

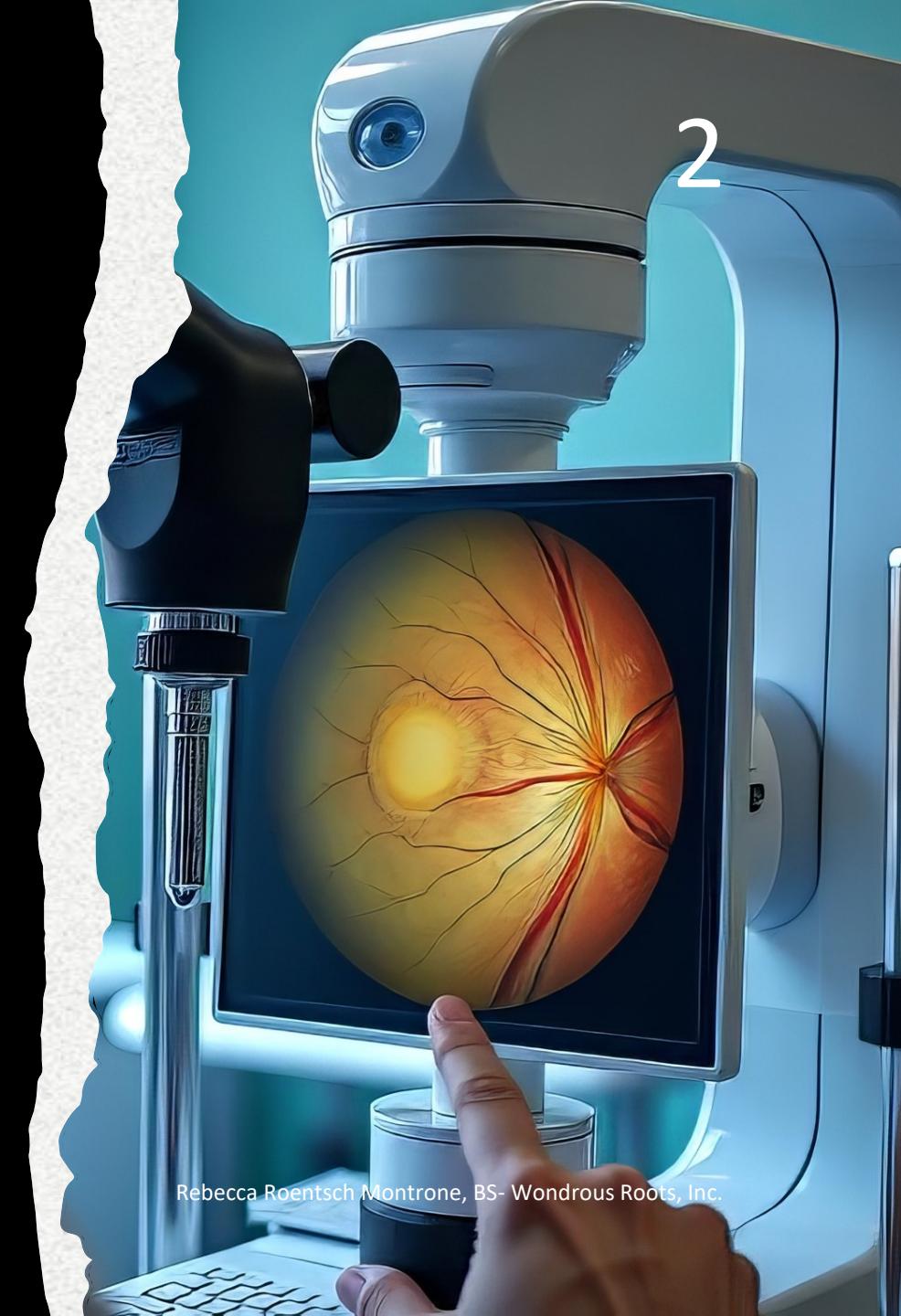


The Eyes: Much More Than Vision - Part 2

Understanding Common but Concerning Eye Conditions

Common Eye Conditions

An Overview



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Uveitis & Iritis (Acute Inflammatory Conditions)

These are inflammatory conditions affecting the uveal tract (iris, ciliary body, choroid).

Key mechanisms:

- Immune dysregulation
- Breakdown of ocular immune privilege
- Often associated with systemic autoimmune or inflammatory disease

These are rarely “eye-only” events. They are often **sentinel inflammatory signals**, sometimes preceding diagnosis of rheumatoid arthritis, ankylosing spondylitis, sarcoidosis, or inflammatory bowel disease.

Iritis

Iritis can occur in one or both eyes. It usually develops suddenly and can last up to three months.

Signs and symptoms of iritis include:

- Eye redness
- Discomfort or achiness in the affected eye
- Sensitivity to light
- Decreased vision

Iritis that develops suddenly, over hours or days, is known as acute iritis. Symptoms that develop gradually or last longer than three months indicate chronic iritis.



Iritis – possible causes

- **Injury to the eye.** Blunt force trauma, a penetrating injury, or a burn from a chemical or fire can cause acute iritis.
- **Infections.** Viral infections on your face, such as cold sores and shingles caused by herpes viruses, can cause iritis.
- **Genetic predisposition**
- **Behcet's disease**
- **Juvenile rheumatoid arthritis**
- **Sarcoidosis**
- **Certain medications**

For more info: [Iritis - Symptoms and causes - Mayo Clinic](https://www.mayoclinic.org/diseases-conditions/iritis/symptoms-causes/syc-20476911)



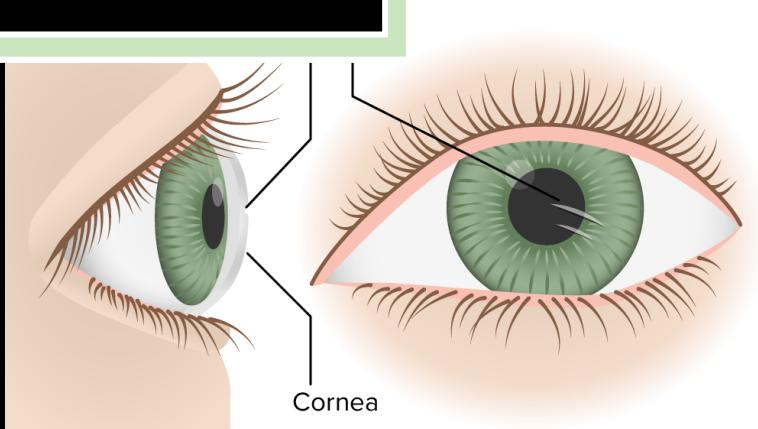
Uveitis

Uveitis is a form of eye inflammation that affects the middle layer of tissue in the eye, called the uvea. It can cause redness, pain, blurred vision and floaters.

- Uveitis (u-vee-l-tis) warning signs often come on suddenly and get worse quickly. The condition can affect one or both eyes, and it can affect people of all ages, even children.
- Possible causes of uveitis are infection, injury, or an autoimmune or inflammatory disease. Many times, a cause can't be identified.
- Uveitis can be serious, leading to permanent vision loss. Early diagnosis and treatment are important to prevent complications and save your vision.

