

# Glaucoma



Chats

## Can Glaucoma Be Prevented? The Science Behind Risk Reduction

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Transcript of teleconference with Dr. Rebecca Sarran, Assistant Professor of Ophthalmology, Rush University Medical Center  
Education Director, Department of Ophthalmology

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Please note: This Chat has been edited for clarity and brevity.

**MS. KACI BAEZ:** Hello, and welcome to today's BrightFocus Glaucoma Chat. My name is Kaci Baez, and on behalf of BrightFocus Foundation, I'm excited to be here with you as we talk about the prevention of glaucoma and the science behind risk reduction. Our Glaucoma Chats are a monthly program in partnership with the American Glaucoma Society, designed to provide people living with glaucoma and the family and friends who support them with information straight from the experts. All vision Chats presented by BrightFocus Foundation are also available to listen to as podcasts on the go on YouTube, Spotify, iHeartRadio, Amazon Music, Apple Podcast, and Pandora. BrightFocus Foundation's National Glaucoma Research Program is currently supporting 38 active projects across the globe and is one of the world's leading nonprofit funders of glaucoma research, having supported nearly \$51 million in scientific grants exploring the root causes, prevention strategy, and treatments to end this sight-

stealing disease.

Now, I would like to introduce today's guest speaker, Dr. Rebecca Sarran, who is a board-certified ophthalmologist and glaucoma specialist. Dr. Sarran pursued her medical degree and residency training at Rush University and completed her glaucoma fellowship training with the glaucoma service at the University of Illinois Eye and Ear Infirmary. She has been a member of University Ophthalmology Associates and an Assistant Professor of Ophthalmology at Rush University since 2020 and also serves as the Education Director for the Department of Ophthalmology. Dr. Sarran comes from a proud tradition of serving the Chicagoland area and is a fourth-generation ophthalmologist in her family who is honored to practice in the community in which she was raised. Welcome, Dr. Sarran.

**DR. REBECCA SARRAN:** Thank you so much. It's a pleasure to be here today.

**MS. KACI BAEZ:** So excited to have you. For our listeners, when we talk about the prevention of glaucoma and the science behind risk reduction, we want to open our discussion by going over the risk factors for each type of glaucoma, since there are different types, and starting with: What are the risk factors for open angle glaucoma?

**DR. REBECCA SARRAN:** Thank you. First, we'll just, kind of, take a step backwards and talk a little bit about the different types, and then we'll get back to the risk factors for open angle. So, the two main flavors of glaucoma, the two different types that we think about, are open angle and closed angle. Open angle glaucoma is the type of glaucoma where your eye pressure is too high for the health of your optic nerve, but it's not due to a crowding of the structures in the eye. Closed angle glaucoma is due more to the shape and size of the eye being too small, so the structures of the eye are very crowded, and that impairs the drainage of fluid and allows the pressure to go up. So, those are the two main different types, and we'll talk about them separately, because they have different risk factors.

Open angle glaucoma is by far and away the more common. Somewhere on the order of 80 to 85 percent of patients with glaucoma will have open

angle glaucoma. And there's a few risk factors. Some of the risk factors I would put in the category of things that your eye doctor will measure when you go to the doctor: your eye pressure, which is separate from your blood pressure and not related or affected by it; whether or not you are near sighted; the thickness of your cornea. And those are the main things that fall under that category. The other group of risk factors have to do with people's inherent characteristics: their age, their race, and family history is a really, really big one.

**MS. KACI BAEZ:** Great, thank you. So, how are those risk factors different from angle closure glaucoma or closed angle glaucoma?

**DR. REBECCA SARRAN:** So, closed angle glaucoma more often has to do with risk factors that are associated with the shape and size of the eye. So, being far sighted, which means that your eye is a little bit smaller or shorter than average—that's also called hyperopia—that's when your glasses prescription has a plus number in front of it, as opposed to nearsightedness, your glasses prescription will have a minus number in the beginning of it. And along with having a shorter eye, different structures of the angle are smaller; the front part of the eye, which is called the anterior chamber, is shallow; or that you have a very dense cataract can sometimes precipitate closed angle glaucoma. Then, those kind of other bucket of risk factors that have to do with you: again, family history, age, females are more likely to have angle closure glaucoma than males, and then people of Asian or Inuit descent.

