



**Kremer Eye
Center**

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Cataract, Corneal, and Refractive Surgeon
Kremer Eye Center



Age-Related Eye Diseases



Age-Related Eye Conditions

Cataracts

Glaucoma

Macular Degeneration

Floater

Dry Eye

DRY EYE COMMON SYMPTOMS



Stinging
or burning



Excessive
tearing



Sandy or gritty
sensation



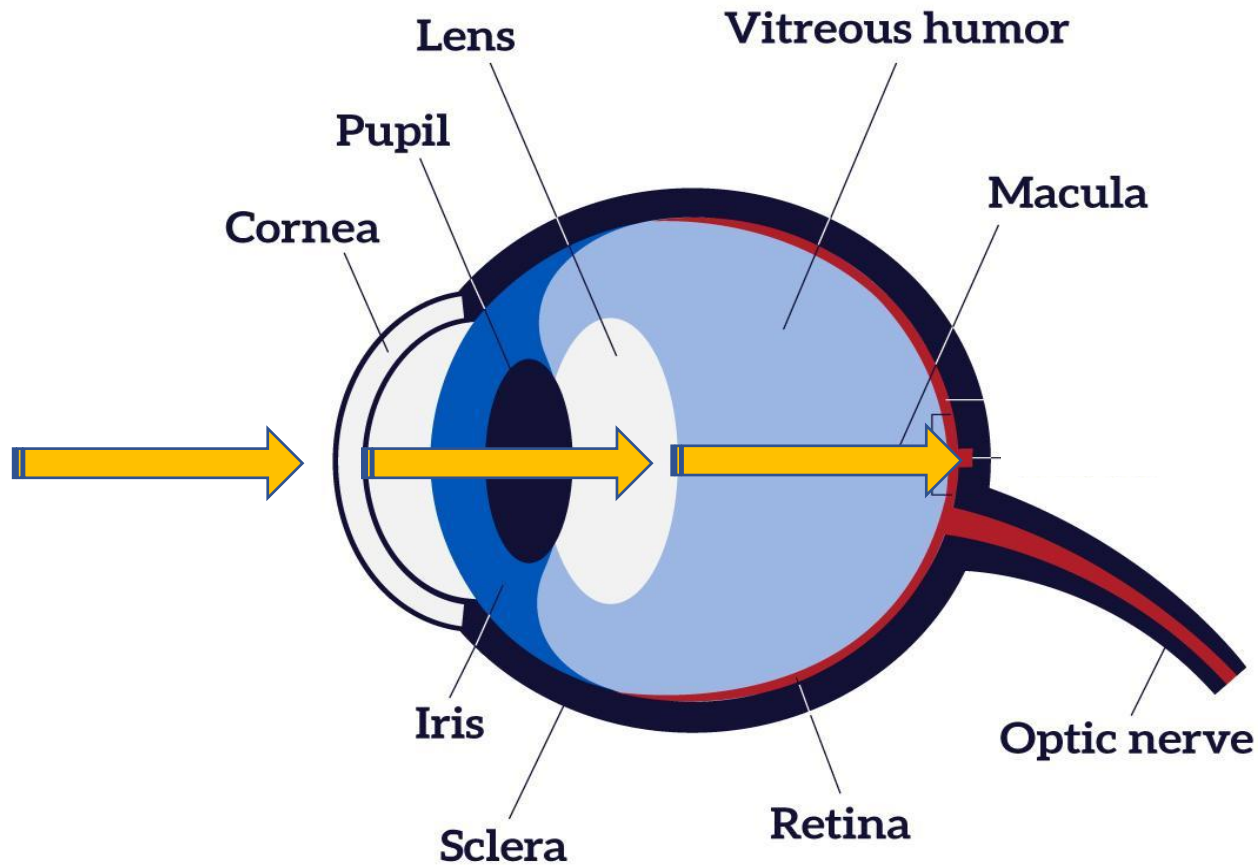
Episodes of
blurred vision



Redness

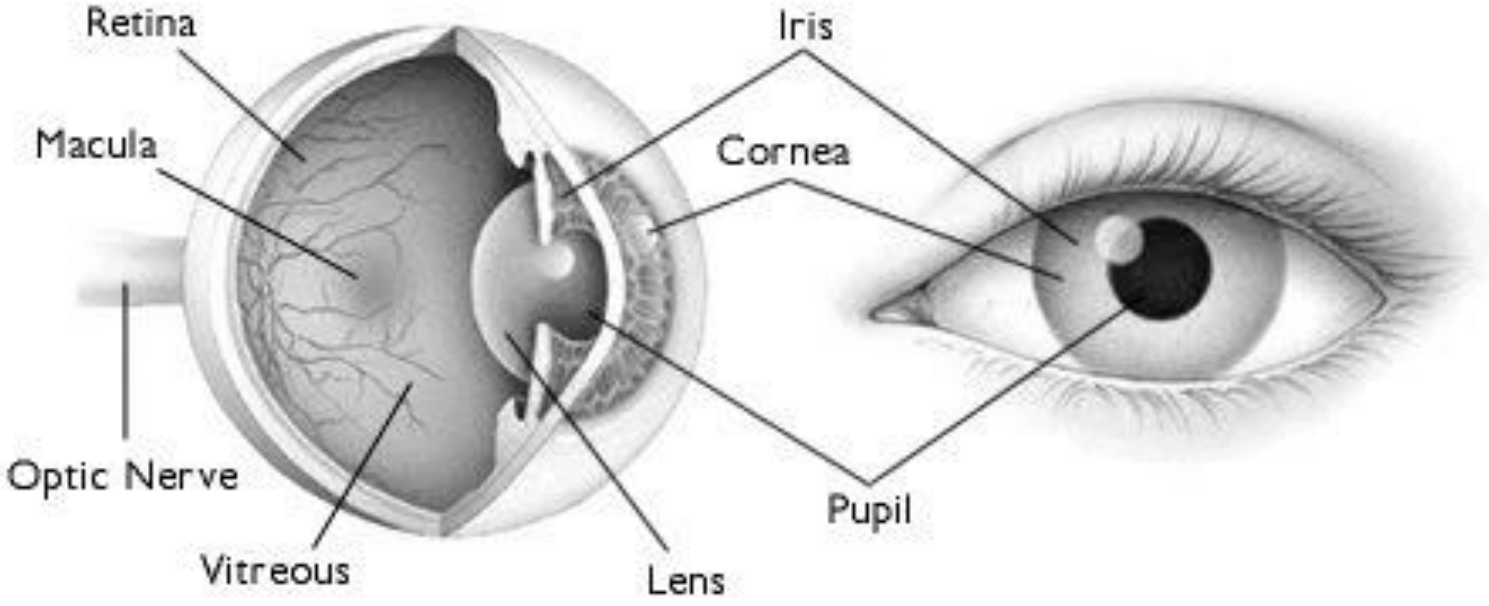
LIFETIME EYECARE
597 Baldwin St, Jenison MI
616-457-0700

