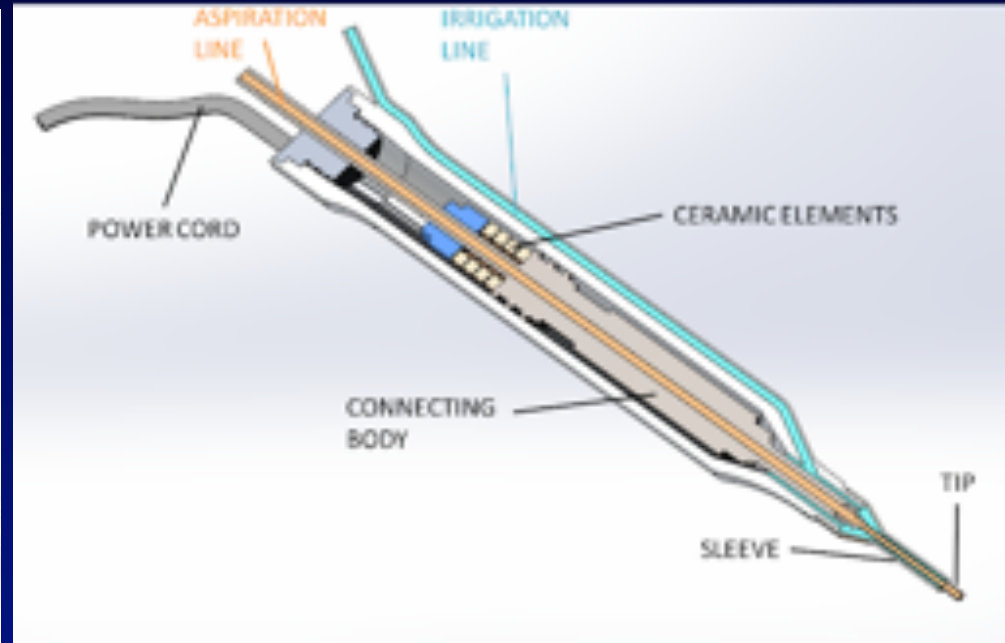
Cataracts



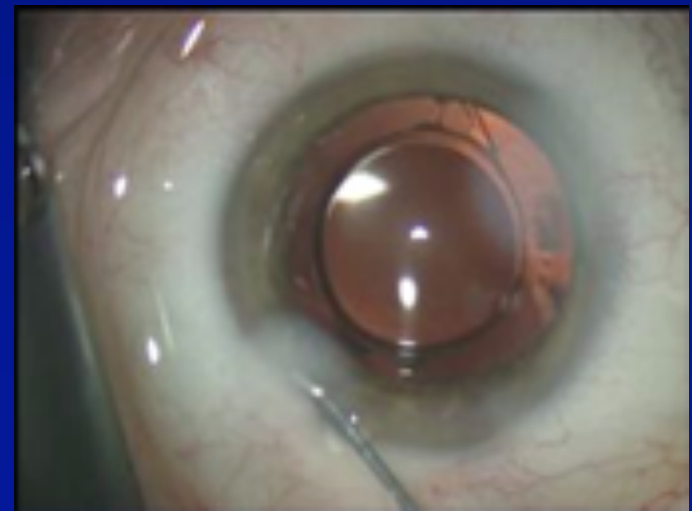
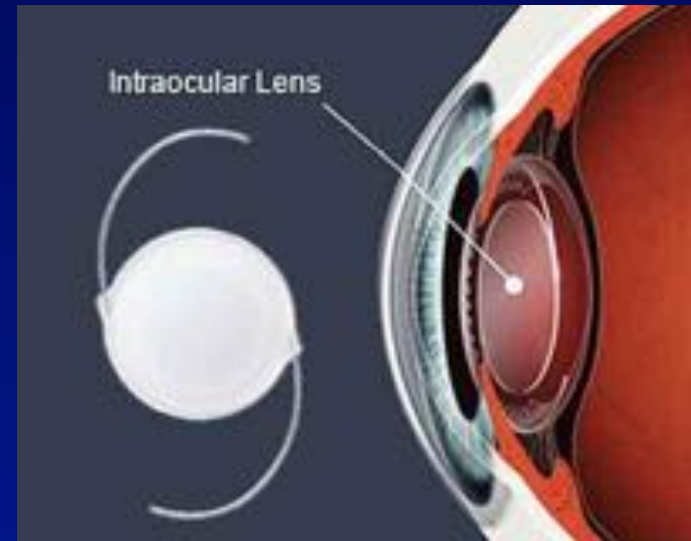
Cataract Surgery

- Out-patient surgery
- Intravenous sedation-most patients sleep through surgery
- Painless
- 10-15 minutes
- Resume activity in one day
- Visual improvement in one day
- Complications rare
- Cost usually covered by insurance
- 98% successful
- Vision may be better than prior to cataract

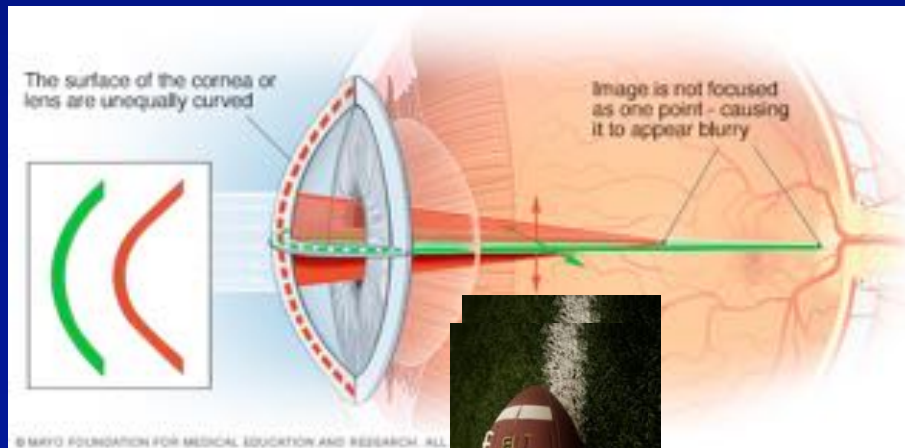
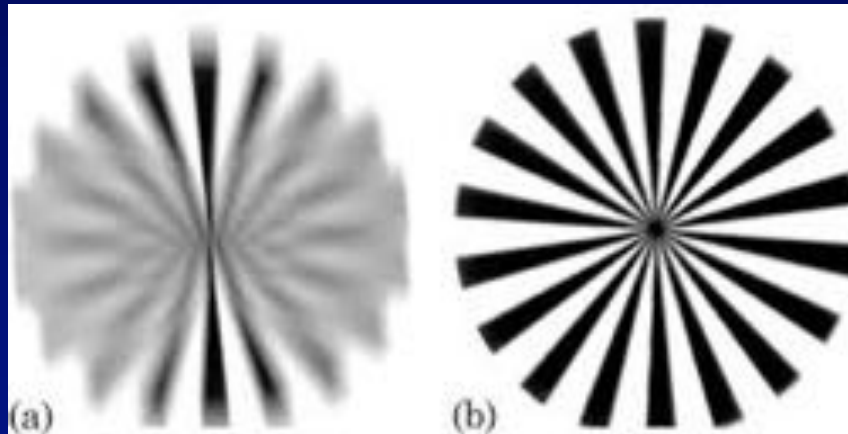




