GLAUCOMA
RESEARCH FOUNDATION

GLEAMS

A PUBLICATION FOR THE FRIENDS AND COLLEAGUES OF GLAUCOMA RESEARCH FOUNDATION
SEPTEMBER 2023 • VOLUME 41, NUMBER 1

This issue of Gleams is made possible by a grant from the Delta Gamma Foundation

WHAT CAUSES GLAUCOMA?

EARLY DETECTION, TREATMENT, AND LIFELONG MONITORING OF GLAUCOMA ARE ALL VERY IMPORTANT IN ORDER TO PRESERVE VISION.

Glaucoma is a chronic eye disease in which there is damage to the optic nerve. This can affect the vision in many ways; a person may notice blurred patches or blind spots, difficulty with glare, problems with depth perception, and trouble seeing in dim light. Unfortunately, once these changes occur, they are irreversible. The good news is that current technology allows doctors to detect changes to the optic nerve at an early stage, before the onset of vision loss or worsening of the disease. There are also effective treatments to lower eye pressure and reduce the risk of further damage to the optic nerve.

There are two main subtypes of glaucoma – primary glaucoma, when there is no identifiable cause, and secondary glaucoma, where there is a known predisposing factor such as injury, or inflammation. There are several theories about the cause of primary glaucoma, and although we don't know all the answers yet, we have identified several key risk factors:

1. Elevated eye pressure (this is not the same as elevated blood pressure)
2. Large optic nerve or thinning of the optic nerve
3. Closed drainage angle of the eye
4. Thinner than average cornea
5. Family history (especially siblings)
6. Race (People of African, Hispanic, and East Asian descent are predisposed to glaucoma)

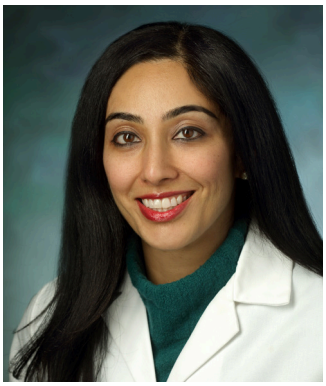
Eye pressure can be checked at any eye doctor's office. Knowing what's a "normal" eye pressure is not so straightforward though. The average eye pressure is 16 mm Hg, but we know that some people with an average pressure can develop glaucoma, whereas others won't. This is where the other risk factors really come into play.

RECOMMENDATIONS

- Get a complete eye exam — which means getting your eyes dilated. Through a dilated exam, we can actually see the optic nerve and assess the size as well as any areas of potential thinning. Some people are born with large optic nerves and will never get glaucoma; but we cannot determine who will and who won't develop glaucoma over time, hence the importance of a yearly eye exam for those with a large nerve. *Family history and race are strong risk factors; if you have a close family member with glaucoma, you should get a screening exam.*
- Before the eyes are dilated, get a check of the drainage angle. The cornea thickness can also be measured with a small hand-held device. People with a thinner than average cornea are at greater risk for glaucoma and should be monitored.

Glaucoma treatment is one of the fastest growing areas in ophthalmology research and development and the disease management options are improving as time goes on. Our goal is to halt or prevent any further deterioration of optic nerve damage.

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



2023 Research Progress: Catalyst for a Cure

Glaucoma Research Foundation is dedicated to scientific research that deepens our understanding of glaucoma, generates new treatments, and will ultimately lead to a cure. *Catalyst for a Cure* (CFC) is our flagship research program. We are currently funding two CFC research teams.

CFC3: *The Steven and Michele Kirsch Catalyst for a Cure Vision Restoration Initiative* is seeking innovative ways to regrow or replace retinal ganglion cells and axons, which make up the optic nerve.
The principal investigators are:
Xin Duan, PhD, *UC San Francisco*,
Yang Hu, MD, PhD, *Stanford University*,
Anna La Torre, PhD, *UC Davis*, and
Derek Welsbie, MD, PhD, *UC San Diego*

The CFC3 Vision Restoration team is pursuing three major goals: 1) develop neuroprotective therapies to halt the progression of vision loss from glaucoma, 2) develop strategies for visual restoration using cell transplantation to replace lost optic nerve cells, and 3) reconnect the eye to the brain to restore visual functions to improve the function of injured optic nerve cells. In the past year, the team has made significant progress on multiple fronts. They have advanced the field of neuroprotection, made important progress with cell replacement research, and identified several exciting candidate targets to improve optic nerve cell survival — all essential next steps that are laying a foundation for vision restoration.