More Info: [Uveitis - Symptoms & causes - Mayo Clinic](https://www.mayoclinic.org/diseases-conditions/uveitis/symptoms-causes/syc-20476911)

Eye Injury (Corneal Tear or Abrasion)



The cornea is:

- avascular
- densely innervated
- metabolically active

Why healing can be slow:

- Limited blood supply
- High oxidative stress
- Dependence on nerve integrity and cellular energy

Healing depends heavily on:

- epithelial regeneration
- nerve signaling
- adequate micronutrients and antioxidant capacity

Floaters & Vitreous Changes

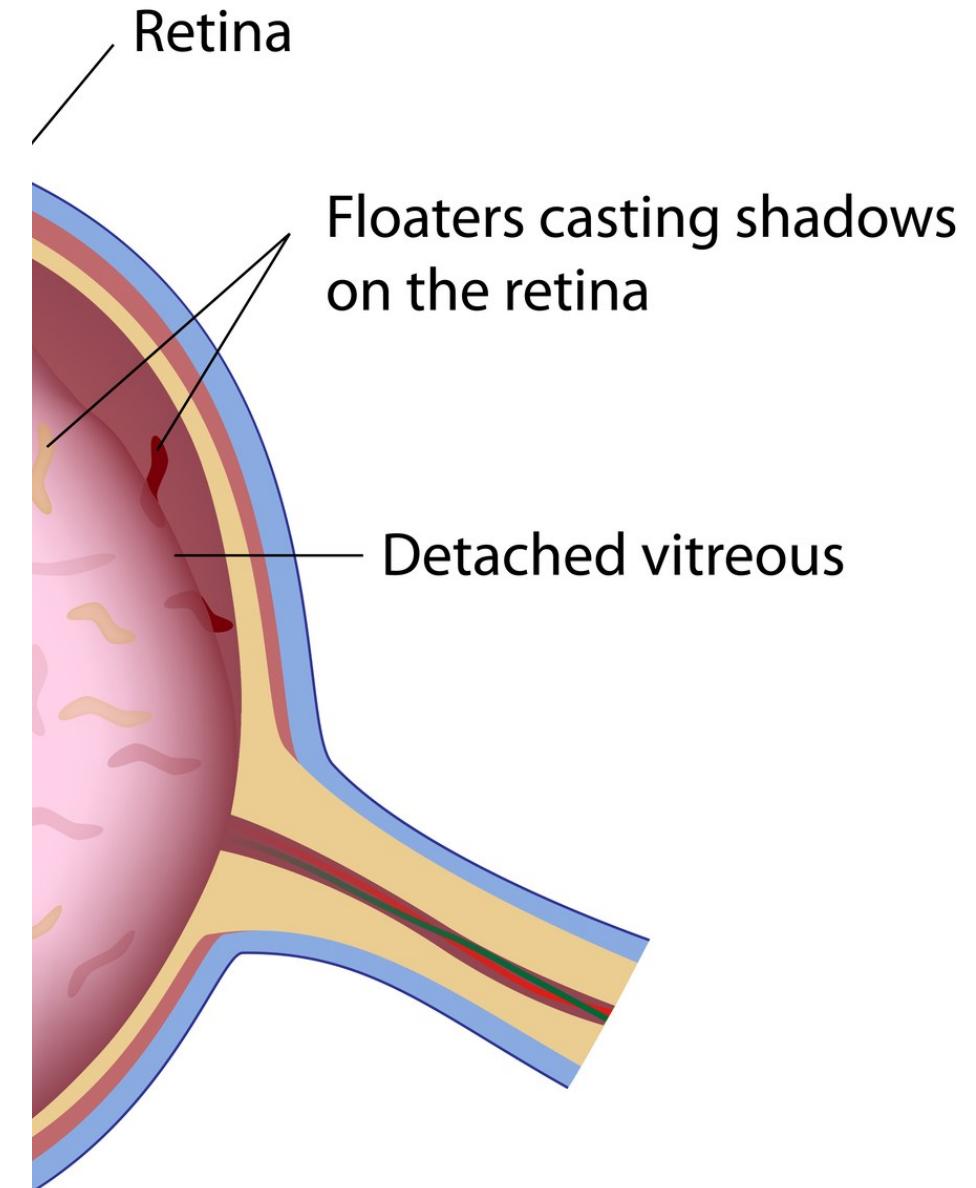
Floaters arise from changes in the **vitreous humor**, the gel-like substance filling the eye.

Common contributors:

- Age-related collagen changes
- Oxidative stress
- Dehydration or metabolic imbalance
- Prior inflammation or trauma

Key distinction:

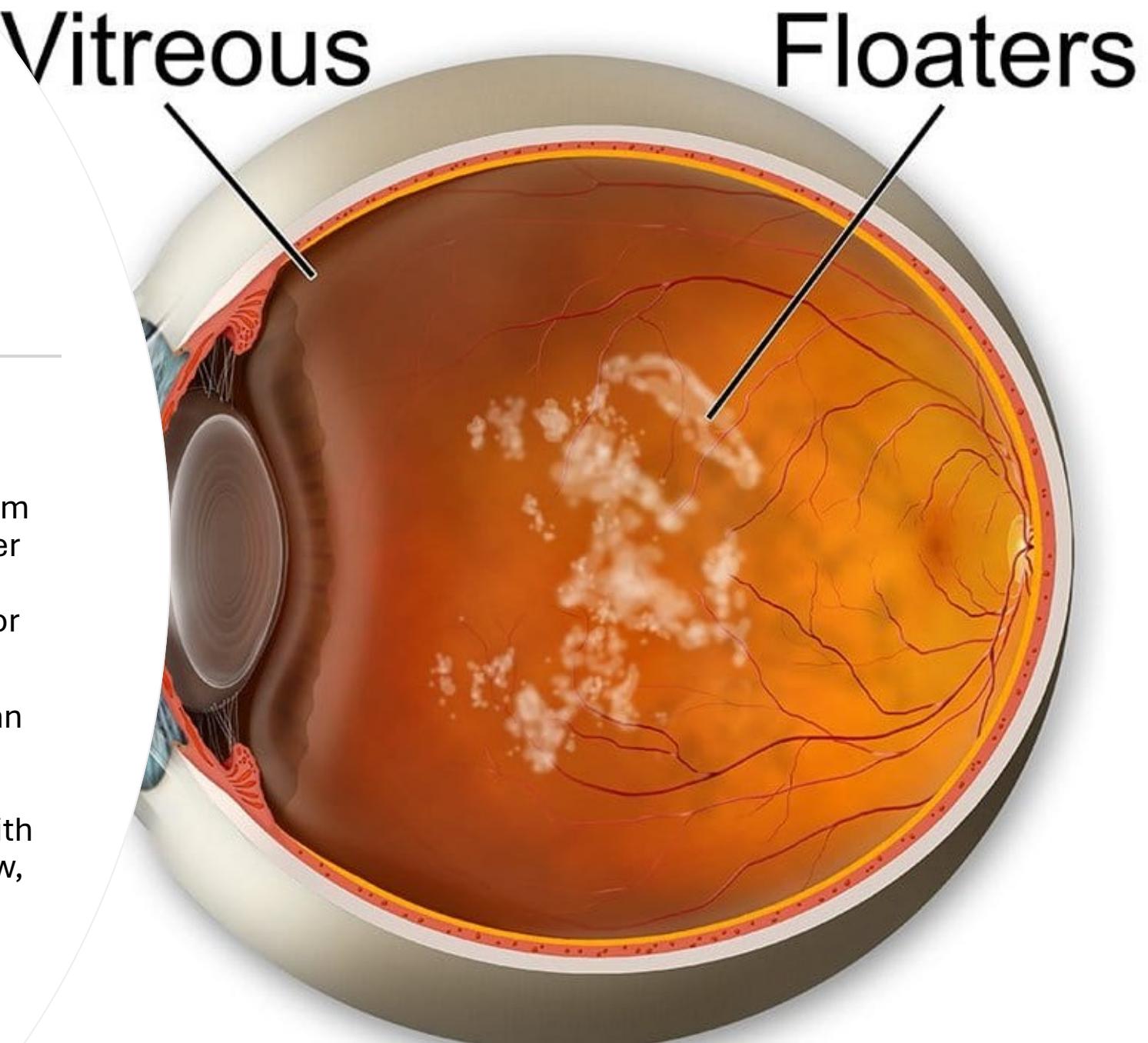
Floaters are usually benign — but sudden increase, flashes of light, or visual curtain effects raise concern for **retinal traction or tear**.



Vitreous Changes & Floaters — What's Happening

As we age, the vitreous humor—the clear, gel-like substance that fills the back of the eye—naturally changes in structure. In youth, it has a firm, uniform gel consistency that helps stabilize the retina. Over time, this gel gradually begins to liquefy and contract, a process called vitreous degeneration or vitreous syneresis.

As the vitreous shrinks, collagen fibers within it can clump together, casting shadows on the retina. These shadows are perceived as floaters—spots, threads, cobwebs, or drifting shapes that move with eye movement. In most cases, this process is slow, common, and part of normal aging.



