Eye on Contact Lenses: Comfort and Safety Transcript

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Introduction to Vision Correction

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So when it comes to both refractive surgery as well as ortho color cryptology, typically we're taking a curved cornea and we're flattening a little bit.

And that can relieve some nearsightedness or some myopia. Welcome to today's session I'm your host, Doctor Ronnie Vanek, and today we are so honored to have with us Doctor Christopher Levens, who is not only a seasoned optometrist, but he's also a very accomplished researcher in the eye health space.

Thank you so much, Doctor Levens, for joining us My pleasure. Thank you. Thanks for having me. Absolutely. It actually means you actually wear several different hats.

You're an optometrist. You're also a researcher. You have a PhD.

Doctor Levens' Career in Optometry and Research

Can you tell us a little bit about your journey in eye care and some of your research explorations? So early on in practice, just as an independent optometrist, I practice on the East Coast.

I was in a two location, three doctor private practice. I was in an ophthalmology intersect practice, and I was in the United States Air Force for a few years.

And the year 2000, I decided to go in full time into education. So for most of the time between the first 20 plus years of my academic journey, I taught a number of classes as well as I oversaw all of our patient care and our main clinical facility.

A number of years after that, though, I decided to pivot my career. Sometimes as you get older, you want to switch off to freshen things up. So I went on for a PhD in the UK and had been really studying and then doing research ever since.

And so now in my academic institution, I am the director of research and I research the entirety of the eye, from the cornea to the retina and and everything in between.

That is phenomenal. And I'm so glad you took that little pivot. It's not a single kind of side detour. I knew the research space. So I know a lot of your work, at least in the past, is focused on personal health and contact lens technologies.

Can you tell us a little bit about how contact lenses have changed over the decades? I know many people think of contact lenses as these uncomfortable devices they used to wear, but these look really evolved since then, haven't they?

Yeah, the research and development space in the realm of contact lenses has really exploded in the last quarter century, and it continues to even in the last few years.

These lenses are now can fit the multitude of eyes of the multitude of ages very successfully. And that wasn't always the case. So what are some of the just for our audience, an overview of the different types of contact lenses.

These are not all the same. And they're not all for all purposes. But can you give us an overview of what may be appropriate for certain types of issues.

Sure. So starting with the most rare, there are certain contact lenses that are dedicated to certain ocular an entire segment corneal diseases. And there are some that can reshape the cornea to modify refractive error and so those would typically be rigid lenses often scleral designs.

And they are very successful.

How Contact Lenses Have Evolved

And they continue to advance in terms of their ability to fit normalize as well as abnormal eyes. But then as we migrate from there, most people in the world today who wear contact lenses wear soft contact lenses, those that correct a common refractive error.

And then even if you have a little bit of astigmatism. And now as you're looking at me, I wear multifocal contact lenses. So as you become this 40 year and older eyes where you need reading glasses and bifocals and progressive lenses, wow.

The advances there are really delivering phenomenal vision. And so what I really say from childhood to grade, I think off the top of my head, the oldest patient to date that was a brand new contact lens wear that I fit was 87 years old.

Wow, wow. So it's not too late for anyone, right? No it's not. And that thing, there's an important add on for those people out there or patients out there who maybe failed in contacts previously.

Don't give up because the science and technology has now brought it to the point where if you didn't succeed before, there's an excellent chance you could be a great candidate today.

That is such an important point, doctor leave. It's because whenever I bring up contact lenses with my patients, some of them say I tried it when I was a teen or in my early 20s.

My eyes got so dry. It's just I can't wear them anymore. But what do you tell patients who say things like that who've had it? I say, but let me have a go at it, because I'm going to put you in a high technology lens, one of the newest to market, in all likelihood.

And if you have some dryness, of which, honestly, I make most of my patients prove to me they don't have dry eye until I assume they do, because it's so prolific.

In fact, one of our most common growing diagnosis is pediatric drives. Just the tablets digital devices that we use each and every day. But what are we doing now?

We're talking on a computer virtual screen. Probably neither one of us is really blinking appropriately. And so there are contact lenses that are aptly suited for eyes that have failed in the past, even for those that have diseases and even for those that have dryness issues.

So walk us through what a typical visit with you would look like if you were going to consider a patient for contact lenses. What tests do they need to do before you would consider potentially set them for a lens?

Contact Lens Types and Patient Selection

So probably the first and foremost is I have to get an idea that their eyes, their eyes operating health and they're seeing the they're they're seeing as well as they can.