Anatomy of the Eye



<https://www.nei.nih.gov/learn-about-eye-health/healthy-vision/how-eyes-work>

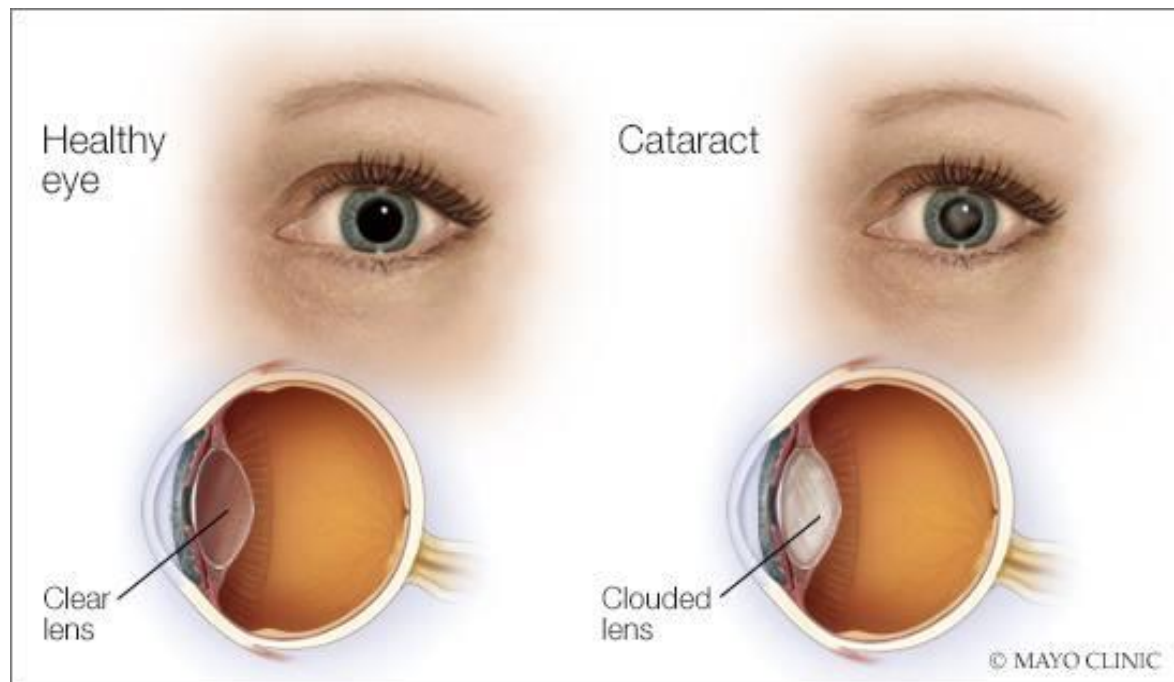
Anatomy of the Eye

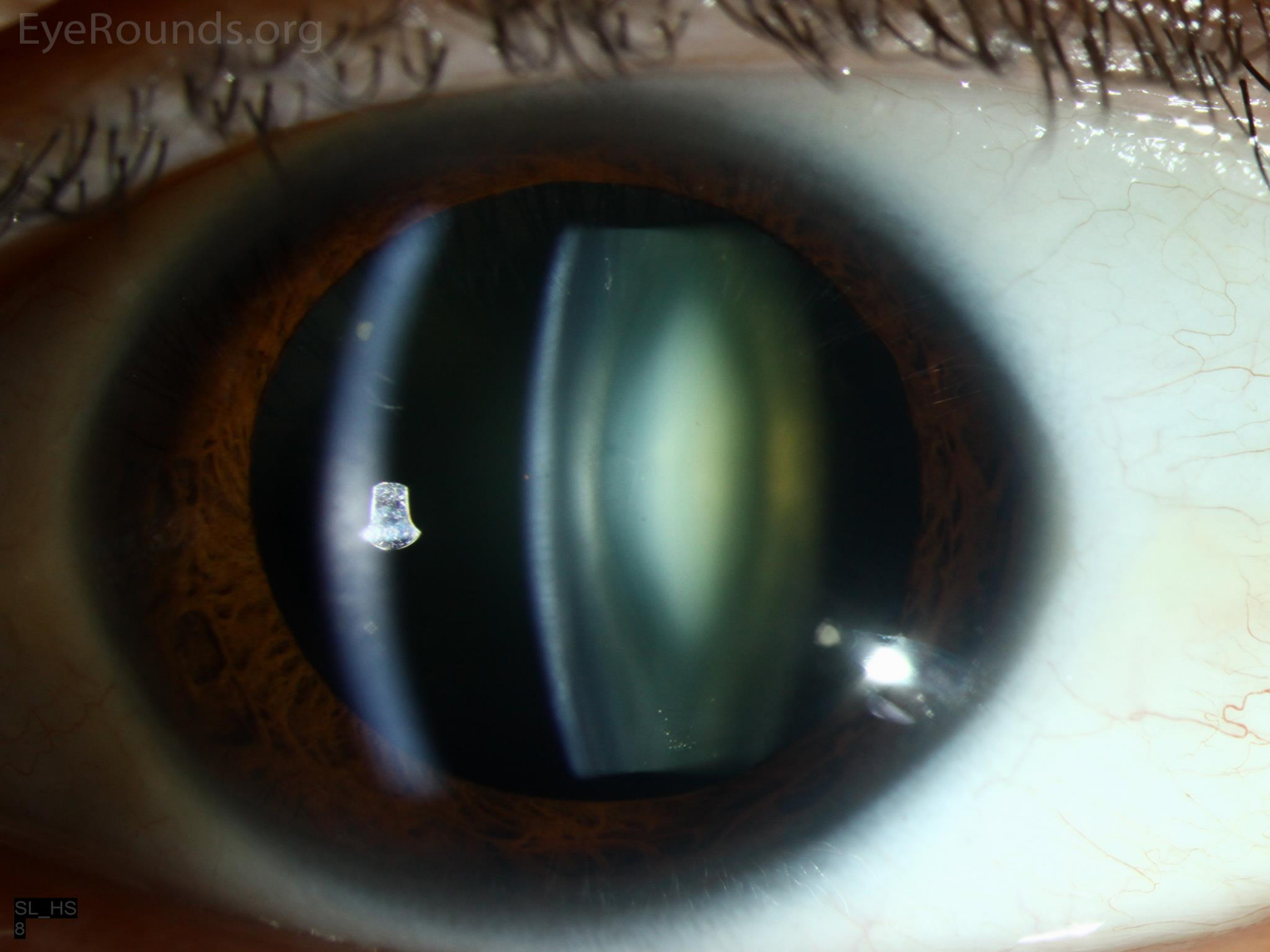


#1: Cataracts

Age-related clouding of the eye's natural lens

Risk factors for early or rapid cataract development: diabetes, trauma, smoking, steroid use, radiation around head/eyes, family history.