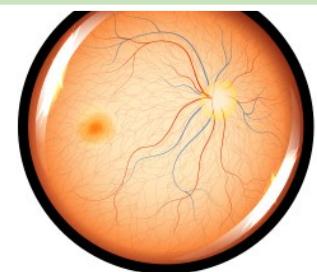
Flashes, Sudden Floaters & When to Be Concerned

Sometimes vitreous changes occur more abruptly. When the vitreous pulls on the retina, it can mechanically stimulate retinal nerve cells, producing brief flashes of light. These flashes are not external light but a traction signal from inside the eye.

While this is often still benign, a sudden increase in floaters, frequent flashes, or the appearance of a dark curtain or shadow across the field of vision can signal a retinal tear or detachment—a true medical emergency. This distinction is important: stable floaters alone are usually harmless, while sudden, dramatic changes require prompt evaluation to protect vision.



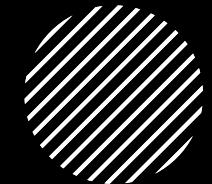
Retinal Tears & Detachment



Healthy fundus



Retinal Tear



These are **true structural emergencies**.

Underlying vulnerabilities include:

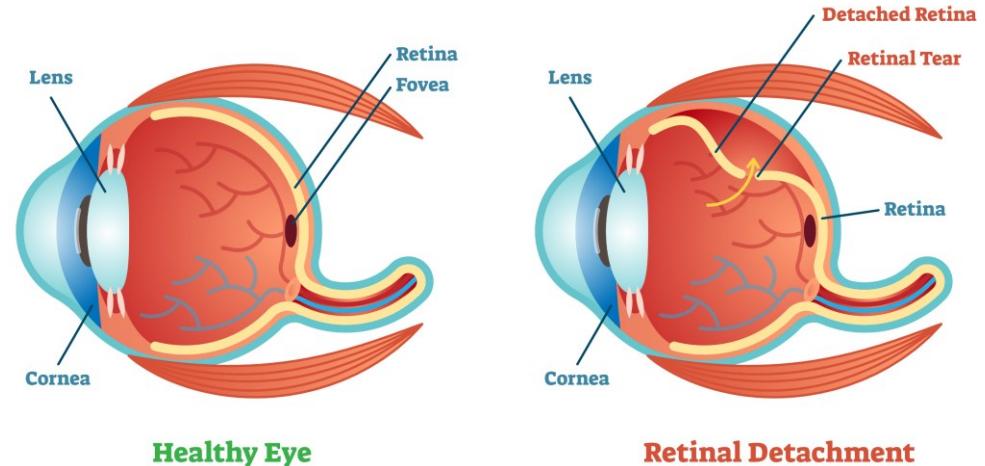
- Vitreous degeneration
- Weak retinal adhesion
- Trauma
- High myopia
- Poor connective tissue integrity

Key: The retina is thin neural tissue — once separated from its blood supply, **time matters**.

Addressing Retinal Tear

When someone has an **actual retinal tear**, the goal is **rapidly sealing the tear** to prevent fluid from passing underneath the retina and causing a **retinal detachment**. What's done depends on whether the retina is still attached and how extensive the damage is.

Retinal Detachment



If the Retina Is Not Yet Detached (Most Tears)

Laser Photocoagulation

- The most common treatment
- A laser is used to create tiny burns around the tear
- These burns form a **scar that “welds” the retina** to the underlying tissue
- Prevents fluid from slipping under the retina
- Usually done **same day**, outpatient, relatively quick

Cryopexy (Freezing Treatment)

- Used when laser access is difficult
- A freezing probe is applied externally to the eye
- Creates a controlled inflammatory response that seals the tear
- Same goal as laser: **secure the retina**

👉 **Key:** If caught early, retinal tears can often be treated **before vision is lost**, and many people recover with minimal long-term impact.



If a Retinal Detachment Has Already Occurred

More invasive intervention is required.

Pneumatic Retinopexy

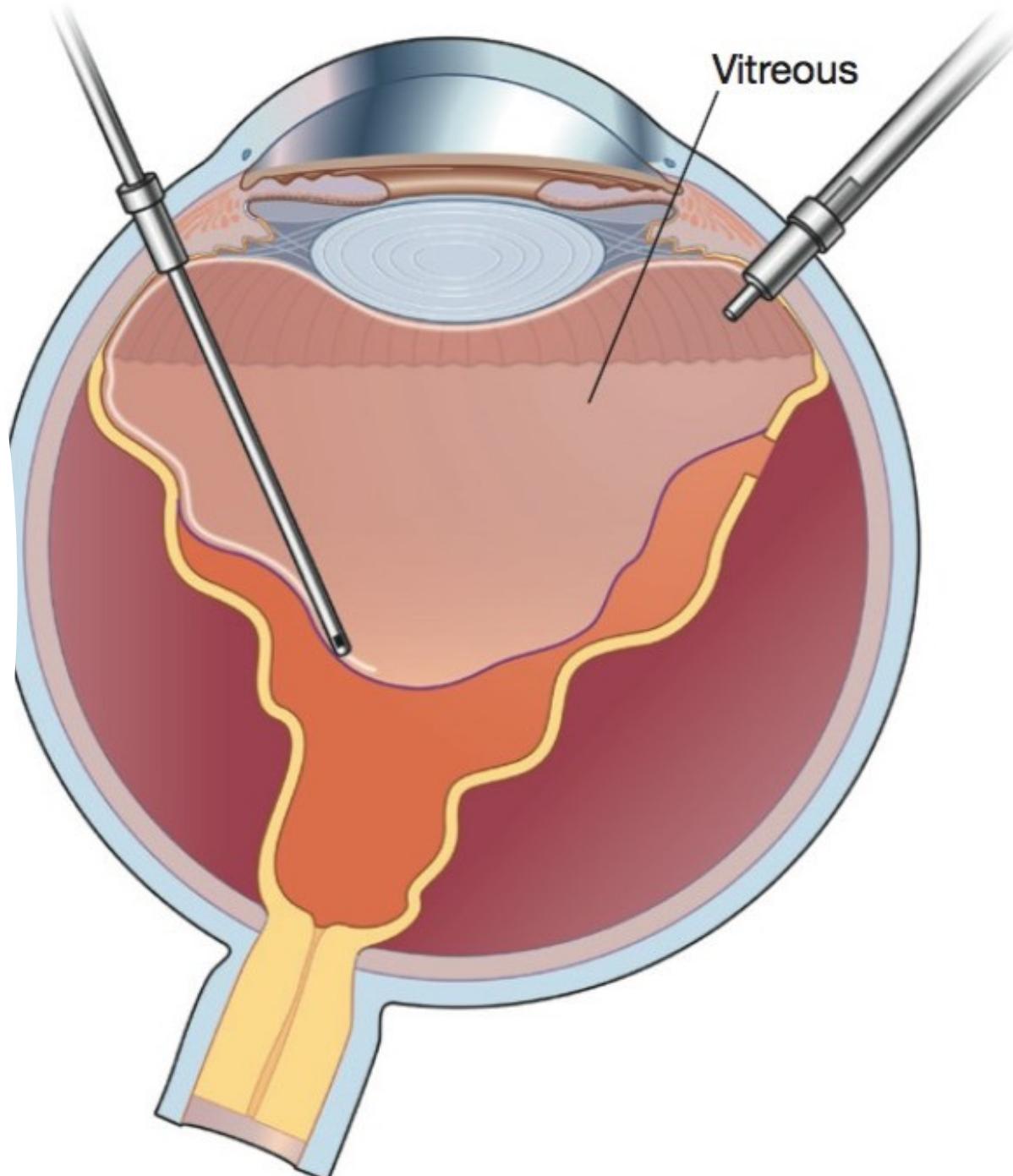
- A gas bubble is injected into the eye
- The bubble presses the retina back into place
- Laser or cryotherapy is then used to seal the tear
- Requires strict head positioning for days afterward

Scleral Buckling

- A silicone band is placed around the outside of the eye
- Reduces traction and supports retinal reattachment
- Often used for more complex or extensive detachments

Vitrectomy

- The vitreous gel is surgically removed
- Replaced with gas or silicone oil
- Used when traction, bleeding, or scarring is significant
- Most invasive but very effective when needed



Timing Matters — A Lot

- Retinal tears and detachments are **true ocular emergencies**
- Vision outcome depends heavily on **how quickly treatment occurs**
- The macula (central vision area) being attached or detached at treatment time is a major determinant of prognosis

