



KELLOGG EYE CENTER
MICHIGAN MEDICINE



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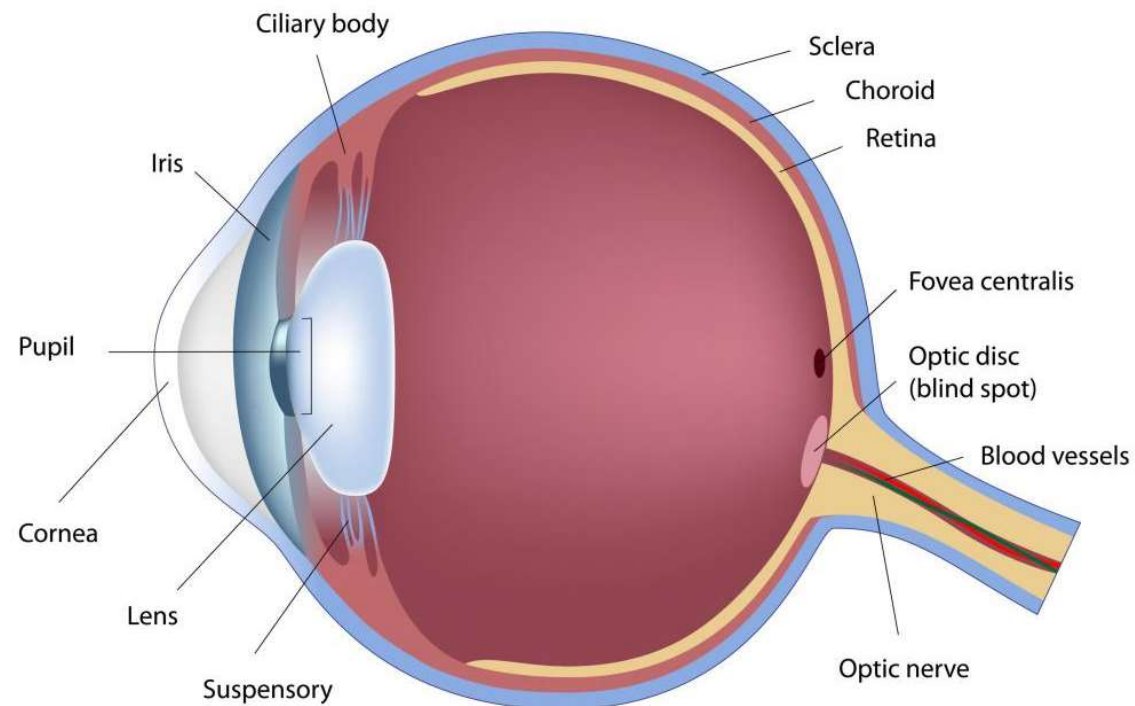
Common Eye Problems

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Kellogg Eye Center
University of Michigan

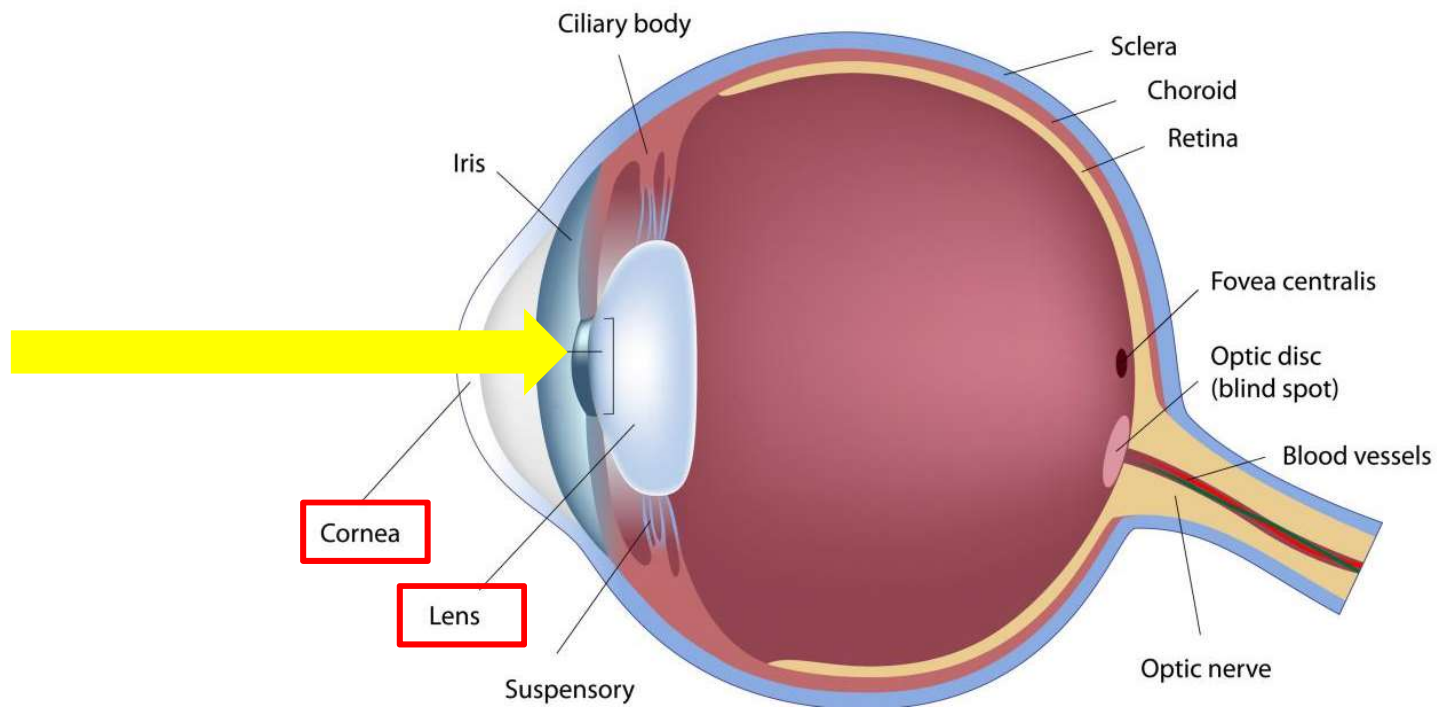
27th Annual Primary Health Care of
Women Conference
December 5, 2019

1. Discuss anatomy of the eye and how structures allow us to see
2. Common causes of decreased vision or vision loss
3. How to keep our eyes healthy

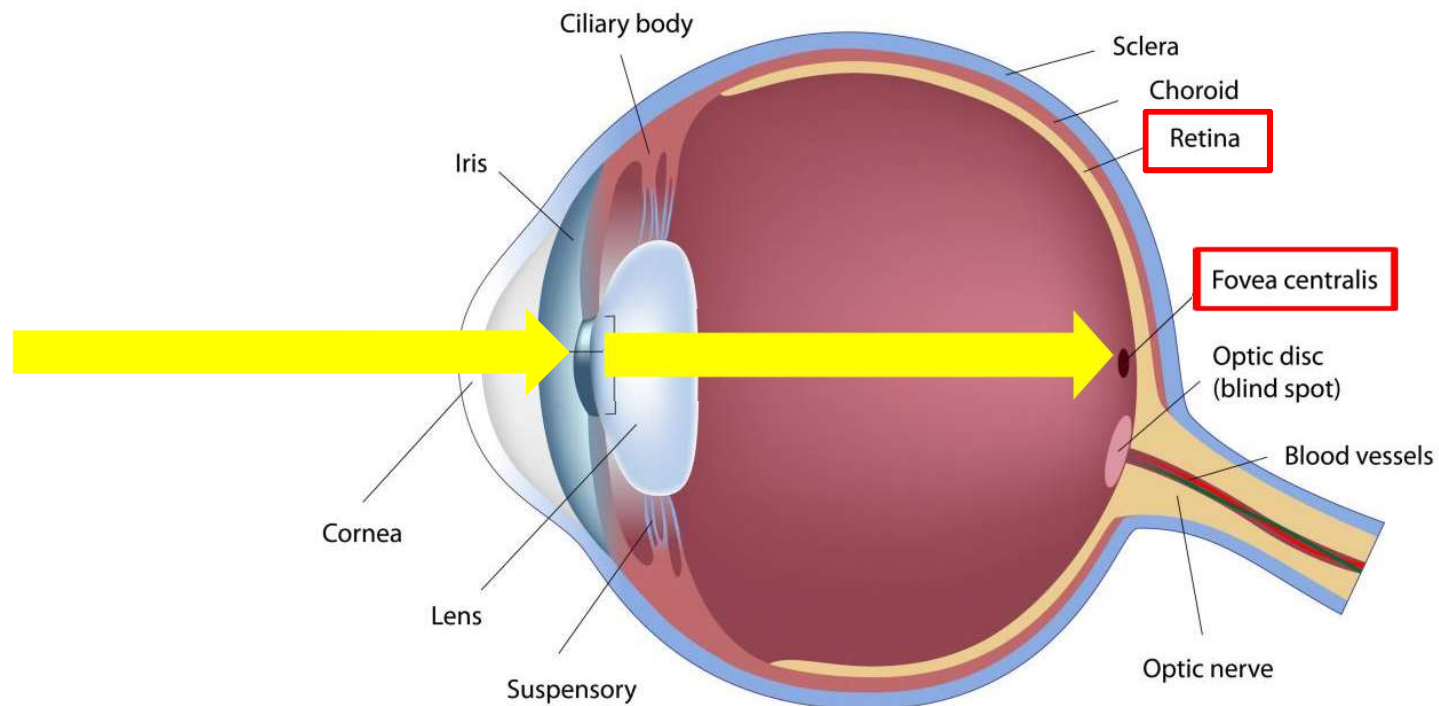
The anatomy of the eye:



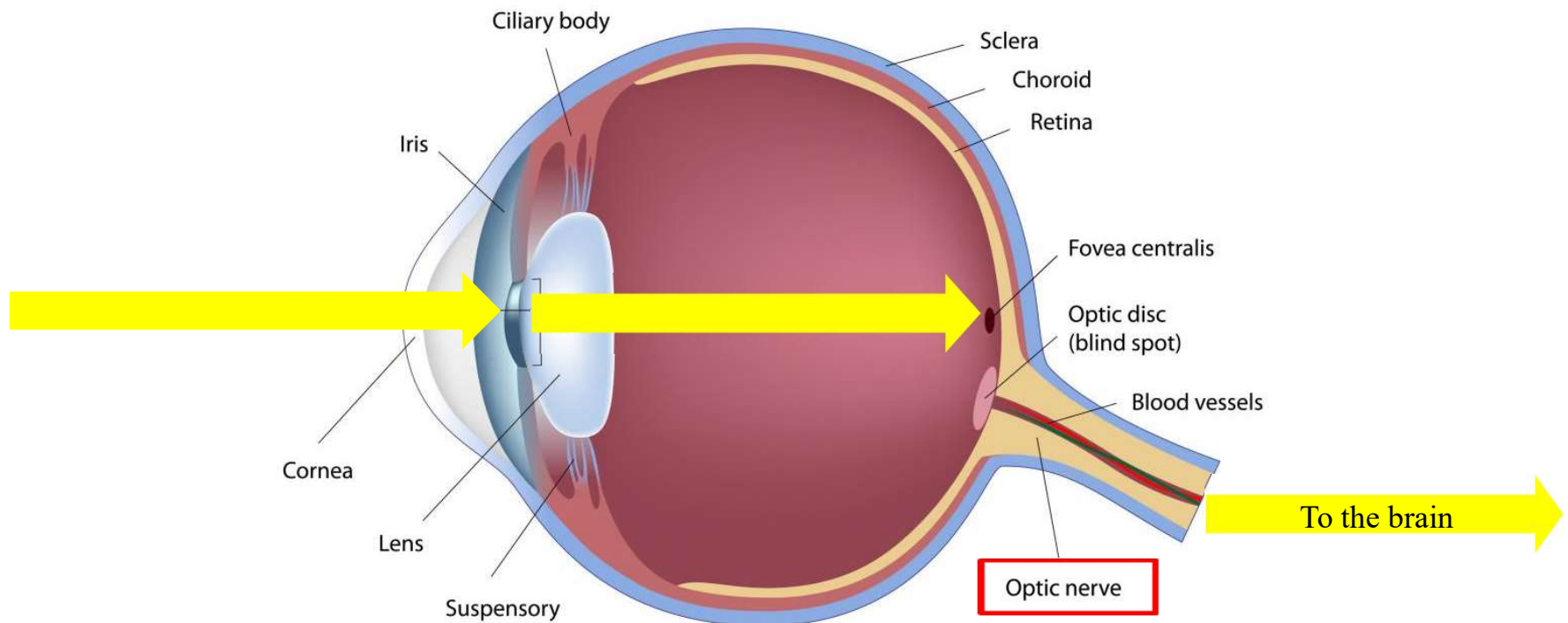
As light enters our eyes...



As light enters our eyes...

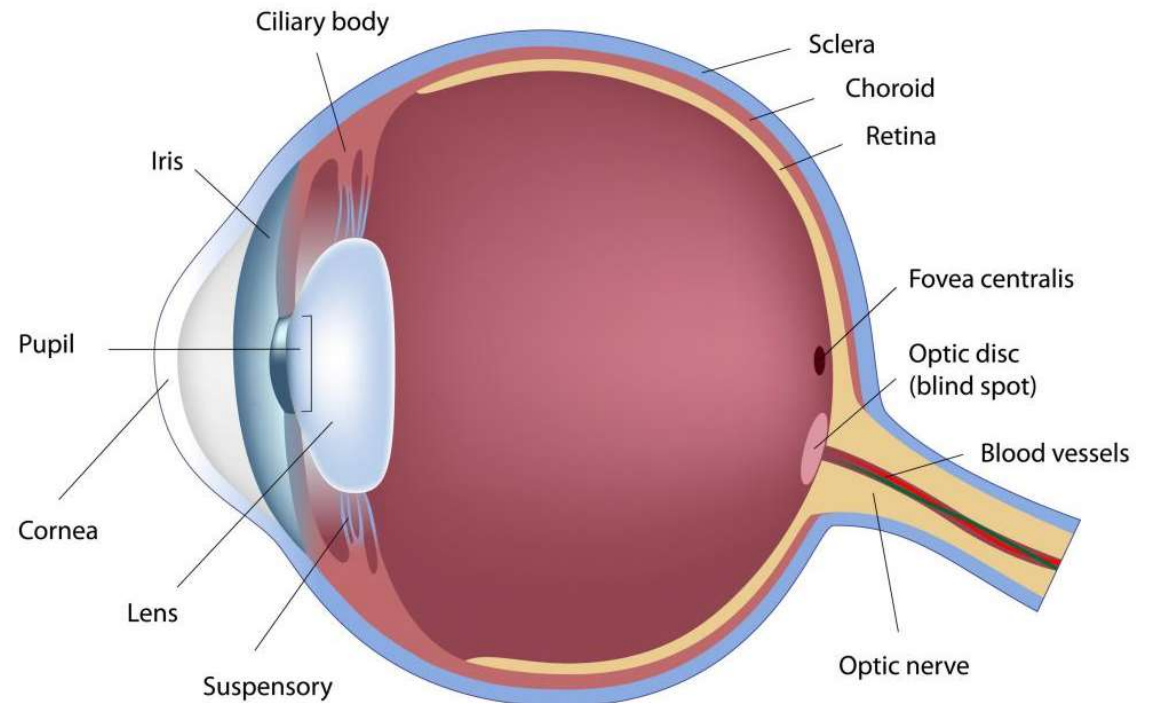


As light enters our eyes...