Cataracts

Cause blurry vision which is constant

Glare or haloes when looking at lights, out in bright sun, driving at night



<https://nissmaneye.com/services/cataract-symptoms/>

Blurriness from early cataracts can be improved with new glasses

Glasses do not improve glare or halo symptoms



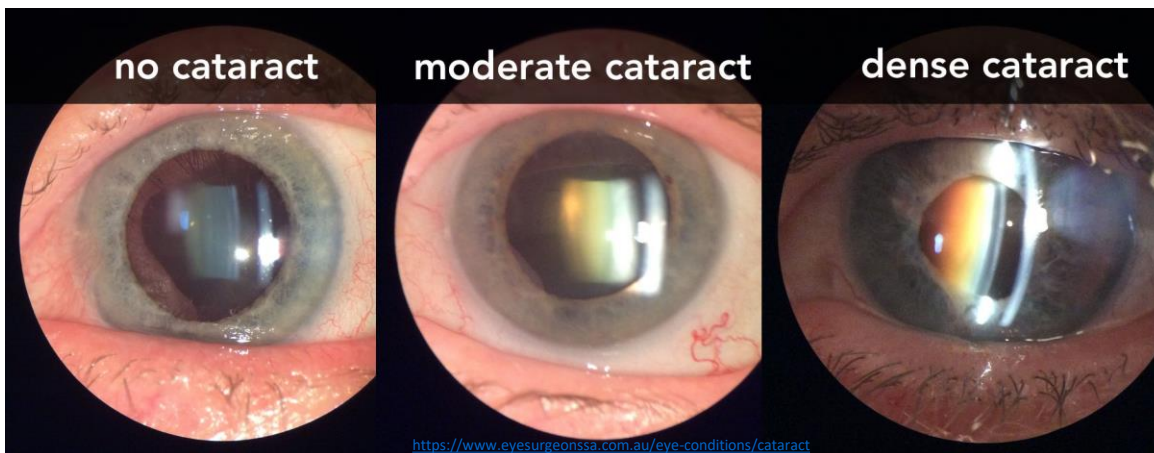
<https://lipstocklaser.com/cataracts/>

Cataracts

Cataracts usually progress very slowly (months to years)

Nearly impossible to go 'blind' from cataracts

Cataracts are not associated with pain, redness, itching or foreign body sensation in the eyes



<https://www.eyesurgeonssa.com.au/eye-conditions/cataract>

Cataracts

Over time, cataracts may get too cloudy to be able to be overcome by simply a new pair of glasses

At this point, the only option to improve vision is with surgery

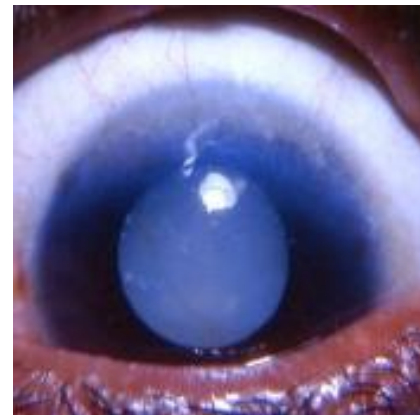
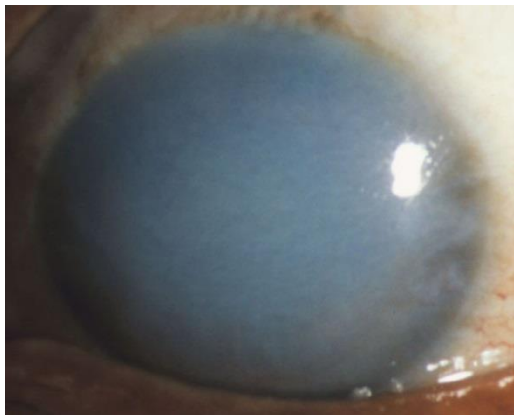
Cataracts do not require treatment unless visual symptoms are problematic to the patient to affect their day-to-day activities