Intra-ocular Lenses



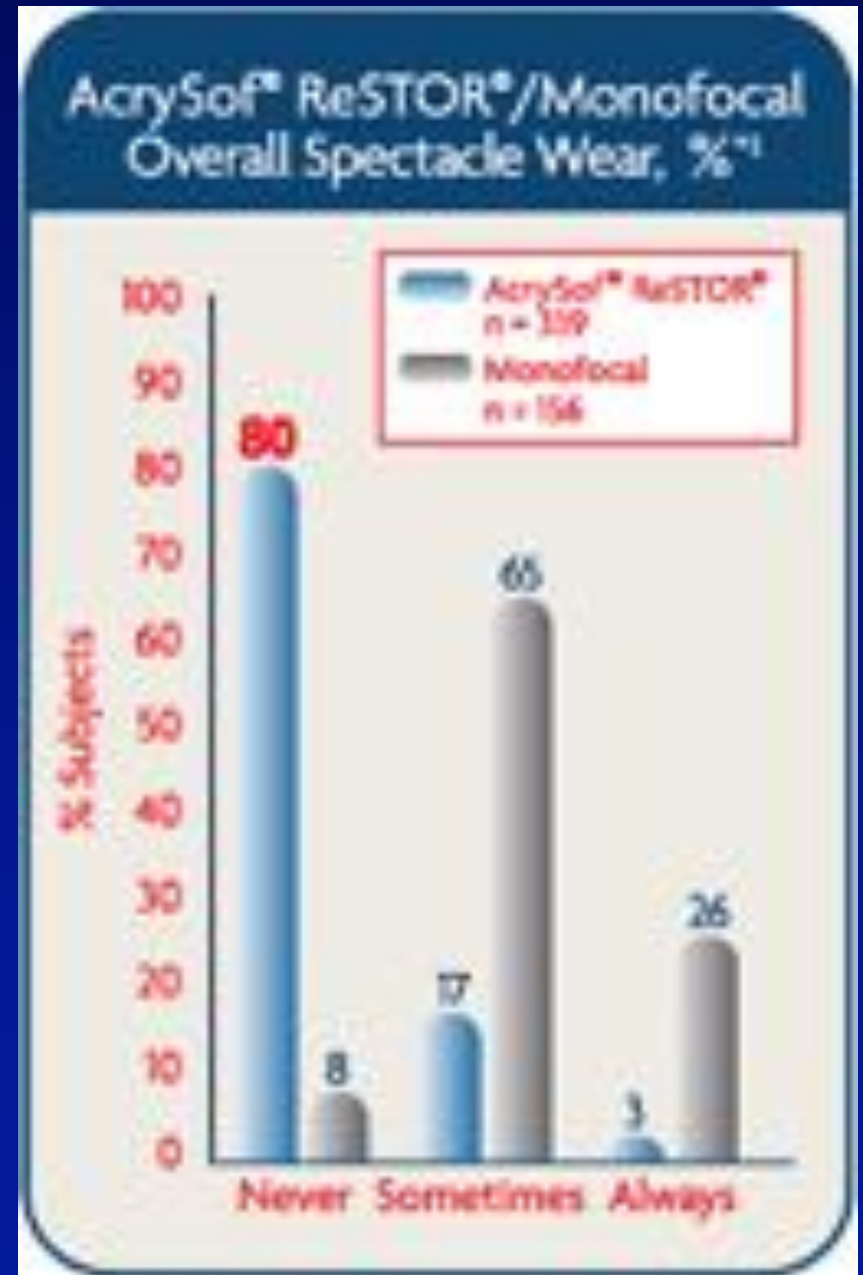
Astigmatism-Toric IOL



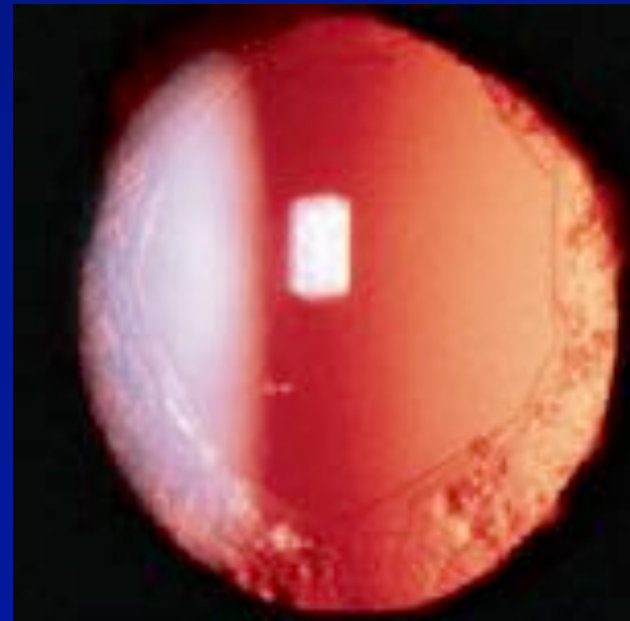
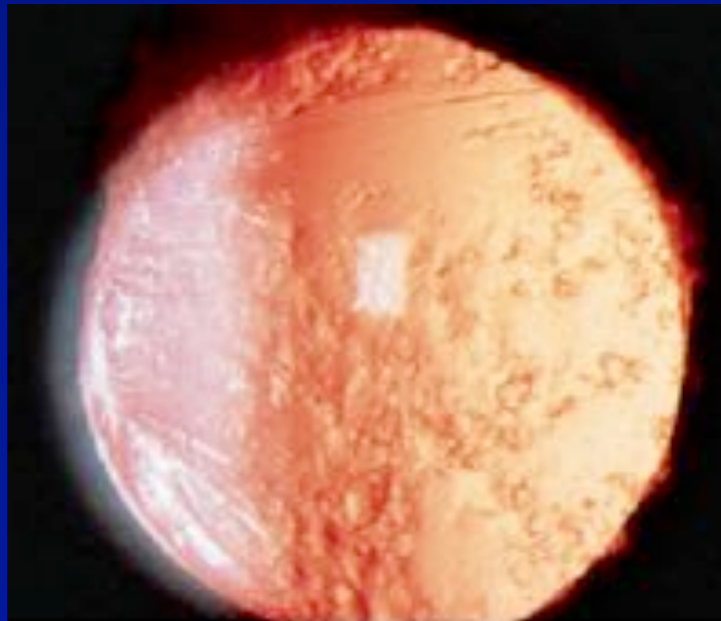
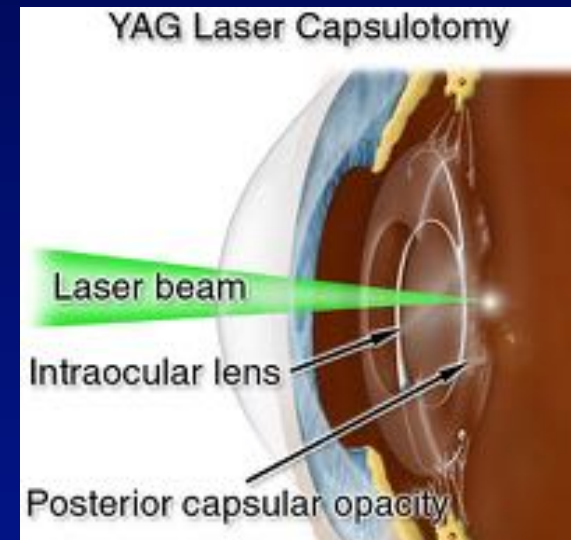
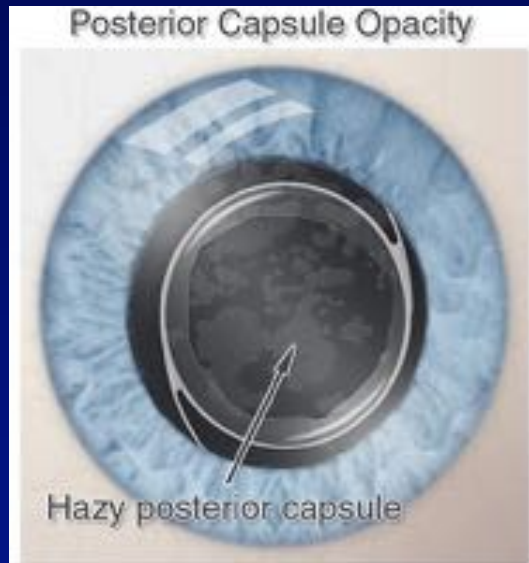
Bifocal IOLs-Freedom From Glasses



Alcon Restor “Bifocal” Intraocular Lens



Posterior Capsule Opacification



Boris the Siberian Eagle Owl



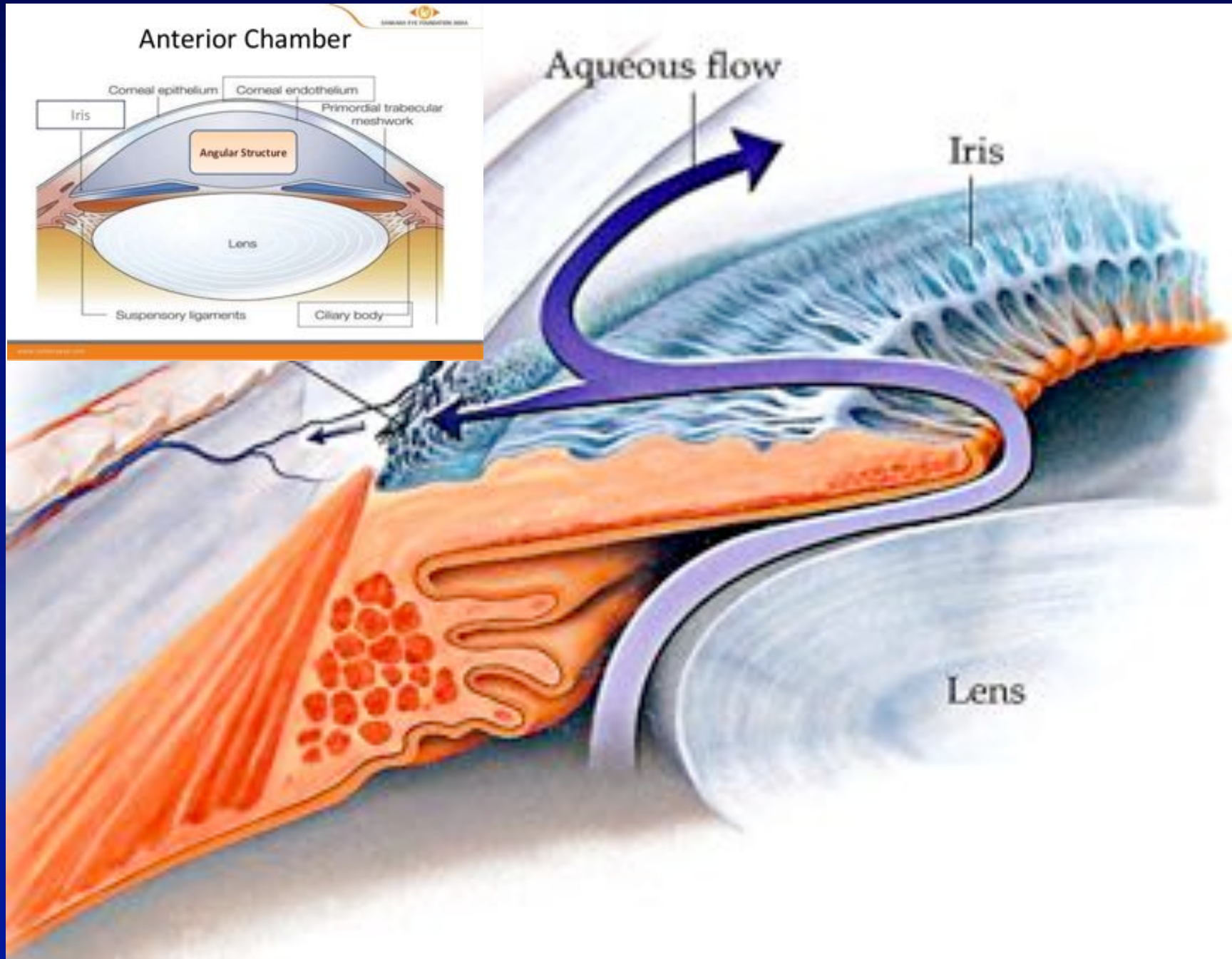
Phacoemulsification for cataracts at 25 yo
BBC video

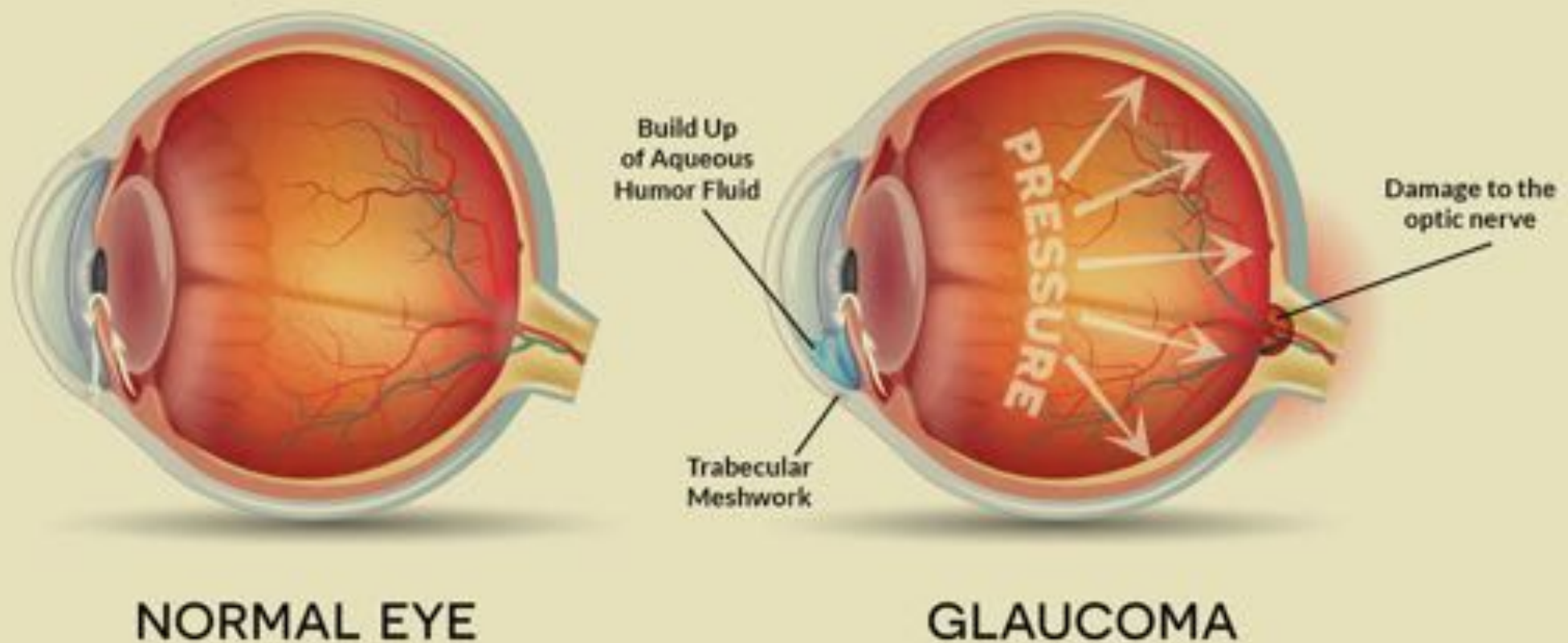


Glaucoma

- 3 million Americans (only half are aware)
- 120,000 blind (9-12% of US blindness)
- 2% 40-50 yrs., 8% over 70 yrs.
- Leading cause of blindness in African-Americans (6-8 times more common than Caucasians)
- Risk factors: family history, high eye pressure, age, race, diabetes, nearsightedness
- Normal eye pressure 20-50% (esp. Asians)