**MS. KACI BAEZ:** Great, thank you. And you mentioned age. What is the typical age where your risk starts to increase?

**DR. REBECCA SARRAN:** You know, there's not an exact threshold of when you kind of tip over into being more at risk, but we know, just as one gets older, the predominance of glaucoma in the population goes up. So, I would certainly say, and I think we'll get to this a little bit further down the line when we get to prevention tips, but definitely sometime between the age of 40 and 50 are kind of low numbers to say, "40, go have your first nice, dilated eye exam with your eye doctor," and they will very well be able to elucidate whether or not you look like you might be

at risk for glaucoma or not.

**MS. KACI BAEZ:** Right, thank you. And lastly, what are the risk factors for normal tension glaucoma?

**DR. REBECCA SARRAN:** So, normal tension glaucoma is kind of a subset of open angle glaucoma, so it's when your eye pressure is too high for you, but the number isn't actually high. When we measure the eye pressure, a normal pressure is what we consider to be between 10 and 20. But some people have a pressure that's in a nice low range—10, 12, 13—and they're still getting damage to their optic nerve, even though on a population standpoint, we would call that kind of a normal eye pressure. So, that pressure is too high for them. These risk factors for normal tension glaucoma ... there's some debate whether or not this really just falls below the category of open angle or there's some other factors there, because some things that contribute to normal tension glaucoma are if you have vascular disease, sleep apnea, if your blood pressure goes down at nighttime—so, some people that take their blood pressure medicine in the evening might drop their blood pressure at nighttime—all of those factors impair how much good, healthy blood flow is going to the eyes, and that can lead to worsening of their normal tension glaucoma. There is some literature that there may be a relationship between dementia, especially vascular dementia, and glaucoma. At this point, I know it's been in the press a little bit, but we don't have an exact causation or correlation there, but we know there is an association between glaucoma and dementia.

**MS. KACI BAEZ:** Thank you. So important to point out the eye–brain connection is so strong. So, you mentioned family history, and that appears to be a risk factor in all three types of glaucoma. So, that, along with our ethnicity, are variables and factors that we can't change. Can those with a family history of glaucoma and those who are just at a higher risk get genetic testing to determine if they're likely to develop glaucoma or just to sort of understand their risks a little bit more?

**DR. REBECCA SARRAN:** That's a great question. The genetic testing question is one I get a lot, and it's a little bit more complicated than just going and getting a genetic test. There are some genes we have

identified that have a very clear correlation with glaucoma. The most commonly tested for ones are actually ones that have to do with juvenile or childhood glaucomas or congenital glaucomas—you know, babies that are born with glaucoma. We've really identified some clear links to genes for those conditions, and juvenile glaucoma we think of, actually, as anyone under 40 who develops glaucoma can get genetic testing to see if they express the genes that may predispose them or their family members to glaucoma. Glaucoma in the population past the age of 40, we have identified some genes, but there's not a specific genetic test for that, and truly, it's much simpler to go get an eye exam with your eye doctor, because they should be able to look at your nerve and give you a really nice sense of whether or not your nerve looks at risk for glaucoma. When I meet someone for the first time who I'm concerned about glaucoma, I always ask if they have a family history. I ask if their family members required eye drops or if they required surgery; that gives me a sense of how aggressive the glaucoma may have been in their family. Sometimes I'll have people that say, "I haven't heard that word glaucoma," and then I figure they probably don't have a strong family history, and then I have some people that come in and say, "My aunt, my brother, my mom, my grandma all had glaucoma." So, it tends to run pretty tightly in families, but it doesn't always.

