

Glaucoma



Chats

Can Non-Drug Interventions Reduce Glaucoma Risk?

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Transcript of teleconference with Dr. Jullia Rosdahl, Glaucoma Specialist, Duke Eye Center

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

MS. SARAH DISANDRO: Hello, and welcome to today's Glaucoma Chat, "Can Non-Drug Interventions Reduce Glaucoma Risk?" My name is Sarah DiSandro, and on behalf of BrightFocus Foundation, I'm pleased to be here with you today. 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 Glaucoma Chats presented by BrightFocus are also available to listen to as podcasts on YouTube, Spotify, iHeartRadio, Amazon Music, Apple Podcasts, and Pandora. BrightFocus Foundation's National Glaucoma Research Program is one of the world's leading nonprofit funders of glaucoma research and has supported nearly \$51 million in scientific grants exploring the root causes, prevention strategies, and treatments to end this sight-stealing disease.

Now, I would like to introduce today's guest speaker, Jullia Rosdahl,

MD, PhD, is a board-certified and fellowship-trained glaucoma specialist at the Duke Eye Center in Durham, North Carolina. She completed her doctoral work on retinal ganglion cell biology during her MD-PhD at Case Western Reserve University in Cleveland, Ohio. Now, she is working to save as many retinal ganglion cells as possible and preserve sight for her glaucoma patients as an associate professor of ophthalmology at Duke University. She has authored peer-reviewed articles on health coaching and patient education for glaucoma, book chapters on glaucoma care, including a textbook on optical coherence tomography, OCT, for glaucoma. And she presents regularly at regional and national conferences on these topics. Welcome, Dr. Rosdahl.

DR. JULLIA ROSDAHL: Thank you so much. I'm really excited to be on this call for you, especially about this great topic.

MS. SARAH DISANDRO: Great. So, the title of this Chat is actually a great first question. In general, can non-drug interventions reduce glaucoma risk?

DR. JULLIA ROSDAHL: I think this is really a great first question. This is something that comes up a lot with my glaucoma patients, and I know with many of the patients that my colleagues are seeing, too. I think for the most common types of glaucoma, like primary open-angle glaucoma, there aren't really diet and exercise interventions that can reduce your chance of getting glaucoma. So, sometimes that's a little bit of a disappointment to folks that they can't prevent it with just eating healthy and getting exercise, but diet and exercise and managing systemic medical conditions, like high blood pressure and diabetes, can actually help prevent secondary causes of glaucoma, like neovascular glaucoma, that can happen if those hypertensive changes and diabetic changes go on to affect the eyes. So, I guess, in a way, diet and exercise can prevent some types of glaucoma. The other non-drug intervention that can prevent you from getting glaucoma is wearing safety glasses because that can help prevent traumatic glaucoma. So, I guess those are the things that really can prevent glaucoma. But the most common type of glaucoma in the United States, primary open-angle glaucoma, really, it's about early diagnosis—to diagnose it early to prevent future vision loss, and, there,

diet and exercise aren't really the answers.

MS. SARAH DISANDRO: That's incredibly important and really good advice. Now, let's back up a little bit and talk about eye pressure. How does elevated eye pressure relate to glaucoma development and progression? And can lifestyle modifications meaningfully impact eye pressure? And if so, how? It's a two-part question there, but I would love for you to elaborate on that.

DR. JULLIA ROSDAHL: Yeah. So, eye pressure is such an important part of glaucoma management, but it's really not the whole picture. So, a lot of times people, even doctors, can equate, "Oh, that person has glaucoma. They must have high eye pressure," and vice versa. But high eye pressure doesn't always mean you have glaucoma. Some people are just born with higher eye pressures, and they don't cause damage. And then low or normal eye pressure doesn't mean you don't have glaucoma, because many people with glaucoma never have high eye pressure. But it is really important because it's the modifiable risk factor that we can address in glaucoma management by lowering eye pressure with drops, laser, surgery. So, it is really important, even though high eye pressure doesn't equal glaucoma the way that we used to think it did.