Cataracts

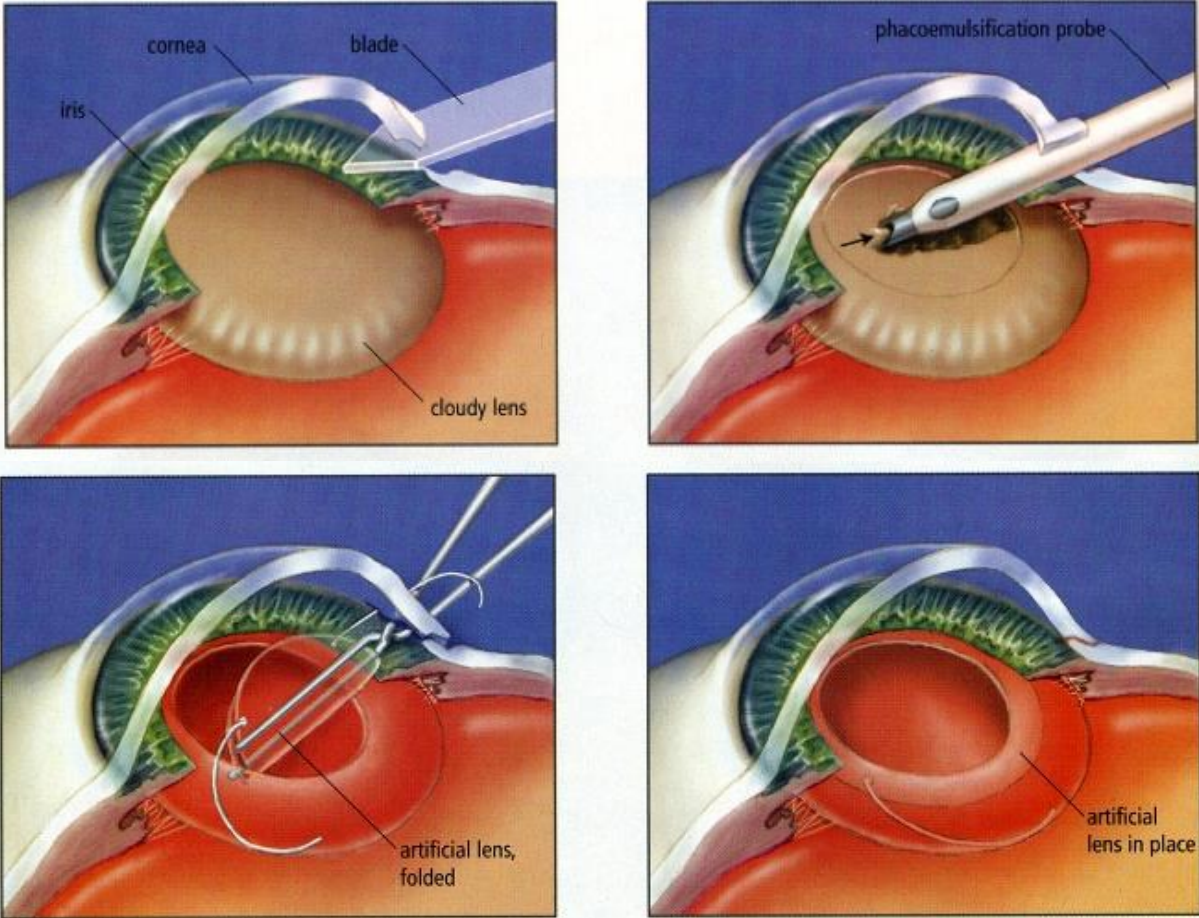
Leading cause of blindness in the world

Cataract surgery is the most commonly performed surgery in the US

10 million surgeries annually worldwide



Cataract Surgery: Traditional



<https://concordeyecenternh.com/services-procedures/cataracts/>

Cataract Surgery: Laser-Assisted



1. Laser applied to perform clear cornea incision.



2. Laser applied to make an opening in the capsular bag that surrounds the cataract



3. Laser applied to fragment cataract into hundreds of tiny cubes, inside the capsular bag



4. Vacuum inserted through the clear cornea incision to remove the fragmented cataract



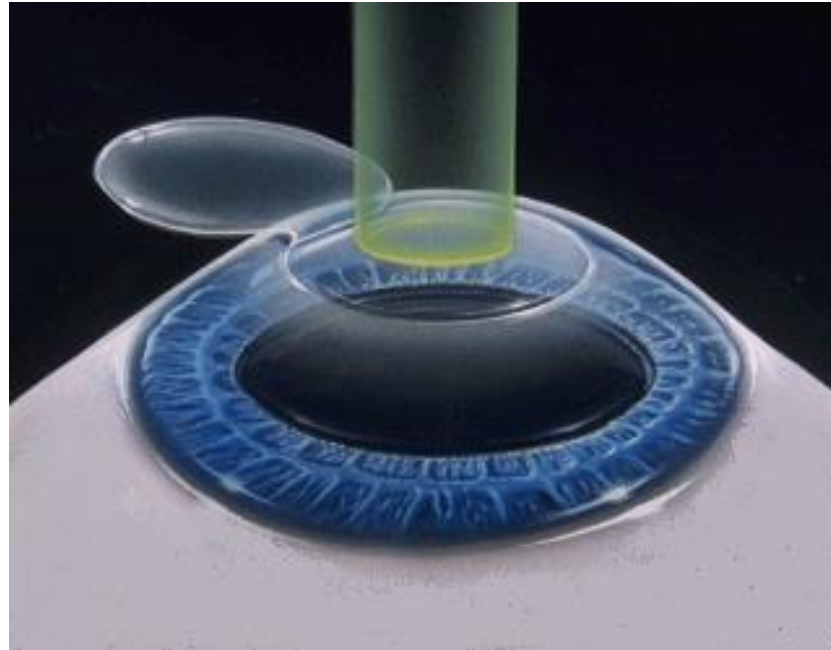
5. Injector for the implant inserted into the capsular bag



6. Lens implanted and rotated into position

<http://occeyecare.ca/pages/femtocataract>

LASIK



Cataract Surgery: Lens Options

Many options

- No perfect lens
- Every patient is not a candidate for every lens

Monofocal lens

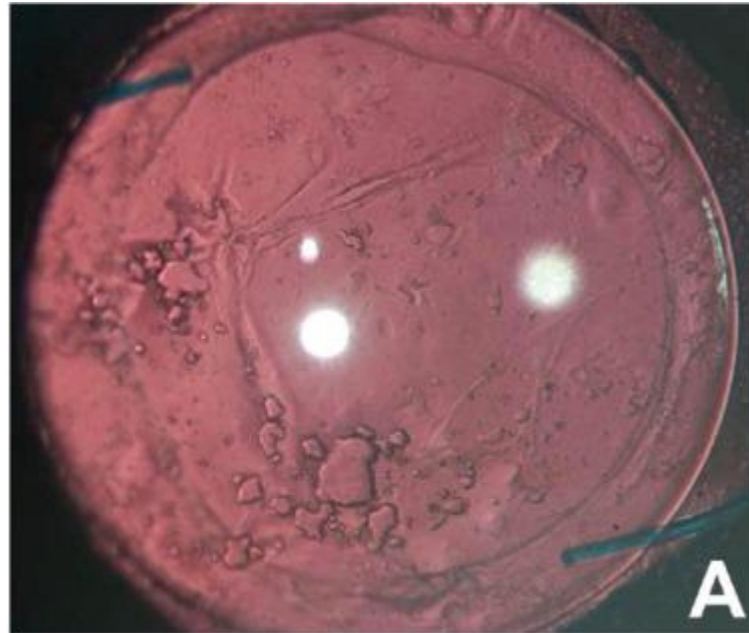
Toric lens (moderate or high astigmatism)

Multifocal Lenses

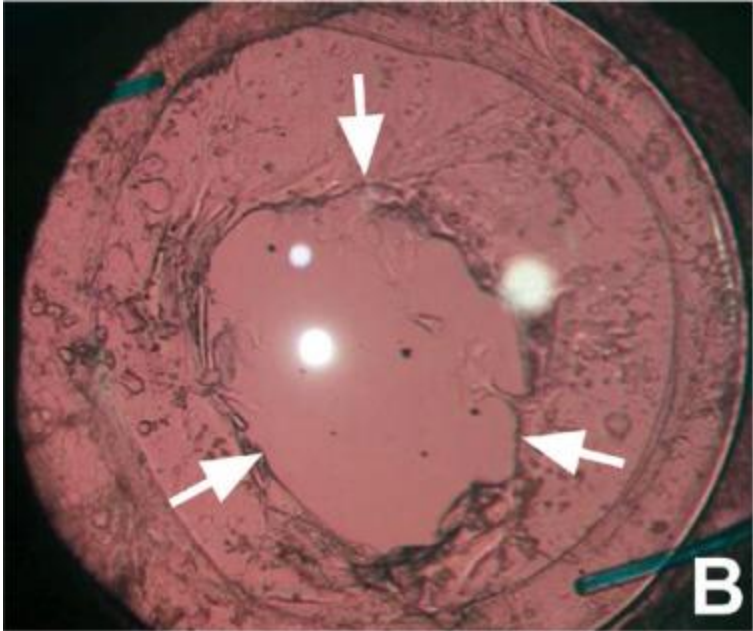
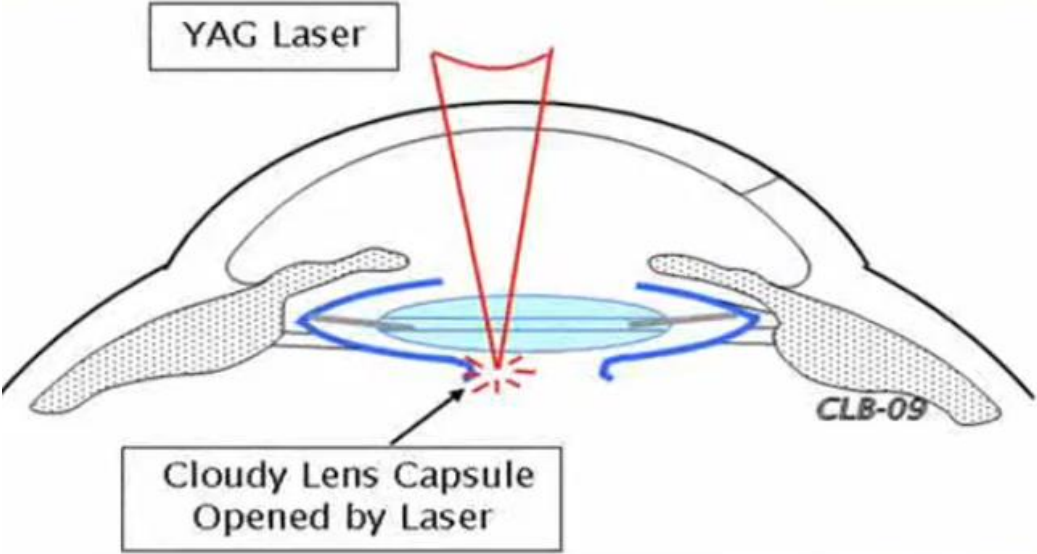
Light Adjustable Lens (LAL)