There are many specialists within ophthalmology:

- Comprehensive
- Cornea
- Glaucoma
- Retina
- Oculoplastics
- Neuro-ophthalmology
- Pediatric and Strabismus



What is the most common cause of impaired vision in the world?

What is the most common cause of impaired vision in the world?

Uncorrected refractive error!



So what does uncorrected refractive error mean?

Emmetropia

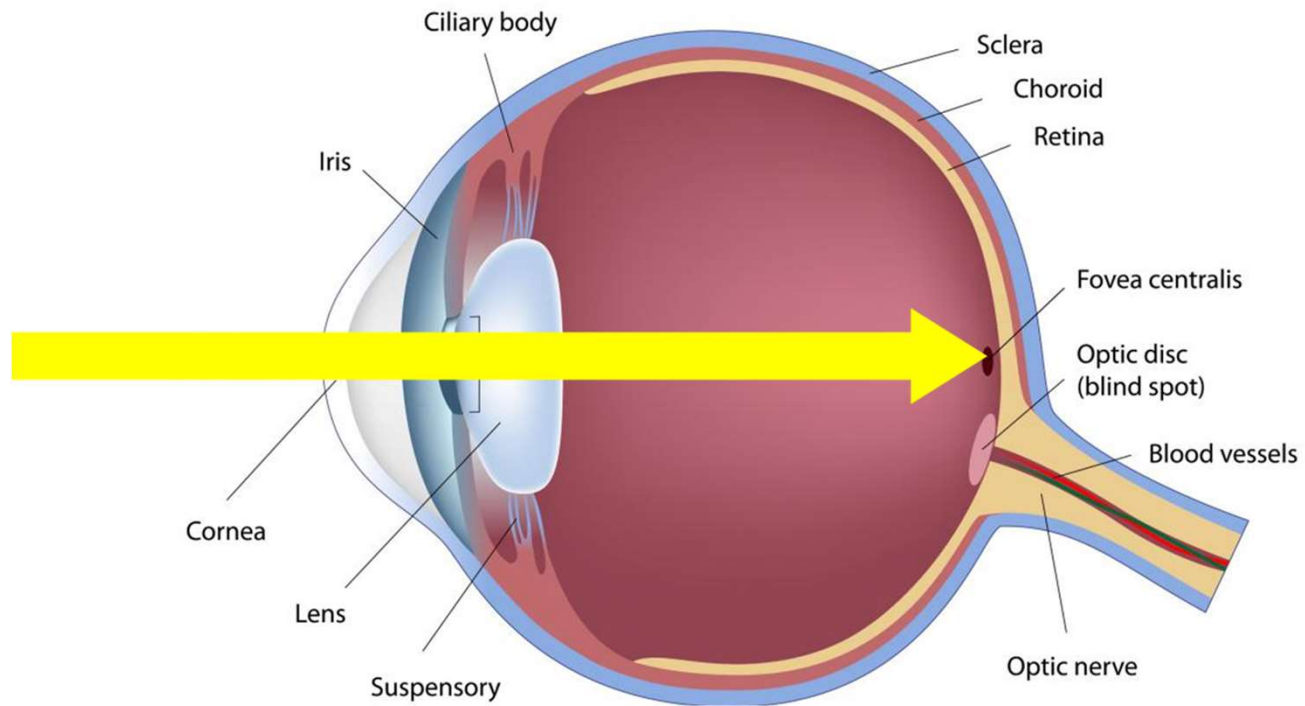
Myopia

Hyperopia

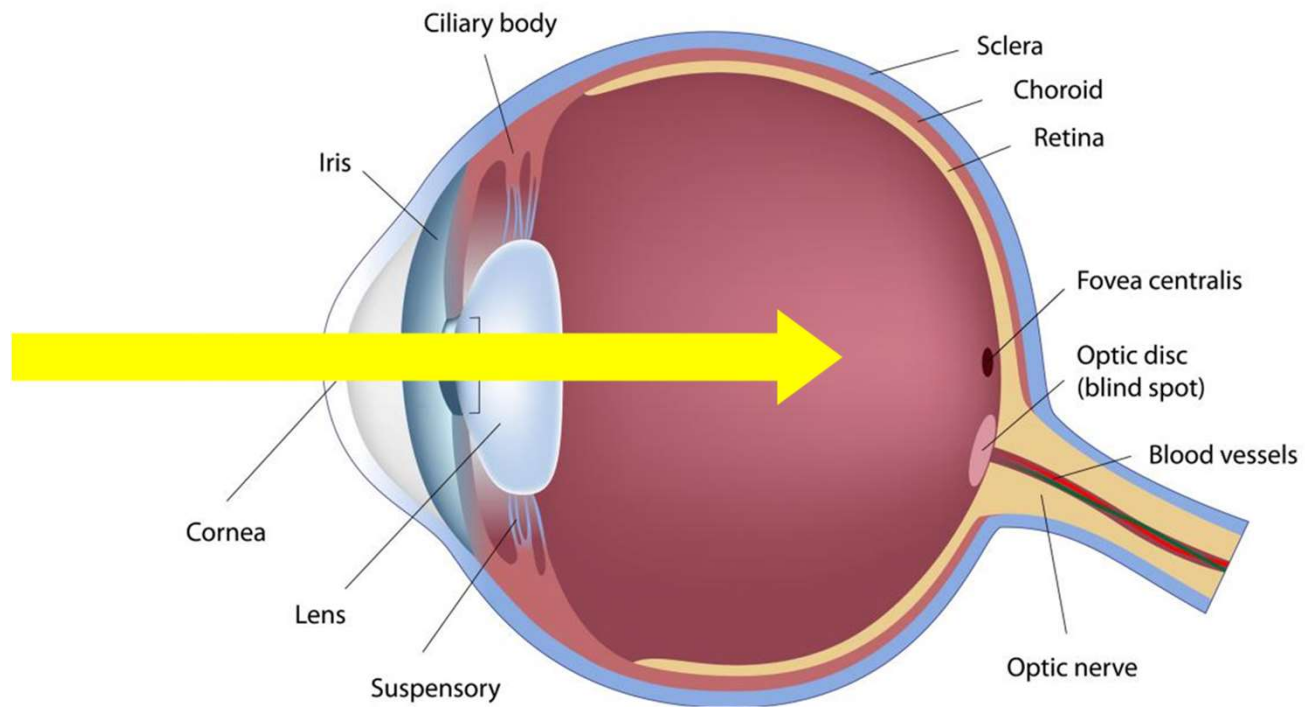
Astigmatism

Presbyopia

Emmetropia



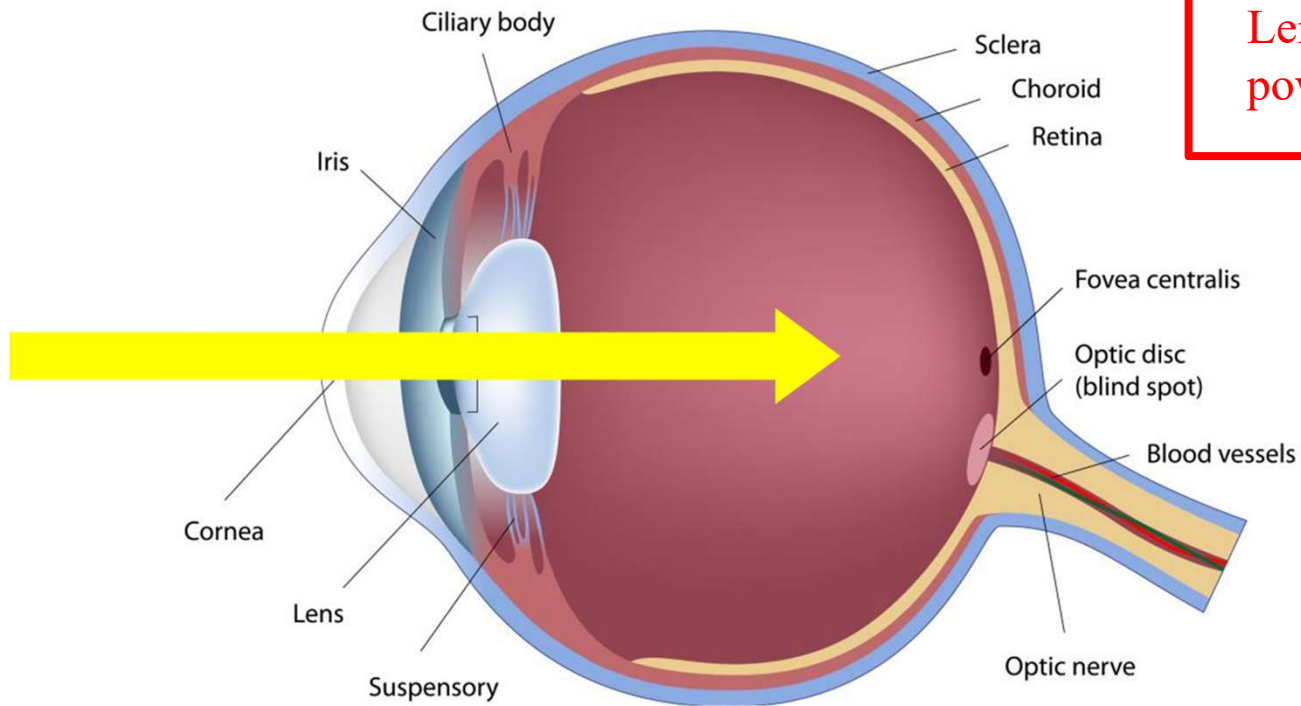
Myopia (near-sighted)



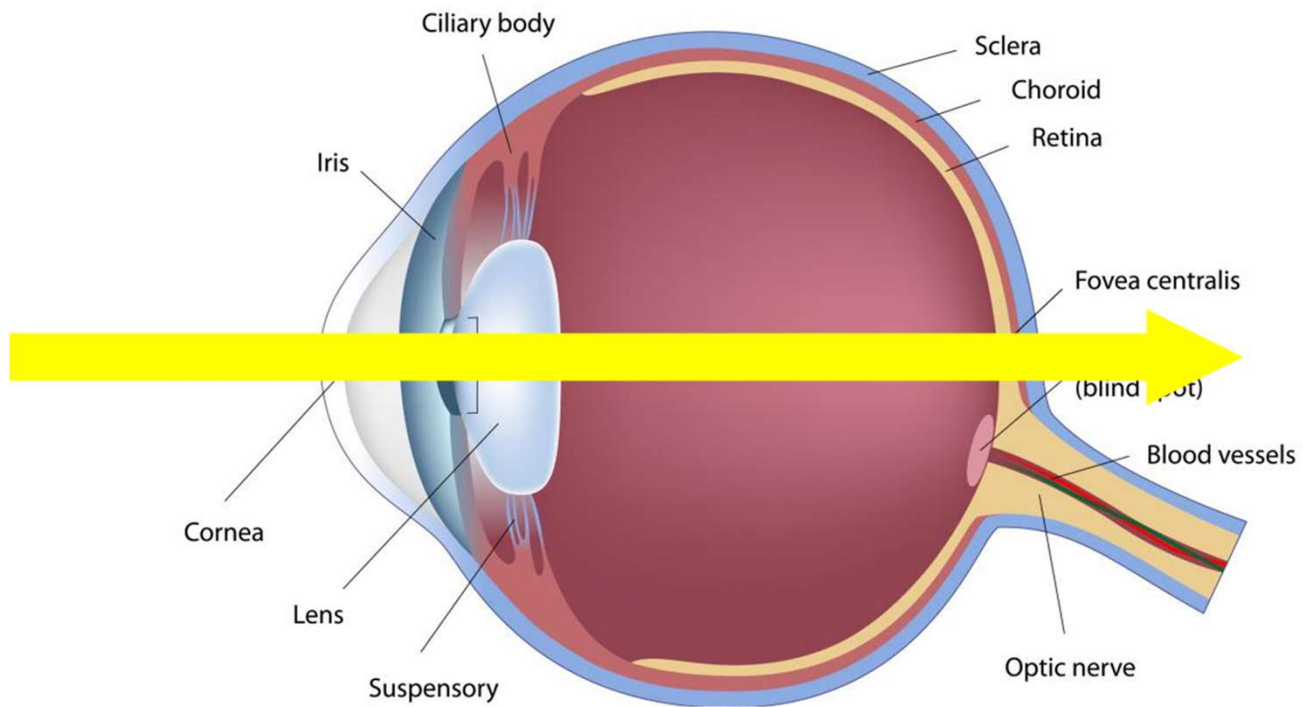
Myopia (near-sighted)

