

GLAUCOMA
RESEARCH FOUNDATION

GLEAMS

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MEDITATION AND GLAUCOMA CAN MINDFULNESS MEDITATION HELP

PATIENTS WITH GLAUCOMA? A RECENT STUDY SUGGESTS THAT THERE MAY BE BENEFITS TO EYE PRESSURE AND OPTIC NERVE HEALTH BY DOING MEDITATION ON A REGULAR BASIS.



Researchers in India conducted a study among glaucoma patients and found that those who were randomly selected for the meditation group developed lower eye pressures; an improved balance of blood factors which may help protect from glaucoma damage; and improved quality of life scores. There were 90 subjects, 45 were randomized to do meditation under the guidance of a certified meditation teacher and the other 45 were control subjects. Those who underwent mindfulness meditation practiced in a daily group meeting for 1 hour each day, starting at 8:00 am, for 21 days. These sessions included 15 minutes of practice with a deep breathing exercise. At the end of the 21 days, the eye pressure was reduced >25% (about 4-5 mmHg) in the meditation group whereas there was no change in the control group.

Overall, the findings seem to suggest that glaucoma patients should do meditation. However, it should be noted that there are limitations to the study. It

is a relatively small number of patients, and longer term follow up is needed to see if the results hold up beyond a few weeks. Studies on other ethnicities are also needed to see if the potential benefits apply across different populations. Finally, it can be difficult to perform mindfulness meditation for as long and as consistently as was done in this study.

RECOMMEND MEDITATION?

Aside from the possible advantages to patients with glaucoma, meditation has other potential benefits to an individual's physical and mental health. These include lower blood pressure, less depression and anxiety, improved memory, and better sleep.

When my patients ask me for non-traditional therapies that can supplement their glaucoma treatment, I will often include a brief discussion about the possible benefits of meditation.

CONCLUSION

If you have glaucoma, should you start doing mindfulness meditation? Further studies are needed to verify whether there truly is an advantage, but these early results from a small study are intriguing. And there is little harm to doing meditation, with some potential upsides even if there aren't any direct benefits to glaucoma. So, if you have the time, why not?

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



THE STEVEN AND MICHELE KIRSCH

Catalyst for a Cure Vision Restoration Initiative

Since 2019, the Catalyst for a Cure (CFC) Vision Restoration Initiative scientists have been working together in search of innovative ways to replace, repair, and protect neuronal elements of the eye-to-brain connection that can be damaged by glaucoma.

Collaborating across laboratories, their work focuses on ways to restore retinal ganglion cells (RGCs). These specialized neurons, with long, fiber-like axons, form the optic nerve, which connects the retina to the brain. In patients with glaucoma, RGCs die as axons degenerate, leading to a loss of vision. Because RGCs do not regenerate naturally, restoring vision lost to glaucoma has been a tremendous challenge.

In the second half of 2021, the CFC team made dramatic progress on two priorities: developing therapies to transplant new RGCs and exploring ways to preserve and enhance the eye's neurological connections. The team is continuing to refine its approaches to RGC transplantation using various

glaucoma models, and they are testing treatments they have already identified to improve the survival of cells. They are moving ever closer to therapeutic approaches for the human eye that, ultimately, can be tested in clinical trials.

The Catalyst for a Cure Vision Restoration Initiative's successes to date offer compelling evidence that the CFC model — engaging a diversely talented team in intensive, glaucoma-focused research — is yielding the kind of collaboration that can lead to true breakthroughs. With the CFC team members just hitting their stride, the Glaucoma Research Foundation Board of Directors voted to extend the funding for the CFC Vision Restoration Initiative for another three years.



THE INVESTIGATORS (from left to right)

Yang Hu, MD, PhD
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Weill Institute for Neurosciences, University of California, San Francisco

Q&A

Neovascular Glaucoma

Dr. Sunita Radhakrishnan discusses how the abnormal formation of new blood vessels on the iris and over the eye's drainage channels can cause this form of secondary glaucoma.



Sunita Radhakrishnan, MD
specializes in the medical and surgical treatment of glaucoma at the Glaucoma Center of San Francisco and is Research Director at the Glaucoma Research and Education Group in San Francisco.

Q What is neovascular glaucoma?

A Neovascular Glaucoma (NVG) is a type of secondary glaucoma associated with disorders that reduce blood flow to the retina (the light sensitive layer in the back of the eye). When the retina does not get enough blood flow, it produces a growth factor (vascular endothelial growth factor or VEGF) that helps to form new blood vessels. However, these new blood vessels are leaky, and can cause bleeding and inflammation, followed by scarring. They can also grow in the wrong place in the eye. When the new blood vessels form over the eye's drainage channels, the eye fluid is blocked from exiting through the trabecular meshwork. This leads to high intraocular pressure (IOP) which can damage the optic nerve.