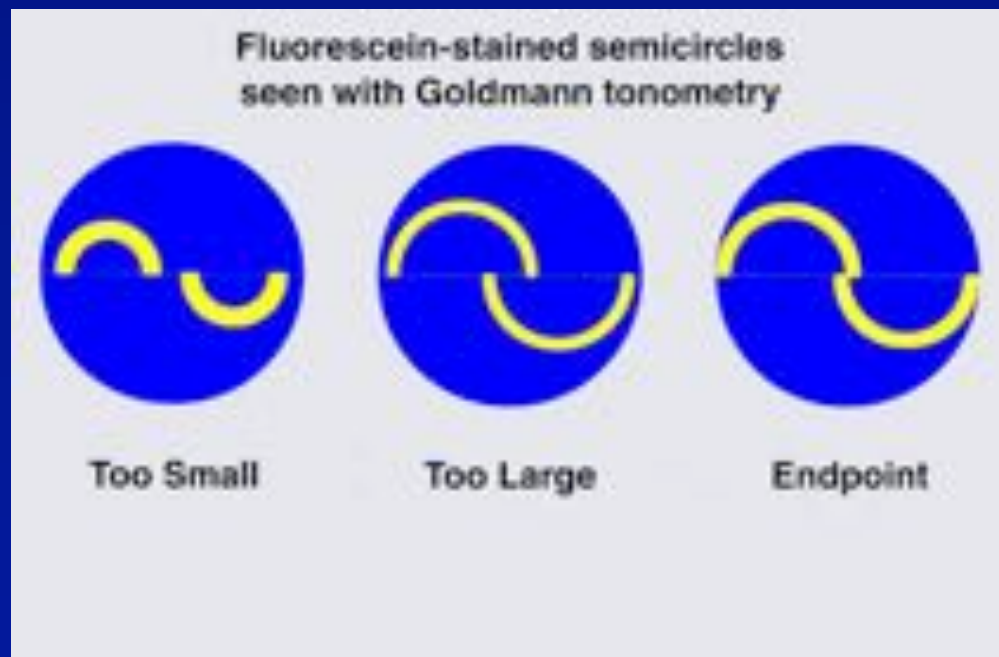
Aqueous Outflow Pathways-Open Angle Glaucoma





Intraocular pressure is applied to all tissues evenly but damages specific retinal cells and their fibers that become the optic nerve and bring images to the brain

Measurement of Eye Pressure



Eye Pressure:

Average adult: 16 mm. Hg.

Population 95% < 21 mm. Hg.

Glaucoma Damages Ganglion Cells and Nerve Fiber Layer

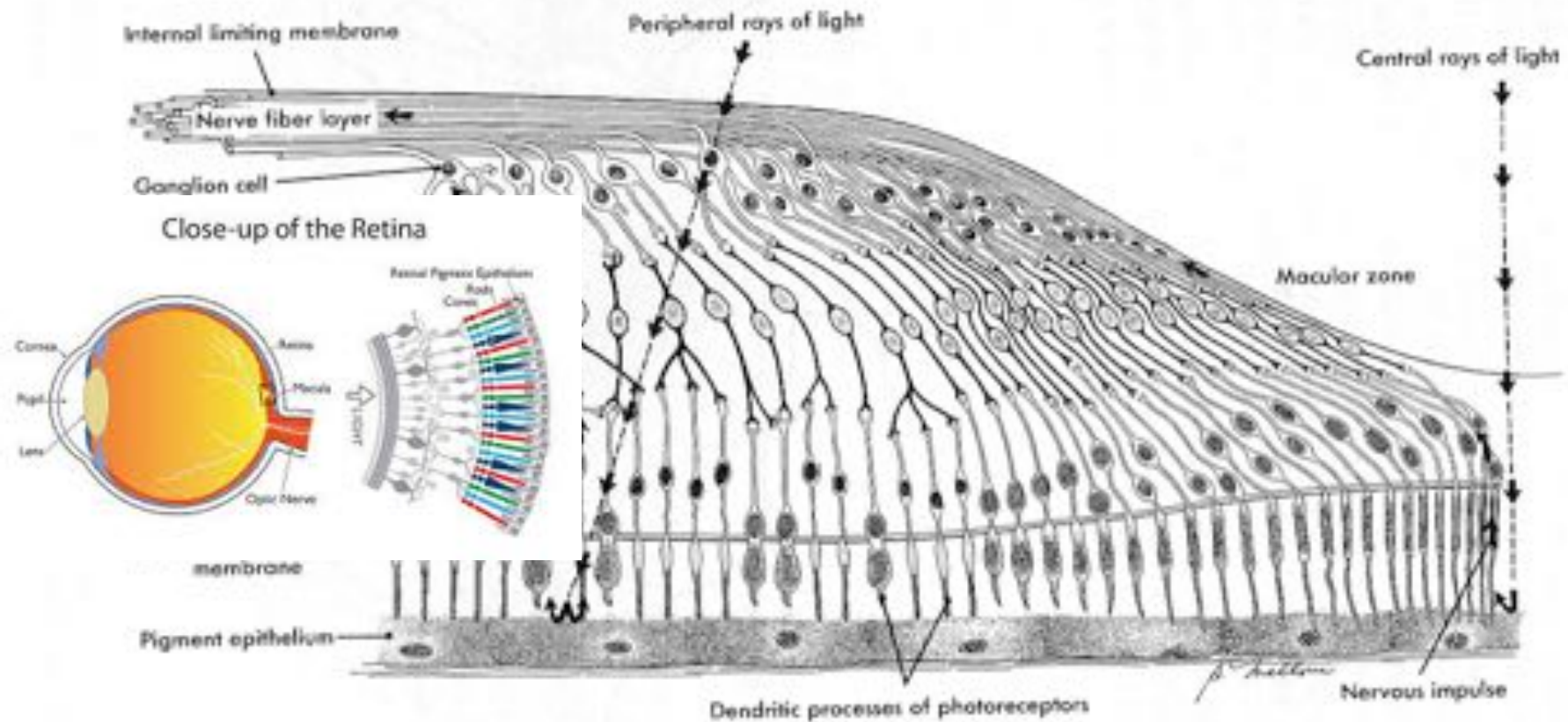
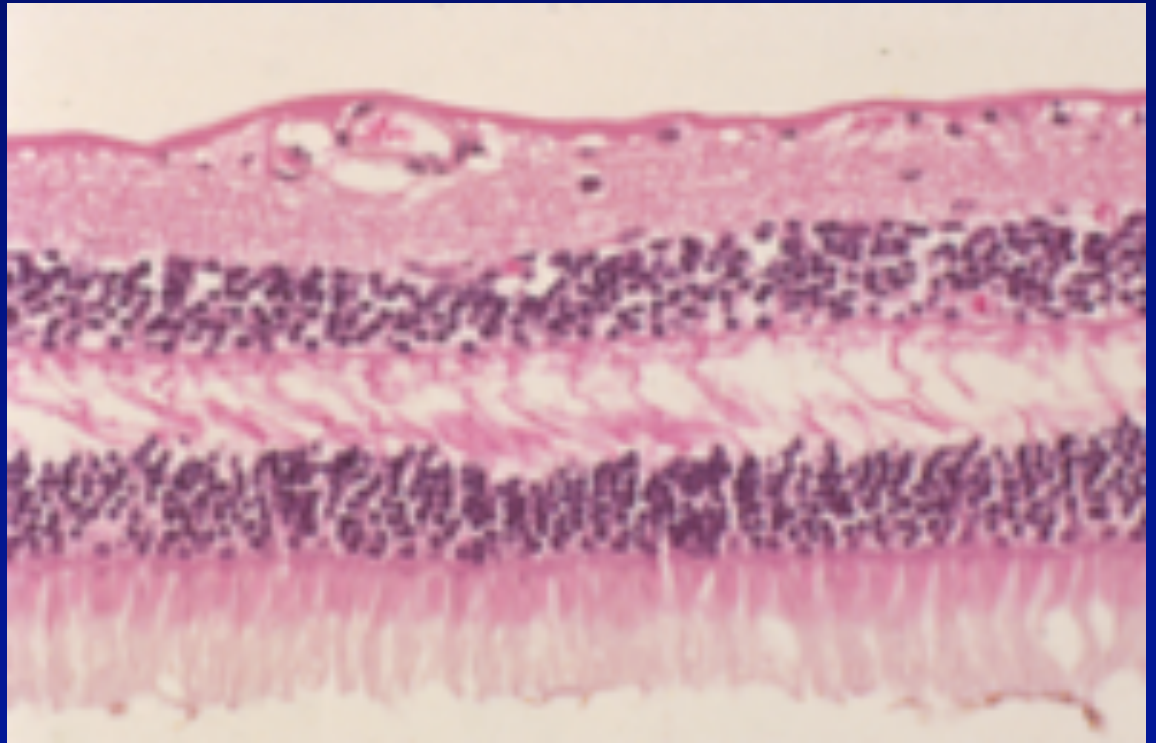
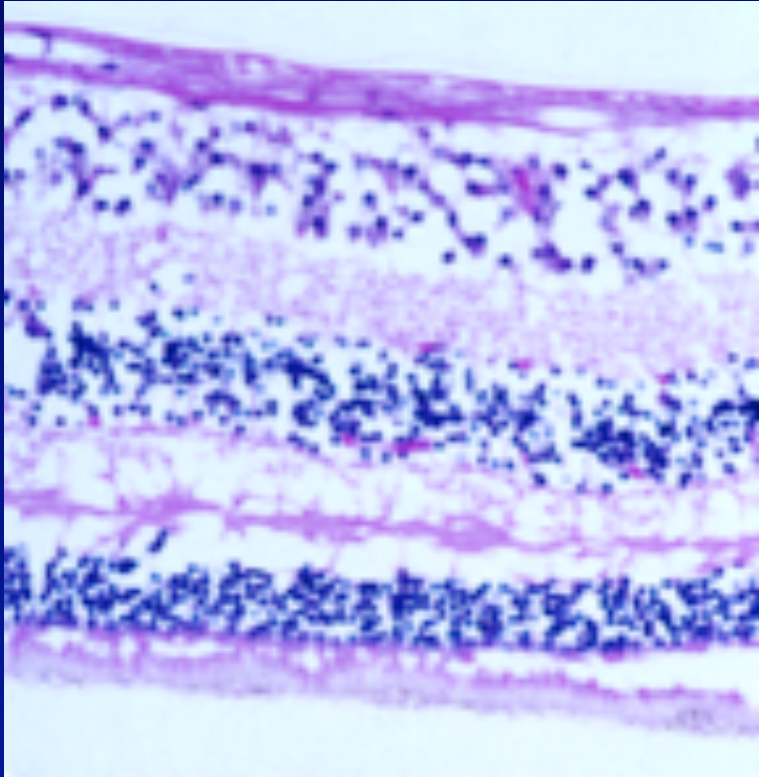
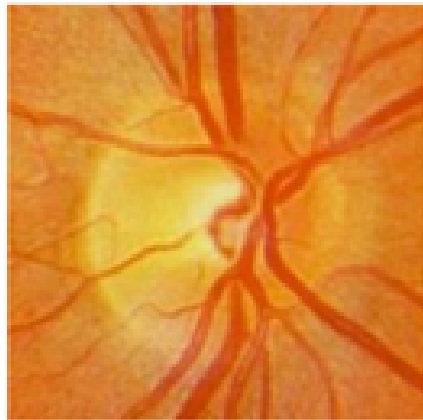


FIGURE 5-2 Microscopic anatomy of retina. (From Melloni BJ: *What's new*, Abbott Laboratories, Abbott Park, Ill.)