So I want to know in spectacles anyway what is the best they can see. Because that gives me a reasonable goal to where I need to get to with contact lenses.

Then I take a very comprehensive look at their ocular health to make sure that there's no contraindication for a contact lens or something that's going to throw me a curveball, say along the way, if both of those things hold true, I'm going to do a very precise refractive analysis, both that distance now with computer vision, computer distance, as well as near vision to have goals in mind for acuity at all those distances.

And all this time my wheels are spinning on what is the number one choice of lens in my mind for them? And I usually present them with the best first before talking about price and convenience and replacement schedules and cleaning and all that.

I just put the best in their eyes and start there is. If I'm successful, at least I know. Okay, we have a great candidate sitting in front of me now. It's just going to come down to what our final lens choice is going to end up.

Got it. Now, are there specific types of patients in whom you would not recommend a contact lens? Can you think of some contraindications that you mentioned earlier for patients who have issues with chronic infection would be one.

Chronic surface issues that are not resolvable just on their own or via medication. And any of patients who have allergic our known allergy to a known component in the legs.

However, usually all those things that I mentioned, there's a way to navigate around those. For example, on the allergic bees, we may have some patients who are hypersensitive to silicone as a material on on their body and in their arc, but we can pivot from there and go to a lens that doesn't have silicone in it.

So there's usually a way around this. It's usually not a fail, but there are some things that pose of caution. Since we're talking about allergy, there's this one condition which is not so common, but when it happens it can be debilitating, called giant capillary congestion.

And oftentimes it is related to contact lenses. Can it can you tell us a little bit about that condition Yeah. We all see giant papillary conjunctivitis all the time.

You know. And I'm talking in the mid to late 90s and certainly earlier than that. And then rotating into the in the early 2000 where the allergy to either just the environment or to the lens itself was so robust because you imagine if you have a bug bite, your tissue swells up.

This happens on the inside of the eyelid. And so now you have an eye lid that's trying to blink over a contact lens. But instead of looking like a smooth pane of glass, it looks like a cobble in a cobblestone street from the 1700s.

It just doesn't work well in that patients incredibly uncomfortable. So that. But I will say fast forward in time. This is a great example of how technology in health has a way to remedy and rectify some things that we previously dealt with, because I haven't seen giant papillary conjunctivitis due to contact lenses in probably 25 years, so it may be out there worldwide, but it's not something that I've encountered in a very long time because technology has solved that problem for us.

Yeah. Same here. I can't even remember the last time I saw a case. Maybe it was back in residency. Thank you for that. And even people who've had issues in the past may want to reconsider their choice of starting contact lenses again.

You mentioned earlier, Doctor Levins, about multifocal lenses. Now I myself, I do wear them on occasion, not all the time, but I do wear them. Can you tell us about how that technology works and who it may be best for?

So it's really complicated. The optics of these lenses is is no short of challenging, and it's the reason why it took so many years to come to the limelight, because these the optics of these contact lenses have to be able to deliver light and bend light in certain ways to allow patients to see it all distances, regardless of their older years, having difficulty focusing up close.

We all can imagine what a traditional bifocal lens is. Spectacle lenses where you look above the what you see far, you look below the one you see near.

And those are just two different lens powers. Now, with a contact lens, we actually can have an infinite number of lens powers where the lens is a slowly bending light throughout the entirety of the lens.

Multifocal Lenses and Real-World Experience

There's no just look up and look down it just simultaneously you can view all types of vision. So the science is really compelling that someone was actually able to invent this in terms of who is it for?

I really used to be I really didn't start talking about this to patients till they got in their mid 40s, late 40s per se, but the challenges of it about if we all counted the amount of minutes per day that we're doing something up close.

Now, I start talking to people in their late 30s because they can really benefit from some additional power, given the amount of time that they're using mental tasks up close where it didn't used to be that way based on its name multifocal.

So that would that be appropriate for distance intermediate, let's say computer vision and reading. It's appropriate for all of those. It is optically correcting every single distance between optical infinity and where you would typically hold your phone.

And are there any drawbacks. Like for example, I know when it comes to a different type of multifocal lens, for example, post cataract surgery, there are these lenses that can be put into the eye.

Sometimes they cause glare, sometimes because halos are distortions. Do these multifocal contact lenses also have similar side effects? So even though the optical designs are have some similarities between an intraocular lens and a contact lens, they are distinctly different and operate differently.