CFC4: *The Melza M. and Frank Theodore Barr Foundation Catalyst for a Cure Initiative to Prevent and Cure Neurodegeneration* began their investigations in 2022.
The principal investigators are:
Sandro Da Mesquita, PhD, *Mayo Clinic*,
Milica Margeta, MD, PhD, *Mass Eye and Ear*,
Karthik Shekhar, PhD, *UC Berkeley*, and
Humsa Venkatesh, PhD, *Brigham and Women's Hospital*

The CFC4 research team is seeking innovative approaches to prevent and cure diseases that occur when key cells in the central nervous system deteriorate and die — a process known as neurodegeneration. Their efforts to date have focused on optimizing a genomic profiling technique called "single cell RNA Sequencing" that they will use to analyze the microenvironment in disease models of glaucoma, Alzheimer's, and brain tumors. Following a computational analysis of the pilot experiment, they expect to find common cellular and molecular pathways that are altered across the three diseases, with the hope that this information will lead to development of novel therapeutic approaches for these neurodegenerative conditions.

In August 2023, both *Catalyst for a Cure* research teams participated in a joint Catalyst Meeting along with invited guest research scientists: "Solving Neurodegeneration 2" in Boston, Mass. Inspired by GRF donors Richard and Carolyn Sloane, the goal of the meeting was to bring together specific expertise and knowledge to address barriers and discover novel opportunities to accelerate their research.

Q&A

What are MIGS procedures?

Ophthalmologists, particularly glaucoma specialists, provide MIGS as part of a number of treatment options available to their patients.

***Regine Pappas, MD**, Pinnacle Eye Center, Melbourne Florida. Dr. Pappas is a Board-Certified Ophthalmologist, Eye Surgeon, and Fellowship-trained Glaucoma Specialist.*

Q What does MIGS stand for?
A MIGS stands for Minimally Invasive Glaucoma Surgery.

Q What are the various types of MIGS available?
A MIGS procedures are categorized based on how they lower eye pressure. Angle-based MIGS enhance fluid outflow through the eye's natural drainage angle by stenting the Schlemm's canal (e.g., iStent W, iStent Infinite, Hydrus microstent), removing the trabecular meshwork (e.g., Kahook dual blade goniotomy, GATT, Trabectome), expanding the Schlemm's canal with viscous gel (Streamline), or combining these approaches (OMNI surgical system). Subconjunctival MIGS devices (e.g., XEN gel stent) create a new drainage pathway to the external surface of the eye. Cyclophotocoagulation with an endolaser or micropulse laser reduces eye pressure by reducing the amount of fluid that the eye makes.

Q Who is a good candidate for MIGS procedures?
A For angle-based MIGS, the best candidates are those with mild to moderate primary open-angle glaucoma (POAG). Other candidates include those who have side effects to medical therapy, or those who have undergone other procedures and still have elevated eye pressures.

Q Who performs these procedures?
A Ophthalmologists, particularly glaucoma specialists, provide MIGS as part of a number of treatment options available to their patients.

Q How do MIGS procedures compare with traditional glaucoma surgery?
A When compared to traditional glaucoma surgeries such as trabeculectomy and aqueous drainage devices, MIGS procedures have lower efficacy but an improved safety profile. For most patients with mild to moderate glaucoma, the MIGS procedures provide adequate IOP lowering while reducing the risk of the potentially severe complications associated with traditional glaucoma surgeries.

IN APPRECIATION

We are incredibly grateful to 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 March 1, 2023 and June 30, 2023 and will not reflect a donor's cumulative giving for the year.

President's Circle

VISIONARIES ($200,000 - $999,999)
Mona and Edward Zander

BENEFACTORS ($100,000 to $199,999)
Steven and Michele Kirsch

FOUNDERS ($50,000 to $99,999)
Allergan, Inc., an AbbVie Company
Daniel Carper
Cure Glaucoma Foundation
The Barry Friedberg and Charlotte Moss Family Foundation

INNOVATORS ($25,000 to $49,999)
Alcon Laboratories, Inc.
Bausch + Lomb

PACESETTERS ($10,000 to $24,999)
Rettig and Michele Benedict
Cynthia and Frederick Brinkmann
Richard Fenner
Lorraine Mizuno
Santen, Inc.
The Rhett and Xin Schiffman Charitable Fund
Catherine and Charles Wilmoth