Eye too long

Lens/cornea are too powerful

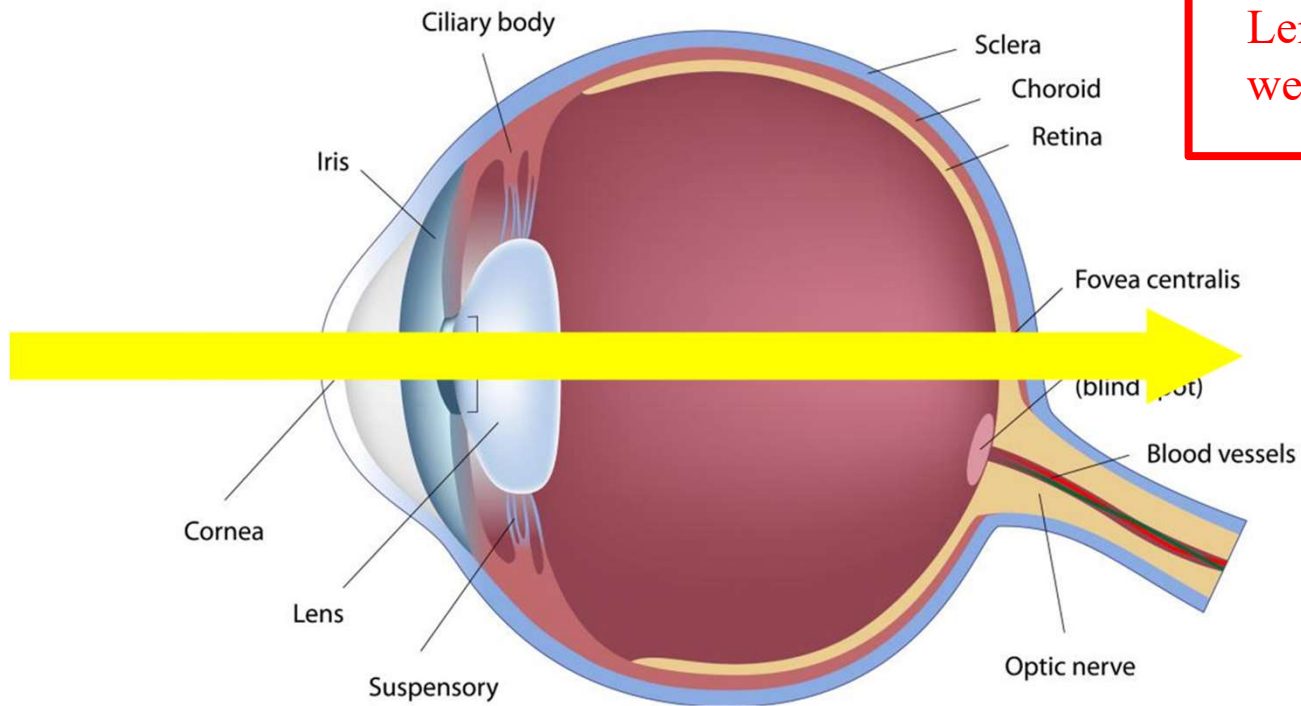


Hyperopia (far-sighted)

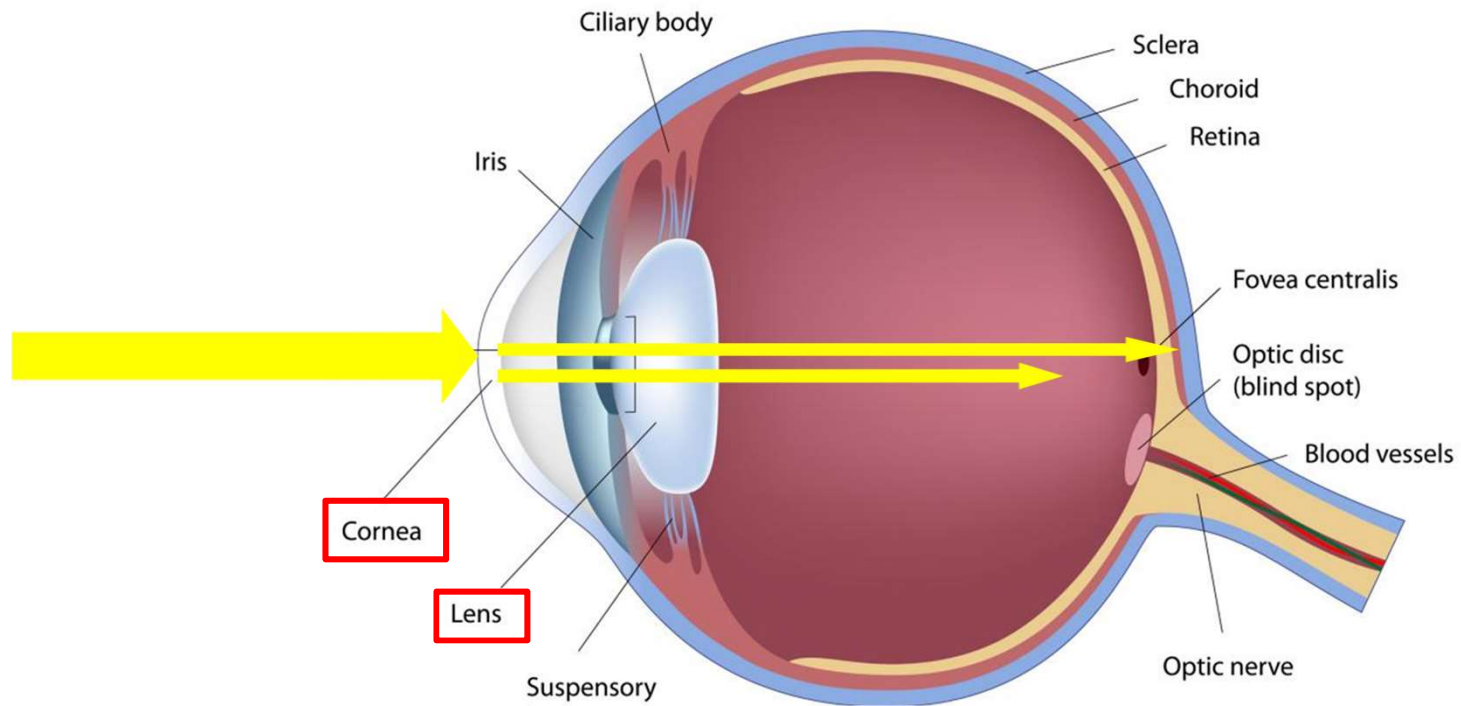


Hyperopia (far-sighted)

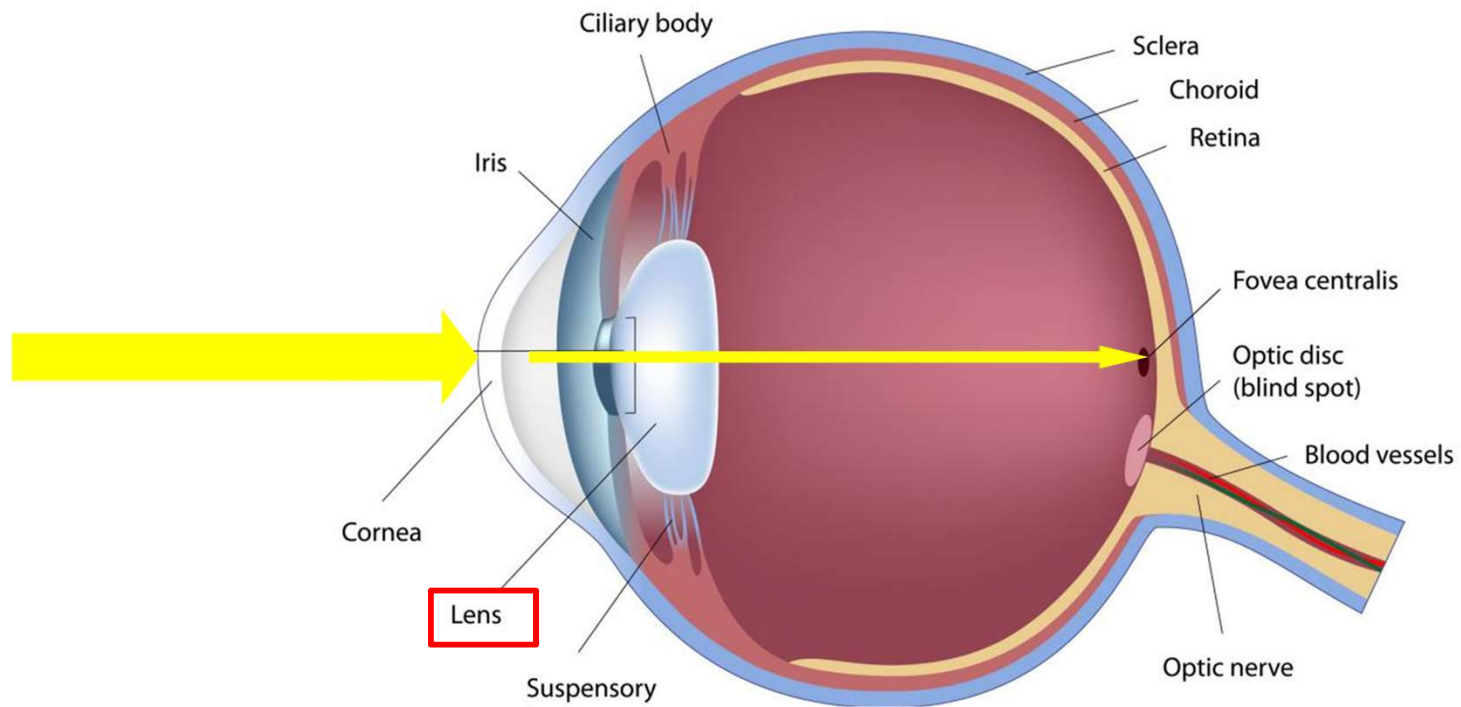
Eye too short
Lens/cornea are too weak



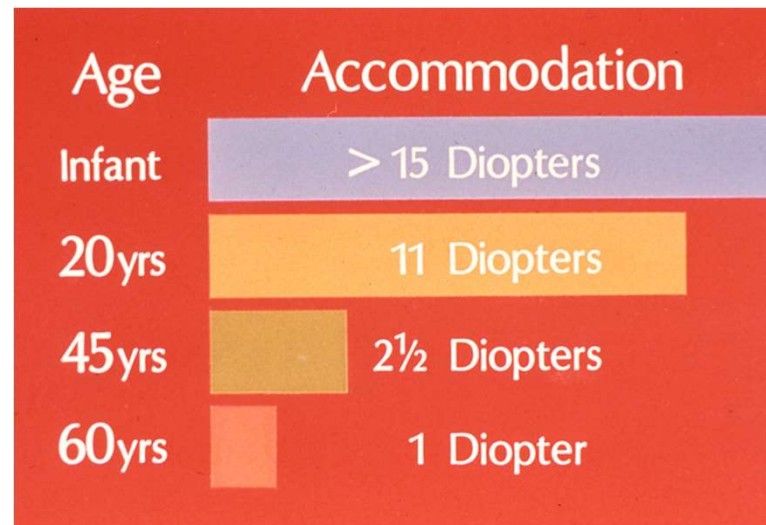
Astigmatism



Presbyopia (loss of accommodation)



Presbyopia (loss of accommodation)



Worldwide 1 billion people have moderate or severe distance vision impairment or blindness due to:

- **unaddressed refractive error (123.7 million)**
- cataract (65.2 million)
- glaucoma (6.9 million)
- corneal opacities (4.2 million)
- diabetic retinopathy (3 million)
- trachoma (2 million)
- unaddressed presbyopia (826 million)

Bourne RRA, Flaxman SR, Braithwaite T, Cicinelli MV, Das A, Jonas JB, et al.; Vision Loss Expert Group. [Magnitude, temporal trends, and projections of the global prevalence of blindness and distance and near vision impairment: a systematic review and meta-analysis](#). Lancet Glob Health. 2017 Sep;5(9):e888–97.

UM Pop Up Clinics: Common Health +



You can help by donating old glasses. We have a chapter at Kellogg Eye Center



RESPECTACLE™

The world's online database of high quality used glasses.