The good thing about a contact lens, unlike an eye well, is I have the opportunity to go from different optical designs, so if a choice doesn't work, I can pivot to choice B, whereas in post surgery that's a whole lot harder to get into.

I will say there was a prescriber. I definitely have my favorite. And in terms of my success rate on the on my favorite product, which just so happens to be the pair, the brand that I wear.

Personally, my success. I think I can only recall failing on a patient one time in my entire career, so I'm highly successful with this type of lens. One of the things to consider and and let the patient know is there is a little bit of adaptation.

So I typically will fit this lens to the best of my ability on day one. Bring them back approximately a week later because I'll need to refine it a little bit.

But what I found is there's some neuro sensory adaptation that happens with this complexity of optics in the lens where they see great and they see great going home for that year.

But when they come back the subsequent year and even the year following, I am going to continue to tweak that power. And I find that this neuro sensory adaptation occurs where they will continue to see better from day one did a 70 year one to year two.

So if they're happy at day one, wow, I know I got them because they're only going to get better from there. Yeah. So you know you have a success case on your hands there.

Yeah. Yeah. And I I just want to share my experience with multifocal. And I started wearing them when I was in my early 40s. And initially I had a there it comes in various different powers.

And you can explain this better than I can, but mid say low mid and high add powers. So I start off with low. And then that worked for a few years. And then I had to upgrade to the next level, which was mid and high.

But then at some point, even with the high lenses, I wasn't completely comfortable. So then my eye doctor helped me to switch to a different brand. And sometimes that makes all the difference, right?

When you experiment with different ones and maybe one brand works better than another. For me, I think they bring up an excellent point because from the patient perspective, I think patients really need to be open and honest about what they love and what they're feeling short for falling short of, because a lot of times my patients say, oh, Chris, I'm doing fine, fine.

I don't want to know. I want to know exactly where I could improve, because there could be a very good chance where we can make a change, which could deliver improvements and really enhance quality of life and certainly vision as well, you know, thank you for those incredible insights.

Doctor Levin's is so important, as I'm sure many of our listeners will be really their eyes will be open to these possibilities. We are going to take a very short break.

Introduction to Ortho-K and Myopia Control

We're going to hear from one of our sponsors, and we'll be right back Welcome back, everyone Today we're chatting about contact lens options and contact lens safety with our expert doctor, Chris Levens.

So next, Doctor Levins, I wanted to ask you about this, I guess relatively new type of lens called ortho. Okay. Sure. Can you explain what work okay is and who is appropriate for.

So I guess the first thing I would start with is just to get everybody on this whole playing field of the whole reason why we have refractive error and so in the case why I'm wearing glasses right now.

So there's two things that come to mind for needing visual correction. One is the size of the eyeball itself. So the axial length of the eye a too long eye a too short.

I have optical ramifications that cause a need for spectacle correction as well as the curvature of the front surface of the eye. Both of those things in concert either say no, you're good without glasses for quite a long time, or no, we actually do have to provide you some type of vision correction.

So when it comes to both refractive surgery as well as ortho color cryptology, typically we're taking a curved cornea and we're flattening a little bit.

And that can relieve some nearsightedness or some myopia. So with refractive surgery or surgically a bleeding tissue to flatten that curvature with ortho character ology, we're just using flatter rigid contact lenses to basically reshape and mold the cornea flatter.

So as you can imagine, it's not going to be one lens that gets you there, like your very first pair of braces. They're going to cause some need some adjustments, or Invisalign for that matter.

You typically go from multiple pair of Invisalign to straighten your teeth. Ortho character ology really takes a very similar approach to, a course of lenses.

You flatten the cornea progressively till you get to the point where it's at. It's perfect shape, and then you have a maintenance lens where maybe you only wear it when you sleep, or maybe you only wear it when you sleep every other night or every third night.

And that's enough to keep the cornea flat. And you don't need glasses. So there's definitely some art to that, but it can be highly successful. And you basically feel correction free during all waking hours.

Wow I have so many questions to ask you doctor Levins about this as I'm sure many of our listeners do. First of all so ortho K or if they're accurately G is it appropriate only for myopia which is typically caused by it's caused by a long eye but also a lot of curvature of the cornea.

Can it also be used for other things like astigmatism or hypertrophy or presbyopia? Presbyopia probably not hypertrophy as much more complex, but for typical astigmatism and myopia, that's the lowest hanging fruit.