Catalyst Circle

$5,000 to $9,999
Delta Gamma Foundation
Glaukos Corporation
Barbara and William P. Griffin
Roberta R.W. Kameda
Theodore & Karin Mayer Family Foundation
Qlaris Bio, Inc.
Paula and Rodger Riney
Dr. Charles and Jo Ann Whiteside
And one anonymous gift

$1,000 to $4,999
Robert L. Adams
James L. Aden
Henry and Mary Altman
AmazonSmile Foundation
Regina and Fred Amoroso
Marilyn I. Bardelli Revocable Trust
James Beale, in memory of Richard Kay Bell, Jr.
Bill and Sarah W. Brown, in memory of Bob Nevins
George G. Conner, Jr.
Bertha Corbin
Drs. Ruth Cronkite and Blair Ratcliff
Beth Doyne, in Honor of Stephen Doyne
Hildegarde D. Eiler Estate
Nancy and Ronald L. Fellman, MD
Edward B. Fischer
Anthony R. Fisher, PhD
Paul Gacek
GentleDrop
Adrienne Graves, PhD
Glenn Green
Fred Greenberg
Tracy Hammond
Henshel Foundation
Icare USA, Inc.
Nobuo Kobayashi
Elizabeth A. Lee and Marty Oster
Lundberg Family Charitable Gifting Fund
Erin Manning
Market Scope, LLC
Medical Research Charities
MyEyes
Carl F. and Stella L. Neuman
John E. Olsen
Ophthalmic Mutual Insurance Company
Trevanion H. Pope, in honor of Dr. Andrew Iwach
Enrico Reguzzoni
Merton Leslie Rima
Robert and Jennifer Sawyer
Charles L. Schmidt
John M. Schultz
Susan and John N. Shaffer
Dr. and Mrs. Brett Sheppard
Siemaska Family Foundation
The John and Louise Steegstra Memorial Fund
Victor Tan, in honor of Drs. Iwach and Lin
Marian and Julius Tills Endowment Fund of the Dallas Jewish Community Foundation
M.P. and B.J. Zimprich
And two anonymous gifts

Charitable Gift Annuities: *Gifts That Give Back*

Glaucoma Research Foundation can assist you with creating a charitable gift annuity with a minimum investment is $20,000. And if you are 70½ or older, you can also use your **IRA** to create a gift annuity. Get fixed, reliable income for life by making a one-time election of up to $50,000—without being taxed on the IRA distribution! This option comes with special rules, so contact us to discuss whether this is right for you.

For more information on how you can make a difference, contact:
Nancy M. Graydon, Executive Director of Development and COO at 415-986-3162 ext. 231 or ngraydon@glaucoma.org

Elite paratriathlete Amy Dixon delivers the 2023 Patient Summit Keynote

Visually impaired professional triathlete Amy Dixon was the keynote speaker at our 2023 Patient Summit, held in Long Beach, California on June 23 – 24.

A former high school athlete, at age 22 Amy was diagnosed with uveitis, a rare autoimmune disease that left her legally blind. After years of steroid treatments prompted significant weight gain, Amy took a bold step to empower herself: She began training for a triathlon and ran her first race in 2013, swimming and running tethered to a sighted female guide and competing on a tandem bike.

A five-year member of the USA Paratriathlon National Team, Dixon competed in the Tokyo Summer Paralympic Games in 2021 and is currently training for the 2024 games in Paris. She is the reigning Aquathlon World Champion, a two-time USA Paratriathlon National Champion, USA Cycling National Time Trial Champion, and a seven-time ITU Triathlon Gold Medalist. In 2017, Dixon founded Camp No Sight No Limits, the first camp for blind triathletes in the United States.

"I find that people who live with vision loss tend to spend a lot of time in their heads rather than in their bodies," Amy said. "At the GRF Patient Summit, I wanted to share the message that there is virtually nothing we can't do if we learn to navigate the world differently." Dixon also stressed the importance of complying with treatment guidelines and taking charge of one's own vision. "When you live with glaucoma you need to be your own chief medical officer," she said. "By educating, supporting, and empowering people with glaucoma, GRF helps us do that."