Uncorrected refractive error

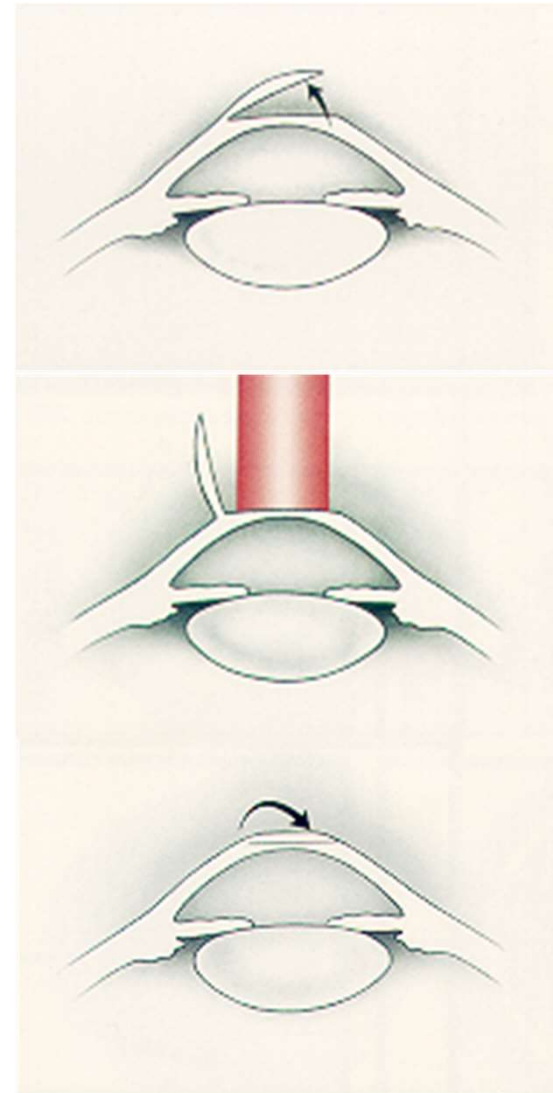


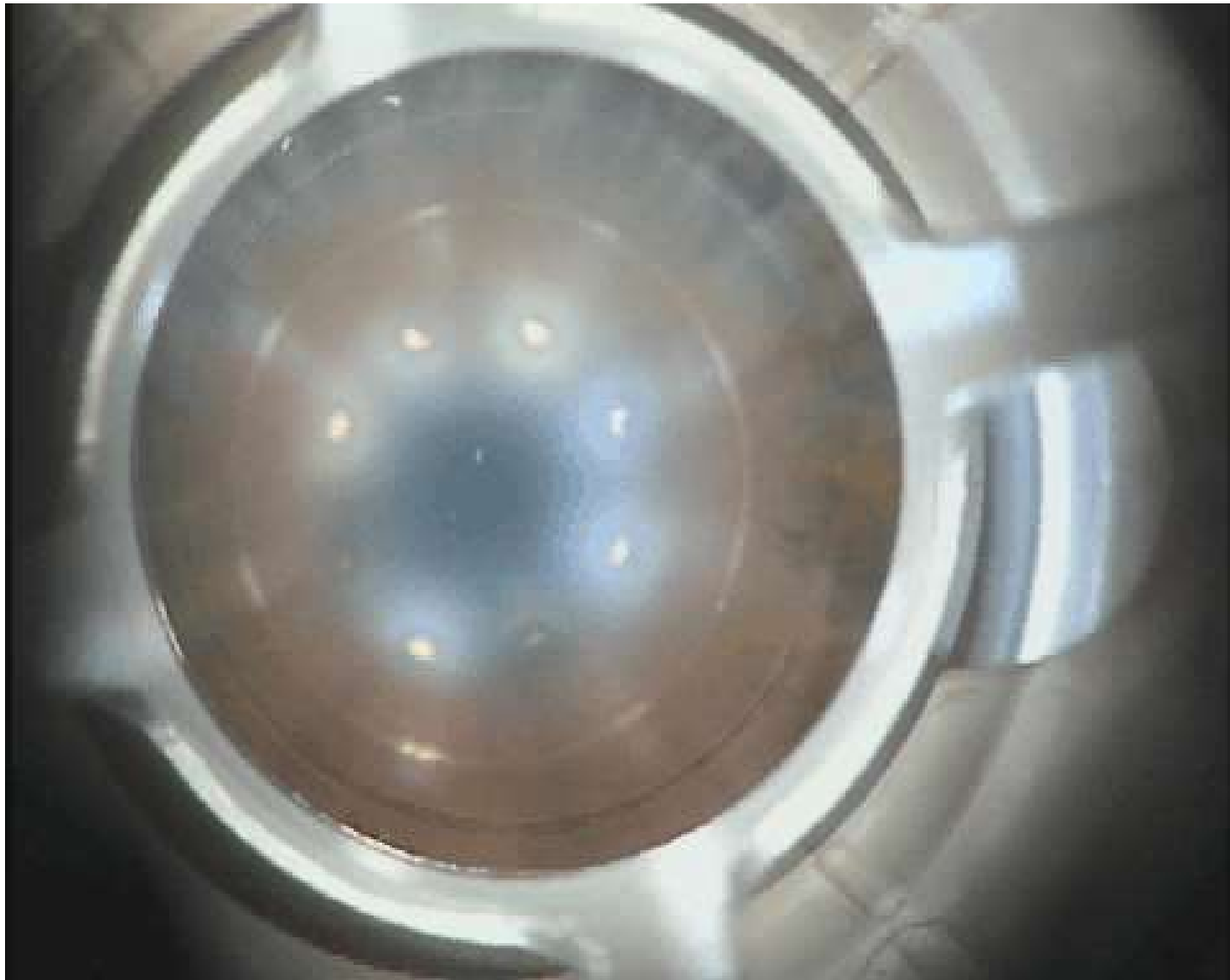
Laser Assisted In-Situ Keratomileusis (LASIK)

Thin corneal flap created by a
femtosecond laser

Reshape cornea with excimer laser

Flap replaced without stitches





Thank you to Dr. Shahzad Mian

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Other common causes of loss of red eye

Dry eyes

Blepharitis

Subconjunctival hemorrhage

Conjunctivitis

Episcleritis

Scleritis

Dry eye syndrome

Very common

Causes redness and irritation

Often intermittent blurry vision

Treat with artificial tears



Subconjunctival hemorrhage

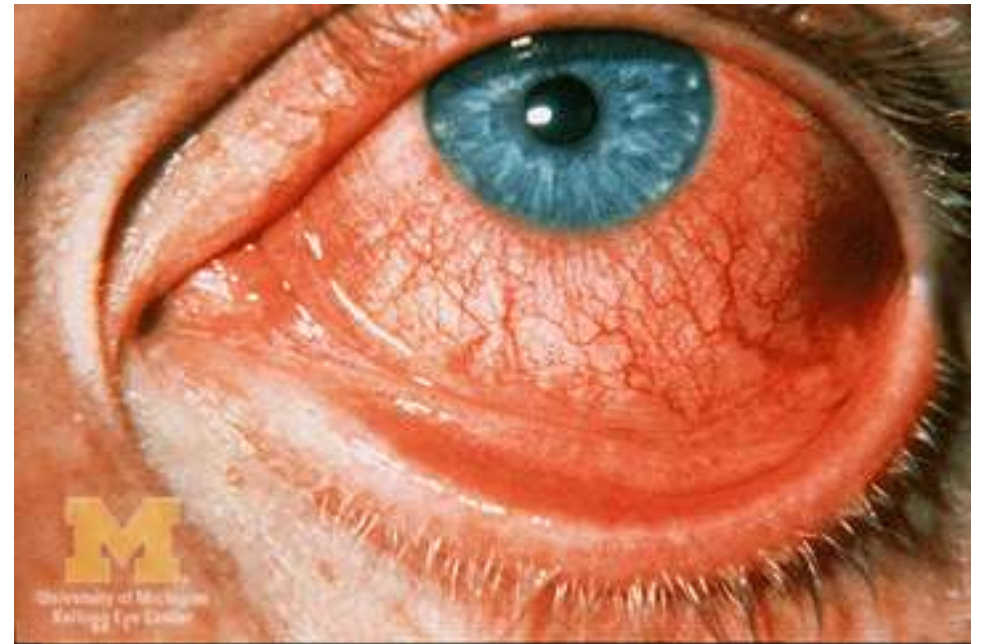
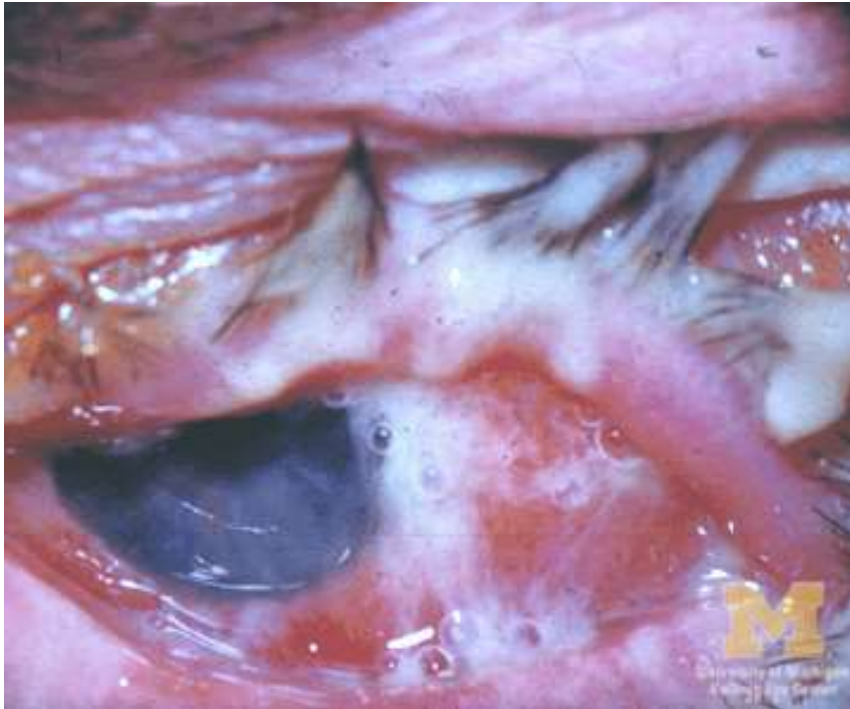
Non-tender, redness to conjunctiva
Sometimes associated with straining or
coughing, anticoagulation use



Bacterial versus viral conjunctivitis

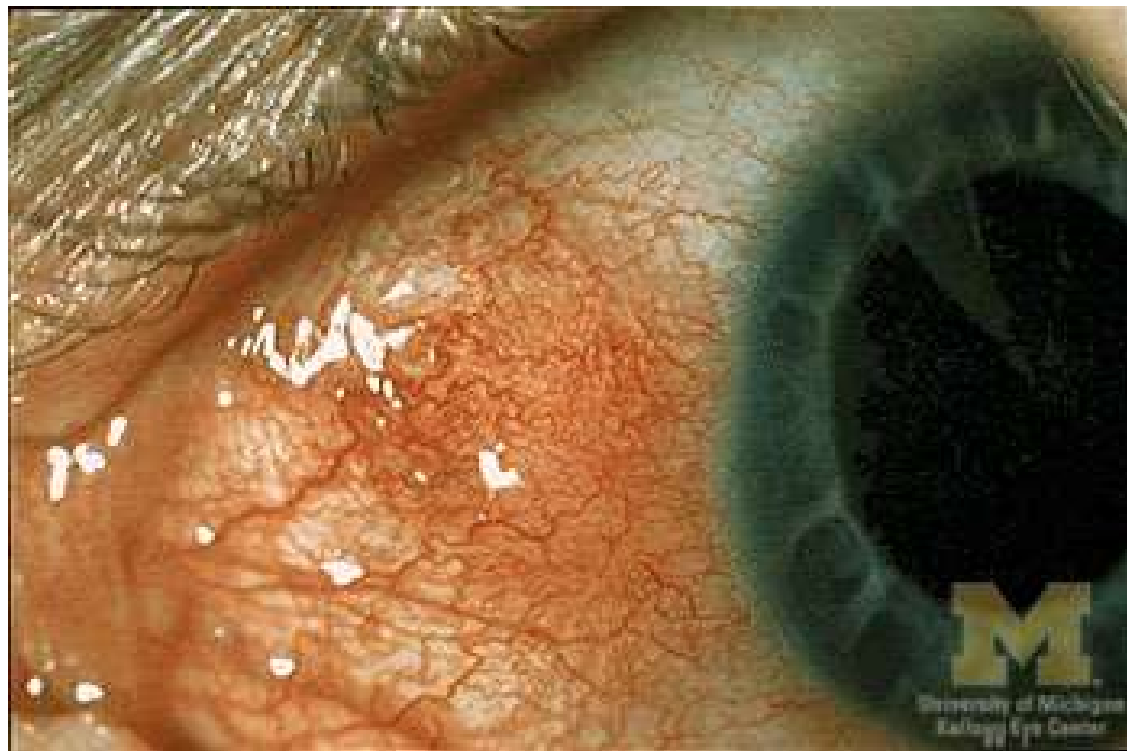
Copious purulent discharge
Often immunocompromised or
immunosuppressed patients
Requires antibiotic treatment

Serous discharge, redness, and itching;
often associated with URI symptoms
Treat symptomatically



Episcleritis

Injection of the conjunctiva
Surface inflammation



Scleritis

Violaceous in appearance

Deeper inflammation often associated with a systemic disease process

Often associated with tenderness to palpation and headache



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Other common causes of loss of vision

