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CLINICAL

Surprising Results with NaturalVue Multifocals with Astigmatic Kids

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Visioneering Technologies, Inc.'s (VTI) NaturalVue Multifocal 1 day contact lenses have been shown to be safe and effective for managing myopia.



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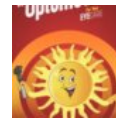
Now, as a bonus, practitioners have also discovered that the lenses are equally as effective for those myopic patients who also have some astigmatism. According to Dr. Doug Benoit, VTI's Executive Director of Medical Affairs, the reason for this comes from the design of the NaturalVue Multifocal lens.

"The NaturalVue Multifocal lens has a catenary curve-based design, which has a rapid increase in plus power, and that creates a very long and thin extended depth of focus channel," Dr. Benoit explained. "Instead of having one focal point, like you'd have in a single vision lens, or two points like you get with a standard bifocal, you get a continuum of clarity. So, instead of having one or two points, you have an entire line, a large area from the near area on the visual axis up to the distance focal point, which would be right on the fovea.

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“This allows both meridians of the prescription — whether it’s a spherical prescription or whether there’s astigmatism — to be addressed at the same time. Instead of masking astigmatism, like you do with some lenses, this lens corrects astigmatism like it corrects presbyopia.”

To get a better idea of how this works in practice, *Review of Myopia Management* reached out to three practitioners — Dr. Elise Kramer, Dr. Jonathan Chen, and Dr. Jeffrey Cooper — to learn more about how they’re using the NaturalVue Multifocal lens with myopic patients with astigmatism.

Review of Myopia Management (RMM): What percentage of pediatric patients in your practice have astigmatism?

Dr. Kramer: Many of the pediatric patients we treat have astigmatism. An exact percentage would be difficult to pinpoint, but I’d estimate around 75%. However, the astigmatism isn’t always high enough to correct in contact lenses because the threshold is 0.75D, but most of them have a little bit of astigmatism.

Dr. Chen: I would say roughly 25-30% of the children in my practice have greater than 0.75D astigmatism. Depending on the patient demographics, it can be a higher amount. During my time in Texas at the University of Houston College of Optometry, and in a private practice, it was quite common to see children with a significant amount of astigmatism, with many over 2.50D of cylinder in both eyes.

Dr. Cooper: That depends on how you define astigmatism. Low amounts of astigmatism are found in most patients, and that’s typically not a problem with orthokeratology or any of the spherical lenses. Clinically significant astigmatism occurs in about half of the patients we see, and that’s typically defined as anything above 0.50D.

RMM: Astigmatism has been found to be associated with higher degrees of myopia. Does that finding reflect your experience?

Dr. Kramer: It’s possible, but it’s difficult to determine with many patients. Some children with low myopia also have astigmatism, while others with high myopia have less astigmatism. Additionally, there are children with hyperopia who have astigmatism. Therefore, I can’t definitively say that higher astigmatism correlates with myopia, although they often progress together, and we have strong evidence supporting that association. There is particularly strong evidence that high myopia and astigmatism are associated.

Dr. Chen: I would say that matches with the patients I see, but those are the patients that would likely require a form of vision correction and be motivated to come in for an eye exam. Patients with mild amounts of astigmatism may be able to visually function adequately for most of their daily activities and not be seen as often for an eye exam.

Dr. Cooper: Astigmatism is an optical error that’s independent of myopia, but they do appear together in many patients.

RMM: Does the presence of astigmatism change how you treat pediatric myopia patients?



Dr. Kramer: If I see a pediatric patient that has astigmatism, I'm much more likely to do a corneal topography. This isn't standard of care for kids, although it should be given the prevalence of keratoconus. Having said that, I'm more likely to do a corneal topography if the child also has astigmatism and thus check for incipient keratoconus.

Dr. Chen: Yes, the amount of astigmatism will guide my approach on the proper myopia management treatment for them. I will look for options that can help correct or mask astigmatism: orthokeratology, hybrid lenses, scleral lenses, toric soft multifocal lenses, or contact lenses such as the NaturalVue Enhanced Multifocal contact lenses.

Dr. Cooper: Sure, because theoretically it means that we have to be more mindful of getting a good result. If you use OrthoK, which molds the cornea, if it's the right type of astigmatism, OrthoK will eliminate the error up to about 1.00D or 1.50D.

RMM: Have you tried the NaturalVue Enhanced Multifocal 1 Day soft contact lenses for patients with astigmatism?

Dr. Kramer: I will try to get astigmatic patients into a daily disposable center distance or extended depth-of-focus (EDOF) multifocal when they have astigmatism up to 1.00D, maybe 1.25D at the most.

Dr. Chen: Yes, I recently examined a new presbyopic patient who was wearing a daily disposable spherical lens in one eye and a toric lens in another with difficulty viewing up close. To help this patient, I prescribed the NaturalVue Multifocal, which helped this patient achieve 20/20 vision at distance and near with both eyes.

Dr. Cooper: Yes, I have. Happily, the NaturalVue Multifocal lenses tend to manage astigmatism much more than you would normally predict just from the characteristics of the lens. We've even fit patients who have up to 1.75D in astigmatism and they often do quite well with it.