**MS. KACI BAEZ:** Getting that eye exam is so important, with glaucoma being the second-leading cause of irreversible blindness worldwide that affects 80 million people. A lot of people really do want to know: Can glaucoma be prevented? I think people also want to know if glaucoma can be reversed, and that's a question that we talk about a lot here. But can glaucoma be prevented, and as a follow-up, if you already have glaucoma, can you prevent further vision loss from the disease?

**DR. REBECCA SARRAN:** Those are great questions. So, the first thing that I always tell people is that glaucoma's tricky because the way that it affects our vision—it is the second-leading cause of blindness in the United States—is that it affects our peripheral vision first, and we live our lives right in front of us, and we don't live our lives testing our peripheral vision all the time. So, oftentimes it's very challenging or nearly impossible for someone to detect whether or not they have any change in their

peripheral vision without getting a test with your doctor. Glaucoma can't really be prevented in and of itself, and once we've identified that someone has glaucoma or has a high risk of developing glaucoma, our real goal is not to reverse it or tell you you no longer have glaucoma; it's to stabilize it or stop it in its tracks, and we have a lot of ways we can do that: eye drops, laser treatments, surgeries. And really, the best way to know is—again, I feel like a broken record—but the best way to be assessed about whether or not you have glaucoma or are at risk for glaucoma is a good eye exam and evaluation of your optic nerve, which is where glaucoma acts. And if you already have glaucoma, can you prevent further loss from the disease? So, we have many, many, many patients that never develop vision loss, never develop appreciable peripheral vision loss or essential vision loss just by being treated and having their pressure lowered and at a good, nice, stable level.

**MS. KACI BAEZ:** Thank you. The information is so helpful, and with all of the research being conducted for glaucoma, there are new discoveries every day, and there is reason to be hopeful and, most importantly, to see your doctor. So, one by one, we're going to dive into some of the prevention tips. You've mentioned the critical importance of getting eye exams. How often should our listeners be visiting their doctor?

**DR. REBECCA SARRAN:** I think that it's around age 40—somewhere between 40 and 45—if you've never had a dilated eye exam with an ophthalmologist, it's a good idea to go have one, and then your doctor can really guide you about where your risk is and how often you need to be seen. I certainly see people in their 40s who may have a family history, but everything looks really healthy, and we'll do an annual exam. That's probably my most common thing I recommend for people is a nice annual exam. And I have some people that look like they have really no risk, everything looks really healthy, and then I'll say every 2–3 years is okay. But with a detailed exam, that guidance can be given to you, but usually an annual exam.

**MS. KACI BAEZ:** Okay, thank you. How important is it for our listeners to protect our eyes from the sun? Do you have any recommendations in terms of sunglasses or hats and sun protection for vision?

**DR. REBECCA SARRAN:** Related to glaucoma specifically, the sun is not a risk factor or a contributing factor to the progression or the development of glaucoma, per se. But in other disease processes of the eye—cataracts, macular degeneration, a few other things—sun protection is important. So, really, anything with UV protection is fine; it doesn't necessarily have to be anti-glare, all those different special coatings and things I don't think make a huge difference, but having UV/A and UV/B protection are important when you're out in direct sun.

**MS. KACI BAEZ:** Thank you. So, smoking. We all know that smoking is bad for us, but how does smoking impact our risk of developing glaucoma?

**DR. REBECCA SARRAN:** So, smoking also has kind of an indirect relationship with glaucoma as it relates to causing vascular disease. So, we know smoking causes worsening vascular disease or cardiac disease, and having a healthy vascular and cardiac system are important for perfusing the eye and preventing that normal tension and low tension glaucoma that we talked about earlier. So, that's the most direct route that smoking contributes to glaucoma, per se. Again, we know with macular degeneration, smoking plays a huge role, and thyroid eye disease. So, certainly, that's a great place to give yourself a little bit of risk reduction in disease processes overall.

**MS. KACI BAEZ:** Thank you. Also wanted to note that a 2022 National Glaucoma Research BrightFocus study on glaucoma concluded that heavy smokers are 2.2 times more likely to have their vision loss progress if they have glaucoma than if they never smoked, so that's just an interesting finding from BrightFocus.