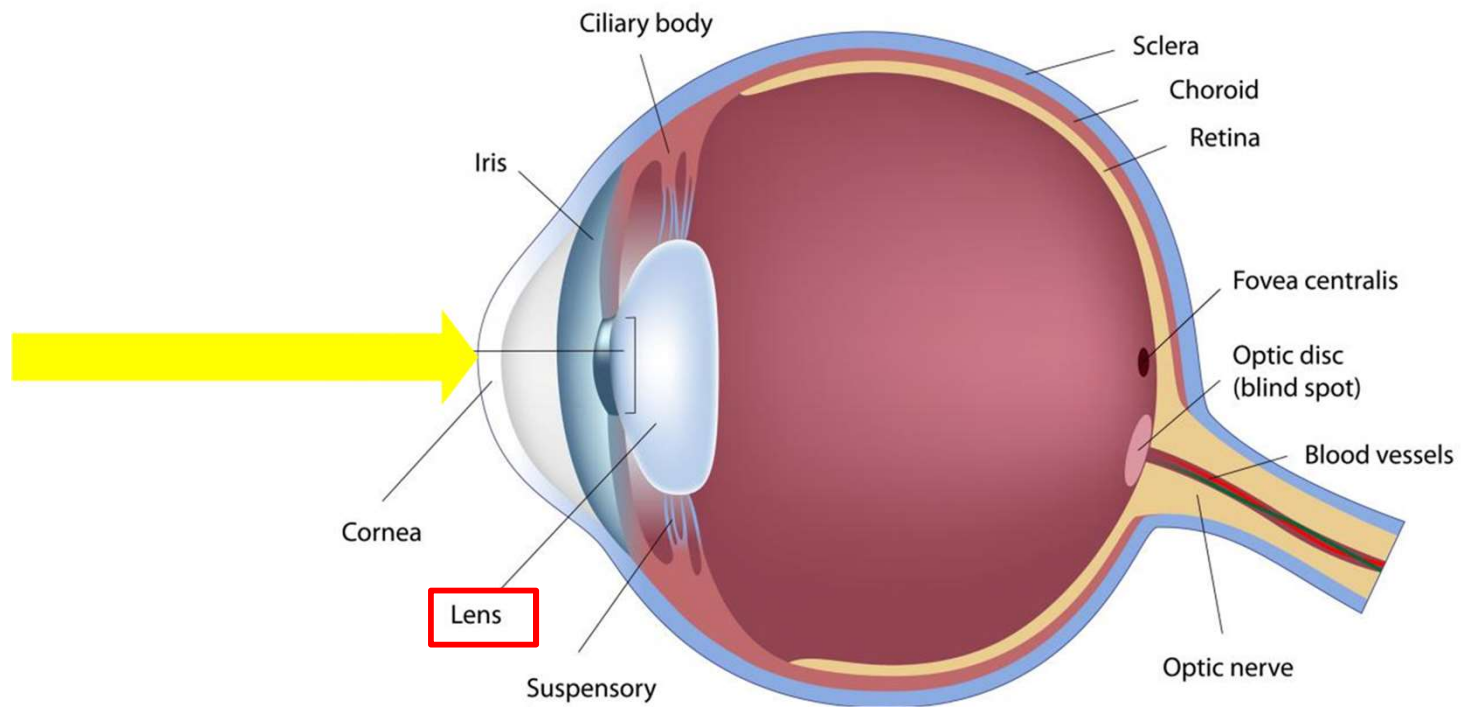
Cataracts

Glaucoma

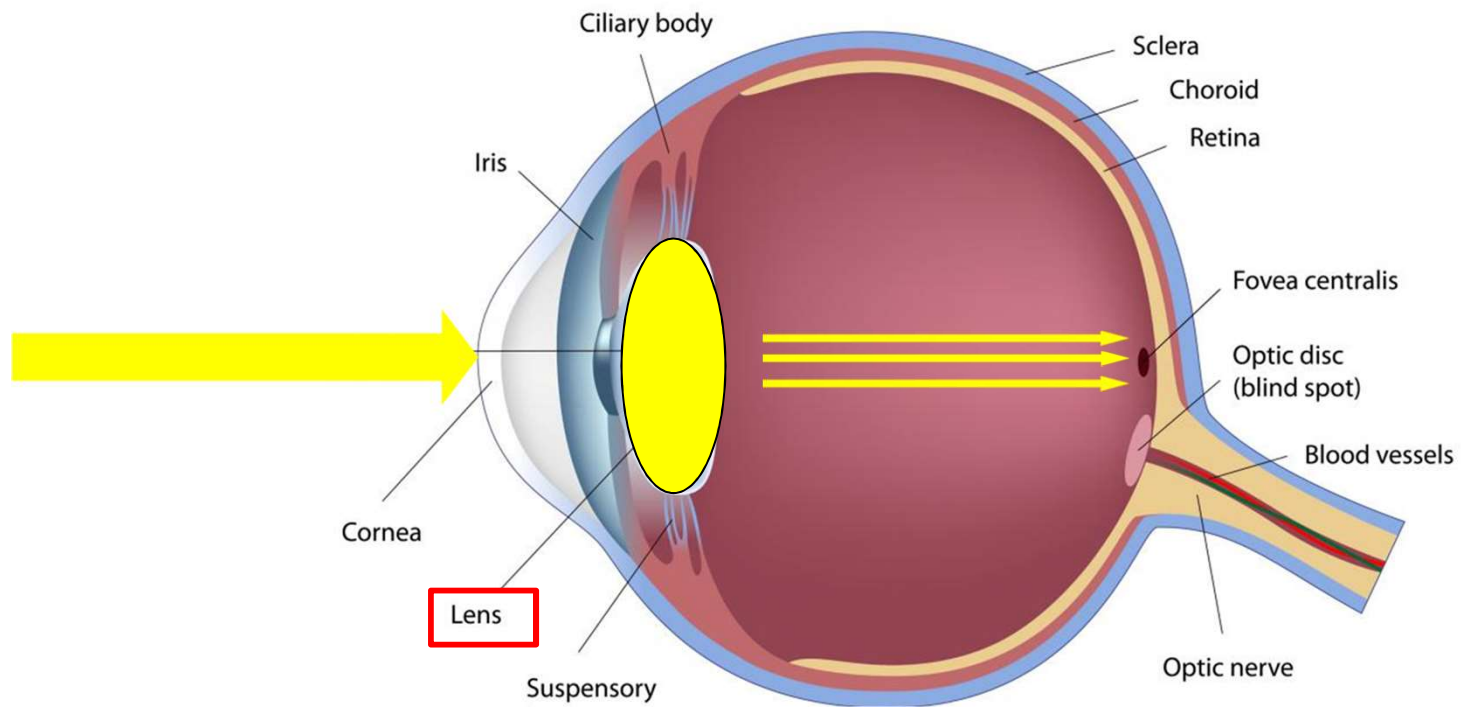
Macular Degeneration

Diabetic Retinopathy

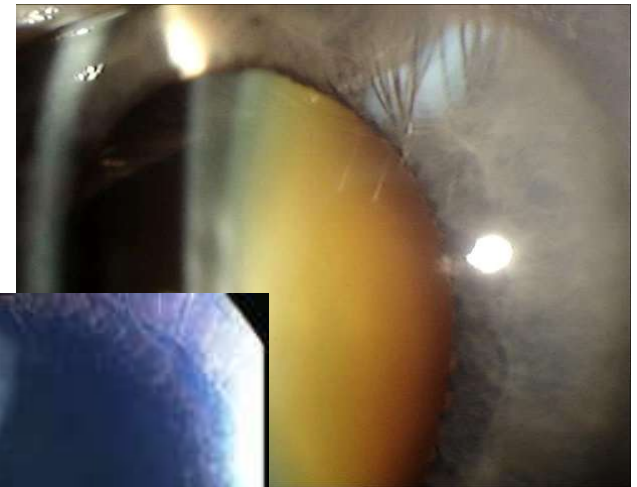
Cataract



Cataract



- Aging - most common cause
- Traumatic
- Medication-induced
- Metabolic diseases
- Ocular inflammatory diseases
- Radiation
- Lifestyle (smoking, UV light)

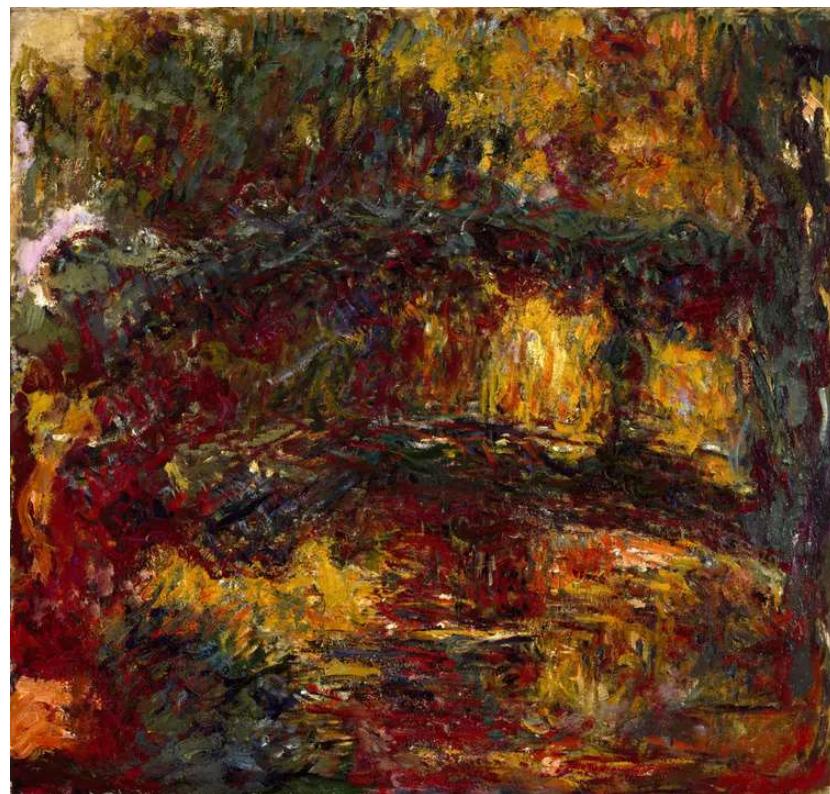


Cataract

Reasonable to consider cataract surgery when:

- Decreased vision that cannot be corrected with new glasses AND patient feels vision is limiting them from doing what they enjoy doing
- Glare and halo when driving at night is making patient feel unsafe AND patient wants to feel safe driving at night
- No longer meeting the state's requirements for visual acuity to pass driving test



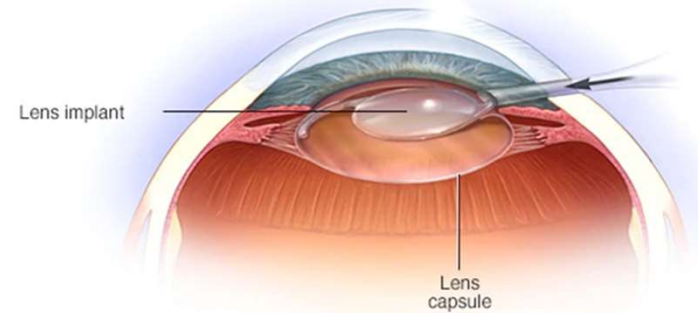
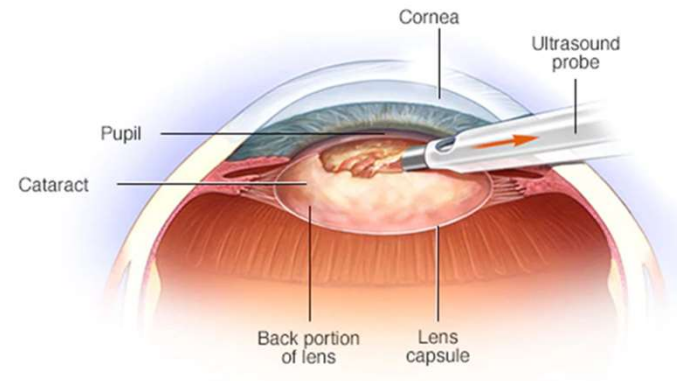


Claude Monet 1840-1926

Cataract surgery

Incredible progress in cataract surgery:

- Out patient procedure
- Two eyes done approximately 2 weeks apart
- No heavy lifting, bending, straining for limited time
- Can correct or limit refractive errors (minimizing need for glasses correction)
- New plastic lens never needs to be removed or updated

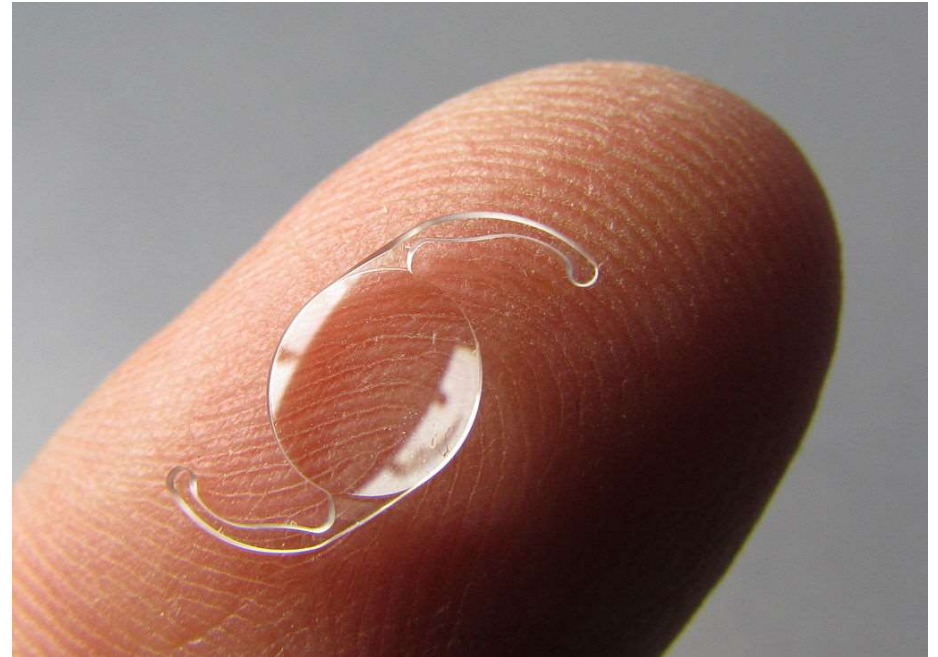


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Cataract surgery

Understanding patient's refractive goals after surgery is an incredibly important conversation. Need to set realistic expectations.

- Do you mind wearing glasses to optimize your vision?
- Do you like to read **WITHOUT** glasses?
- Have you always wanted to wake up and see the clock across the room without putting on glasses?



Cataract: How to protect eyes

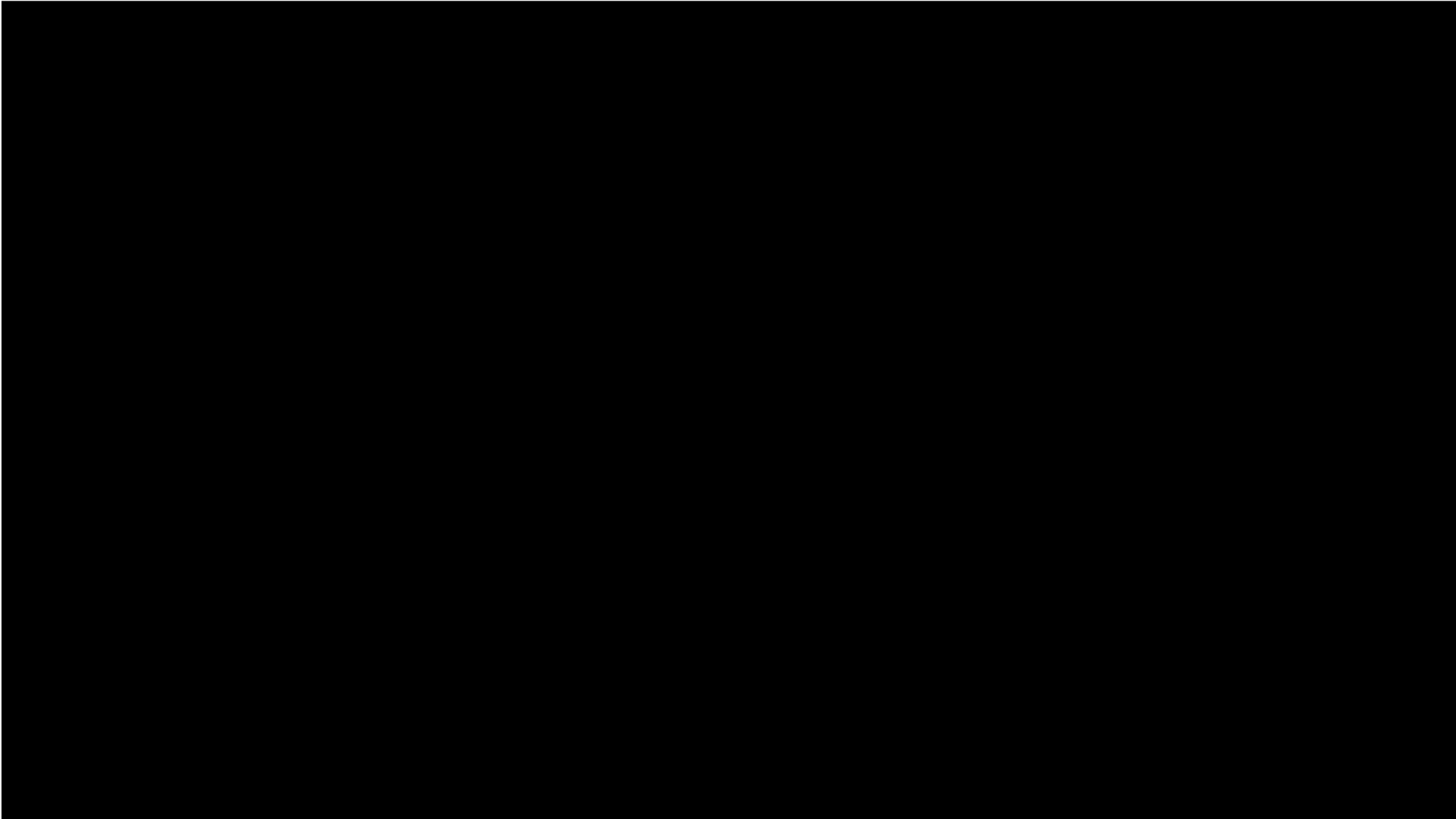
Wear UV light protective glasses

Avoid steroid medications if possible

Avoid smoking

Control blood glucose if a diabetic

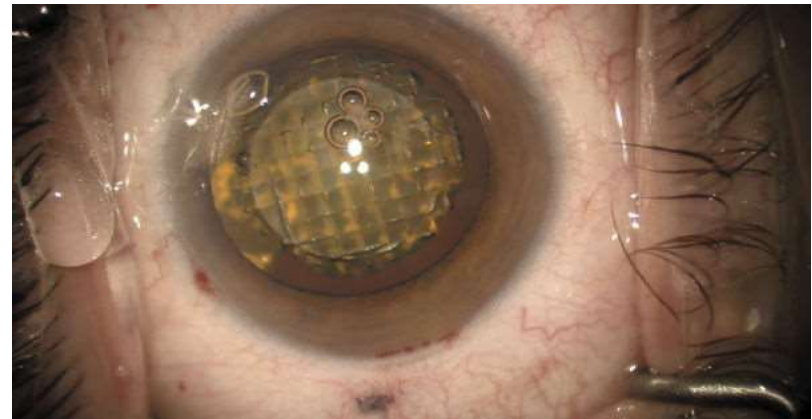
No particular vitamin has shown to slow progression but encourage healthy diet