Cataracts

After cataract surgery – Posterior capsular opacity (PCO)
“Secondary cataract” - months to years after surgery



Cataracts

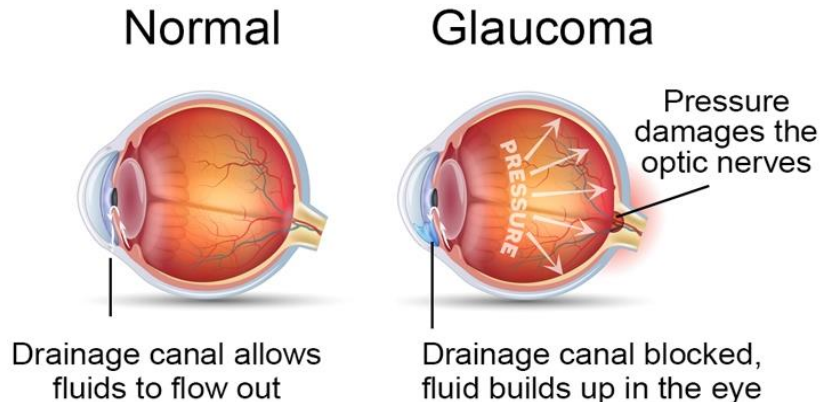


#2: Glaucoma

Occurs due to optic nerve head damage, causing loss of peripheral vision, and in severe cases, blindness

Second leading cause of blindness in the USA

Glaucoma occurs when pressure in the eye is too high and causes damage to delicate structures that are important for vision

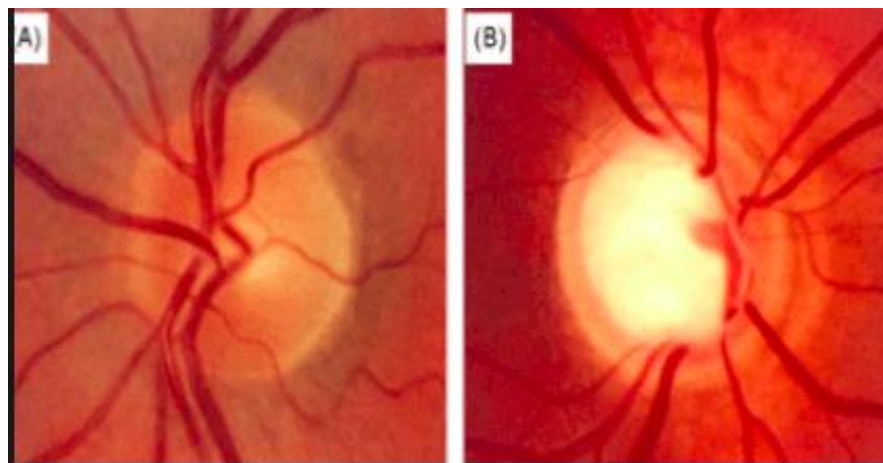


<https://www.mountelizabeth.com.sg/healthplus/article/glaucoma-guide-eye-specialist>

Glaucoma

High eye pressure is not related to high blood pressure

Risk factors for glaucoma include **family history, age, race** (African American and Hispanic), chronic steroid use, elevated eye pressure, history of other eye problems or eye surgeries



Glaucoma

Unless your eye pressure is *extremely* high (>40) you will not be able to feel if your eye pressure is above normal

Therefore, routine eye exams with your doctor who will measure the eye pressure are necessary

Methods of measuring eye pressure: “puff”, “blue light”



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Glaucoma

Some patients can have elevated eye pressure (>21) without suffering from any vision loss – Ocular HTN

The only way to know if there is damage to the eye from high eye pressure is to do non-invasive imaging tests in the office



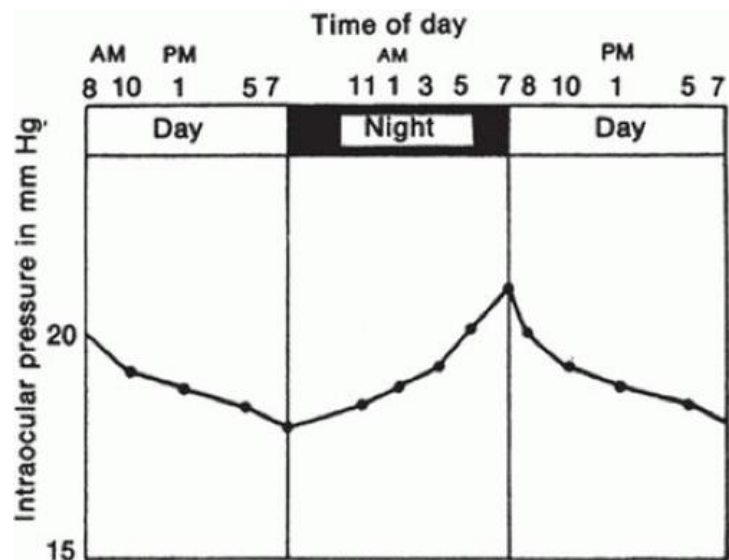
<https://wisefamilyeye.com/what-is-vision-field-test/>

Glaucoma

Eye pressure goes **up and down throughout the day**, so one abnormal reading is not always a concern

Your doctor may ask you to return to the office another day at a different time of day to recheck your eye pressure

If the eye pressure is persistently elevated and/or there are abnormal findings on the glaucoma tests, your doctor will likely suggest treatment for glaucoma



