

GLAUCOMA
RESEARCH FOUNDATION

GLEAMS

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WHAT CAUSES SECONDARY GLAUCOMA?

IT IS IMPORTANT TO BE VIGILANT ABOUT YOUR OVERALL HEALTH AND BE AWARE OF THINGS THAT CAN INCREASE YOUR CHANCES OF DEVELOPING GLAUCOMA.

There are two main subtypes of glaucoma – primary glaucoma, when there is no identifiable cause, and secondary glaucoma, where the cause is a secondary factor such as trauma, another illness, or medications.

The basic cause of glaucoma is a blockage to the drainage system of the eye; something is getting in the way of the eye's natural drain, and as a result, pressure builds up. This pressure exerts a damaging effect to the optic nerve and causes the nerve tissue to degenerate. This leads to irreversible vision loss such as blurred or blind spots in the vision, glare, and the inability to see in dimly lit conditions.

Trauma to the eye can occur as a result of injury such as an accident that causes the eye or surrounding structures to be hurt, or as a result of another eye surgery or laser treatment that you've had. Injuries can stretch and cause scarring to the eye's drainage system. Sometimes blood or even a foreign body can land in the drainage system and lead to the drain slowing down to the point where the amount of fluid being formed in the eye is too much for it to handle. People who have had an eye injury should get a test called "gonioscopy" to check the drainage angle.

There are certain diseases that affect your entire body and can lead to secondary ramifications to the eye. Autoimmune conditions lead to inflammation in the body and may also involve the eye. The inflammation clogs the drainage apparatus, and the pressure builds up. Steroid medications are a common treatment for autoimmune or inflammatory conditions, and when used for more than a few

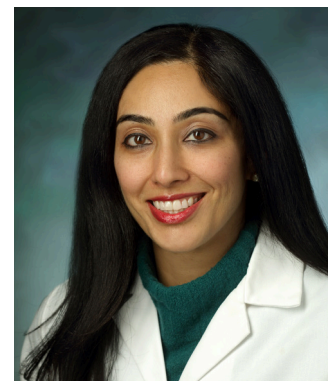
weeks, they can also cause dysfunction of the eye's drain. Light sensitivity can occur with inflammation in the eye, but usually there aren't any major symptoms. Therefore, it is important to get a yearly eye exam, especially if you have a chronic illness.

Diabetes, high blood pressure, and other cardiovascular diseases do not cause glaucoma directly, but if any of these conditions is uncontrolled, abnormal blood vessels can actually grow into the eye and close the drainage system off. The eye pressure can be extremely high in these situations and can lead to loss of vision if not treated quickly. Symptoms to look out for are reduced vision, red eye, eye pain, and headache. We recommend that if you have one of the above-mentioned conditions, you should get a dilated eye exam every year.

The best way to reduce or prevent damage to the eye is simple, get your eyes checked every year! Don't wait for symptoms to show up. Remember, once glaucoma starts, the damage that it causes cannot be reversed.

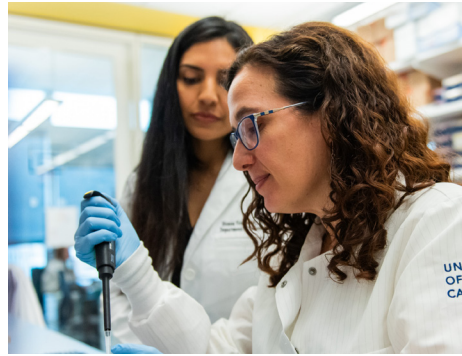
Mona Kaleem, MD

Dr. Kaleem is an Associate Professor of Ophthalmology at the Wilmer Eye Institute, Johns Hopkins University, in Baltimore, Maryland.



Report from the 2023 Catalyst Meeting

At a landmark “Curing Neurodegeneration” research meeting that took place over the summer in Boston, Massachusetts, our two concurrent Catalyst for a Cure (CFC) research teams converged to collaborate and share knowledge.