So, eye pressure is important for glaucoma, but it's not the whole story. And lowering it is essential for treatment, even if your pressure doesn't start out high. And then that second part of your question was on lifestyle modifications that can impact eye pressure. I know we're going to touch on a few that might lower eye pressure, but I think one of the other ways that some of the lifestyle modifications that we're going to talk about might help with glaucoma is more on the inner part of glaucoma. So, the eye pressure is from the front of the eye, but glaucoma is really a disease of the optic nerve, the nerve that connects the eye to the brain—that cable. And so, we think that a lot of these things that support your overall health might help that optic nerve be more supported, be more protected. And so, it's that other side of what is glaucoma, that optic nerve damage that we think is impacted by these lifestyle-type activities.

MS. SARAH DISANDRO: Great. That's incredibly important. Thank you for

talking about the optic nerve and the damage that occurs there. So, can you share some examples of non-drug interventions, different things that can protect against glaucoma?

DR. JULLIA ROSDAHL: Yeah. So one of the most important things that people can do are adhere to their treatment plan; take their drops, if they're prescribed; go to the eye doctor. Make sure that their eye pressures are getting checked, their optic nerve is being assessed, both structurally and functionally. So, adhering to their treatment plan isn't exactly a non-drug intervention, but it, sort of, is, so I want to make sure that we're supporting that. But there's also some evidence for a heart-healthy diet, some exercise recommendations, some things around sleep, both duration and position, as well as some interesting studies coming out around meditation. Just to caveat, a lot of the recommendations that we have are based on studies that are association-type studies where they've found correlations between activities that people are doing or not doing and their glaucoma progression, not necessarily those randomized controlled trials that are the strongest weight—so, a lot of these things we think likely help, but we don't necessarily have the strongest data, like we do for eye drops, laser, and incisional surgery.

MS. SARAH DISANDRO: Okay, got it. You mentioned a heart-healthy diet. What role does diet play in glaucoma progression and overall health?

DR. JULLIA ROSDAHL: So, we don't have a specific glaucoma diet that we know works. I wish we did. So, generally, when patients ask me about diet, I recommend a heart-healthy diet—lots of fruits and vegetables, lean proteins, whole grains—with the idea that if we're really helping blood flow to the eye, then we're going to help protect that optic nerve and protect the whole eye. So, a heart-healthy diet, I think, is a good idea for both your eyes, as well as your heart. There is some work around, actually, caffeine. Again, these are correlative-type studies, but it looks like probably limiting to less than three cups of coffee—caffeinated coffee—per day is a good idea. And if you're trying to choose between coffee or green tea, there are some data that drinking hot green tea on a regular basis might be protective for glaucoma. So, not a lot there to guide people, but I think just generally that heart-healthy diet is a good one.

MS. SARAH DISANDRO: That's great. Yeah, the heart-healthy diet is just wonderful for overall health. Okay. So, in terms of exercise, how do different types of exercise affect glaucoma progression? And what exercise recommendations do you give your patients regarding intensity, frequency, maybe precautions to manage their condition while they're staying active?

DR. JULLIA ROSDAHL: Yeah, I think that this has been really an interesting area of research in the last couple of years. There is now some higher quality evidence suggesting that getting low-to-medium intensity exercise about 30 minutes a day, three to five times per week, could be protective for glaucoma progression. And I usually tell patients to exercise such that they're getting a little sweaty to do it, then you know you're getting a little bit of a workout, but maybe not overdoing it. But, certainly, even doing a little bit is better than none. So, start slow and stay active. How it helps, we don't exactly know. We think probably related to the blood flow and just overall good stuff that happens when you exercise. There are so many benefits to exercise that we really don't understand but we know really do make a difference. With regard to specific exercises, so if a patient is doing weightlifting, it's good to remember to keep breathing when you're lifting those heavy weights, so you're not holding your breath. If you've ever sat at the slit lamp getting your eye pressure checked, then you might remember your doctor saying, "Keep breathing," because when you hold your breath, the eye pressure does go up.

Another interesting exercise position or issue is around yoga. So, I think yoga is probably really good for us and including our glaucoma patients, but we do recommend, especially in someone who might have advanced glaucoma, to avoid prolonged head down postures where your head is lower than your heart for long periods of time. And so, try to avoid, maybe, headstands and doing inversion table-type activities, again, if you have more advanced glaucoma. And then if you've had glaucoma surgery, you definitely want to check with your doctor about when you can start swimming and going into water—lake water or pools or ocean. And then, certainly, like we mentioned at the top, eye protection. So, if you're doing a sport where you might get poked in the eye, might get hit with a ball, to wear eye protection. So, anybody who might be thinking of taking up

pickleball to, maybe, pick up a pair of protective eyewear as well.