**DR. REBECCA SARRAN:** Yeah, and I think, certainly, has to do with the vascular component, where our optic nerve can only be as healthy as it's perfused with a healthy circulatory system, so that certainly would probably cause progression.

**MS. KACI BAEZ:** Absolutely. So, thinking about food and diet is something that is top of mind for many people when it comes to a healthy lifestyle, and specifically for people who already have glaucoma or might be at risk for developing glaucoma. Are there any diets or foods that are best for

them?

**DR. REBECCA SARRAN:** There's been a lot of studies in this area, and I think there are some forthcoming studies, too, to try to associate certain diets or certain types of food with glaucoma itself. The data is kind of wishy-washy. So, again, I always circle back to healthy diet, healthy lifestyle just helps with your overall cardiovascular health, which is going to keep your optic nerve healthy.

**MS. KACI BAEZ:** Absolutely. So, thinking about foods that we should avoid, things like caffeine and alcohol come to mind as they're often mentioned as things to avoid when it comes to a healthy diet. So, does caffeine increase eye pressure?

**DR. REBECCA SARRAN:** Caffeine does not increase eye pressure itself. Yeah.

**MS. KACI BAEZ:** Okay. Are there any other foods that our listeners should generally avoid?

**DR. REBECCA SARRAN:** I tend not to give specific dietary restrictions to people with glaucoma. Everyone's a little bit different about what dehydrates them or may cause health issues overall, but nothing specifically that you certainly should avoid in glaucoma specifically.

**MS. KACI BAEZ:** Thank you. Are there any vitamins or supplements that prevent glaucoma? One listener specifically asked about the optic nerve supplement NMN.

**DR. REBECCA SARRAN:** So, this is certainly a hot topic and something that comes up at a lot of our national and international meetings about glaucoma. There are a lot of studies in process right now about different supplements, and for every study that gives a suggestive correlation or causation about helping glaucoma, there might be a few that kind of debunk it. So, we, at this juncture, are not specifically recommending any vitamins or supplements to every glaucoma patient. The NMN conversation is interesting. So, there's a really large study going on right now, and the data's supposed to come out in 2026. So, NMN



is nicotinamide, which is one of the B vitamins—B3—and there is a prospective study, which means that they're actually enrolling people in a study of whether or not they're going to take the supplement or not take it, in people that have glaucoma, and it's a very large study, so we're all kind of eagerly awaiting the results. None of these supplements are necessarily harmful, but we don't have that good, robust data there yet, but we're hoping to have something. And that data collection is coming to an end in 2026, so stay tuned.

**MS. KACI BAEZ:** That's exciting. It's always important to have the clinical data. So, moving on to exercise, do you have any tips for our listeners on the types of exercise that are best? We have some specific questions from our listeners. One of them is: Does doing yoga cause glaucoma? And another one is: Are my strength- and muscle-building exercises harmful to glaucoma?

**DR. REBECCA SARRAN:** Those are great questions. Yoga's an interesting one. We know from the data on low-tension glaucoma, that any exercise or any activity that puts your head below your heart for an extended period of time does decrease the amount of blood flow to the optic nerve. So, in people that are diagnosed with glaucoma, especially with low-tension glaucoma, I will have them avoid any inverted positions in yoga, but they don't have to avoid yoga altogether. If someone came to me with a very strong family history, maybe I would recommend avoiding that, too, but I don't give it a blanket statement to my patients that they should avoid yoga because of that correlation. Muscle-building exercises are not harmful to glaucoma. And they're fabulous for you, so I would certainly continue that. I wouldn't put any restriction on that type of exercise.

**MS. KACI BAEZ:** That is so fascinating about the yoga connection. Thanks for explaining that. So, going back to family history being a risk factor, how important is it for us to talk to family members about their risk and getting their eyes checked? Do you have any tips for how best to bring up this conversation?