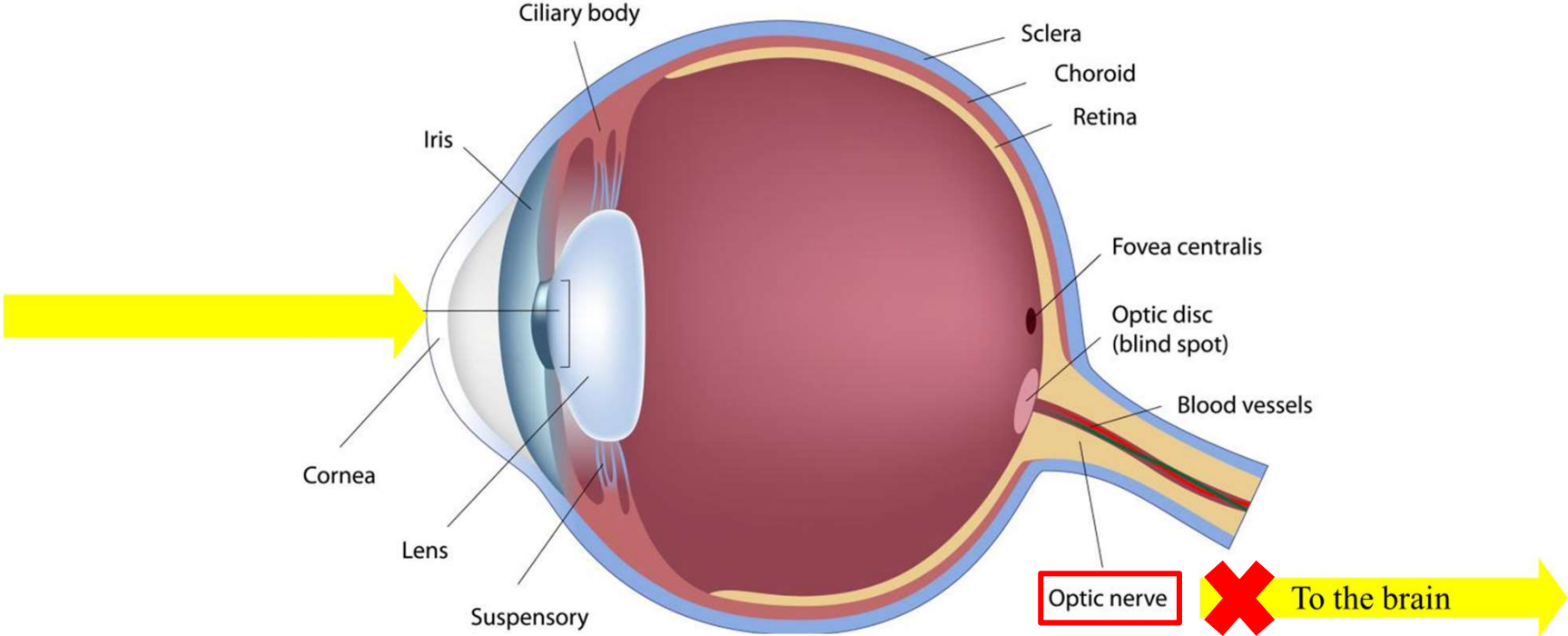
Thank you to Dr. Shahzad Mian

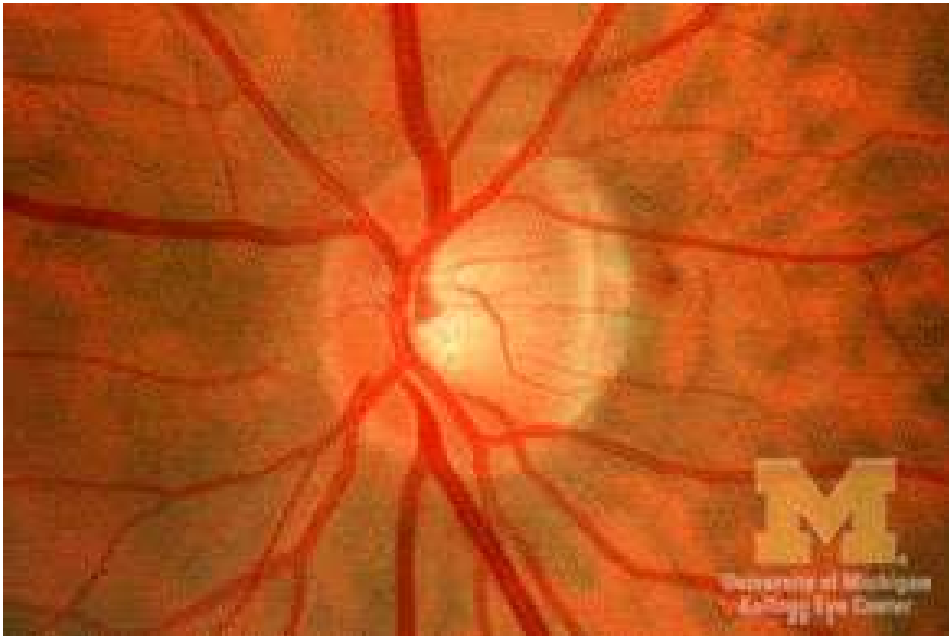


Femtosecond laser cataract surgery



Glaucoma





Normal cup:disc ratio



Abnormal cup:disc ratio

2 general forms of glaucoma

Closed angle glaucoma

Urgent/emergent event

Symptoms: Redness, ocular pain, blurry vision, headache, nausea/vomiting

Exam: conjunctival injection, hazy cornea, mid-dilated pupil, elevated IOP

Open angle glaucoma

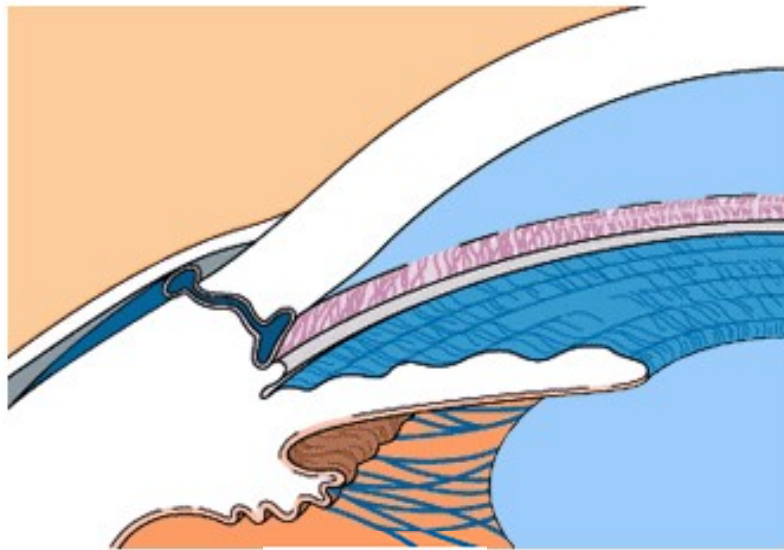
Non-emergent event

Symptoms: None

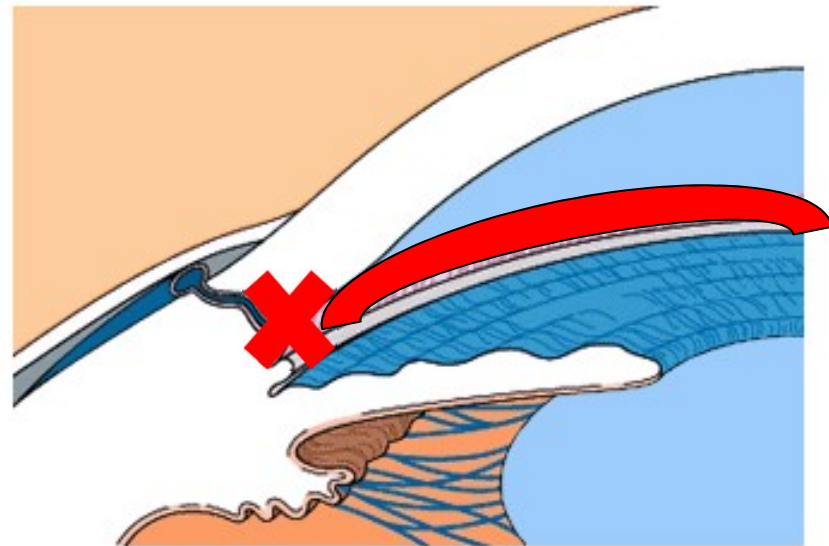
Exam: sometimes elevated IOP, damage to optic nerve



Glaucoma



OPEN



CLOSED

Glaucoma

GOALS of treatment:

- Stop progression of vision loss. End stage glaucoma can lead to blindness.

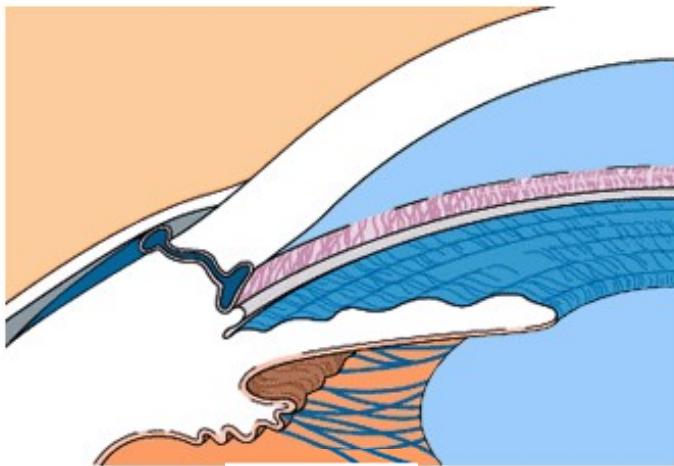
TREATMENT includes lowering the eye pressure:

- Eye drops (many types of medications in arsenal)
- Laser treatments
- Surgical procedures

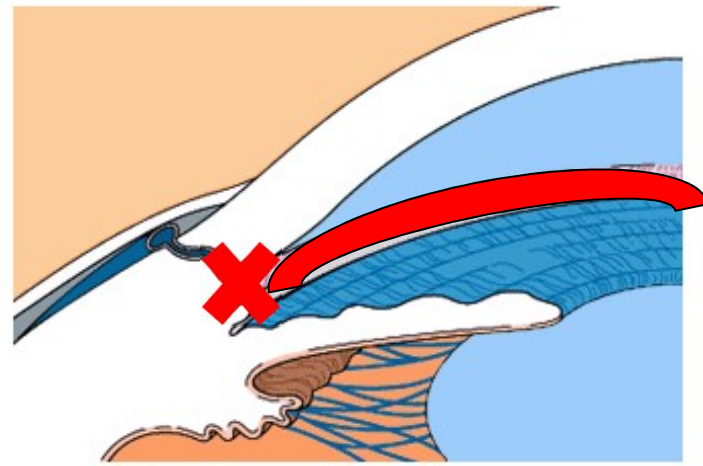


Glaucoma

Medications sometimes warn to not use with diagnosis of glaucoma – it's referring to **CLOSED** angle or **NARROW** angle glaucoma