Reassurance

- Many people with sudden floaters **do not** have a tear
- Many tears are caught **before detachment**
- Modern ophthalmology has **excellent success rates** when intervention is timely



Normal Eye

Eye with Glaucoma

Glaucoma

What It Is, Why It Happens, and How It's Managed

Build Up of
Aqueous
Humor Fluid

Trabecular
Meshwork

PRESSURE

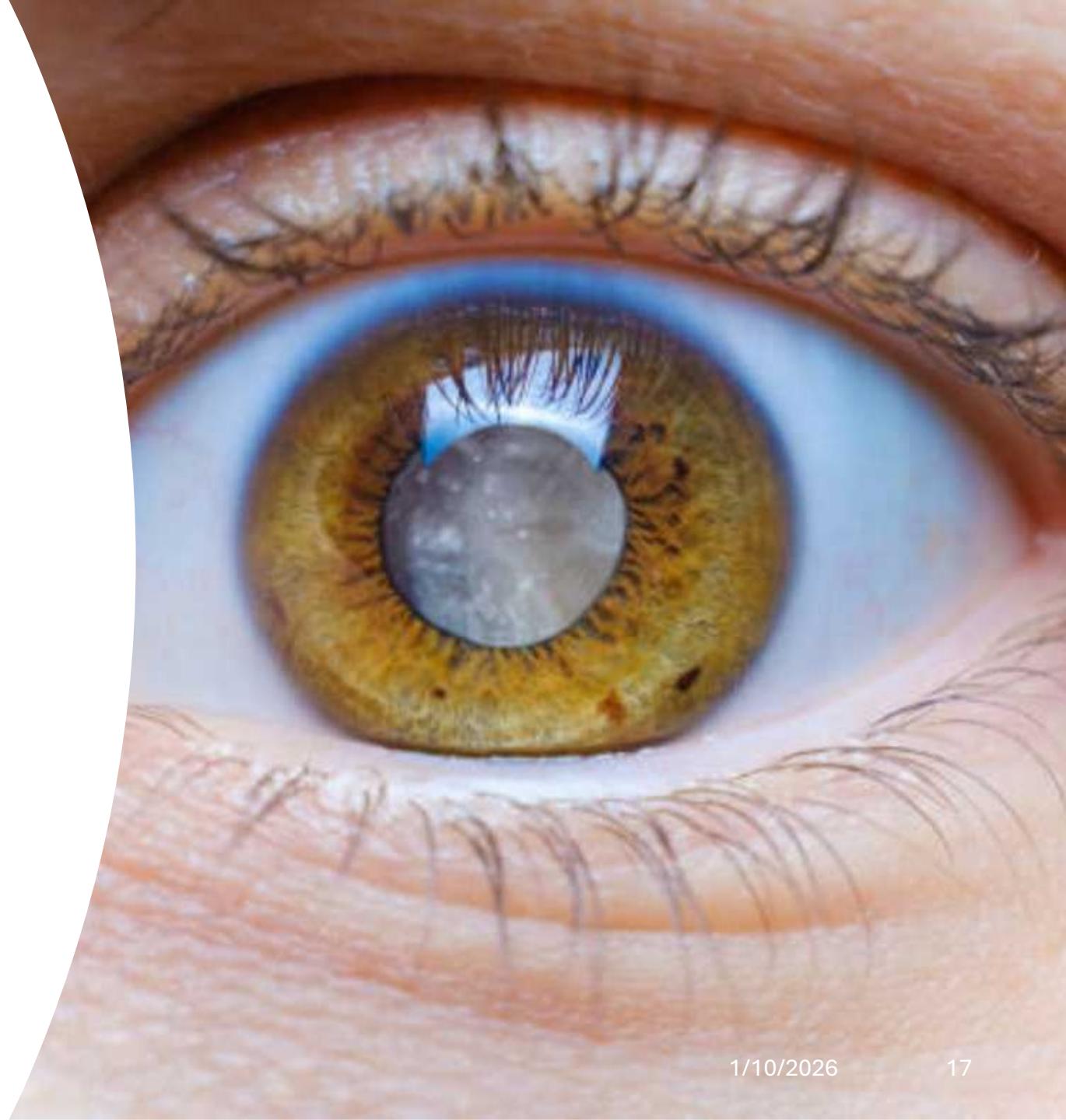
Damage to the
optic nerve

What Glaucoma Is

Glaucoma is a group of eye conditions characterized by **progressive damage to the optic nerve**, the structure that carries visual information from the eye to the brain.

This damage is most commonly associated with **elevated intraocular pressure (IOP)**, but important to note: glaucoma can occur **with normal eye pressure**, and elevated pressure alone does not automatically mean glaucoma.

What ultimately matters is **optic nerve health and blood flow**, not just a pressure number.



What Causes Glaucoma?

In most cases, glaucoma develops when the eye's normal fluid drainage system becomes impaired. The eye continuously produces a fluid called aqueous humor, which must drain efficiently to maintain stable pressure. When drainage slows or resistance increases, pressure can rise and place mechanical and vascular stress on the optic nerve.

Contributing factors include:

- Age-related changes in drainage structures
- Genetic susceptibility
- Vascular insufficiency or poor optic nerve perfusion
- Chronic inflammation or oxidative stress
- Metabolic conditions such as diabetes or hypertension
- Long-term corticosteroid use (including eye drops)



Types of Glaucoma

REDUCE THE RISK OF GLAUCOMA



Eat a balanced diet



Maintain a healthy weight



Control blood pressure



- **Open-angle glaucoma** (most common): gradual, silent progression with few early symptoms
- **Angle-closure glaucoma**: sudden pressure rise causing pain, halos, nausea — a true emergency
- **Normal-tension glaucoma**: optic nerve damage despite normal pressure, often linked to circulation issues

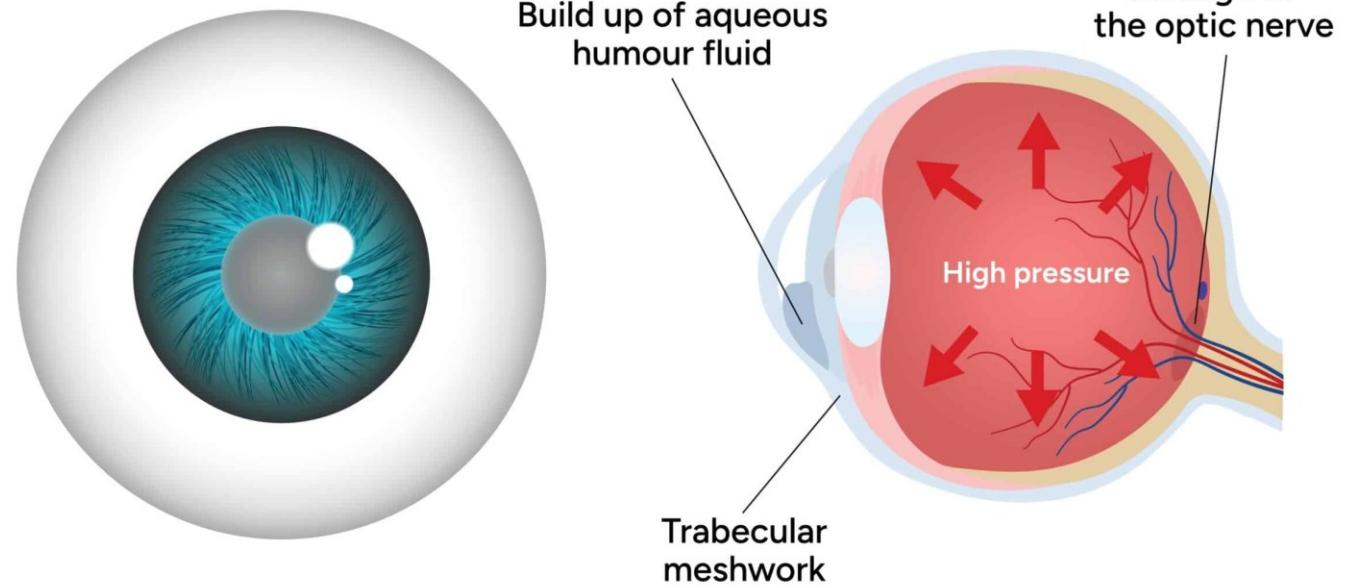
Why Glaucoma Is So Concerning

Glaucoma is often called *the silent thief of sight* because **vision loss occurs slowly and painlessly** until damage is advanced.