<https://entokey.com/intraocular-pressure-measurement-regulation-and-flow-relationships/>

Glaucoma

Once the eye has already suffered vision loss from glaucoma, that lost vision **cannot be restored** 😞

The goal of treating glaucoma is to **prevent further vision loss**

Glaucoma usually starts by affecting **peripheral vision first**, which most patients do not notice in early stages



NORMAL VISION



EARLY GLAUCOMA



ADVANCED GLAUCOMA

Glaucoma Treatments

Eye drops to lower pressure

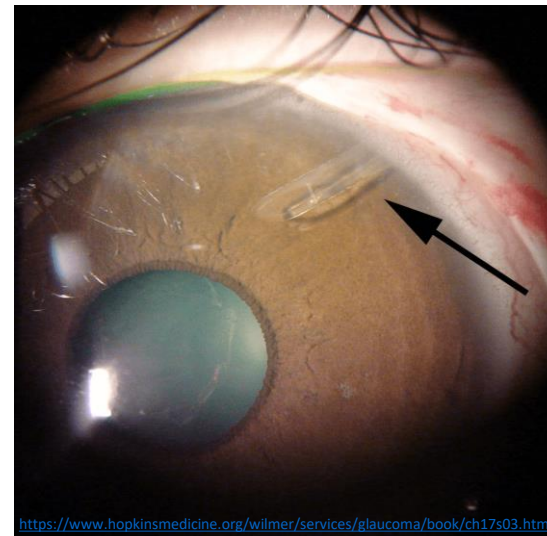
Dosed at one, two, or three drops per day depending on the type

Laser procedure to open up the drainage system

Certain types of glaucoma are more responsive to this than others

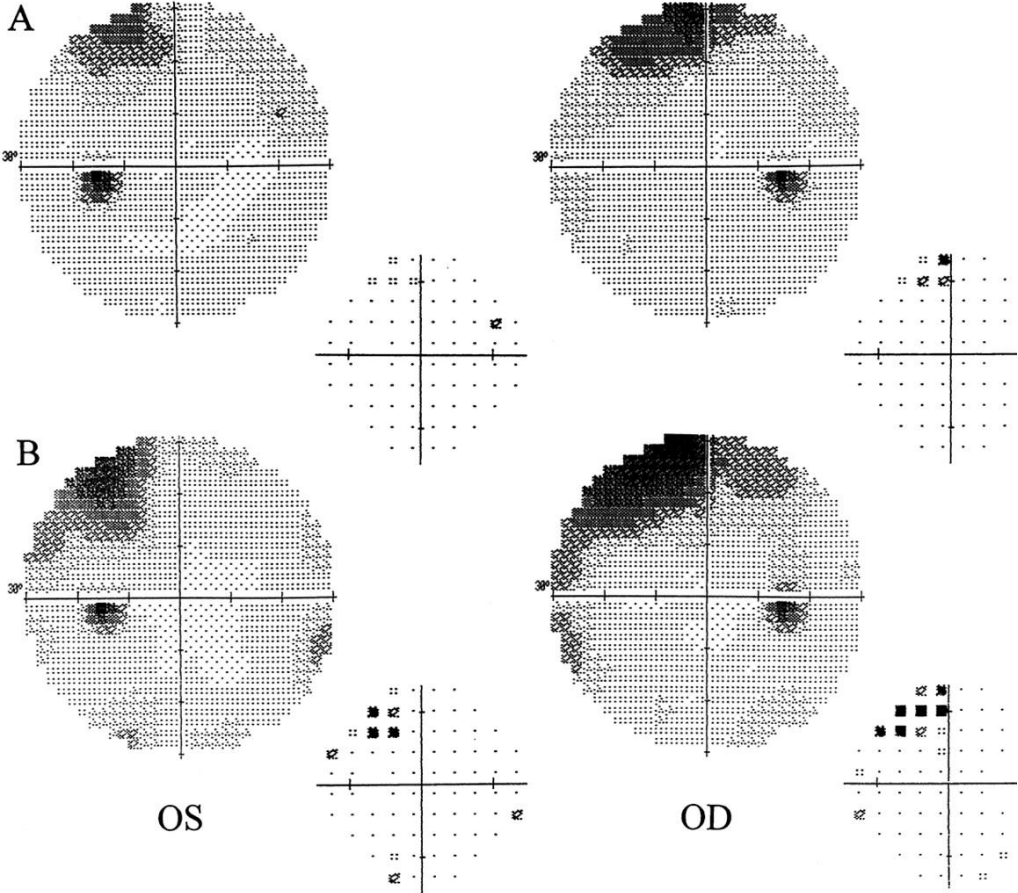
Surgery (last resort)

Inserting drainage tube into eye to remove excess fluid and lower pressure



Glaucoma

If you are diagnosed with glaucoma, you will require life-long follow-ups (usually multiple visits per year) and repeat tests to monitor vision loss



#3: Macular Degeneration (AMD)

A degenerative condition affecting the central part of the retina (macula) resulting in distortion or loss of central vision

Fatty deposits can develop in the macula, usually do not affect vision much (“dry”)

As these fatty deposits progress, blood vessel can grow into the macula, which can cause bleeding and scarring (“wet”)

This usually leads to central vision loss while peripheral vision is spared

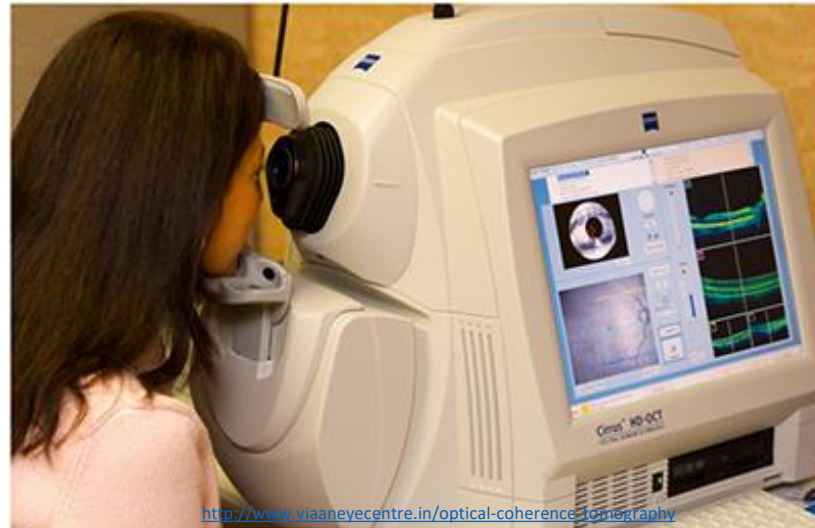


Macular Degeneration

Risk factors: age, family history, smoking, obesity, heart disease, race (Caucasian)

Your doctor will perform a full eye exam looking for changes in the macula

They may require a non-invasive, in-office scan of the macula to confirm the diagnosis