Symptoms of NVG can include pain or discomfort, eye redness, and vision loss. This type of glaucoma never occurs on its own and is always associated with other abnormalities, such as retinal vein occlusion and diabetes.

Q How is neovascular glaucoma treated?

A The treatment of neovascular glaucoma is two-fold. The underlying retinal problem is treated with anti-VEGF drug injections and retinal laser treatment to reduce or eliminate the continued growth of new blood vessels. Concurrently, glaucoma is treated by lowering IOP. In NVG, IOP-lowering medications are usually not very effective and most patients require some type of IOP-lowering procedure such as a glaucoma drainage device or laser cyclophotocoagulation. The treatment chosen depends on the stage of the disease and how much vision has already been lost.

Q Can neovascular glaucoma be prevented?

A Since NVG is difficult to treat, prevention (when possible) is preferred. Patients at high risk for developing neovascular glaucoma, such as those with proliferative diabetic retinopathy, should have frequent and careful eye exams. The eye doctor will look inside your eye and carefully examine the iris and the angle for signs of new blood vessels.

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We are grateful for the generous and loyal support from all 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 pledges received between July 1, 2021 and October 31, 2021 and will not reflect a donor's cumulative giving for the year.

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Rising to the Challenge – Donors Rally to Fund Innovative Research

Longtime Glaucoma Research Foundation Board member, Dennis Singleton, and his wife Charlot, recently made a \$1 million gift to fund our Catalyst for a Cure Vision Restoration Initiative.

When longtime GRF Board member, Dennis Singleton, learned about a special matching opportunity initiated by Steven and Michele Kirsch, it inspired him and his wife Charlot to make a \$1 million pledge to support the Catalyst for a Cure Vision Restoration Initiative.

Thomas Brunner, President and CEO of Glaucoma Research Foundation, noted that “We have been so fortunate to have Dennis on our Board of Directors for the past 24 years. He and Charlot were already generous annual donors and with their recent gift, they have invested a total of \$2.5 million to advance our research and education programs.”

Board Chairman, Andrew G. Iwach, MD, added “Dennis and Charlot are an extraordinary couple and have both devoted both their time and treasure to Glaucoma Research Foundation, as well as many organizations in the Bay Area, and both their alma maters. Their philanthropy is incredibly inspiring, and we will be forever grateful for their friendship and generosity.”

In addition to the Singletons’ gift, more than 1,500 donors contributed to the Kirsch Challenge to match the \$1.5 million matching gift from Steve and Michele Kirsch. Mr. Brunner stated, “We have an incredible history of donor support and once again our glaucoma community came together to secure the matching funds. This critical funding will support the groundbreaking work of the Catalyst for a Cure and allow the team to continue to Phase 2 of the Vision Restoration Initiative.”

Glaucoma Research Foundation is grateful to every donor as each gift moves us closer to a cure by advancing crucial research forward. Thank you for rising to the challenge to raise more than \$3 million to support this consortium and provide hope for countless patients counting on us to cure glaucoma and restore sight.



Top: Dennis and Charlot Singleton
Bottom: Steven and Michele Kirsch

Pat Caulfield: Artistic Inspiration

AN INTERIOR DESIGNER TURNED ARTIST SHARES HER STORY ABOUT LIVING WITH GLAUCOMA



For twenty years, Pat Caulfield worked as an interior designer creating beautiful spaces for homes in the Baltimore area. Then, she had to walk away from it all. “After my glaucoma diagnosis, I went into immediate panic mode,” Pat recalls.

She went five years with no vision loss, but then, without warning, she lost half the vision in her left eye. And when she lost central vision in her other eye, work became impossible. “I couldn’t use a computer anymore. I couldn’t drive. I really went through a period of mourning, a period of grief,” she says.

That’s when Pat knew she needed more than just medical help. She turned to Glaucoma Research Foundation (GRF) and her lifelong passion for art to pull her through. “GRF does such a great job disseminating information we all need,” Pat says, “like how to cope with vision loss. As people with glaucoma, we need to have hope, but we also need to know how to advocate for our own healthcare. We need to know what questions to ask. GRF helps us do that.”

As she learned to cope with glaucoma, Pat discovered she could still paint, a hobby she’d always loved. “Even though I lost my vision, that didn’t mean my creativity stopped,” she says. “I just had to learn to do things differently.” In the ten years since her diagnosis, Pat learned new ways to paint in a more abstract and expressive style.

Now, she’s painting full-time, entering juried shows, and selling her work. “I never would have gone full-on into an art career if I did not have glaucoma,” Pat says. “I loved being a designer, but had to shift gears, and in the process, discovered who I really am.”

Glaucoma Research Foundation is grateful to Pat for inspiring the inclusion of a special art show at the upcoming Annual Gala in San Francisco on February 10, 2022. In addition to her own artwork, Pat has curated a variety of works from other artists with visual impairments.

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