MS. SARAH DISANDRO: That's great. Thank you. Now, what about sleep? Does the quality of your sleep impact glaucoma progression? And what about sleep position as well?

DR. JULLIA ROSDAHL: Yeah, so there's been a couple of studies coming out about sleep. And I think that the long and short of it is, like many things in medicine, not too much and not too little. With sleep, they found associations with progression of glaucoma in patients that only slept a few hours and then people who slept really long amounts. Again, these are correlation, not necessarily causation. So, we don't know what else might be going on, but getting regular sleep, high quality, every day, is good for your body, including glaucoma.

And then sleep position is interesting. Sometimes, the glaucoma is worse in one eye than the other, and that can be correlated with side sleepers. And so, if you do know that your glaucoma is worse on one side, try not to sleep on that side if you can. And then there's some evidence around using a wedge pillow, like keeping your head elevated when you're sleeping. And there's evidence that this can help prevent progression, especially, again, in those advanced cases. I haven't had the best of luck. I'll be honest with you, patients that I recommended this to, they don't find it that comfortable. But I think that it's worth trying if you're really worried and you might have glaucoma that's progressing despite all the things that you're doing, to consider trying a wedge pillow.

MS. SARAH DISANDRO: That's some really great advice and some great ideas there. Thank you so much for sharing that. So, there have been some studies that have connected chronic stress to elevated eye pressure and even accelerated glaucoma progression. Could you discuss how meditation and stress reduction techniques could help benefit people with glaucoma?

DR. JULLIA ROSDAHL: Yeah, this was one of the most exciting things that I read a couple of years ago. I was surprised and just really excited when I read this. So, the study that I read—and now there have been more to support it as well—was they did a study, and they had a group of patients

who were scheduled for glaucoma surgery. So, they had progressing glaucoma, and they needed glaucoma surgery. And they divided them into two groups, one that did mindful meditation every day and one group that didn't, that just had normal routine care. And it was so interesting in that group of patients that did mindful meditation every day, some of them didn't need to go on and get their glaucoma surgery, which I just found fascinating that something that was non-drug, non-intervention in terms of a traditional sense could really help with glaucoma management. And they've done this in more groups with more people. And so, I think that it's probably a real finding. And so, I think that this is really potentially powerful for our patients. Meditation, like everything though, isn't for everybody. And so, certainly, if it's not for you, then don't feel too bad. But if it is something that patients are interested in—the studies—they were usually with mindful meditation. It doesn't mean that other types of meditation wouldn't work, too, but a lot of the studies are with mindfulness-based meditation. And the patients meditated for usually 30 to 60 minutes per day, every day. We don't know that that's how much you need. It might be that less works as well. But like in many things, I think even just doing a little bit, trying it, and seeing if it works for you, even maybe 10 minutes a couple times a week would be a way to start.

MS. SARAH DISANDRO: Oh, yeah, that is super interesting. And I think I'm going to definitely start this myself just for general overall health and stress relief. So, I'll have to get back to you on how that's working out. That's wonderful. Thank you for sharing that.

DR. JULLIA ROSDAHL: Yeah, we know it's good for other things besides glaucoma. So, if you don't have glaucoma, feel free to try it as well.

MS. SARAH DISANDRO: Absolutely. A lot of people take daily supplements. What does the current research say about the effectiveness of supplements in reducing glaucoma risk?