"Patients inspire and drive the work at Glaucoma Research Foundation, each and every day," said Thomas Brunner, GRF President and CEO. "Amy is an incredible example of how important self-advocacy is for those living with glaucoma. Her story is beyond inspiring, and we were honored to have her participation at our Patient Summit this year."

In addition to an elite paratriathlete, Dixon is a dedicated patient advocate and motivational speaker, spreading awareness and hope as she competes around the world. She previously received the 2021 Visionary Award from GRF, honoring her dedication to improving the lives of people with vision loss.

This was the fifth year for GRF's Glaucoma Patient Summit, which brings patients, caregivers, and glaucoma experts together in a unique supportive community.

Report from the
FIFTH ANNUAL GLAUCOMA PATIENT SUMMIT

150 ATTENDEES LEARNED FIRST-HAND ABOUT THE MOST RECENT ADVANCES IN TREATMENT OPTIONS AND PRACTICAL INFORMATION TO HELP THEM UNDERSTAND AND LIVE WITH GLAUCOMA.

This year's Summit was a 2-day event that began on Friday, June 23rd with a welcome reception, exhibit hall, networking opportunities, and small group seminars focused on specific topics:

- Thriving as a Young Adult with Glaucoma,
- Tools for Success: Using Low Vision Resources to Maximize Independence, and
- Caring for Your Vision: Home-Based Glaucoma Management Techniques for Patients and Caregivers.

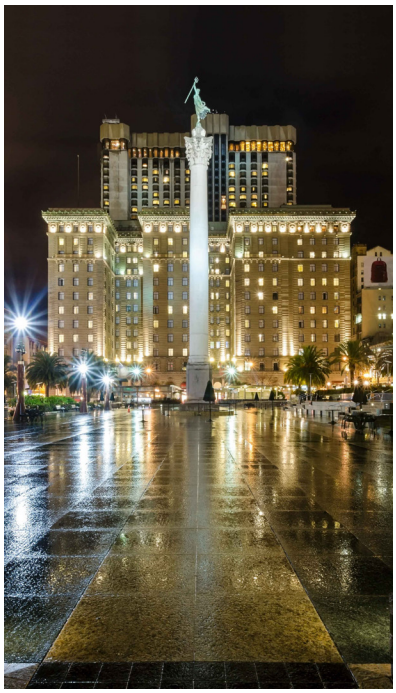
A full-day general session on Saturday, June 24th featured a keynote talk from "patient EYEcon" Amy Dixon, a world champion visually impaired professional triathlete who shared both her personal story and empowering messages for patients based on her experience. Sahar Bedrood, MD, PhD, a glaucoma and cataract specialist at Advanced Vision Care in Los Angeles, served as the host and moderator of the day's sessions.

Morning sessions focused on treatments, with David Richardson, MD discussing the latest in glaucoma medications and Savak Teymoorian, MD reviewing glaucoma laser and surgery options. A "Treatment Round Table" provided an opportunity for audience members to ask questions and learn more from these glaucoma experts, who were joined by Dr. Bedrood and Andrew Iwach, MD from the Glaucoma Center of San Francisco. After a short break, Ava K. Bittner, OD, PhD (UCLA Stein Eye Institute) gave a talk on "unlocking the possibilities of low vision living," Jiun Do, MD, PhD (Shiley Eye Institute), provided a research update on the future of vision restoration, and Dr. Sahar Bedrood reported on recent advancements and potential new treatments that are currently in development for glaucoma.

Afternoon sessions focused on shared patient experiences and a wide variety of healthy living tips, resources, and tools available to help patients, with talks and panel discussions by Valentina Lozano, MD, Simon K. Law, MD, Clara Aparicio, PsyD, Gary Asano, OD, FAAO, and Terica Roberts, LMFT. Among attendees who responded to a post-event survey, 93 percent said they found the overall Patient Summit "extremely" or "very informative and helpful." Save the date for next year's Summit: June 28 – 29, 2024 at the Loews Hotel in Philadelphia, PA.

GLEAMS

Glaucoma Research Foundation
251 Post Street, Suite 600
San Francisco, CA 94108



Gleams is published three times a year by Glaucoma Research Foundation. 251 Post Street, Suite 600, San Francisco, CA 94108 Web: www.glaucoma.org Telephone: 415-986-3162 Toll Free: 800-826-6693 Email: gleams@glaucoma.org To unsubscribe, call 1-800-826-6693 or email "unsubscribe" to gleams@glaucoma.org.

 ISSN #1072-7906