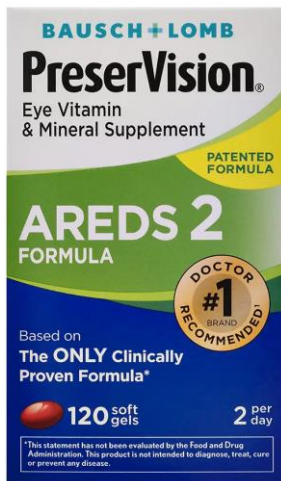


Macular Degeneration - Treatment

“Dry” form observation, over-the-counter eye vitamins,
STOP SMOKING

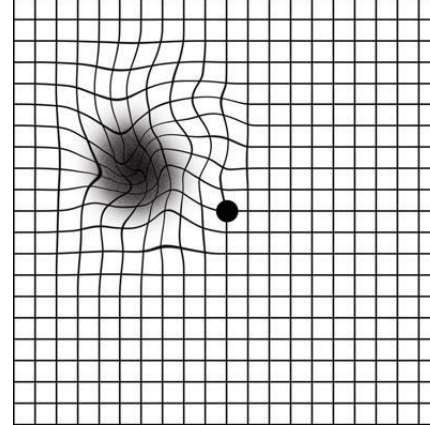
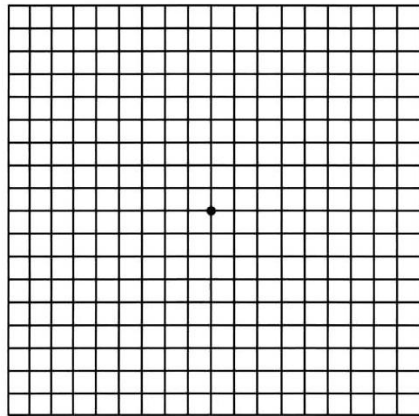
Studies have only shown that these vitamins only prevent progression once a patient already has dry macular degeneration (do not prevent disease from developing in the first place)

“Wet” form may require injections into the eye



<https://precisioneyeclinic.com.au/intravitreal-injections/>

Macular Degeneration

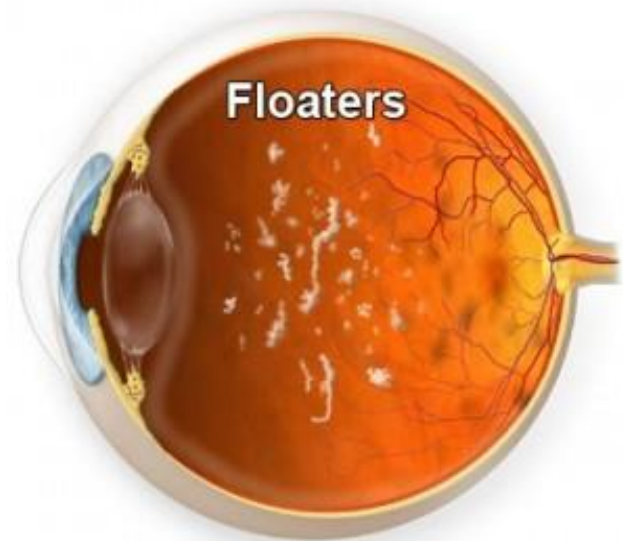


Your doctor should provide you with an **Amsler grid** to self-monitor for changes in the macula at home

#4: Floaters

Vitreous jelly in the back of the eye is a solid, cohesive ball when we are young, but starts to shrink and break into pieces as we get older

Pieces of gel that break free and float around in the back of the eye can cast shadows on the retina, causing you to perceive 'floaters' in your vision



<https://www.vmrinstitute.com/treatment-of-floaters/>

Floaters

Floaters can be of various shapes (circular, string-like, web-like) and usually move around with gaze