Researchers from The Steven and Michele Kirsch Catalyst for a Cure Vision Restoration Initiative (CFC3) and The Melza M. and Frank Theodore Barr Foundation Catalyst for a Cure Initiative to Prevent and Cure Neurodegeneration (CFC4) participated in the Catalyst Meeting along with their Scientific Advisors and distinguished invited guest speakers.

The Vision Restoration team and the Curing Neurodegeneration researchers are working from laboratories across the United States and finding unique opportunities for collaboration to better understand what causes neurodegeneration, accelerate progress toward a cure, pioneer innovative treatments to protect vision, and tackle the challenge of restoring vision. The result is a kind of synergy unprecedented in science, made possible by Glaucoma Research Foundation’s many generous donors.

With intense focus on restoring vision lost to glaucoma, the CFC3 researchers team made significant progress on multiple fronts in 2023. Their ambitious goals include developing neuroprotective therapies, using cell transplantation to replace lost

optic nerve cells, and improving the function of injured optic nerve cells to restore the connection between the eye and the brain.

The CFC4 team is using diverse research approaches in their investigations aiming to prevent and cure diseases that share a common cause: neurodegeneration. Glaucoma, Alzheimer’s Disease, Parkinson’s Disease, and amyotrophic lateral sclerosis (ALS), occur when key cells in the central nervous system deteriorate and die — a process known as neurodegeneration. By carefully studying these diseases in models and analyzing and comparing the results, the team’s goal is to uncover hallmarks common to all three conditions that may become important targets for new therapies.

This unique meeting was inspired and supported by donors Carolyn and Richard Sloane and plans are in place for the teams to meet again in person this year in February and August. Although the teams may appear to be on two separate discovery tracks, their concurrent explorations promise to generate greater progress toward shared goals than either could produce alone.

Learn more about the individual CFC researchers at www.glaucoma.org/research/catalyst-for-a-cure/

Q&A

Is Doing Yoga Safe If I Have Glaucoma?

Yoga has become a popular form of physical and mental exercise and is said to have many meditative and therapeutic benefits. But is yoga safe for people with glaucoma?

Q What is the risk of headstand positions?

A A recent study compares eye pressure in people with no eye-related disease and glaucoma patients as they perform a series of inverted (“head-down”) yoga positions, to measure the increase in IOP and how long the increased pressure lasts. They covered the following positions:

- Downward facing dog (adho mukha svanasana)
- Standing forward bend (uttanasana)
- Plow (halasana)
- Legs up the wall (viparita karani)

the control group and those participants with glaucoma, however the increase in IOP among glaucoma patients is more impactful to their future vision.

“Elevated IOP is the most important known risk factor for development and progression of nerve damage to the eye, so the rise in IOP after assuming the yoga poses is of concern for glaucoma patients,” said study author Jessica Jaisen, M.En. “Glaucoma patients should share with their yoga instructors their disease to allow for modifications during yoga practice.”

The researchers captured the IOP in each group at baseline seated, immediately assuming the pose, and two minutes while holding the pose. All four poses raised IOP in both the control group and the glaucoma patients, with the greatest increases associated with downward facing dog. Once the subjects returned to a seated position, they were tested immediately and 10 minutes later. The IOP returned to baseline levels at these time points.

The study didn’t show a dramatic difference in IOP between

Q How should i modify my yoga routine?

A Because of these findings and as a precautionary measure while more research is being done, it is probably best for yoga enthusiasts with glaucoma to avoid headstands and “head-down” positions during their routines. At the very least, the duration of the positions should be kept to a short period to prevent possible contribution to future vision loss. Future studies can help us understand the importance of these IOP spikes in glaucoma progression.



Shan Lin, MD, is a glaucoma specialist at the Glaucoma Center of San Francisco. In his research, he studies new medications for the treatment of progressive glaucoma and ocular hypertension.