DR. JULLIA ROSDAHL: Yeah, this is a really, really common question. And part of it is because there are supplements that have been shown to really help with age-related macular degeneration, the AREDS vitamins. I know that came up on one of our Glaucoma Chats a couple months ago. And so, a lot of people wonder, like, "Oh, if this helps with macular

degeneration, can it help with glaucoma?” And they actually did include that in some of their early studies. And they didn’t find that those AREDS vitamins help for glaucoma. And so, we really recommend not taking the AREDS formulation if you don’t have macular degeneration because they are high-dose vitamins, and they can have side effects to you. So, for glaucoma, we’re still looking for the right vitamin mix for glaucoma. And there’s a lot of exciting things happening there. Currently, though, I just usually recommend a multivitamin—a Centrum for men or a Centrum for women—for their supplement, not taking anything high-dose because of risks. The vitamin that I think is probably what we’ll hopefully be able to recommend in the future—it’s being studied currently—is vitamin B3, or nicotinamide. And this is not niacin. You don’t want the niacin version. It’s the nicotinamide version that looks like it’s hopefully going to be helpful for glaucoma. But this is a high-dose vitamin B3, and there are risks. There are studies ongoing, so we want to really wait until we get more data before we can start recommending it widely because it looks like there might be some risk to the liver, in particular, with high doses of this vitamin B3. But that’s the one that I think is most promising. So, people should, I think, stay on the lookout for more about that in the future.

MS. SARAH DISANDRO: Great. That’s very interesting. Now, there are companies out there that are claiming that their supplements or their products could possibly treat or cure glaucoma or even reverse vision loss. So, we’ve seen some groups out there saying that sort of thing from time to time. What criteria should our listeners use to evaluate these claims? And in what reliable resources would you recommend for fact-checking a product’s legitimacy and effectiveness?

DR. JULLIA ROSDAHL: Yeah, I think this is so important because people with vision loss, especially if they’re blind, they can be so vulnerable to being taken advantage of by claims like this, and it can be so dangerous because it can really be so harmful to people to use treatments that might harm them, make their eyes worse, cause pain, or even cause death or other morbidity. There’s no cure for glaucoma, not yet, and there isn’t anything now to reverse vision loss. So, if somebody is claiming that, then they’re lying. All of us, we’re desperate for a cure. We’re desperate to reverse vision loss in our patients, and once we have evidence of those,

we'll be on the Glaucoma Chats shouting it from the rooftops. Your doctor is going to be offering it to you. There's no one hiding these things from our patients. We want them just as much as our patients do. So, I think if patients are hearing about these things and they're interested in learning more, I think definitely start with asking your doctor before you especially spend a lot of money on something or order something online or from another country. Ask them what they think about it. And certainly, before you would travel anywhere to have any kind of procedure, ask the doctor who knows your eyes best what they think of this procedure, if they think it would be a good idea for you. And if patients are looking to just read up more, typically, when someone comes to me with something that they've read about, I'll look it up. The places I go to look are PubMed, which is where all the latest research is published. That's a search engine for finding research studies that have been published. And then ClinicalTrials.gov is where companies and organizations and researchers register the trials that they are planning to do or have in progress. And, certainly, if something is described in PubMed or listed on ClinicalTrials.gov, it doesn't mean that it's proven to help, so you really have to read the details. But it is a start to know if it's, at least, legitimate and what the status is with that compound or that device or that surgery to see if it does have evidence of efficacy.

MS. SARAH DISANDRO: That's really great advice. Now, beyond the topics we discussed so far today, what other lifestyle modifications should people be aware of when it comes to preserving vision and reducing glaucoma risk?

DR. JULLIA ROSDAHL: Yeah. So, really, the main thing is using your medications on a regular basis, which is 100 percent a lifestyle issue. I mean, it's so hard to take medications every day on time, especially if they have side effects, like irritation of your eyes and some redness and things. So, really incorporating your glaucoma treatment into your everyday life so that it is just part of your habits so that you can use your drops every day on time. And keeping up with eye exams, using the drops, keeping up with those treatments is important, but also going in and having everything checked. So, making sure that eye pressure is staying in that target range that's safe for you, making sure that your optic nerve, with its

structure and its function, is staying stable and that you and your doctor don't need to be more aggressive or less aggressive with your treatment. And glaucoma is not the only thing that can affect your eyes. Glaucoma patients can have other eye diseases as well, and so getting those regular eye checks lets us monitor for macular degeneration, cataracts, diabetic retinopathy, all those other things that can affect eyes as they get older too. So, staying on track with your eye drops and getting regular eye exams. I know it sounds like a broken record, but that is the lifestyle modification that probably has the biggest impact.