Peripheral vision is typically affected first, which means people may not notice changes until significant nerve loss has occurred.

Once optic nerve fibers are lost, they **cannot be regenerated**, making early detection essential.

Eye with Glaucoma



How Glaucoma Is Managed (Conventional Care)

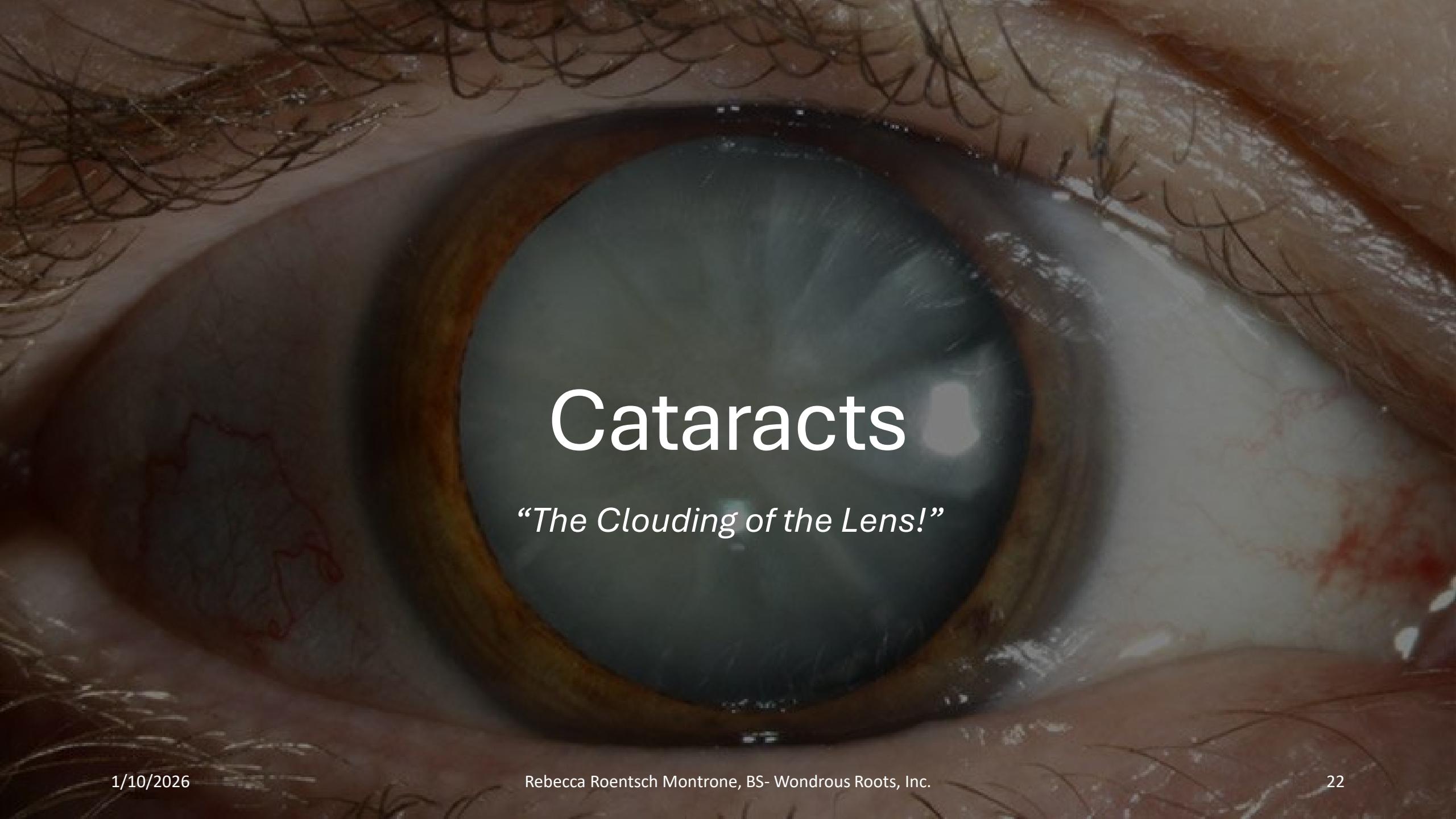
The primary goal of glaucoma management is **preserving remaining vision**, not restoring lost vision. Standard approaches include:

- **Prescription eye drops** to reduce fluid production or improve drainage
- **Laser procedures** to enhance fluid outflow
- **Surgical interventions** when pressure cannot be adequately controlled

These treatments focus on **lowering pressure**, which remains the only proven way to slow disease progression.

Key Emphasis: Glaucoma is not just a pressure problem — it is a **neurodegenerative condition of the optic nerve**. Pressure management is crucial, but optic nerve resilience, circulation, mitochondrial function, and oxidative stress all play meaningful roles in how aggressively the disease progresses.



A close-up photograph of a brown eye. The lens is heavily clouded and opaque, characteristic of a cataract. The surrounding skin and eyelashes are visible, showing some texture and color.

Cataracts

“The Clouding of the Lens!”



Cataracts — What's Happening in the Lens

Cataracts develop when the normally clear lens of the eye becomes progressively cloudy, interfering with the passage of light and reducing visual clarity. The lens is composed of tightly organized proteins that must remain transparent to properly focus light onto the retina.

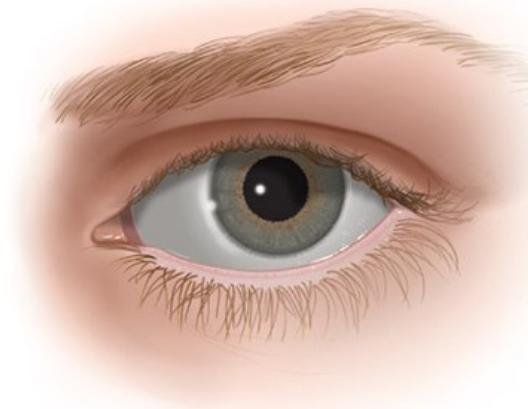
Over time, oxidative stress, protein glycation, and cumulative ultraviolet exposure can damage these proteins, causing them to clump and scatter light. As this process advances, the lens gradually loses its transparency.

Cataracts — Why They Develop & What Influences Progression

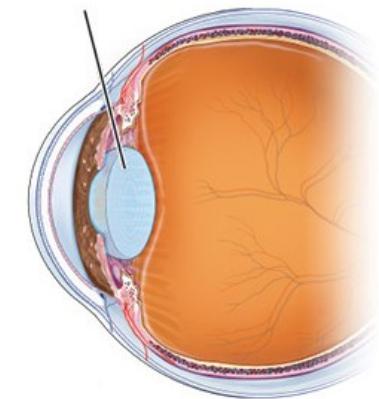
Although cataracts are commonly associated with aging, their development is strongly influenced by metabolic and lifestyle factors. Poor blood sugar regulation, chronic inflammation, smoking, long-term corticosteroid use, and inadequate antioxidant defenses can accelerate lens damage. Cataracts typically develop slowly and painlessly, with symptoms such as blurred vision, glare sensitivity, and difficulty seeing at night. While cataract surgery is highly effective once vision is significantly impaired, supporting metabolic health and antioxidant capacity can help slow progression and protect lens clarity over time.