**DR. REBECCA SARRAN:** Yeah. So, when I have patients that are newly diagnosed with glaucoma, I definitely encourage them to tell their first-degree family members—so, siblings, parents, and children—that they

should have an eye exam to see if they're at risk. With a person who's newly diagnosed in, like, their 80s or 90s, that might be a function of other kind of aging processes in the eye, so it may not be related to their family members, but it's never harmful to talk to your family members about getting an exam, especially if I have someone who has glaucoma that's challenging to control or requiring surgical intervention, or is on the younger side—you know, younger than that 40 or 45 years old—then I certainly encourage them to talk to their family members. I think if it's an uncomfortable conversation to bring up and you don't know how to bring it up, you can just say, "I'm just passing along, my eye doctor told me that I have glaucoma, and it can run in families, so you should go have an eye exam at some point and make sure everything looks healthy for you." I definitely see plenty of patients—even young, 20s, 30s—who say, "My mom just had glaucoma surgery. I want to know what my risk is," or, "My grandma just lost a lot of vision from glaucoma." So, I think it's certainly worth bringing up with your family members.

**MS. KACI BAEZ:** Definitely, especially since a lot of people who have glaucoma don't really know that they have it, so it's so important to always go to the doctor and get your eyes checked. We have quite a few more listener-submitted questions now. I think we have time for some.

**DR. REBECCA SARRAN:** Yeah, absolutely.

**MS. KACI BAEZ:** One of the questions we have received is something that we discussed last fall, and that is: Can marijuana help or cannabis help with glaucoma in terms of ... can it help at all?

**DR. REBECCA SARRAN:** Yeah. So, the marijuana conversation is a really interesting one, as well. So, we know that there are two chemical components of marijuana. There's the THC component and then ... now I'm blanking on what the other component is at this point. But there's two different chemical components of marijuana, and one actually can lower eye pressure, and one actually, in a small population of people, actually raises eye pressure. So there is some data that it helps lower the eye pressure, but it only works while it's in your system. So, if it was going to be something that ended up being therapeutic for people for glaucoma, it would have to be in your system all day every day, because we know

fluctuations in eye pressure are really dangerous for the optic nerve. There is certainly a lot of research in this area going on about isolating the different components and trying to come up with a formulation that may be able to treat people. What the people I've talked to think is going to end up happening is that they may isolate some of the components of marijuana into an eye drop, so then it might be just like our other glaucoma eye drops where it's something you take once or twice a day. I think the oral form is going to end up being too variable and need to be taken too often to be a realistic treatment option for people.

**MS. KACI BAEZ:** That's so fascinating about the eye drop possibility. And there's so many questions about this out there, so thank you for explaining that. When it comes to other lifestyle-related questions around glaucoma, one listener wants to know: Does your sleep position affect glaucoma?

**DR. REBECCA SARRAN:** That's a great question. As far as I know, I don't think there's any really robust data that the sleep position makes a big difference. I don't think, like, sleeping on your stomach or sleeping on your eye or anything increases the pressure in a way that would be substantial for you. So, I don't recommend different sleeping positions for people.

**MS. KACI BAEZ:** Thank you. Should we wear glasses with blue light protection lenses if we have glaucoma?

**DR. REBECCA SARRAN:** I feel like I'm giving very similar answers for a lot of things. The blue light glasses help with glare and sometimes help with a lot of comfort, especially in people that use computers often for work or just in life. Sometimes it'll help the eyes feel more comfortable at a computer screen, but they don't affect the health of the eye. So, they certainly are not related to preventing or assisting with glaucoma management, but a lot of people find them more comfortable to use with screens. So, if you are someone that spends a lot of time on the computer, I don't discourage people from trying them for comfort.

**MS. KACI BAEZ:** Thank you. Just a few more questions. A listener wants to know: Can glaucoma cause other eye diseases? And also, if you have glaucoma in one eye, does that mean you're going to get it in the other

one?