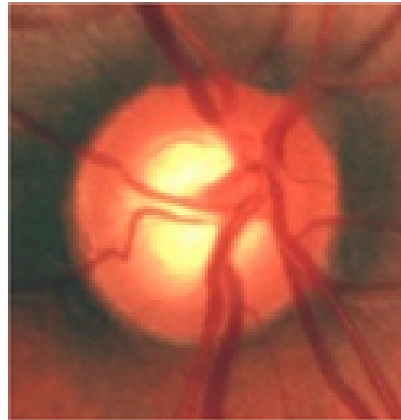
Glaucomatous Retinal Atrophy



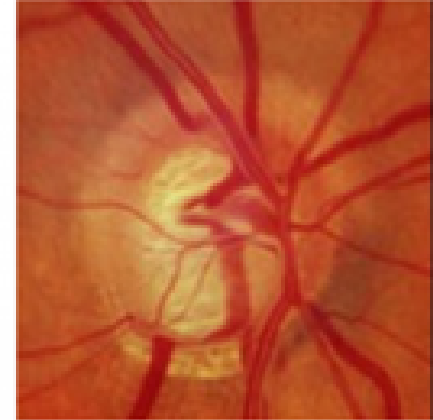
Optic Nerve Damage in Glaucoma



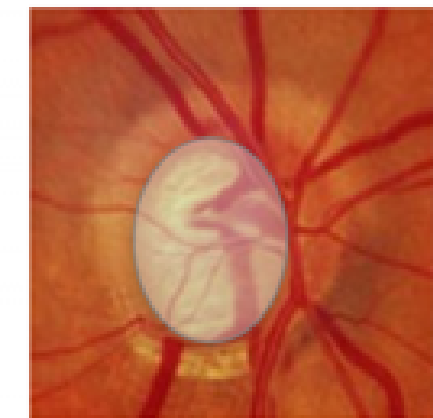
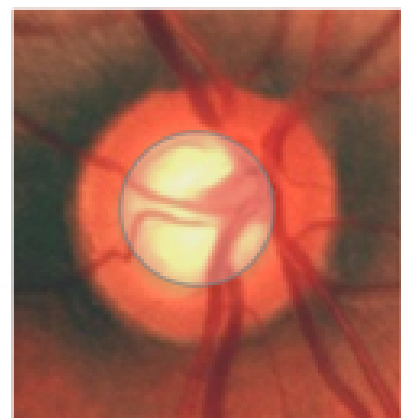
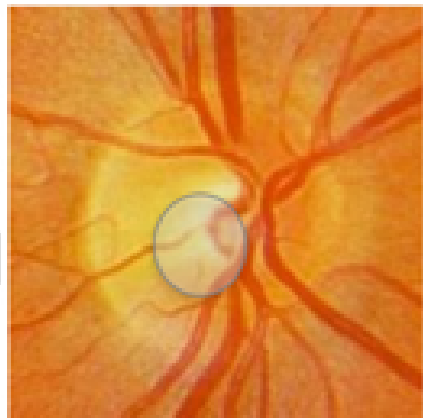
a. Healthy optic nerve with small "cup"

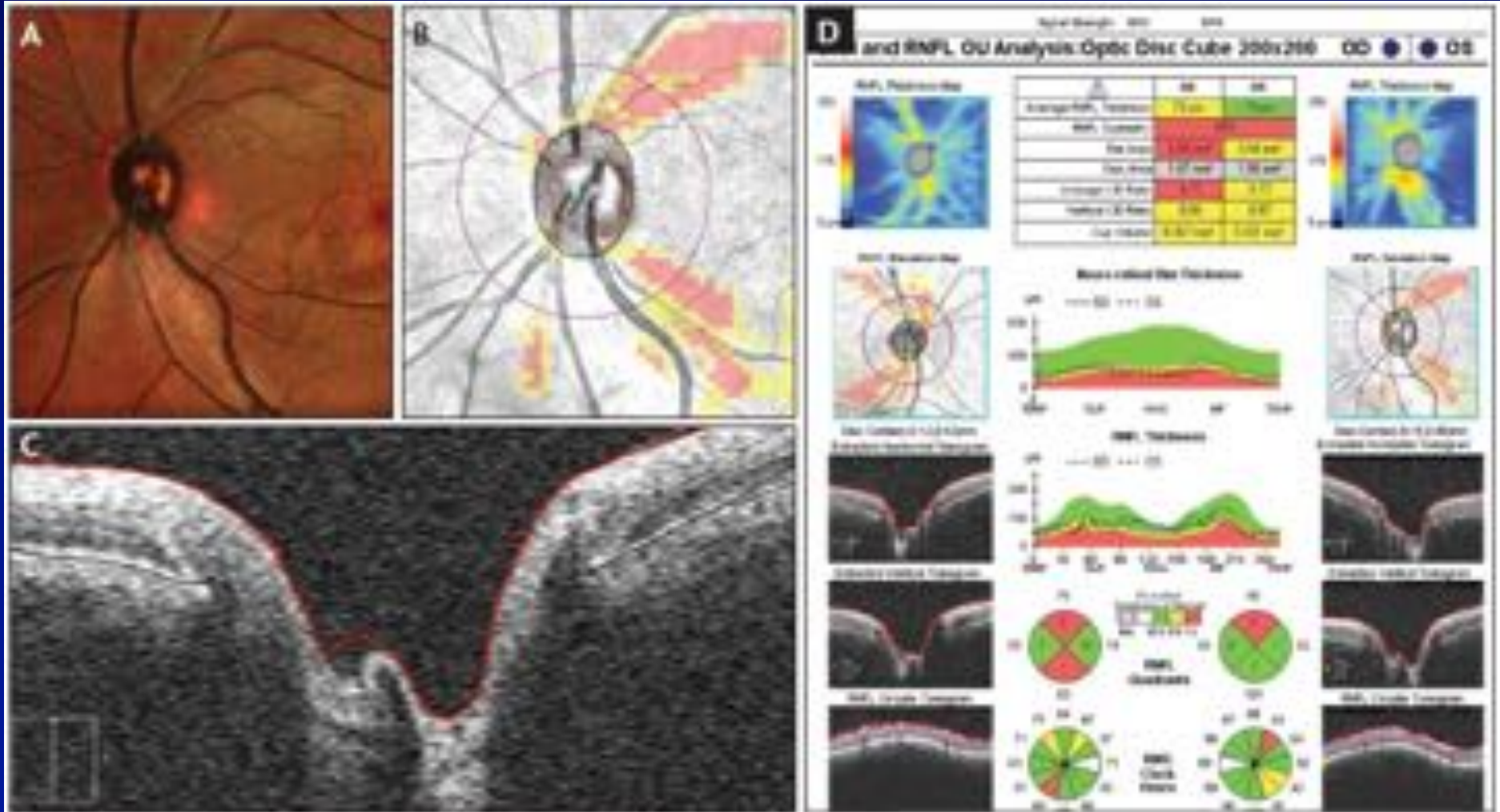


b. Healthy optic nerve with larger "cup"

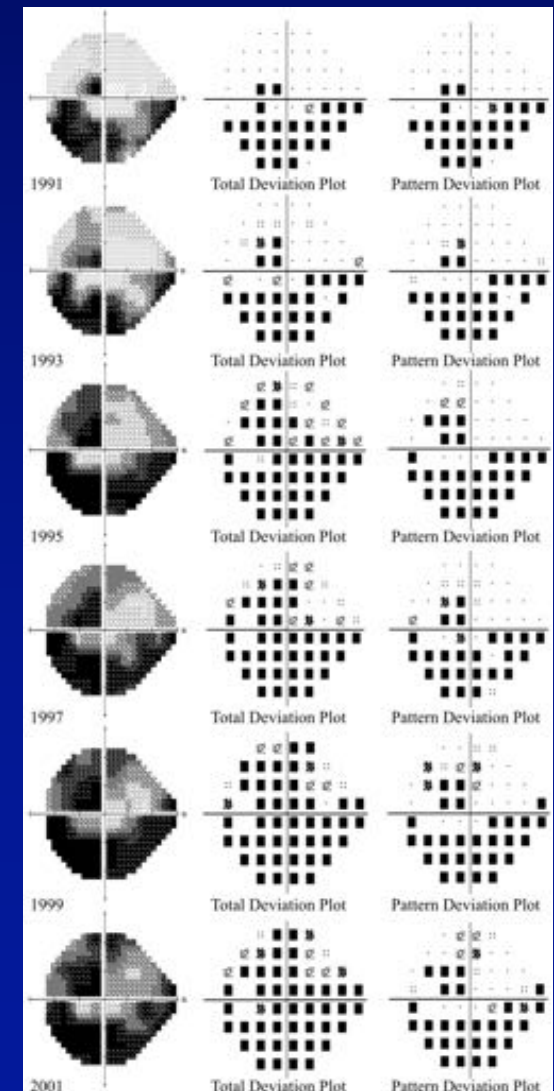
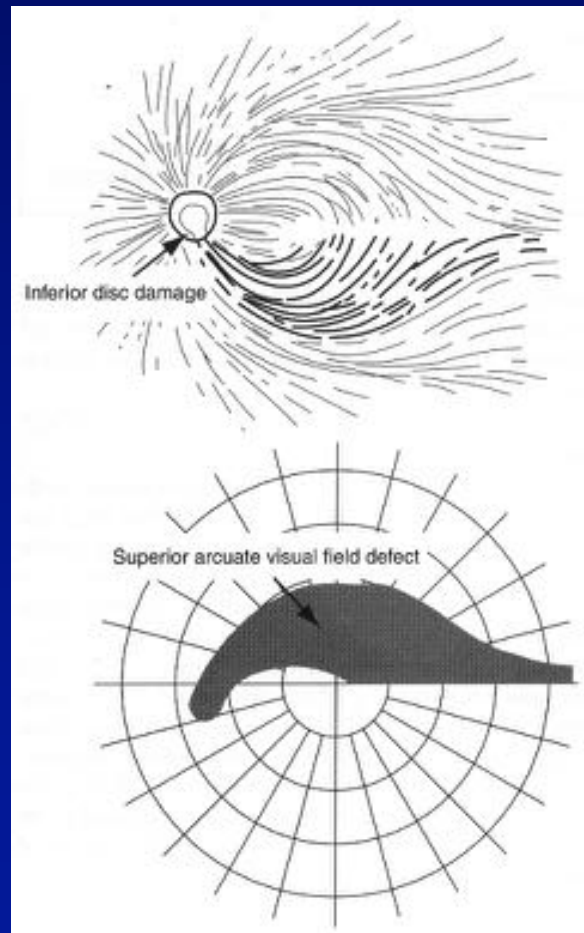


c. Glaucomatous optic nerve with damage





Visual Field (“side vision”) Testing





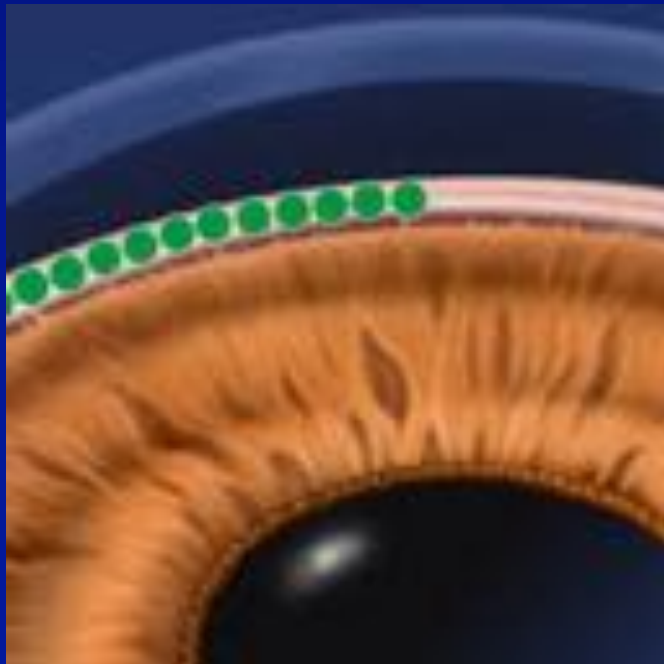


How Is Glaucoma Treated?