Cataracts (age-related)

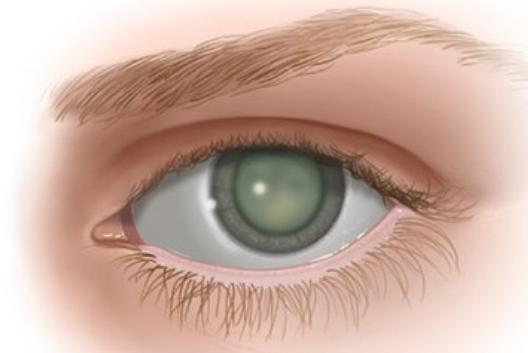
Normal eye



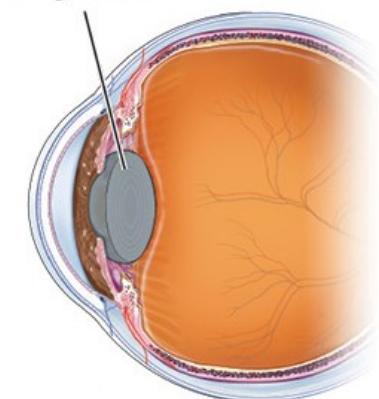
Normal lens

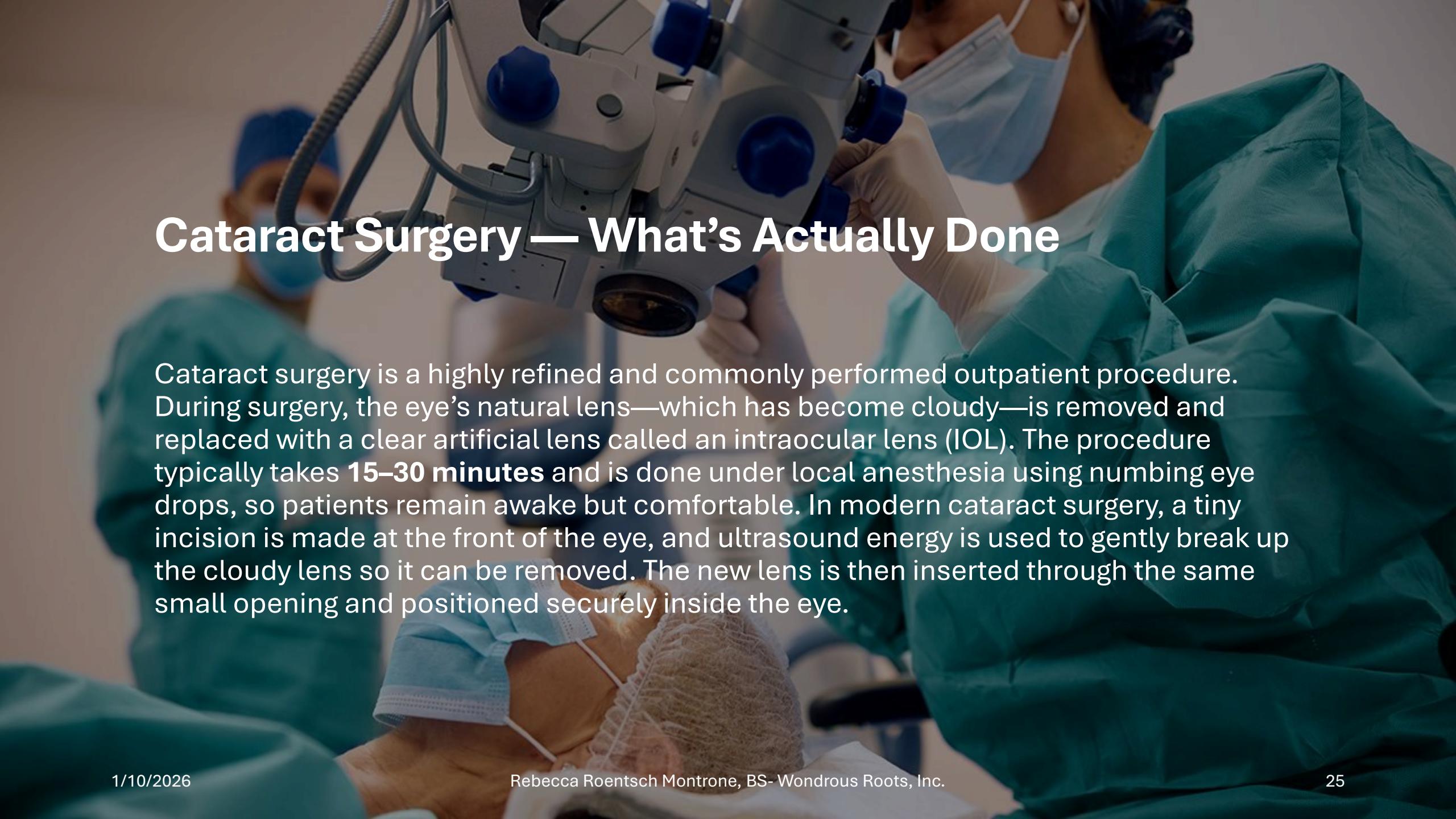


Eye with cataract



Cloudy lens



A surgeon in blue scrubs and a mask is shown from the side, focused on a procedure. They are wearing a surgical mask and gloves, and are using a large, white and blue surgical microscope with a circular lens. The background is blurred, showing other medical equipment and a patient's head.

Cataract Surgery—What's Actually Done

Cataract surgery is a highly refined and commonly performed outpatient procedure. During surgery, the eye's natural lens—which has become cloudy—is removed and replaced with a clear artificial lens called an intraocular lens (IOL). The procedure typically takes **15–30 minutes** and is done under local anesthesia using numbing eye drops, so patients remain awake but comfortable. In modern cataract surgery, a tiny incision is made at the front of the eye, and ultrasound energy is used to gently break up the cloudy lens so it can be removed. The new lens is then inserted through the same small opening and positioned securely inside the eye.

Recovery After Cataract Surgery

Recovery from cataract surgery is usually smooth and relatively quick. Many people notice improved vision within **one to two days**, though vision may fluctuate slightly as the eye heals. Mild scratchiness, light sensitivity, or watering is common early on. Patients are typically given antibiotic and anti-inflammatory eye drops for several weeks to support healing and prevent infection.

Most normal daily activities can be resumed within a day or two, while heavy lifting, bending, and eye rubbing are avoided initially. Complete healing generally occurs over **4–6 weeks**.





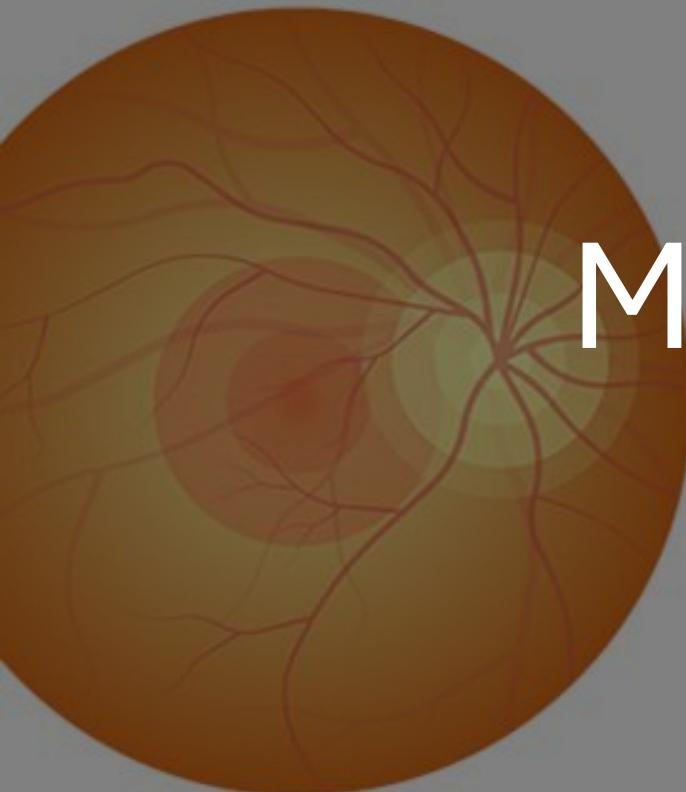
Success Rates & What to Expect Long-Term

Cataract surgery has one of the highest success rates of any surgical procedure. More than **95% of patients** experience significant improvement in vision, assuming no other conditions—such as macular degeneration or glaucoma—are limiting vision.