**DR. REBECCA SARRAN:** Those are both really good questions. Glaucoma can predispose you to having other issues in the eye. More often, it's kind of the reverse: Other disease processes in the eye can cause what we call a secondary or a subsequent glaucoma. So, having uncontrolled diabetes disease in the eye can cause glaucoma. Having a large cataract in the eye can cause glaucoma. Glaucoma tends not to cause the other things that often. Sometimes in closed-angle glaucoma—so, that's when the eye is too small and too crowded—the pressure can build up quickly, and it can cause headaches, vision loss, nausea, vomiting, and eye pain, and sometimes that can lead to vision loss. But it's more that a secondary glaucoma can often be caused from other disease processes. And then—remind me what the second part of the question was?

**MS. KACI BAEZ:** If we have glaucoma in one eye, how does that affect the other eye and the risk for glaucoma?

**DR. REBECCA SARRAN:** Yeah. So, we consider glaucoma to be a bilateral disease, but it often is what we call asymmetric. So, if we have the tendency or the predisposition to have damage in the optic nerve or have high pressure in one eye, we tend to consider it to be in both eyes. It just might be well controlled, or it might be very mild or in an undetectable range. So, we do consider, because there are so many genetic components and so many systemic components that can contribute to glaucoma, we do consider it to be a bilateral disease.

**MS. KACI BAEZ:** Thank you so much. So important to see your doctor, as a reminder. This information is so helpful, thank you. And for our last two-part question is coming back to what we're talking about today. Can lifestyle changes really have a profound effect or a minor impact on glaucoma? And what is the most important contributor to eye health?

**DR. REBECCA SARRAN:** You know, I think overall the most important contributor to eye health is your systemic health, your cardiovascular health. I think those lifestyle changes that keep your blood pressure under good control, your cholesterol under good control, all of that is just going to make your eyes as part of your overall health be as healthy as possible.

As far as lifestyle changes that affect glaucoma specifically, again, we don't have a lot of great data surrounding different exercises, foods, all of that that can prevent or aid in glaucoma. Really, the biggest thing is getting your eyes checked. So, in some ways, that can be frustrating, that there aren't things that you can do in your day-to-day life, but in other ways, I tell my patients, "I'm not sending you home with a list of homework things to change about your life. As long as you come in and have a regular eye exam, you'll have a really, really good sense of where your risk is, if things are changing over time, and if any treatment needs to be performed." Glaucoma, for the vast majority of people with glaucoma, is an exceptionally slow-moving disease. So, it tends to be something chronic, something that you have for life if you have it, but it tends to, if it's going to progress, be very slow. So, that's why even on an annual basis, we can often catch very, very, very subtle changes that will never have noticeable impacts on your vision in your day-to-day life.

**MS. KACI BAEZ:** Thank you. And all of this information is so helpful when it comes to managing life with glaucoma for our listeners. So, thank you, Dr. Sarran, for all of the important information that you shared with us today. We're ready to wrap it up, and thanks to our listeners for joining our Glaucoma Chat. We sincerely hope you found it helpful. Our next Glaucoma Chat will be on Wednesday, November 13. We'll explore "Glaucoma 101: The Science Behind This Sight-Stealing Disease." Thank you again for joining us, and this concludes today's BrightFocus Glaucoma Chat.

**DR. REBECCA SARRAN:** Thank you.

## Useful Resources and Key Terms

BrightFocus Foundation: (800) 437-2423 or visit us at [BrightFocus.org](https://www.brightfocus.org). Available resources include—

- [BrightFocus Foundation Live Chats and Chat Archive](#)
- [Glaucoma research funded by BrightFocus Foundation](#)
- [Overview of Glaucoma](#)
- [Treatments for Glaucoma](#)
- [Resources for Glaucoma](#)
- [Expert Advice for Glaucoma](#)
- [Glaucoma: Prevention & Risk Factors](#)

## Drugs and other forms of treatment mentioned during the Chat include—

- Glaucoma types
  - [open angle](#)
  - [closed angle/angle closure](#)
  - [low pressure/normal pressure](#)
- Treatments currently being tested
  - NMN (nicotinamide mononucleotide)
  - marijuana and its chemical components