Floaters can move in and out of your line of sight

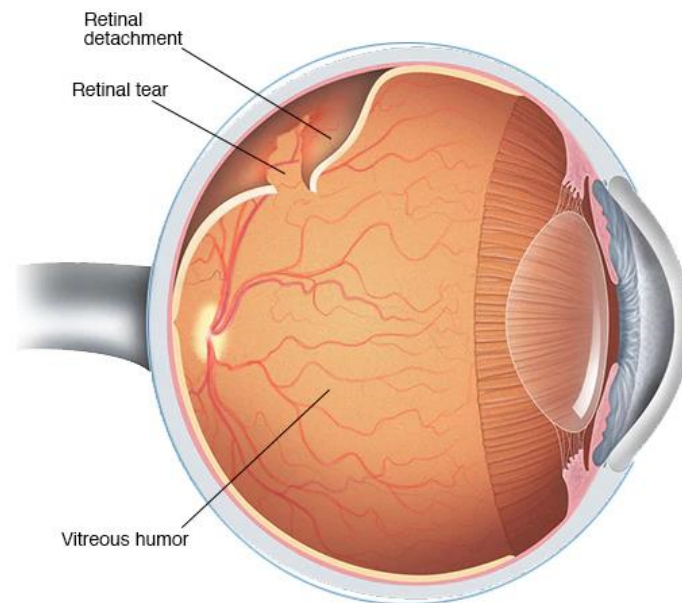
No safe way to remove floaters



Floaters

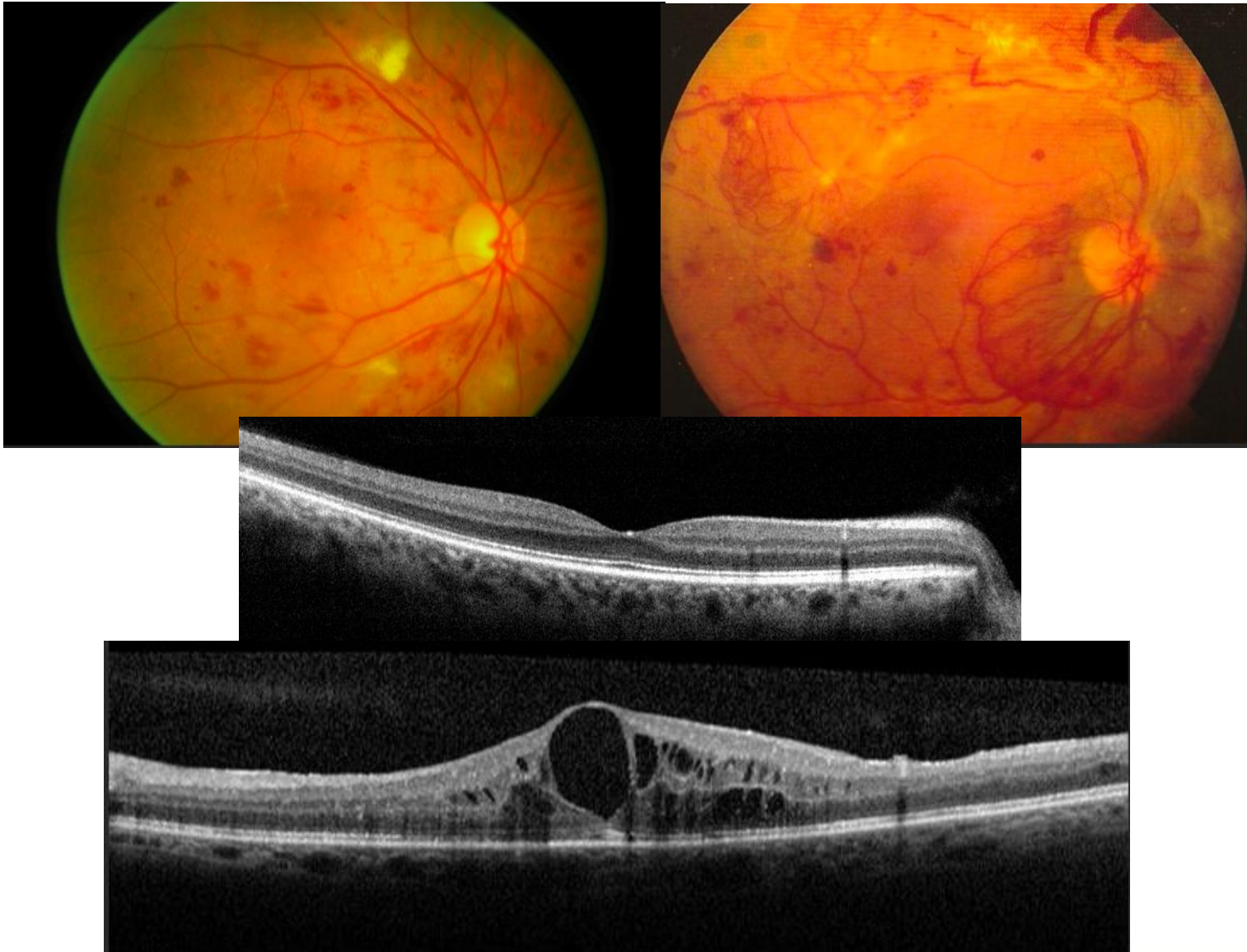
Very rarely, the moving jelly can tug on the retina and cause a retinal tear +/- retinal detachment which needs emergent treatment

Warning signs: numerous new floaters, **flashes** of light, peripheral vision loss (“veil”)



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#5 Diabetic Retinopathy

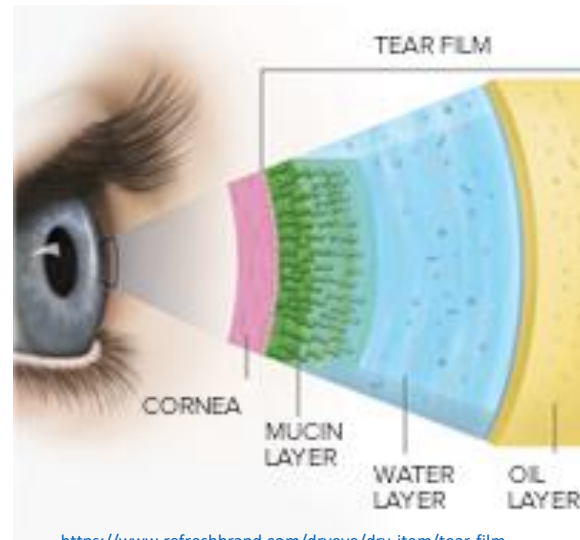


Prevention and treatment: CONTROL BLOOD SUGARS and BP – HgbA1c goal <7.0
laser, intraocular injections, surgery

#6: Dry Eye

Inadequate tear film on surface of eye due to:

- A) Too few tears (not enough water layer)
- B) Tears evaporating too quickly (not enough oil layer)



<https://www.refreshbrand.com/dryeye/dry-item/tear-film>

Dry Eye

DRY EYE COMMON SYMPTOMS



Stinging or burning



Excessive tearing



Sandy or gritty sensation



Episodes of blurred vision



Redness

LIFETIME EYECARE
597 Baldwin St, Jenison MI
616-457-0760

<https://www.lifetimeeyes.com/services/dry-eyes-syndrome>

Dry Eye Treatments

Replenish tears with artificial tear eye drops
- Recent FDA recall of generic artificial tears



Dry Eye Treatments

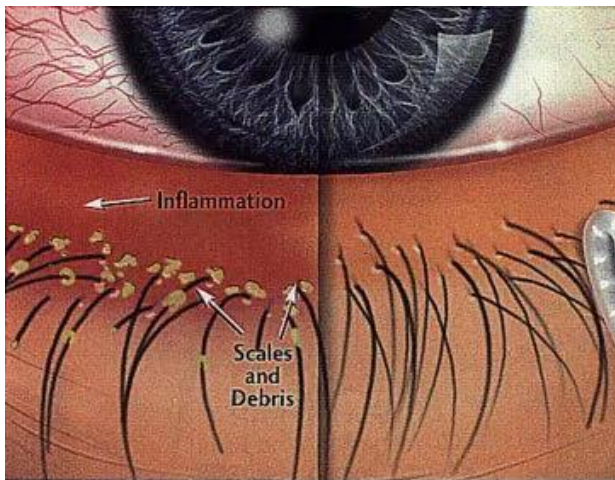
Preserved vs. Preservative-Free Artificial Tears



Dry Eye Treatments

Improve natural oils (made in eyelids) in tear film

- Warm compresses to open oil glands up
- Lid washes/scrubs to clean debris that are blocking oil glands
- Break from screen time



Blepharitis

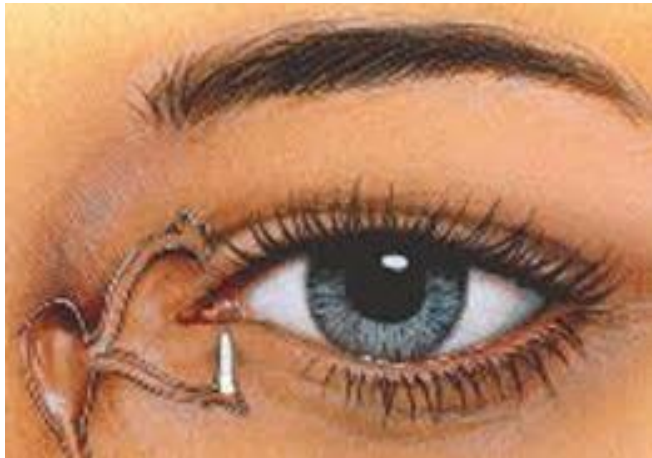
Normal

<http://mccarthyeye.com/patient-education/blepharitis/>



Dry Eye Treatments

Plug tear drainage system (punctal plugs)



<https://www.mastereyeassociates.com/punctal-occlusion-surgery>





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Questions?



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Thank You!

Ketki Soin, M.D.