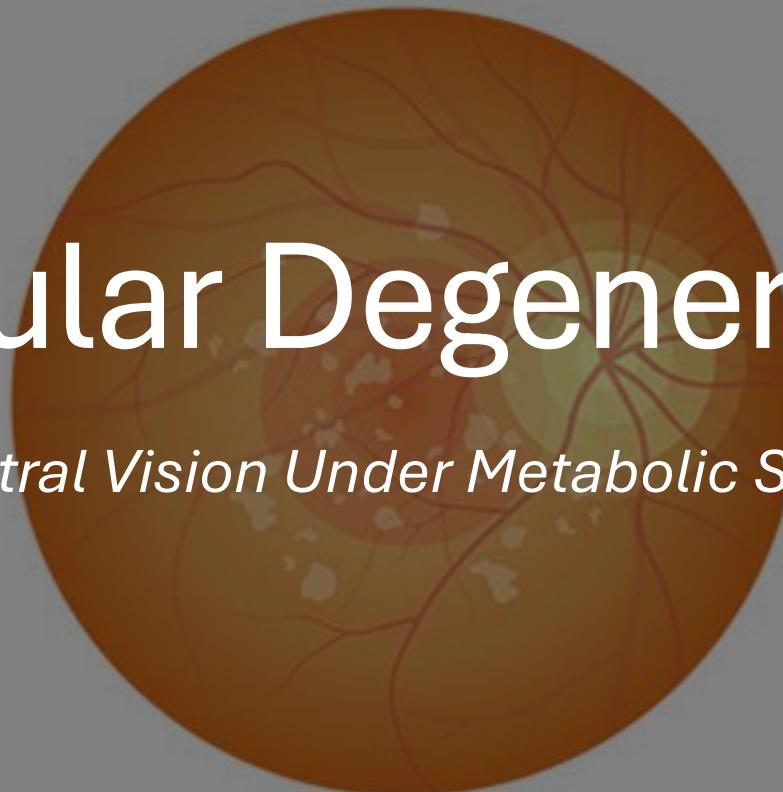
Modern lens options can be selected to improve distance vision, near vision, or reduce astigmatism. While cataract surgery does not prevent other eye diseases, it reliably restores optical clarity, often resulting in brighter colors, sharper vision, and improved quality of life.

MACULAR DEGENERATION

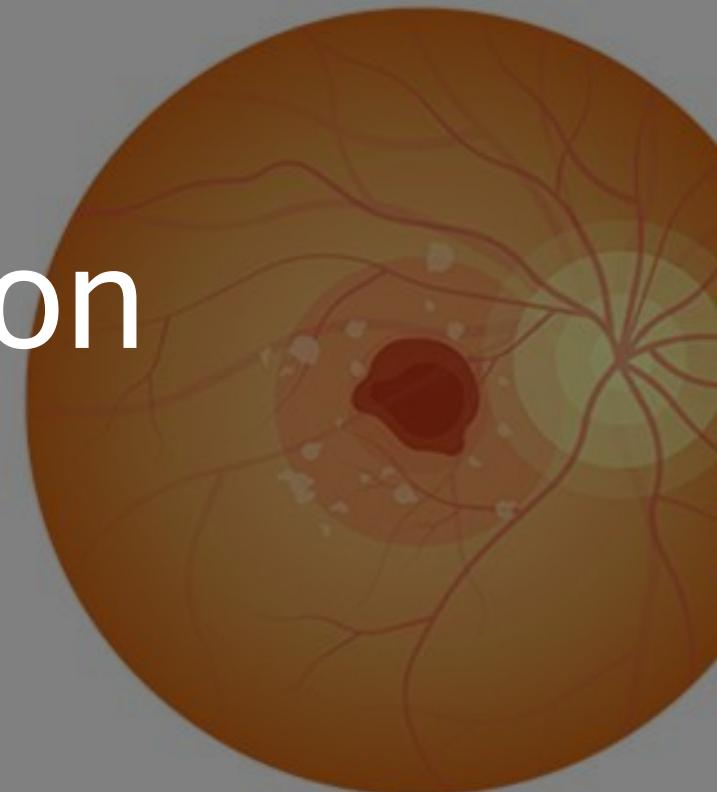
NORMAL EYE



"DRY" MACULAR DEGENERATION



"WET" MACULAR DEGENERATION



Macular Degeneration

Central Vision Under Metabolic Stress

CLEAR VISION OF NORMAL EYES

UNUSUALLY FUZZY OR DISTORTED VISION

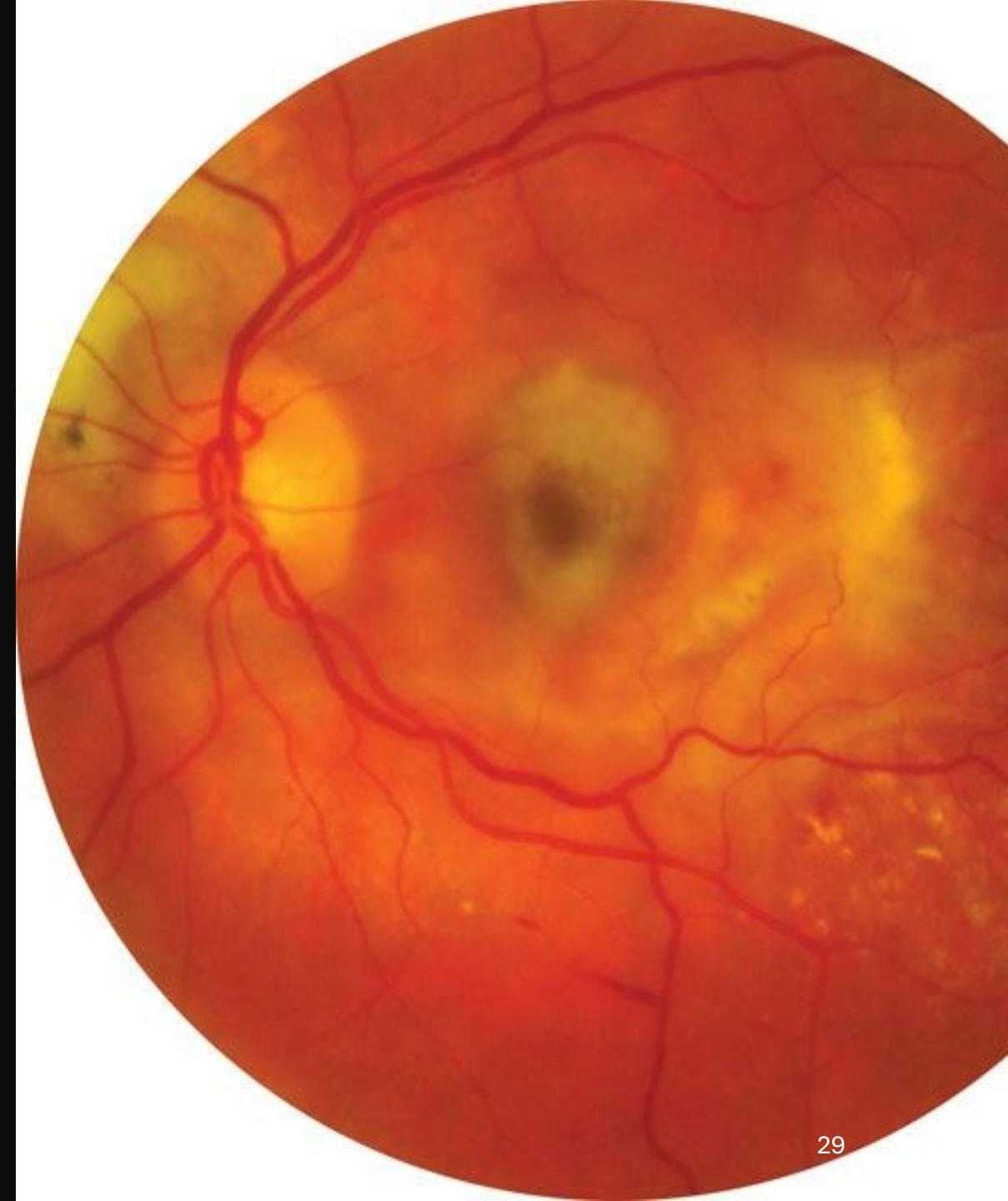
BLIND SPOT IN CENTER OF FIELD OF VISION

Macular Degeneration — What It Is

Macular degeneration is a condition affecting the **macula**, the small but highly specialized area at the center of the retina responsible for sharp, detailed, central vision. The macula has one of the **highest metabolic demands in the entire body**, requiring constant energy production, oxygen delivery, and antioxidant protection. When these demands are not met over time, the macula becomes vulnerable to damage.

Macular degeneration does not cause total blindness, but it can significantly impair activities such as reading, driving, and recognizing faces.

“This is not an eye that’s ‘wearing out’ — this is tissue that’s running out of support.”