MS. SARAH DISANDRO: Right. Absolutely. Following your treatment plan is probably one of the most important things you can do. Absolutely. So, we're going to move into some additional ... some listener questions that we've received. The first question that has come in from a listener has to do with eye exercises: "Can eye exercises help, perhaps by improving blood flow or something like that?"

DR. JULLIA ROSDAHL: Yeah, I love this question. I think that it sounds so fun with the idea of just moving your eyes, and it certainly can feel good, especially if you have a little bit of eye strain, to close your eyes and move them around. But I haven't seen any studies on whether this really does anything, but I think it probably doesn't hurt. Certainly, if you've had glaucoma surgery, especially recently, then moving your eyes around might be a little uncomfortable and you might not want to do that too much, but for everyday run-of-the-mill glaucoma patients, I think it probably doesn't hurt. So, if it seems like it feels good for you, I would say, probably, it's okay to do it.

MS. SARAH DISANDRO: Okay, great. Another listener question that we received is, "Does vitamin D have any effect on glaucoma?"

DR. JULLIA ROSDAHL: Yeah, I think that this is a really fantastic question because a lot of researchers have looked at this. And, again, these studies are correlative-type studies, and so they are really hard to tease out what might be causative and what is just correlation. And there have been some studies that suggested that, maybe, there was some protection, but more and more studies, especially some higher quality with larger numbers and a better way of tracking what actually the patients are eating and also

looking at patients that have been getting supplements for other reasons related to bones and things and looking at those patients and their glaucoma—the prevalence of glaucoma in those studies. It doesn't look like it really does have an effect for glaucoma. So, this listener was very savvy in asking this question, but it probably doesn't help for glaucoma, but certainly, if you're taking it for your bones or for other reasons, don't stop. Do what your doctor is recommending for those other causes.

MS. SARAH DISANDRO: Absolutely. Okay. And then another question that just came in: "The Columbia study includes pyruvate with B13. What does this do?" Is there any effect regarding this?

DR. JULLIA ROSDAHL: Yeah. The pyruvate is similar to the nicotinamide, to the B3, where it is in that metabolic cascade. And so, that is similar with the idea of it increasing your neurons' ability to actively metabolize. These neurons in your eyes, the retinal ganglion cells, are some of the most actively metabolic cells in your body. You can imagine that they're firing all the time. Some of them fire when the lights are on; some of them fire when the lights are off. So, these are incredibly metabolic cells. And so, both of these vitamins are in that same pathway.

MS. SARAH DISANDRO: Very interesting. Well, that's all the time that we have for questions today. Thank you, Dr. Rosdahl, for the invaluable insights you shared with us today. To our listeners, thank you so much for joining our Glaucoma Chat. I sincerely hope you found it helpful. As our time together ends today, we'd really like to get your feedback. Dr. Rosdahl, before we close, do you have any final words of advice for our audience?

DR. JULLIA ROSDAHL: Oh, thanks. So, I guess I just wanted to give a plug. May, next month, is Healthy Vision Month for the National Eye Institute. And so, all of our listeners, I'd recommend you head over to that website, especially in May. Check out their Healthy Vision Month resources and talk to your family about eye diseases—especially, if you have glaucoma—and encourage them to get an eye exam.

MS. SARAH DISANDRO: Thank you so much, Dr. Rosdahl. Our next Glaucoma Chat, "Implants and Injectables for Glaucoma Treatment," will

be on Wednesday, May 14. Thanks, again. Thanks, everybody, for joining us today for this Glaucoma Chat. And thank you so much, Dr. Rosdahl. This concludes today's Glaucoma Chat.

Useful Resources and Key Terms

BrightFocus Foundation: (800) 437-2423 or visit us at BrightFocus.org. Available resources include—

- [Glaucoma Chats Archive](#)
- [Research funded by National Glaucoma Research](#)
- [Overview of Glaucoma](#)
- [Treatments for Glaucoma](#)
- [Resources for Glaucoma](#)
- [Expert Advice for Glaucoma](#)

Helpful treatment options or resources mentioned during the Chat include—

- AREDS
- ClinicalTrials.gov
- Healthy Vision Month for the National Eye Institute
- [Lifestyle Factors and Glaucoma](#)
- Centrum vitamins and Vitamin B3