OPEN



CLOSED

Glaucoma

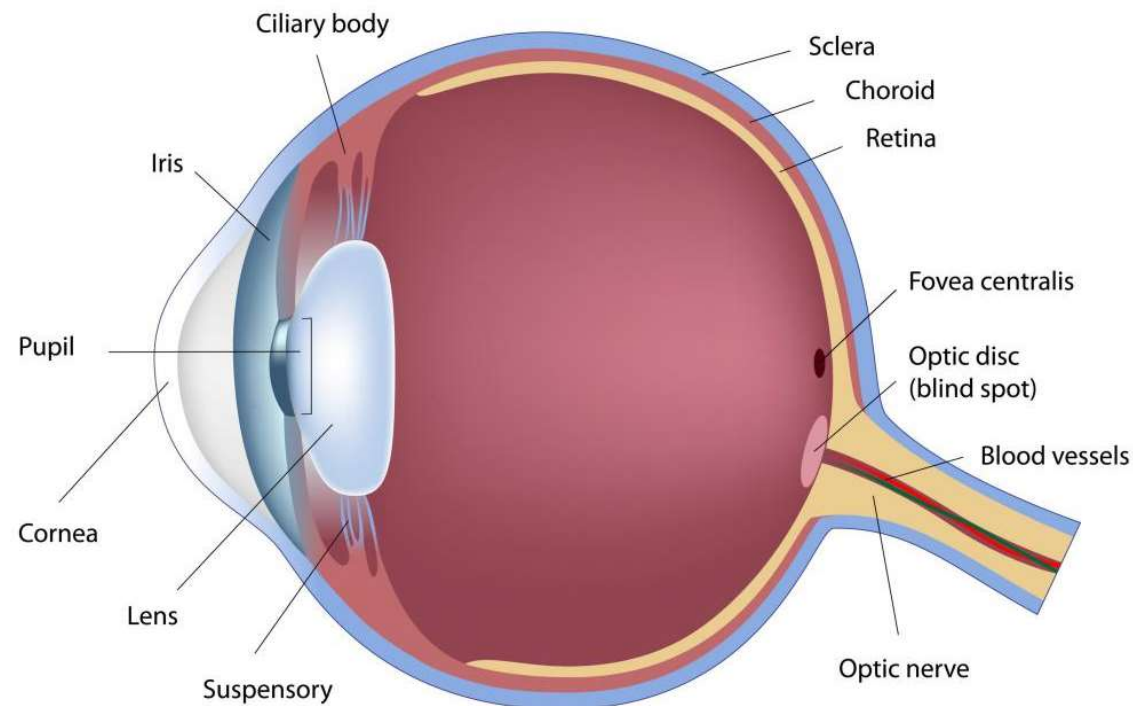
Important to follow with an eye care provider if:

A family history of glaucoma

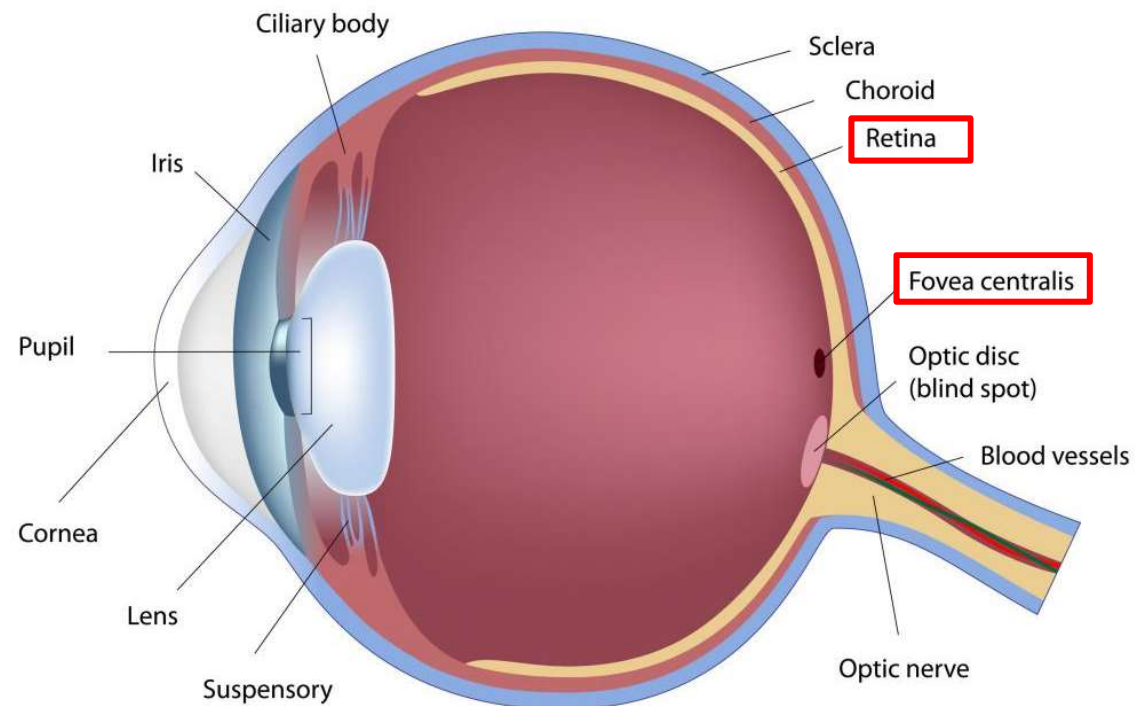
Patient has been told about elevated eye pressures in past

If patient has sustained an eye injury that required care

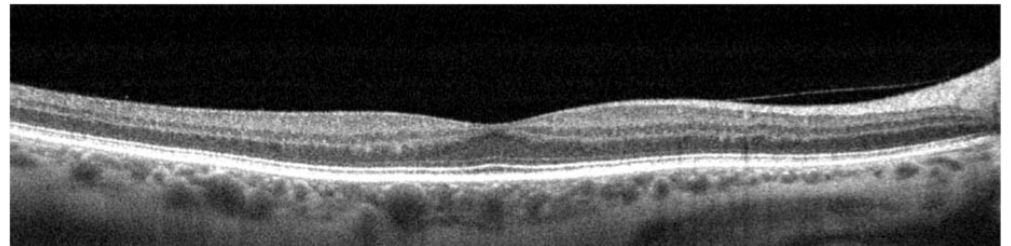
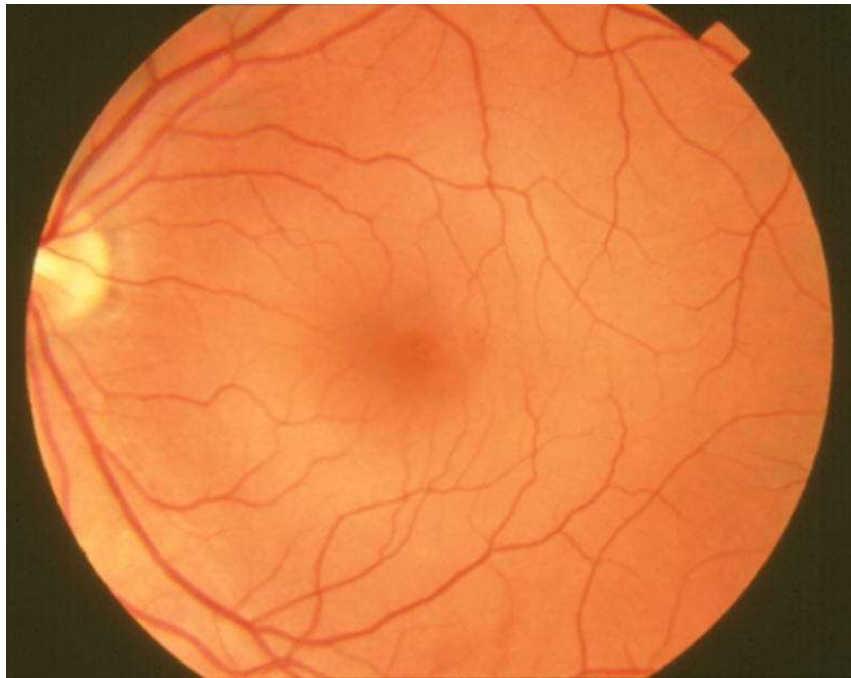
What is the leading cause of vision loss in people over the age of 70 in the United States?



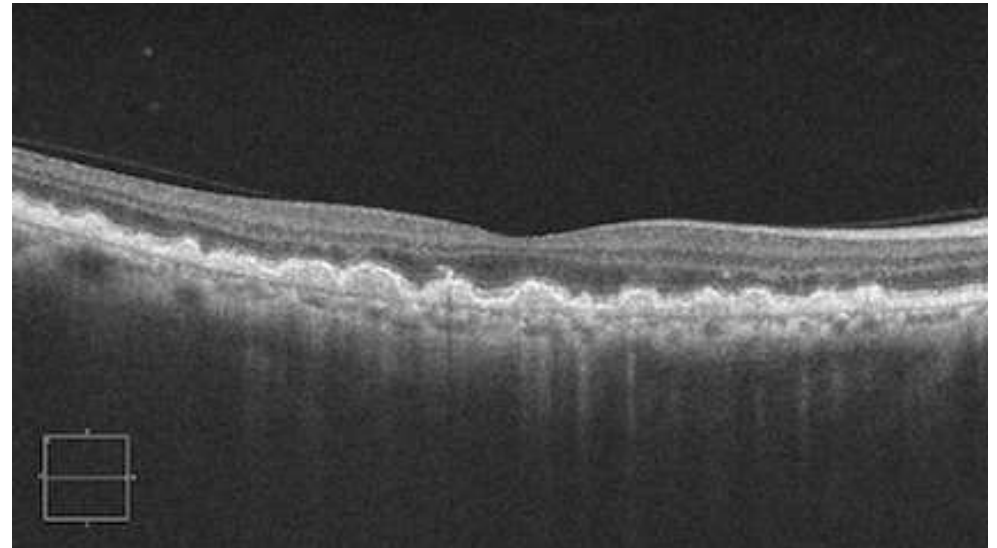
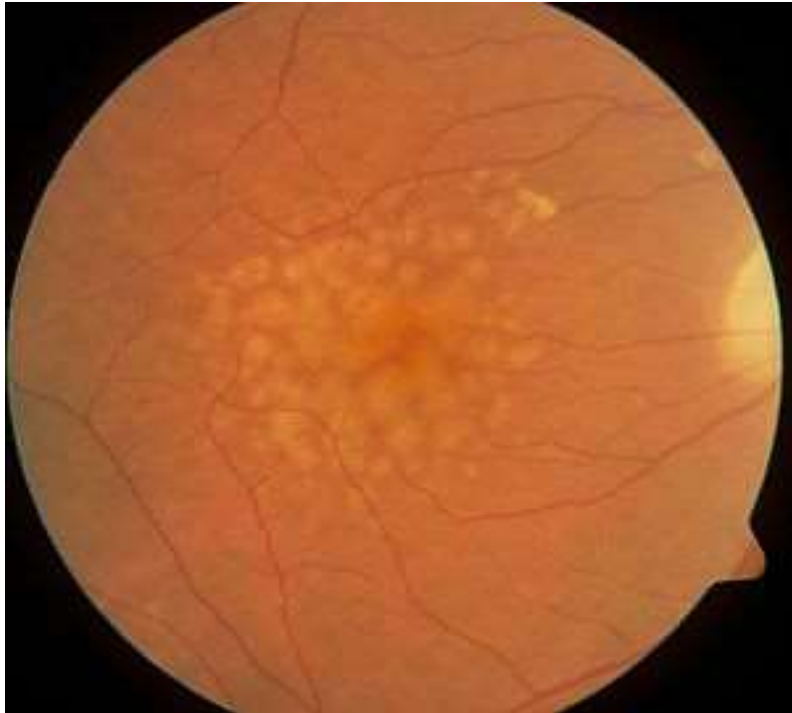
Age related macular degeneration



Age related macular degeneration



Age related macular degeneration: Dry



Age related macular degeneration

AREDS 2 vitamin includes:

Vitamin C (500 mg)

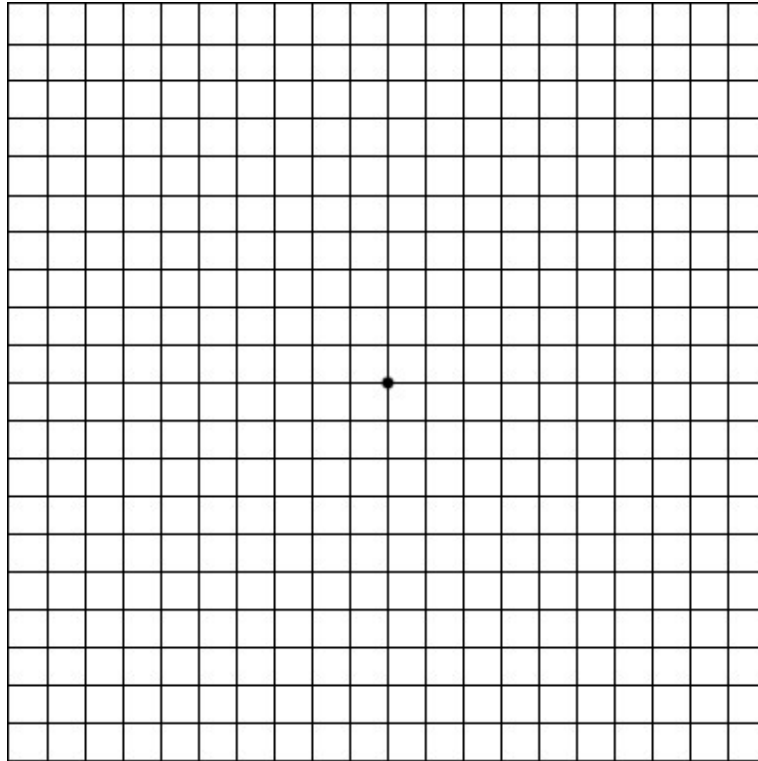
Vitamin E (400 IU)

Lutein (10 mg)

Zeaxanthin (2 mg)

Zinc (80 mg)

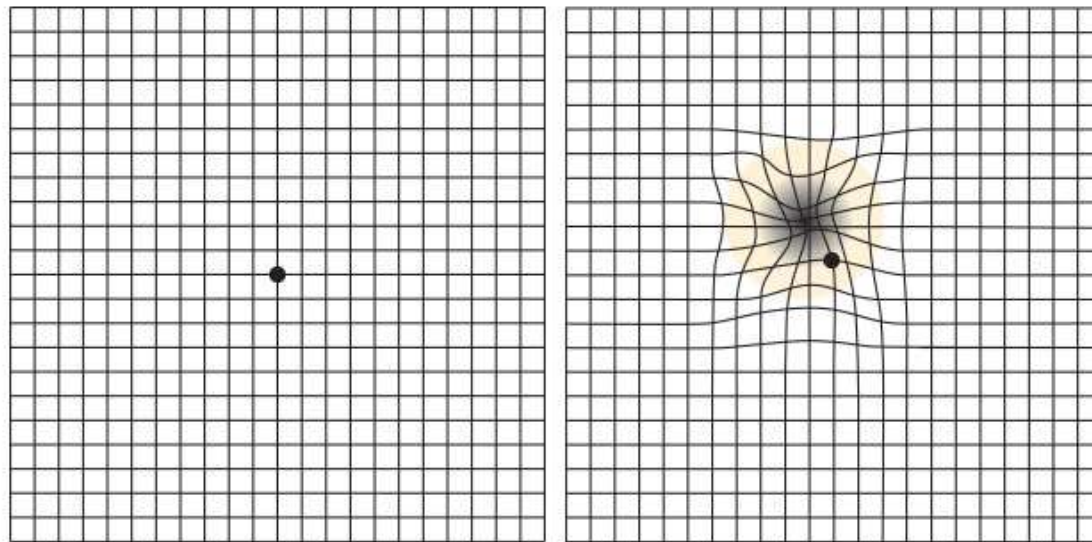
Copper (2 mg)