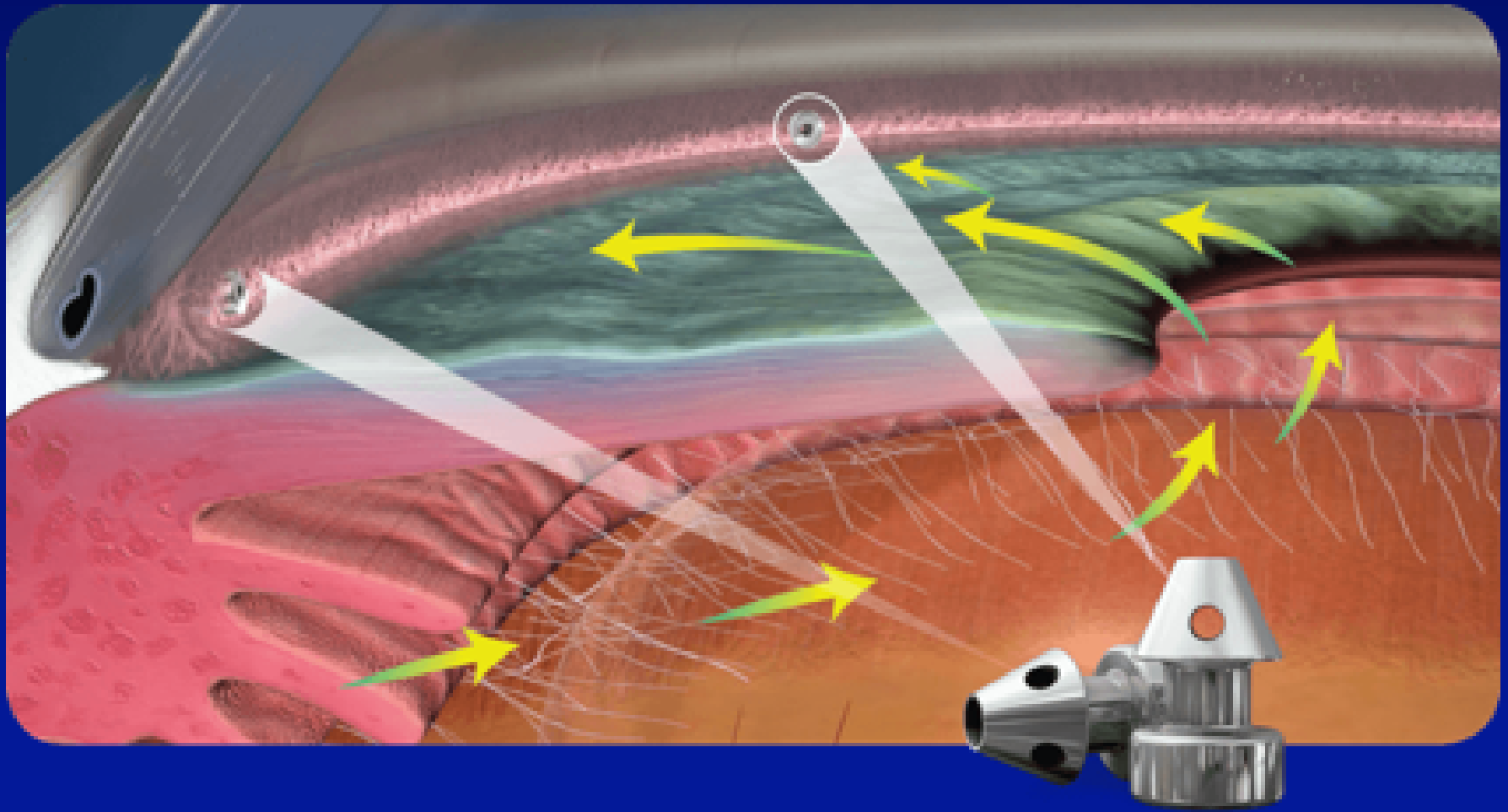
- Medications
 - Prostaglandin analogs
 - Beta blockers
 - Alpha agonists
 - Carbonic anhydrase inhibitors
 - Sympathomimetics
 - Cholinergic agents
 - Rho kinase inhibitors
- Laser therapy
- Surgery



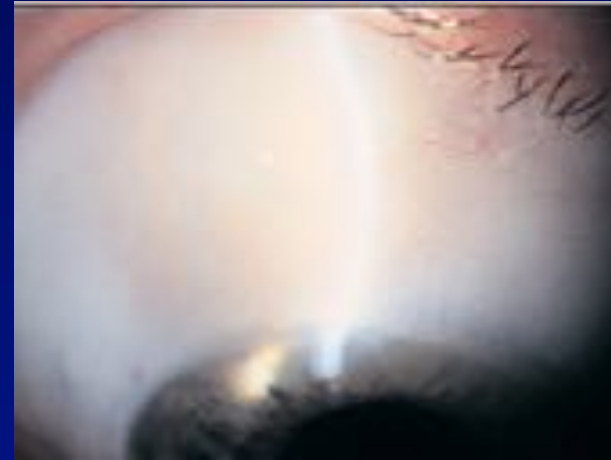
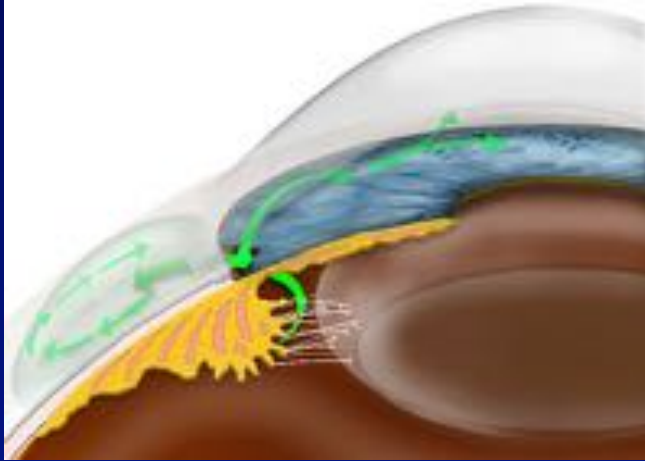
Laser Trabeculoplasty



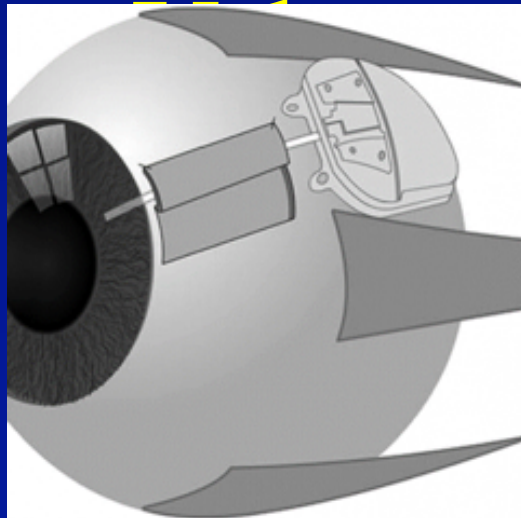
Glaucoma “Stents”



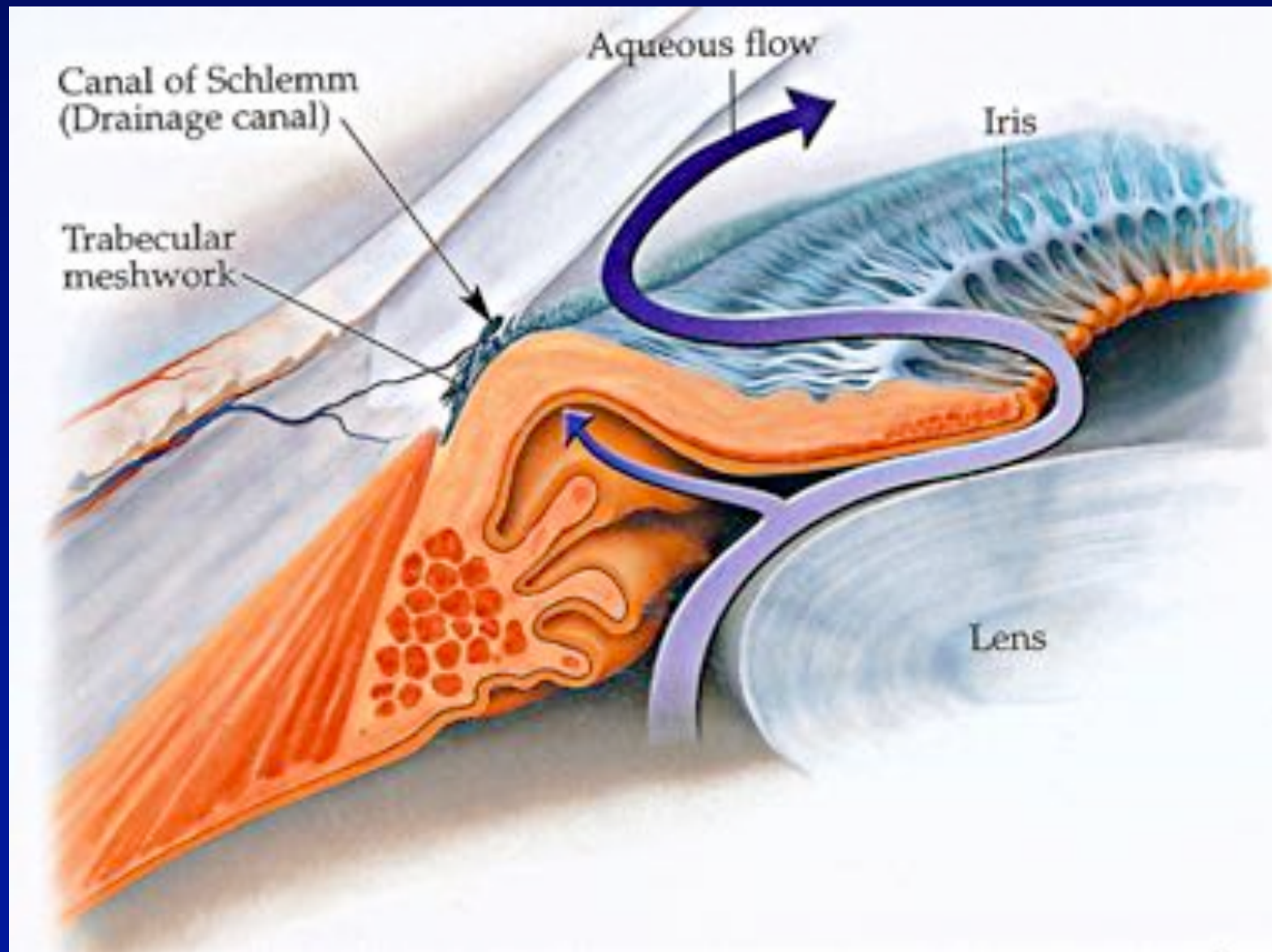
Trabeculectomy

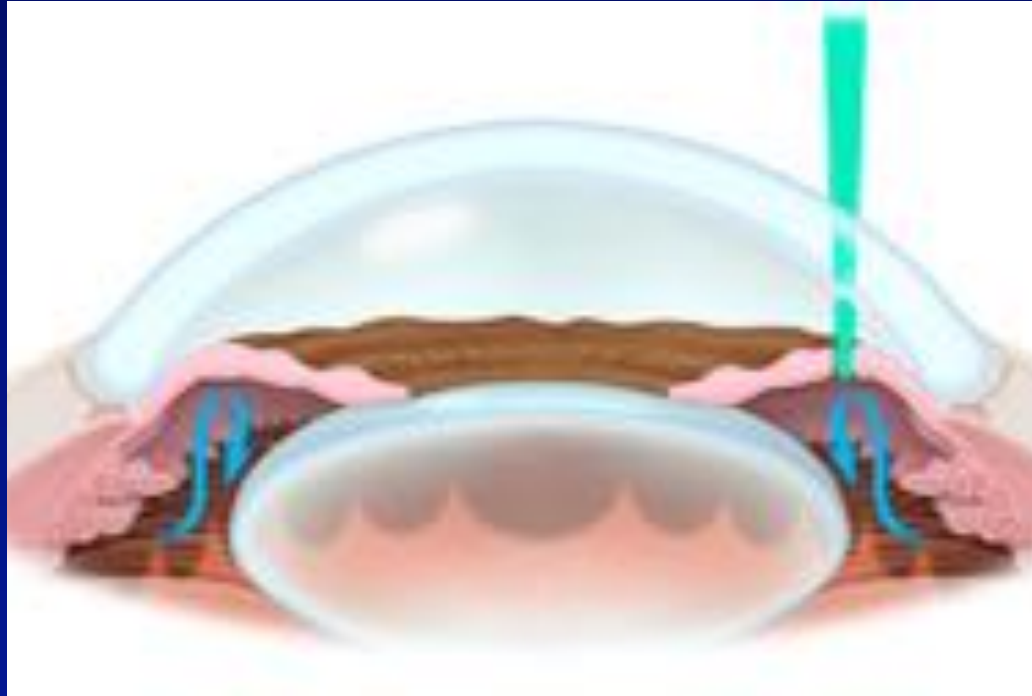


Glaucoma Drainage Valves



Narrow Angle Glaucoma





Diabetes and Retinopathy

- Type one (insulin dependent)-30,000 new cases/yr.
- Type two (adult onset)-800,000 new cases/yr.
- 7.2 million Americans diagnosed, 5.7 million undiagnosed
- Increased risk: FH, obesity, diet, Hispanic, African-American
- 2-4 x heart disease, stroke, death rate
- Diabetes is leading cause of new cases of blindness in adults