RMM: Have you found good results with the NaturalVue Multifocal for myopia management?

Dr. Kramer: The children that I have wearing NaturalVue Multifocals are really happy. Most of them have stayed stable, meaning no significant myopia progression, since starting the lenses.

Dr. Chen: Yes, overall, the practice has had good results with the NaturalVue Multifocal contact lenses at slowing down myopia progression.

Dr. Cooper: Yes. I was one of the first practitioners to see that the NaturalVue Multifocal lens had optics that were similar to OrthoK in being able to slow the progression of myopia. So, I was one of the first to use it, and one of the first to publish on it. The results that we had for our patients have been replicated in other offices, and they turned out to be almost the exact same numbers that were found in the one-year data set from the ongoing **randomized clinical trial** that was initiated by VTI. This means that the lens slows down myopia by over 70%. The ability of a lens to slow down myopia is related to the amount of peripheral plus and how much of an area of the retina it covers. The NaturalVue Multifocal lens has 6.00D to 8.00D of plus in the periphery, which is just the right amount to really slow down myopia. That's exactly what you see when you have a

-3.00D myope who's been fitted with OrthoK lenses – they experience a 6.00D difference. So, the lower OrthoK lens patients don't get as much plus as you'll get out of the NaturalVue lens.



RMM: Have you used the NaturalVue Multifocal lenses for young myopes with astigmatism?

Dr. Kramer: Yes, I have. I can't do it when the astigmatism is too high, but I have done it in cases where it's up to 1.00D or 1.25D of astigmatism.

Dr. Chen: Yes, I have been impressed with the amount of astigmatism that the lenses can work with. If a soft multifocal contact lens is the treatment chosen, I will often assess how a NaturalVue Multifocal lens will perform, even if there are about 2.00D of astigmatism.

Dr. Cooper: Yes, and we've seen great success with it in patients up to 2.00D of astigmatism.

RMM: What has been your experience using the NaturalVue Multifocal lenses for young myopes with astigmatism?

Dr. Kramer: It's very case by case. For example, I have a young girl that started in orthokeratology, and then she had an increase in astigmatism. I tried correcting it with OrthoK, and then she was getting headaches, and so we washed her out, and then we put her in a toric multifocal lens to correct the astigmatism, but she was still getting headaches. Then, I put her in the NaturalVue Multifocal, and she's been fine. I can't really generalize because I haven't done any clinical trials or anything like that, but these are just cases that I've seen in my own practice.

Dr. Chen: A number of young myopes with astigmatism play sports such as baseball, so they place importance on good distance vision. The NaturalVue Multifocal lenses have provided great vision correction, and with the additional benefit of reducing myopic progression, that is a win-win.

Dr. Cooper: It's surprised me how much success my myopic patients with astigmatism have had with these lenses. We often think that any patient over 0.75D of astigmatism would have a problem with a multifocal lens. That hasn't been our experience. It can be a little bit unpredictable, but you only find out when you put the lens on. We have a lot of patients who have astigmatism up to 1.75D and have had great success with the lens.

RMM: Overall, what has your experience been with using the NaturalVue Multifocal lenses with any patients in your practice?

Dr. Kramer: Overall, most of my patients wearing NaturalVue Multifocals are comfortable. They don't really have vision complaints. I've had older patients try it, like the later teens, and they've had visual complaints, but they're more visually demanding at that age and tend to have more issues with any treatment modality. The younger patients tend to do really well. They don't have complaints, they see well, and I haven't had anyone say that they're uncomfortable.

RMM: What's the highest amount of astigmatism you've corrected with NaturalVue?



Dr. Chen: The highest amount of astigmatism I have corrected with NaturalVue Multifocal lenses has been 2.00D.

Dr. Cooper: 2.00D.

RMM: What amount of astigmatism do you routinely correct with NaturalVue Multifocals?

Dr. Chen: Typically, 1.50D or lower.

Dr. Cooper: Usually around 1.50D.

RMM: Is there anything else you'd like to add?

Dr. Kramer: Many ODs would think that patients with astigmatism wouldn't see that well with just a spherical multifocal lens, but they really do. And, again, these aren't patients with high levels of astigmatism, but for mild levels of astigmatism, these patients do really well with this type of lens.

Dr. Cooper: For patients who don't want to do OrthoK, or who want to do more than just glasses, the NaturalVue Multifocal lens is a very effective modality in slowing down myopia. We are very aggressive as a practice with myopia management. We use axial length to determine how effective we are. We see the patients three months after we fit the lens, and we consistently measure axial length. If the axial length is still increasing, we add low-dose atropine. We start with a lower concentration of atropine — 0.02% — and then on the basis of that, we go forward. If that doesn't work after we see them again in three months, we go from 0.02% to 0.05%, and 0.05% to 0.1%, and we stop when we see that the eye has stopped elongating. If a concentration of atropine works, then we see the patient again in four months. If that's still working, we see them six months later. From that point, we can see them either every six months or once a year.

Dr. Kramer, Dr. Chen, and Dr. Cooper were compensated for their time in preparing this article.

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