Amsler grid:

- Tool for home monitoring
- Check one eye at a time
- Wear readers if you need them
- Check weekly
- Call if changes noted

Age related macular degeneration

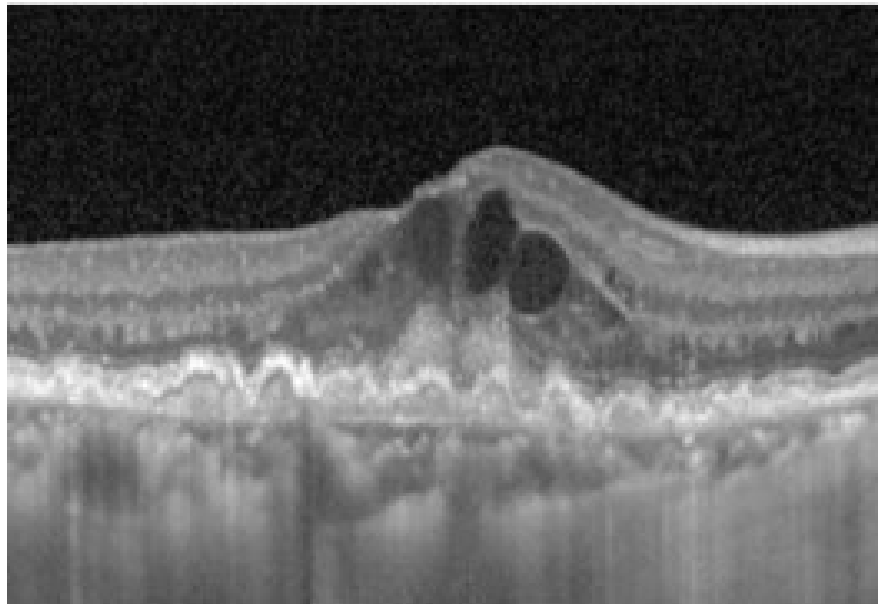


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Age related macular degeneration



Age related macular degeneration: Wet



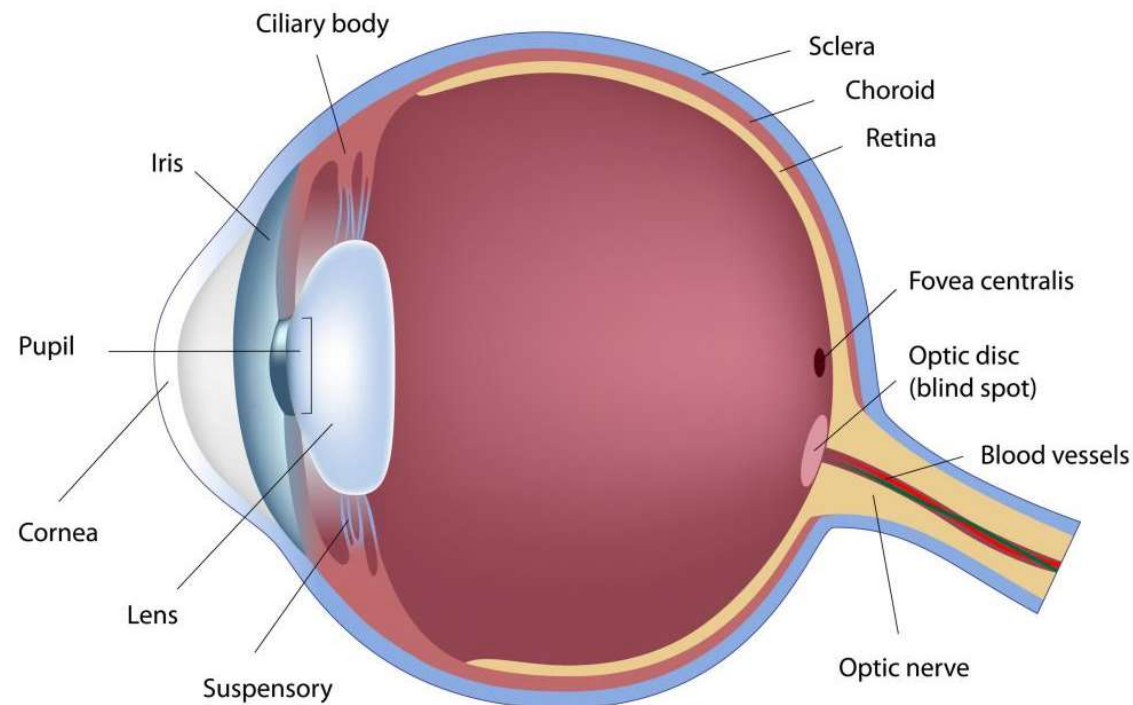
Age related macular degeneration

Follow with an ophthalmologist if there is a family history of AMD

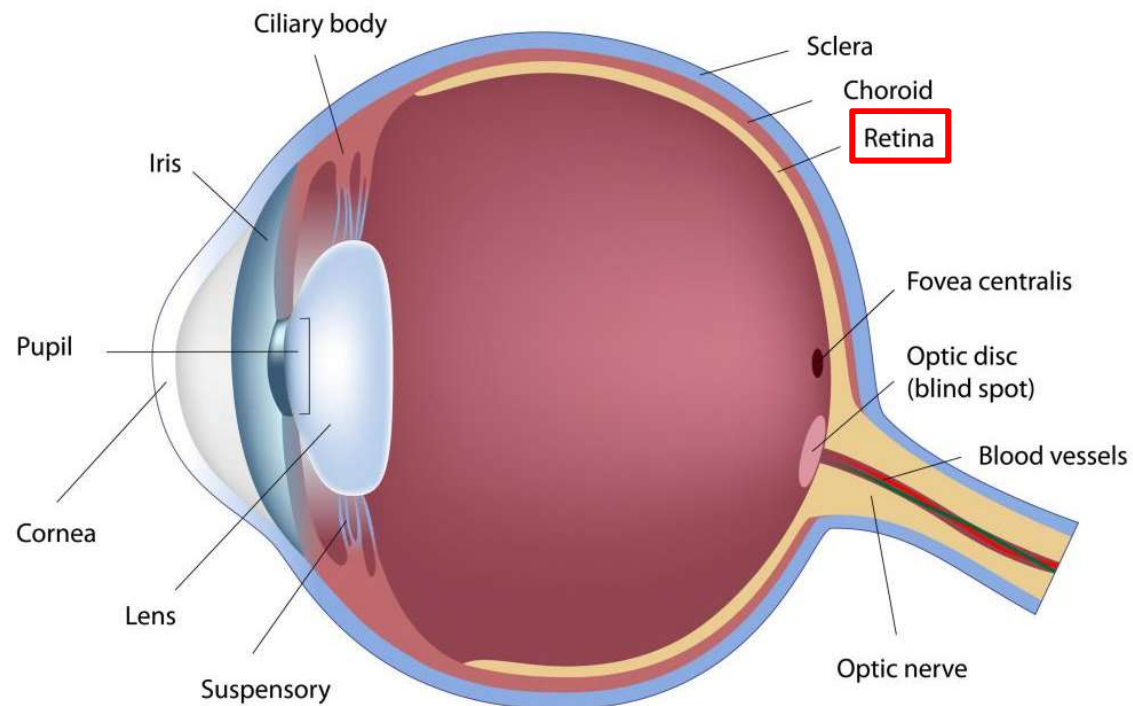
Wear UV light protective glasses

Avoid smoking

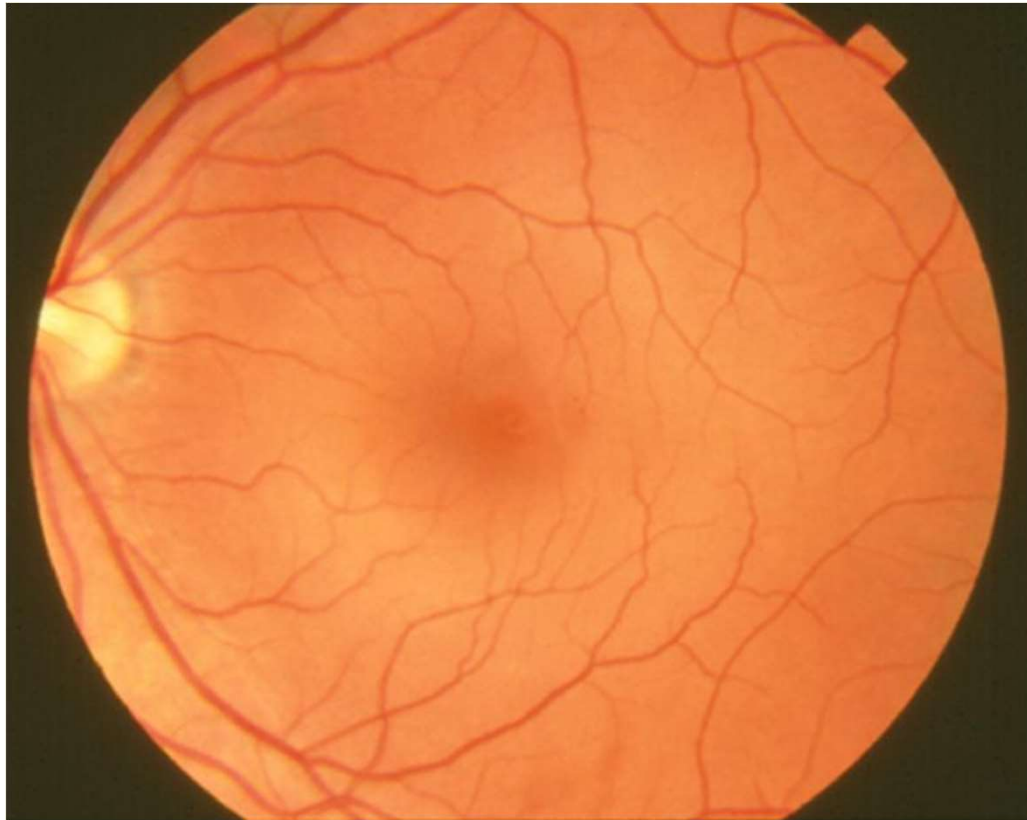
What is the leading cause of PREVENTABLE vision loss in the United States?



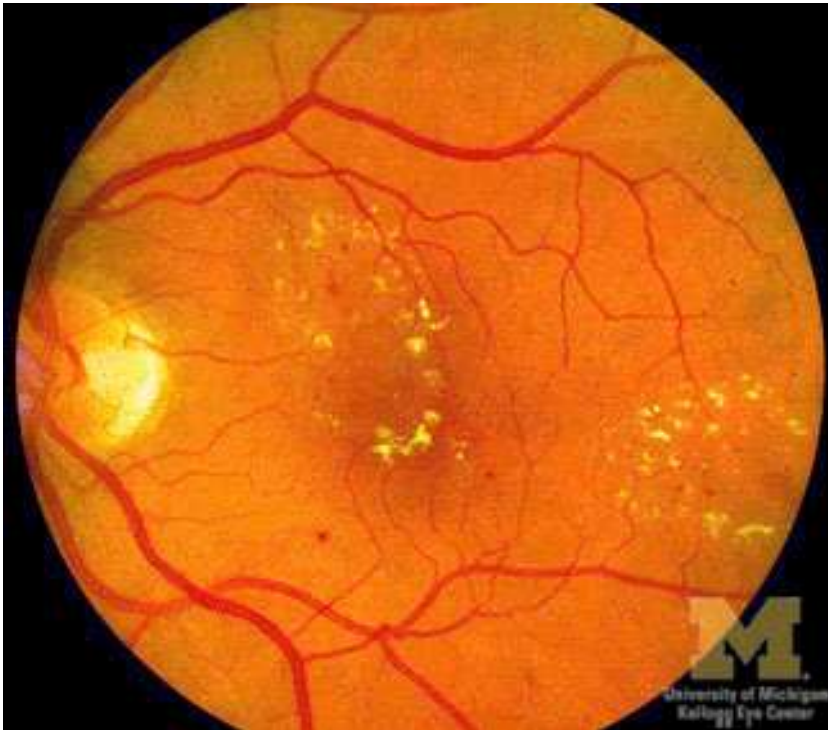
Diabetic retinopathy



Diabetic retinopathy



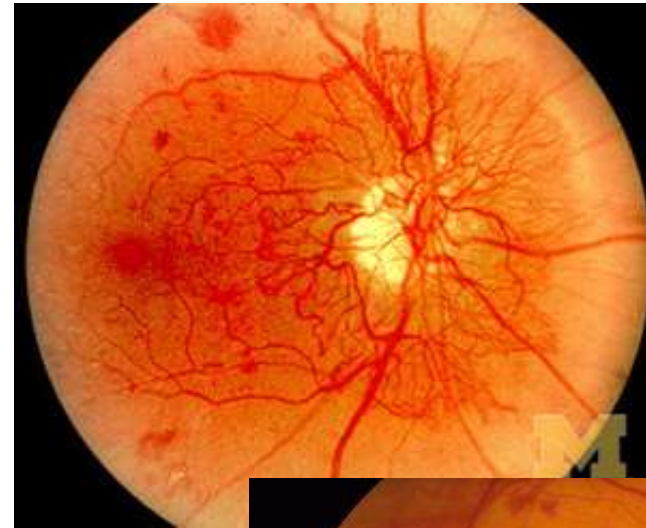
Diabetic retinopathy: Non-proliferative



- Sometimes vision affected (decreased/blurry)
- Sometimes requires treatment with laser or injections
- Encourage tight blood glucose and blood pressure control
- Needs close follow up

Diabetic retinopathy: Proliferative

- Vision can be affected (mild to significant; new floaters)
- Requires treatment with lasers and/or injections and sometimes surgical intervention
- Encourage tight blood glucose and blood pressure control
- Needs close follow up





Suggested online resource

American Academy of Ophthalmology (www.aao.org)

- Videos
- Photos
- Excellent descriptions/explanations



Thank you