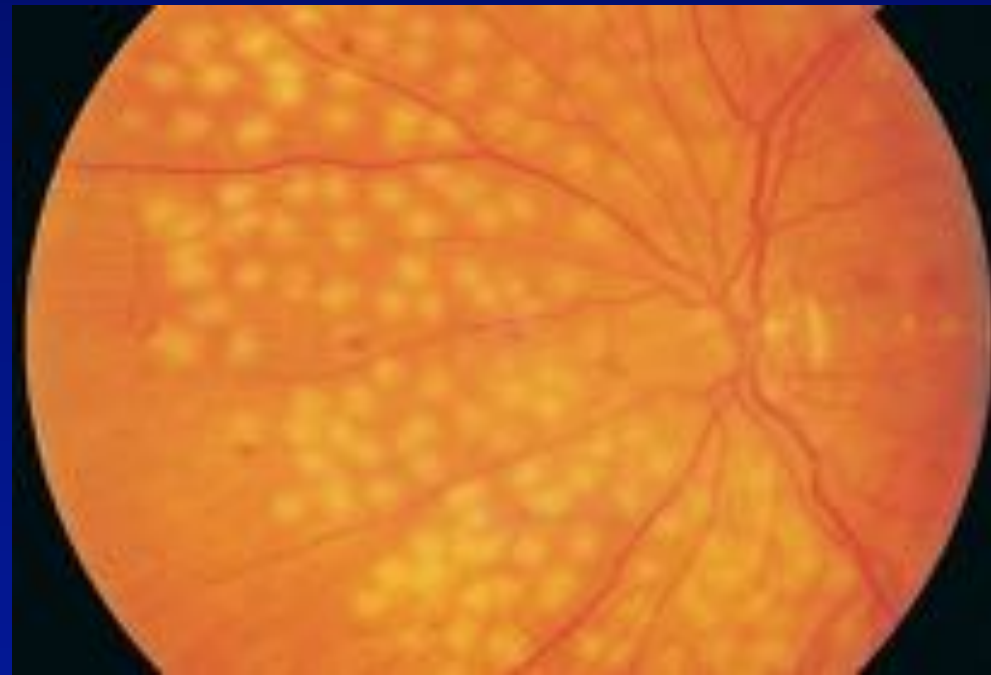




Diabetic Retinopathy Treatment

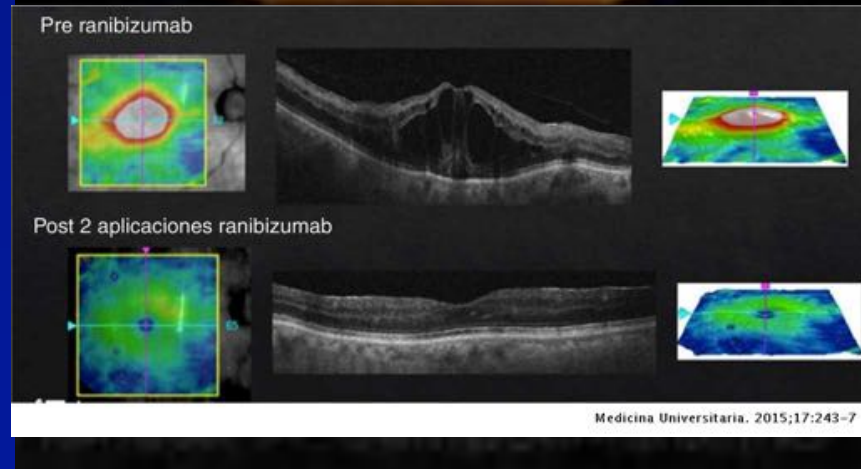
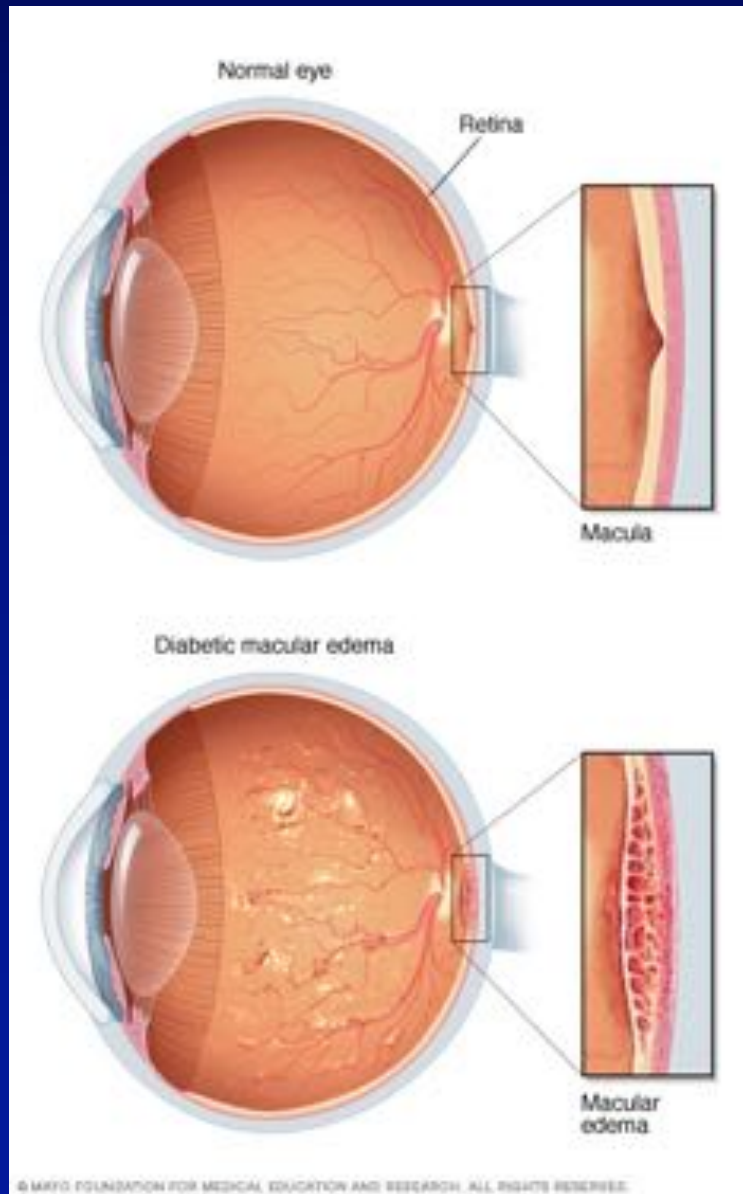
- Control diabetes, blood pressure
- Laser
- Intraocular medications
 - Steroids
 - Anti-Vascular Endothelial Growth Factor (VEGF)