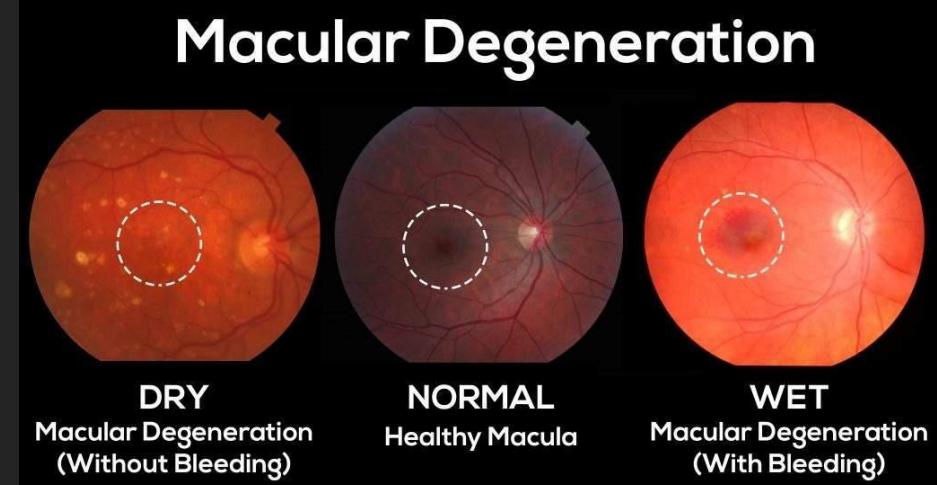


Dry vs. Wet Macular Degeneration — What's the Difference?

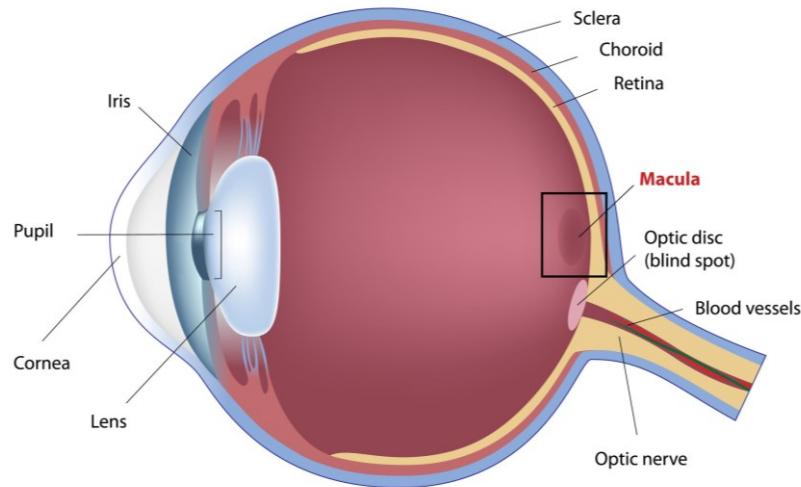
There are two primary forms of macular degeneration:

- **Dry (Atrophic) Macular Degeneration** is the most common form and develops gradually. It involves thinning and degeneration of macular tissue along with the accumulation of metabolic debris called *drusen*. This form is strongly associated with oxidative stress, mitochondrial dysfunction, and impaired cellular cleanup.
- **Wet (Neovascular) Macular Degeneration** is less common but more aggressive. It involves abnormal blood vessel growth beneath the macula, leading to leakage, bleeding, and rapid vision changes. This form has a strong inflammatory and angiogenic component and requires prompt medical management.

“Dry is slow and metabolic. Wet is fast and vascular.”



Why Macular Degeneration Develops & How It's Managed



Macular degeneration reflects a breakdown in the systems that sustain high-energy neural tissue. Contributing factors include aging, cumulative oxidative stress, impaired circulation, poor membrane integrity, inflammation, and genetic susceptibility. Conventional management focuses on monitoring disease progression, targeted injections for wet macular degeneration, and vision preservation strategies.

While damage already done cannot be reversed, **supporting energy production, antioxidant defenses, circulation, and retinal nutrition can help slow progression**, especially in dry macular degeneration.

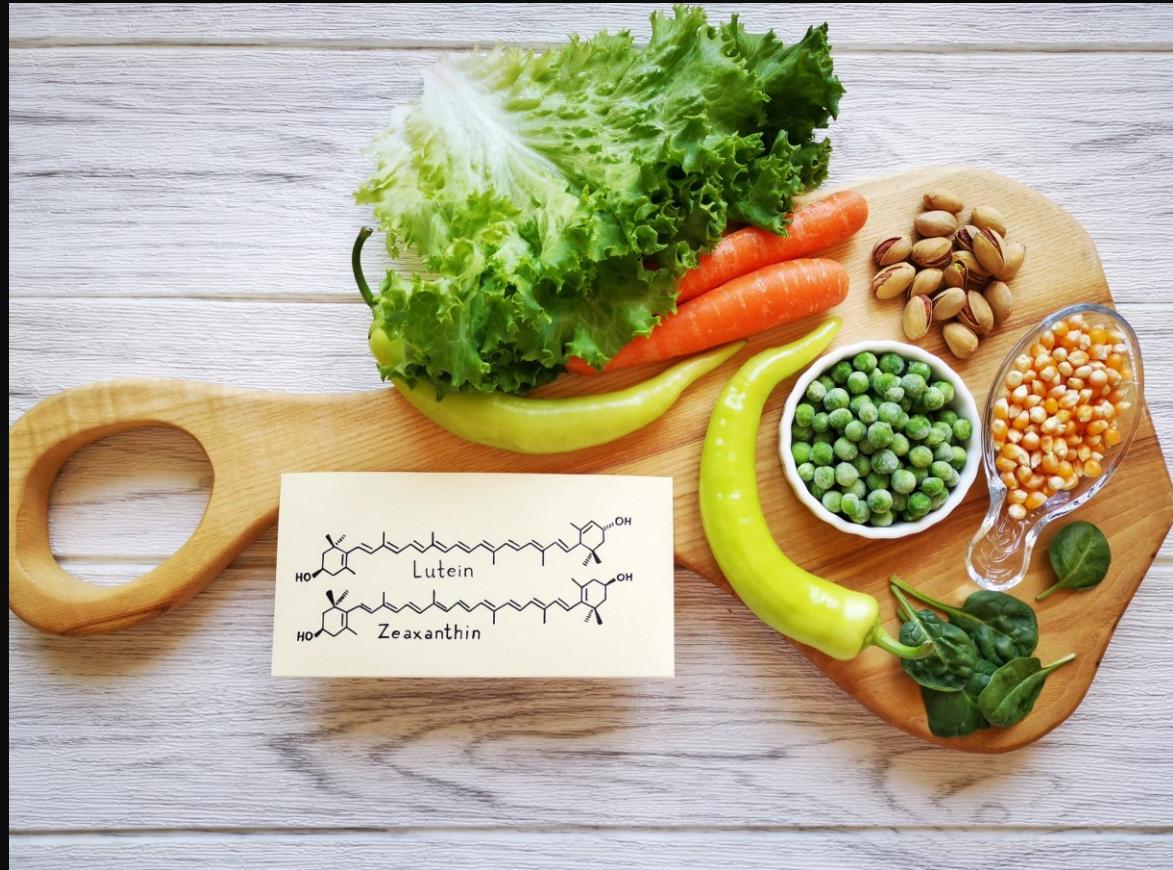
“This is about preserving what’s still alive — and helping it function as long as possible.”

Where We've Been

- Explored the **structure and function of the eyes**
- Clarified how the eyes relate to the brain and nervous system
- Reviewed **common eye conditions**, including:
 - Cataracts
 - Macular degeneration
 - Vitreous changes and floaters
 - Glaucoma
 - Retinal concerns
- Focused on **what these conditions are and why they develop**

Where We're Headed

- A dedicated deep dive into **nutrients and eye health**
- **How to support:**
 - Cellular energy and ATP production
 - Antioxidant protection
 - Circulation and microvascular health
 - Membrane and lipid integrity
 - Inflammation and immune balance
- Applying nutrition and lifestyle support **by condition**, not one-size-fits-all
- Turning understanding into **practical tools for protecting and preserving vision**





HEALTHY
EYES

Keeping Our Eyes Healthy

Supporting Eye Health — Beyond “Eye Treatments”