IN APPRECIATION

We are incredibly grateful for the generous and loyal support from all of our donors. Following is a listing of recent contributions and pledges at the \$1,000 level and above. Please note these are new contributions and pledge payments between July 1, 2023 and October 31, 2023 and will not reflect a donor's cumulative giving for the year.

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Bob and Birdie Feldman: Giving Tuesday Heroes

Giving Tuesday, held each year on the Tuesday after Thanksgiving, is a global initiative that encourages people to donate their time and money to charitable causes.

For the past several years, Bob and Birdie Feldman have made lead gifts to kick off our Giving Tuesday fundraising campaign. This global day of giving continues to grow each year. And thanks to the Feldmans and the 300 donors who joined them, more than \$109,000 was raised to support our research and education projects.

The couple were first inspired to start supporting Glaucoma Research Foundation (GRF) in 2017 as both Birdie's mother and grandmother lost vision due to glaucoma. With her strong family history, Birdie monitors her vision health very closely and luckily has not developed glaucoma. Before they make a philanthropic investment, the couple always reviews an organization's rating on the Charity Navigator website. This most trusted and largest nonprofit evaluator offers comprehensive ratings that shine a light on the cost-effectiveness and overall health of a nonprofit organization. Since GRF consistently receives four stars, the very highest rating, making a gift was an easy decision for Birdie: "We have a strong belief in supporting medical research and glaucoma is cause close to home for me."

Birdie was born in New York, raised in Illinois, and eventually settled in California. There she met Bob, a native of Los Angeles and the two share a love of travel and boating, never happier than when they are on the water. Philanthropy is also an important aspect of their lives, and they continue to make investing in a cure for glaucoma a top priority. Birdie remarked

"We like that GRF invests a significant amount of its revenue to support research. We need to find newer and better treatments. It makes us incredibly happy to support them and be a part of the future."

Our sincere thanks to Bob and Birdie, as well as all our donors for their unwavering support and commitment to a future free from glaucoma.



Help Raise Awareness About GLAUCOMA

JANUARY IS NATIONAL GLAUCOMA AWARENESS MONTH, AN EXCELLENT TIME TO GET A COMPREHENSIVE DILATED EYE EXAM—THE MOST EFFECTIVE WAY TO TEST FOR GLAUCOMA—AND TO ENCOURAGE YOUR LOVED ONES TO GET TESTED, TOO.

Although there's currently no cure for glaucoma, early treatment can often curb the damage and protect your vision. More than three million people in the US and an estimated 80 million people worldwide have glaucoma—a group of conditions that affects the optic nerve.



Early detection of glaucoma is essential in preventing vision loss and blindness. Eye doctors recommend going for eye health examinations every year. Since glaucoma usually presents no symptoms and warning signs until too late, spreading awareness is critically important.

Often glaucoma doesn't have any noticeable symptoms. It's also a slowly progressing condition, so half of those living with glaucoma don't even know they have it. There are several reasons glaucoma can go undetected, including:

- Most types of glaucoma are painless, with no feelings of discomfort.
- Changes to vision due to glaucoma are usually gradual, making it difficult to notice changes.
- It's not uncommon for glaucoma to affect one eye more severely, and we compensate for the loss.
- Older age is a risk factor, and subtle vision changes can be accepted as part of the aging process.

Who's at Risk for Glaucoma?

- People over age 60, especially Hispanics/Latinos
- African Americans over age 40
- People with a family history of glaucoma

How to Help Raise Awareness

- Sharing glaucoma awareness posts on social media.
- Getting a yearly eye and vision examination and encouraging others to do the same.
- Participating in community group discussions and
- Supporting organizations such as Glaucoma Research Foundation, which funds essential research to help find a cure for the disease.
- Referring others, including your eye doctor, to informational websites such as glaucoma.org to get reliable information to prevent and treat glaucoma.

The good news is that early detection can prevent significant damage and save your eyesight. Every year, new research advancements in glaucoma care continue to bring us closer to finding a cure.

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