Laser Photocoagulation

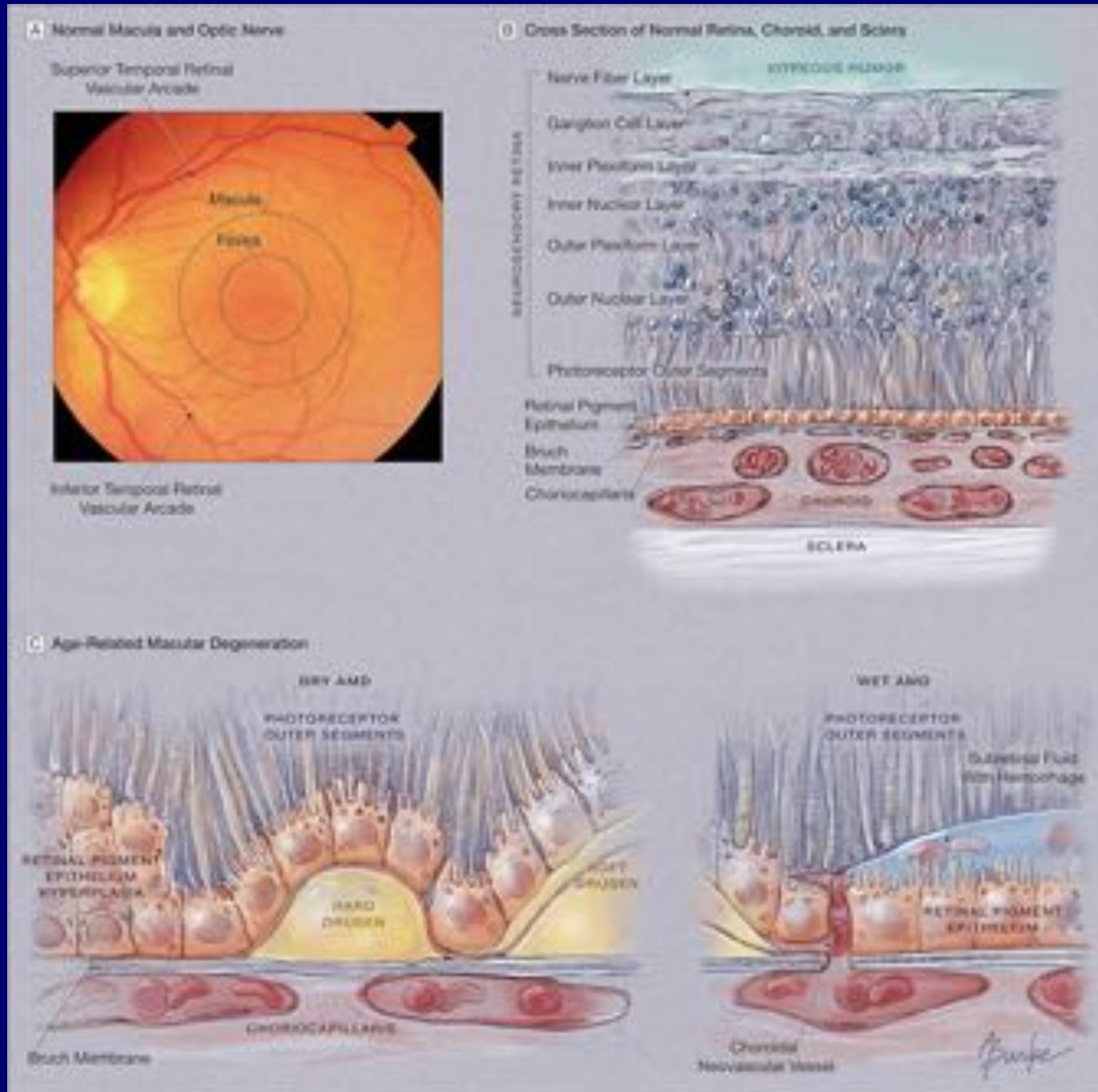




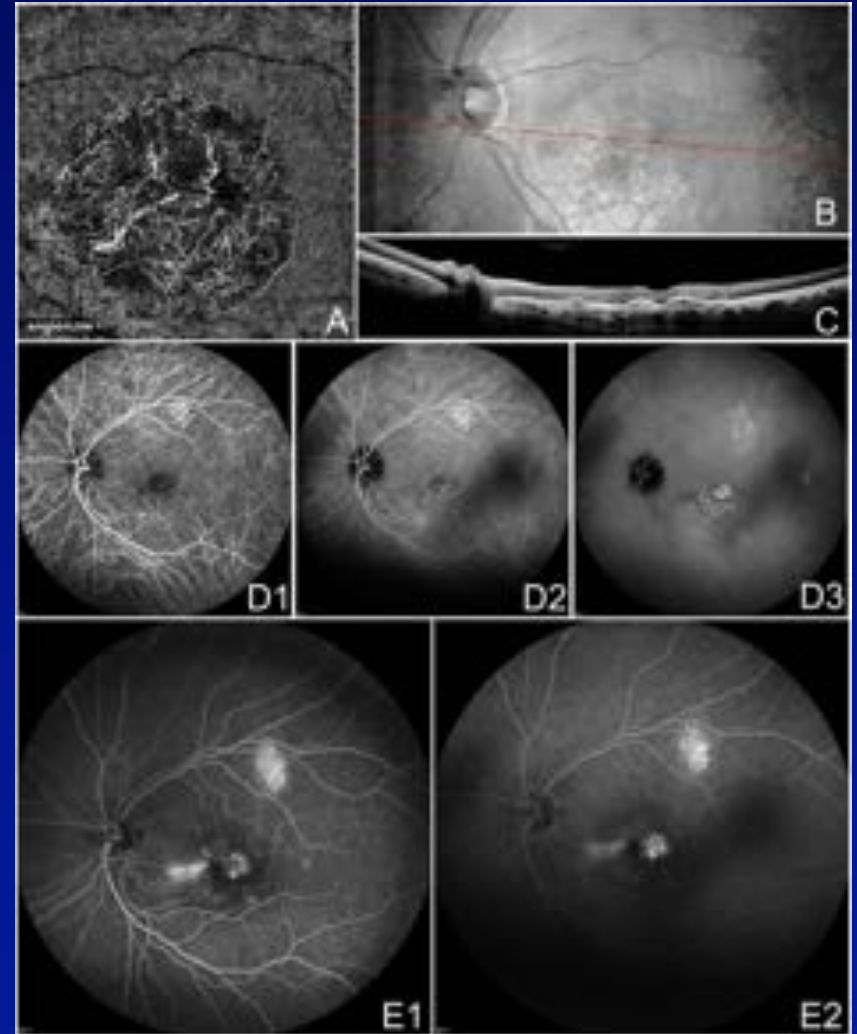
Diabetic Macular Edema



Macular Degeneration-Dry/Wet

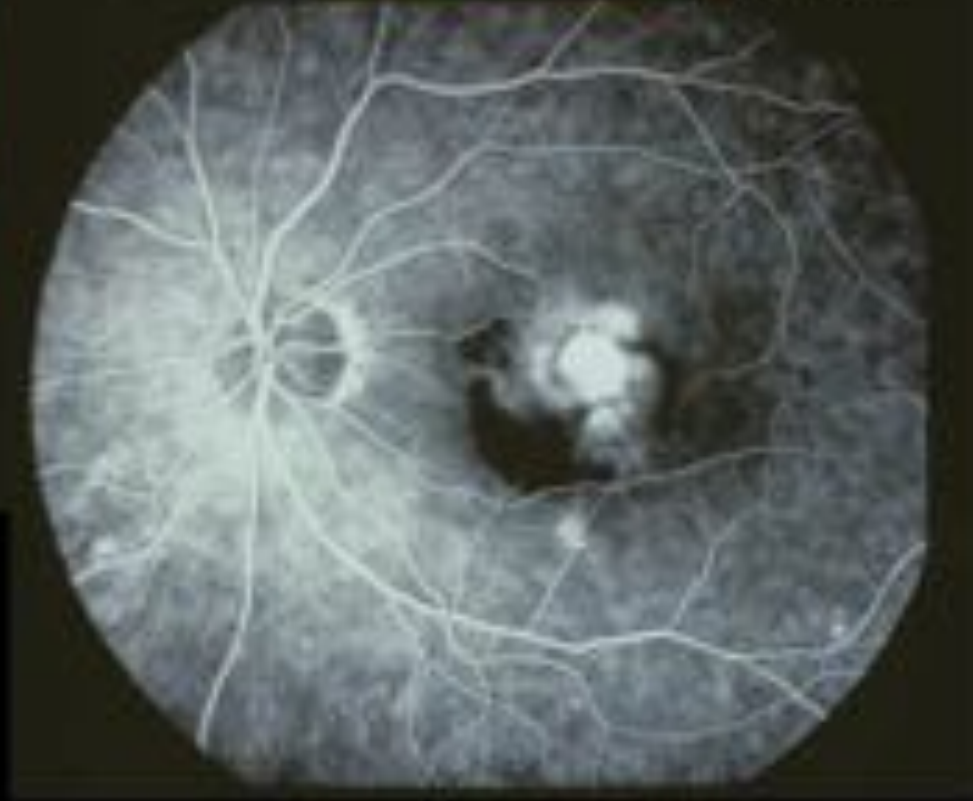


Angiography



Optical Coherence Topography (OCT)



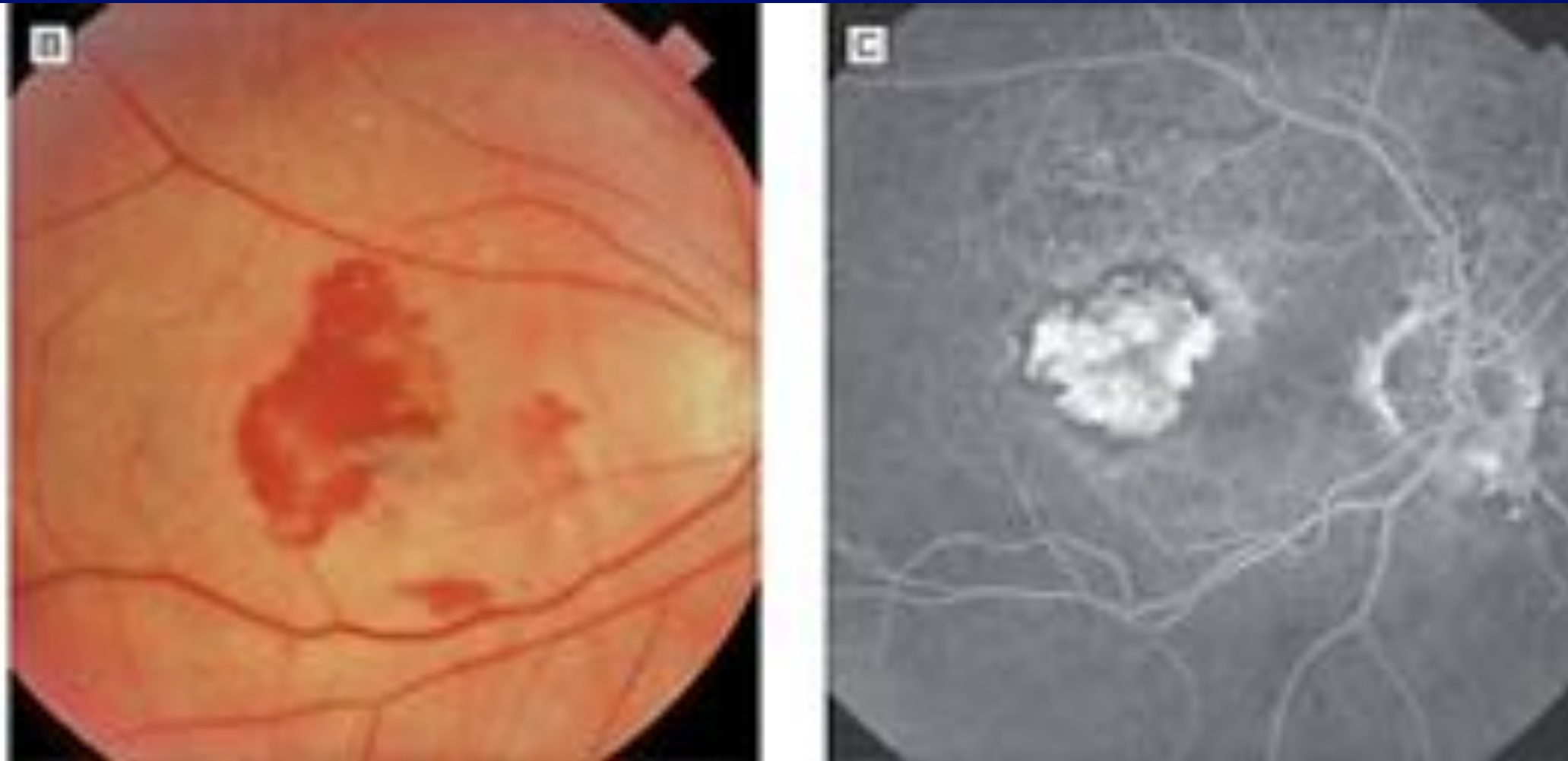


“Dry” (non-exudative) Macular Degeneration

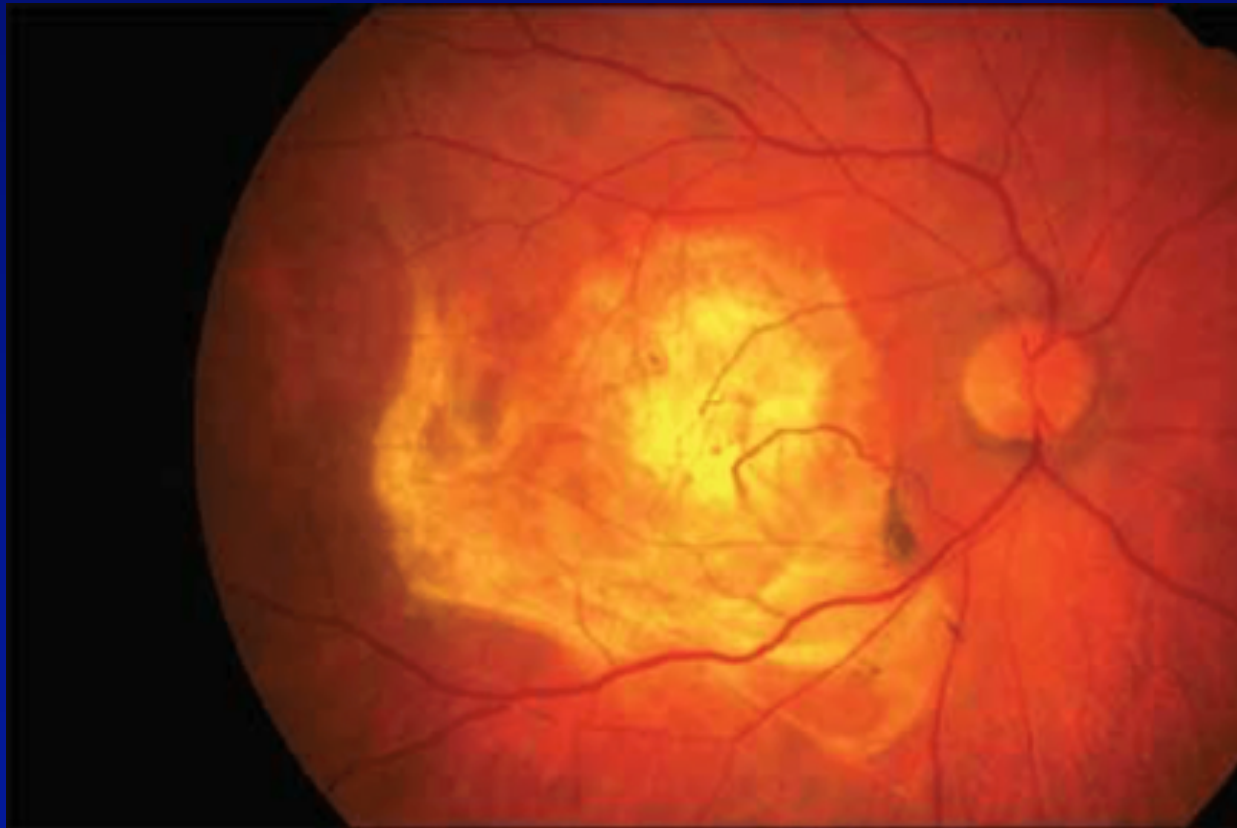


“Drusen” (German-”drops”)