So long as you're starting with a curved cornea. If you're starting with a very flat cornea, then you're probably not the optimal candidate. And so this is just an example where some pre-testing is necessary to help the provider know, all right, how easy is this going to be.

And are you really the perfect candidate.

Ortho-K Age Range and Candidacy

Or maybe suboptimal. I understand thank you for clarifying that. My next question is when is it appropriate to start? Is there an age at which you would recommend it?

Or the youngest to the oldest window of time when patients may be eligible for their carrots? Allergy? So there is some consideration to go a little bit younger into today than maybe that we used to think about.

And because we used one of the hottest topics in eye care is retarding myopia is stopping myopia progression. Because myopia has become a worldwide epidemic.

You know, I remember growing up in elementary school and I was maybe one of the one or 2 or 3 people that were glasses. Now, if you walk into a typical elementary school, regardless where you where you are in the world, pretty much all kids are wearing glasses.

It's just very remarkable how quickly this has come on. And so there are some suggestion that holding that cornea in shape in early years could potentially stop the progression of an opioid, or maybe reduce its pace.

And so it used to be I would talk to parents about responsibility and care, but now I'm a bit more aggressive starting earlier because we actually may have the side benefit as well.

So what's the youngest you would consider? Author keratosis? Yeah, the youngest I've done for contact lenses in general, including ortho Carrot's allergy is four years old.

Got it. And so right. We taught how to put the lenses in, care for them, hygiene, etc., right? Yeah. And so typically if you have a parent or parents that are contact lens wearers, even if they're not in this type of lens, at least they understand the idea of manipulating the eyelids, inserting a contact lens, removing it, cleaning it.

And so if there's someone accustomed to it, it's a whole lot easier. Yeah. And I have to say, yes, there is a learning curve. I've experienced it myself when trying to teach people and watching others put putting their lenses take them out.

There is a learning curve to inserting contact lenses in a safe way, but once you pass that, it becomes almost routine. Is that correct to say, yeah, it's part of it.

You're like brushing your teeth in the morning, putting your leaves in, etc.. Now what's the oldest you've ever treated? Somebody with authority, allergy.

For me personally, we're probably getting into the 30s. It's usually beyond that point where we're if we're getting too close to having multiple optical needs as we get into presbyopia, then it becomes challenging.

And so I try to tackle it at least a decade before that. I predict that's coming. Got it. Got it. Okay, great. So moving on now, I wanted to talk about some potential risks of contact lens use.

What are some of the issues you've seen in patients throughout your career with contact lenses? So when you bring up the whole concept of risk, I really think of severe severity.

Obviously when your hands are in and around the eyes, it's easy to accidentally have a minor abrasion.

Contact Lens Risks and Infection Prevention

Maybe your finger touches your eye the efforts for a moment, but the eye is pretty resilient. It feels pretty rapidly. We talked about allergy already.

Those things are pretty easy to remedy, but the main risk in contact lenses that still a risk today is microbial keratitis, which has several layers of severity.

Because essentially we're taking fingers and we're touching it to an object, touching it to our eyes. And this is a vector. It's a really bad vector. Frankly, a lot of us aren't very good about washing our hands.

And so when we're not washing well, we via this vector are bringing my microbes to the eye, some of which are very dangerous. And with a contact lens, we can lock those microbes in and really pose the eye and vision a major problem.

And so this type of a discussion is really crucial to from a doctor patient relationship perspective, because patients really have to be aware and adhere to handwashing well.

And if we do that and we don't overwork contacts, we're typically doing great. But sometimes, believe it or not, handwashing is a big hurdle. Yes, I've definitely had those discussions with my patients.

So you mentioned microbial keratitis. Are there specific organisms that are potentially more dangerous, more risky to the cornea, or are more likely to cause an infection?

The number one highest risk is Pseudomonas, in which it's such a robust, powerful microbe that if not treated very aggressively, the whole I can lose vision very fast.

And that's on the that's above and that's on the antimicrobial side and the fungal side, I can't amoeba is as visually destructive destructing as Pseudomonas can be.

And then you can have a whole host of other things. If I just scratch my face and put on a microscope, they'll be staff and strep. They just are normal flora.

But when this normal flora is allowed to over populate. It could also cause gram positive and gram negative bacteria that may not be as powerful as Pseudomonas, but still needs to be remedied and killed in order to save vision and maintain ocular comfort.

Yeah, and some of these infections, can they can escalate into really true ocular emergencies. And one of our themes is the adage an ounce of prevention is worth a pound of cure.