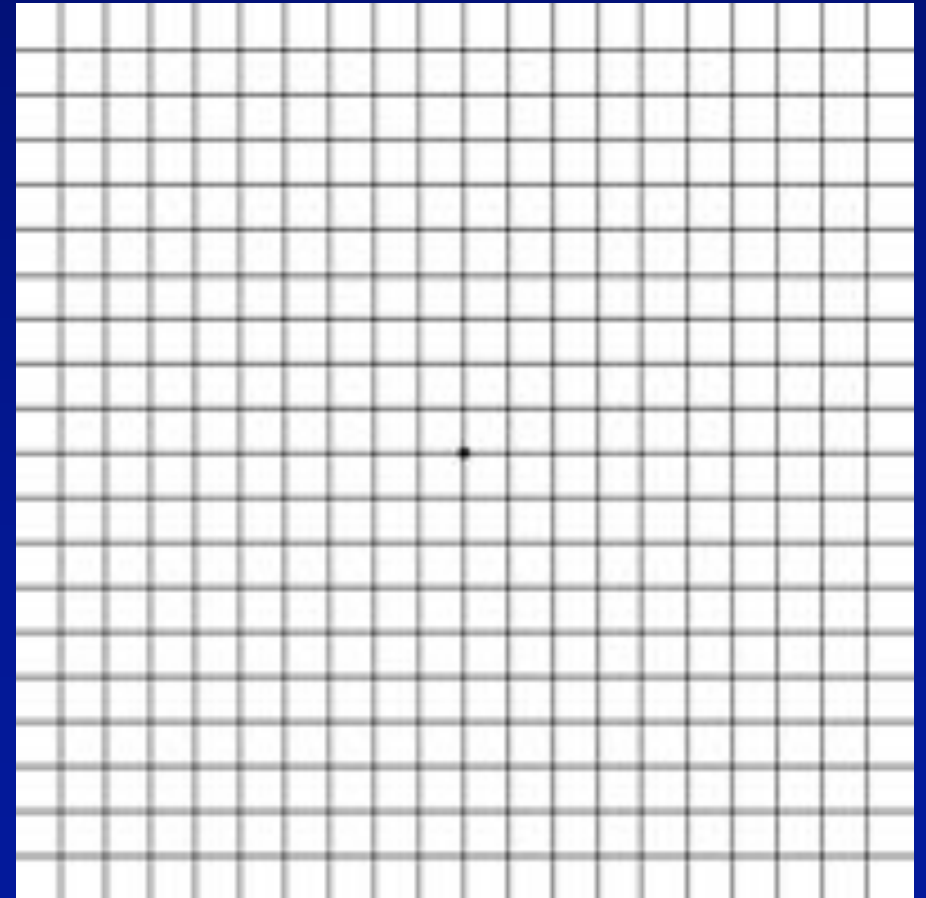
"Wet" (exudative) Macular Degeneration

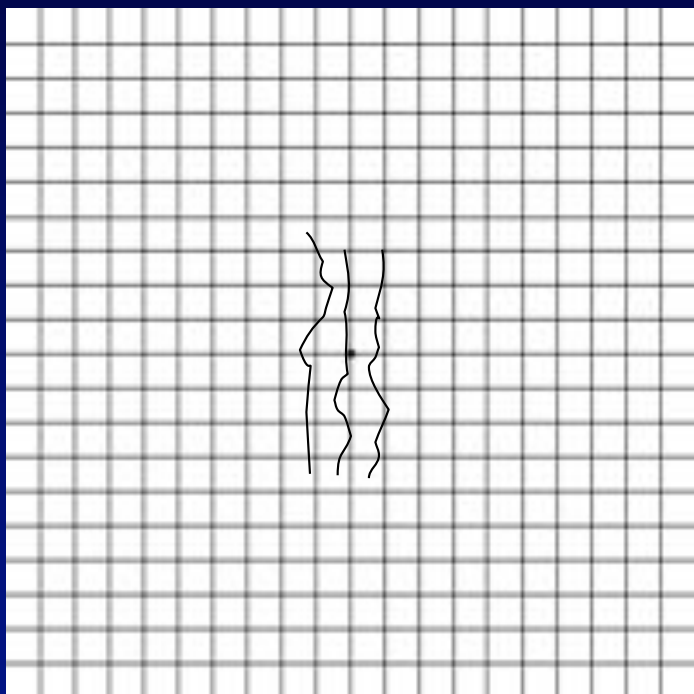


End Stage-Macular Scar



Amsler Grid





Dietary Treatment of ARMD

- High dose antioxidant supplements reduce risk 25% (Age Related Eye Disease Study-AREDS2, 2008)
 - Vitamin C (500 mg); 833% RDA
 - Vitamin E (400 IU) 1333% RDA
 - Zinc (80 mg zinc oxide); 533% RDA
 - Copper (2 mg cupric oxide-prevents zinc toxicity)
 - Lutein 10 mg.
 - Zeaxanthin 2 mg.
- Green leafy vegetables high in luteins (spinach, kale, greens)



Anti Vascular Endothelial Growth Factor Injections (Anti VEG-F)



THE FIRST ANTI-ANGIOGENIC
CLINICALLY PROVEN TO EXTEND SURVIVAL

NOW APPROVED FOR
SECOND-LINE MCRC¹



AVASTIN[®]
(bevacizumab)

\$40

NEW

LUCENTIS[™]

RANIBIZUMAB INJECTION

\$1950



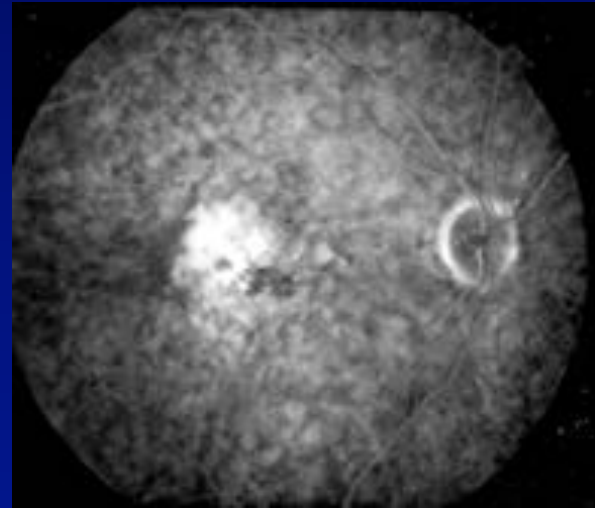
Avastin for Wet ARMD

80 yr. old woman

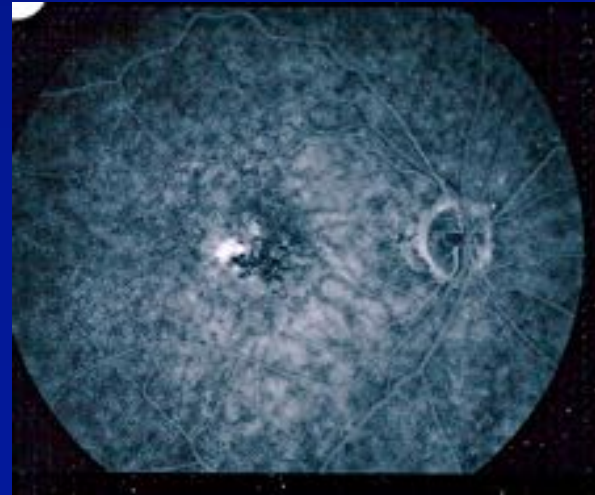
1/16/04 20/100

Avastin therapy

6/19/06 20/40

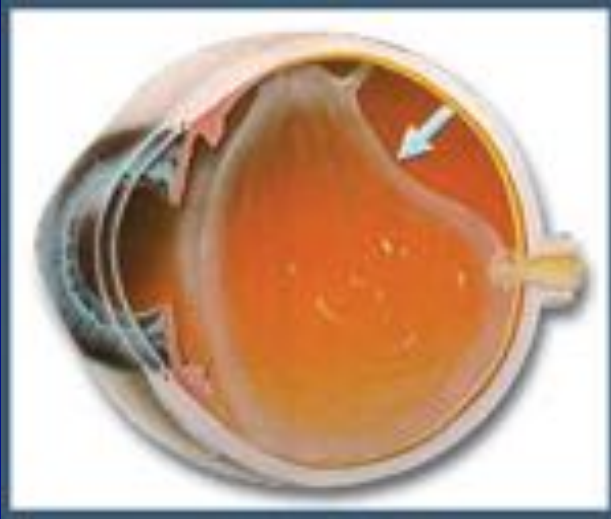


3/29/05



6/7/06

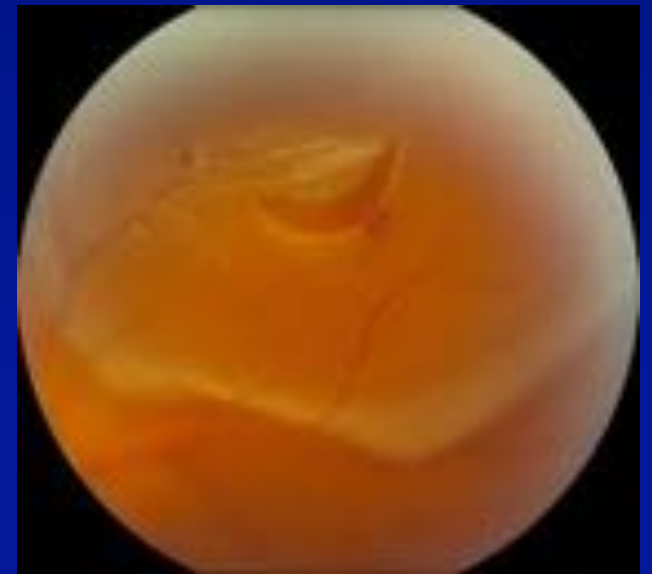
Floaters and Light Flashes



Posterior
Vitreous
Detachment



Retinal Tear
Retinal Detachment



How Often Should I Have My Eyes Examined?

Age	Caucasian	African-American
20-39 yrs.	Every 3-5 yrs.	Every 2-4 yrs.
40-64 yrs.	Every 2-4 yrs.	Every 2-4 yrs.
>65 yrs.	Every 1-2 yrs.	Every 1-2 yrs.

Exceptions: Family history eye disease, diabetes

What is an Eye Examination?

- History: complaints, previous eye/medical conditions, medications, allergies, family history, use of tobacco/drugs
- Examination: vision, refraction, pupils, alignment, lids, biomicroscope, pressures, dilation (retina, optic nerve, macula, vessels)
- Consultation: findings, recommendations

Who's Who in Eye Care?

- Ophthalmologist (Eye MD)

Medical doctor trained to diagnose, treat and surgically correct all eye disease

(8-10 yrs > college)

- Optometrist (OD)

Non-medical professional trained to examine eyes, prescribe glasses and contact lenses, diagnose and treat only limited conditions (4 yrs > college)

- Optician

Technician trained to fit glasses

How Can You Keep Your Eyes Healthy?

- Don't smoke
- Have regular eye examinations
- Control blood pressure, diabetes
- Seek help if you notice a problem
 - Blurred vision, loss of vision
 - Pain, redness, discharge
 - New floaters, light flashes