And so when it comes to contact lens use and safety, it's much, much better to prevent it from happening than to

have to deal with the aftermath of an issue like microbial keratitis.

Aside from handwashing, what other good hygiene practices do you recommend for contact lens workers? The other things that really come to mind. Or number one, do not sleep in contact lenses unless you are in approved contact lenses in which your provider knows that's your intention.

And I don't mean accidentally taking a nap for a minute. Intentionally going to sleep on repetitive basis is could pose the I at great risk shower. That's actually I want to go for it.

There are these. I'm sure you're aware that about the brands that are marketed as two week extended wear lenses. So what are patients to do with those?

Are they still supposed to take them out at night? Don't know if a patient lets me know, hey, I want to sleep in my lenses. That's fine. There are FDA approved in the United States lenses in order, which that's been proven to be safe so long as we have a replacement schedule of which when these lenses are to be removed and either cleaned again or disposed under a new pair, put in, if that's the intent.

And frankly, there are people with occupations firemen, nurses or overnight shift residents, what have you, where that could be critically important, so long as I know that I can gear them to the lenses that are designed specifically for that.

It's when patients use lenses that aren't designed for that, you know, appropriately, that can put the eye at great risk. I see now, what about solutions?

I know I've seen sometimes I cringe when I see friends or family members rinsing their contacts under tap water, or using tap water to store their contact lenses in an emergency situation.

What are your recommendations for cleaning solutions? Yeah, so water is a no no. And so I was about to say one of the things that a lot of people don't know is showering.

And contact lenses can be a major risk, and a lot of bacteria and fungi can be aerosolized by the showerhead. And and now you're just you're embarking in this cloud of bacteria and fungus, which can adhere then to the contact lens and now and actually infect the eye swimming in contact lenses.

Another no, no, just steer away from water because we really don't know what's in the water supply. In the water supply is not intended to be paired with contact lenses.

One of the largest, if not the largest, fungal outbreak in the world to date happened in the Chicagoland area due to the water supply, and that water was getting in and around contact lenses and caused a lot of issues for wearers.

So definitely stay away from water solutions that are designed specifically to pair and disinfect with contact lenses.

Myths, Safety, and Where to Learn More

And that should be the only thing besides the tears in your eyes that ever come in contact with the lens. Wow, what you said there, doctor Levine's was gold.

We all have heard. And we talk about not swimming in your contacts, but not showering in your contacts. That's also so critically important. So, Doctor Levens, we're almost at the end of our time together.

But I wanted to ask you, is there any common myth or misconception out there? You oftentimes hear from patients about contact lenses that you love to dispel.

Today. Sure. Is that contact lenses are a piece of kit. These things are simple. They're for everybody. I can pick up a pair of colored ones of the beauty store and be fine.

And this just comes down to a lot of us take our sight and our eyes for granted. We just assume that we'll be seeing well for the entirety of our lives.

But the problem is you. None of us know when the issues come up or or when they're going to arise. And so if you happen to be the person in which something happened to your eyes and your vision, and it could have been prevented by just following instructions and talking to your provider and doing exactly what you were told to do.

That is a whole lot better than having lost sight, because you were the one that chose not to that day. So just follow instructions. Don't go off script.

Don't buy contact lenses over-the-counter. These are your eyes. We only have one set. If something happens to them, sometimes we can rectify it, sometimes we can't.

And when we can't, it's a really sad conversation to have such powerful words. Doctor Levin's yes, I could not underscore that more of myself. I've seen patients, especially around, for example, Halloween is a holiday where in the U. S.

where people go out and they buy over-the-counter contact lenses, and those are not FDA approved. Those are very risky. And there are countless of young individuals, even older individuals, who have worn these types of contact lenses and unfortunately, have had complications and lost their vision.

So an ounce of prevention is worth a pound of cure. Thank you again, Doctor Levins, for spending your time with us on the I hope, Simon, and sharing your expertise.

If there's anyone who wanted to learn more from you, perhaps become a patient and also you have a podcast, how could they reach out and find more about your work?

So you could you could email me my podcast email, which is for I professor. The number for Odd professor spelled out at gmail.com. I love to correspond with anybody that has a question and that just.

And I can direct them to where my monthly podcast shows up. Excellent. Thank you. And we will be including that that link in the show notes the list. Perfect. Again, thank you so much, Doctor Levins.

And thank you all for joining us We will see you all next time.