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Expanding Options for Myopic Astigmats

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April 15, 2025

By Brett O'Connor, OD, FAAO

Myopia management strategies continue to evolve as eye care practitioners strive to provide optimal vision correction and long-term management for myopic children. While several



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soft multifocal contact lenses have demonstrated effectiveness in slowing myopia progression, young myopes with astigmatism can pose a challenge for contact lens fitters.

Visioneering Technologies, Inc. (VTI) has developed the NaturalVue (etafilcon A) Multifocal 1 Day contact lens, a unique center-distance lens that creates a highly aspheric extended depth of focus design. This design works differently than other lenses on the market, making NaturalVue Multifocal the only daily disposable lens that can correct higher levels of astigmatism while addressing peripheral hyperopia, enabling most myopic astigmats to be fit successfully without the need for a toric contact lens.

THE IMPACT OF ASTIGMATISM

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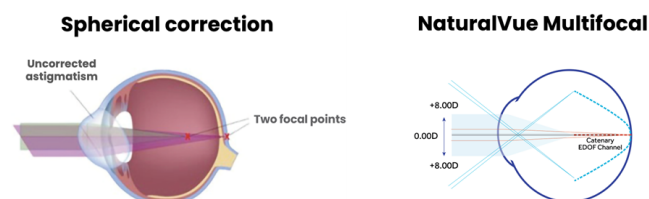
Astigmatism is extremely common in patients of all ages and data suggests over a quarter of children have meaningful astigmatism, with even higher rates observed in myopic children. Uncorrected (and under-corrected) astigmatism is traditionally associated with subjective complaints such as glare and ghost images, and it has been shown to reduce visual acuity and decrease reading speed, even at lower amounts.² However, patients do not always recognize and report these symptoms.

As such, it is critical to address astigmatism in young, developing myopes who must navigate an increasingly digital and visually demanding world. While virtually any amount of astigmatism can be corrected with spectacles, contact lens fitters are limited by the designs and parameters manufactured by contact lens companies. Since the human eye has around 0.50D to 0.75D depth of focus, low to moderate astigmatic prescriptions are often fit with spherical contact lenses. However, depth of focus decreases in dimmer environments, and patient tolerance to uncorrected astigmatism in spherical correction is variable.

OVERCOMING ASTIGMATISM WITH NATURALVUE MULTIFOCAL

Multifocal contact lenses with a spherical central zone (such as concentric and most zonal designs) can be thought of as a single vision lens through the central portion of the optic zone. For example, consider a concentric contact lens with a 3.5 mm central distance zone surrounded by rings of plus power. Due to the large central spherical zone, astigmatic patients fit in this lens are unlikely to experience a meaningfully increased depth of focus versus spherical correction, meaning astigmatic patients must rely on the natural depth of focus of the eye to achieve clear vision. This limits the ability of such a design for astigmatic patients, often resulting in a maximum indication of around 0.75D of refractive astigmatism for multifocal lenses with a central spherical optic zone.

Rather than a zonal approach, NaturalVue Multifocal employs a highly aspheric power profile which begins building relative plus power immediately adjacent to the design's optical center. On-eye, this results in a highly increased depth of focus compared to the natural eye. As long as both meridians of an astigmatic patient's prescription fall along this extended depth of focus channel, clear vision can be achieved with spherical correction.



Photos Courtesy of VTI

CLINICAL DATA

A recent study³ out of Spain by Dr. Gonzalo Carracedo and colleagues evaluated the binocular visual acuity of 31 subjects with low (-0.75D to -1.25D), moderate (-1.50D to -2.00D) and high (-2.25D to -3.00D) astigmatism fit in NaturalVue Multifocal. After one week of wear, average high contrast binocular visual acuity was 20/20 or better in each of the

groups, with 100% of subjects up to -2.00D of astigmatism achieving 20/20 visual acuity and better than four in five subjects between -2.00D and -3.00D refractive astigmatism achieving 20/20.

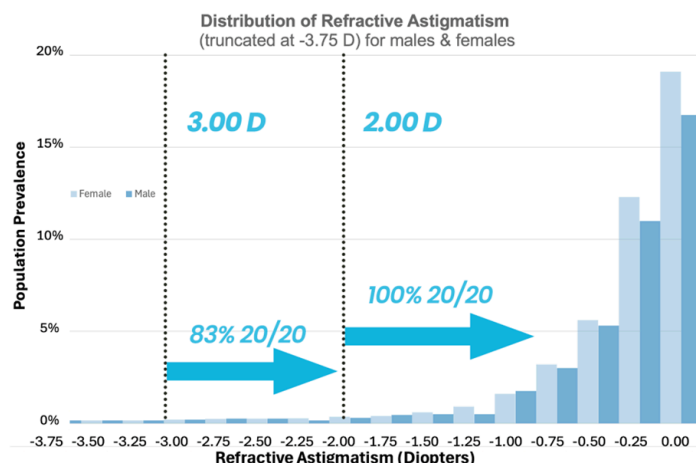


Photo Courtesy of VTI

As someone who has been fitting this lens for nearly ten years, these results are very much in line with what I have found in my own patient population. The increase in depth of focus NaturalVue Multifocal provides enables astigmatic children to achieve significantly better visual clarity than would be expected from a lens with a spherical central zone. Here are a few practical pearls to consider when fitting young myopic astigmats in NaturalVue Multifocal:

- **Allow time for adaptation:** Expect a few days of neural adaptation for new fits and educate patients on this expectation.
- **Round minus:** Since NaturalVue Multifocal imposes 6.00D-8.00D of plus power, I recommend erring on the side of giving slightly more minus power when fitting young myopes.
- **Push patients:** When measuring visual acuity in higher astigmats wearing NaturalVue Multifocal, encourage patients to take their time and read all the way to the bottom of the chart.
- **Start with NaturalVue:** Patients adapted to toric contact lenses tend to take longer to adapt to this unique optic. Since the vast majority of young myopes will progress and we do not have a reliable method of predicting future progression, I recommend fitting astigmatic myopes straight into NaturalVue Multifocal rather than starting with a toric lens and monitoring myopia progression for a period of time.

PRACTICAL APPLICATIONS

Considering the high prevalence of astigmatism in the population, NaturalVue Multifocal has been an invaluable tool for managing myopes in my practice. This lens allows me to correct up to 3.00D of astigmatism in a daily disposable modality without the need to consider variables such as rotational stability or parameter availability associated with toric lenses. In light of the recent clinical data in this population, eye care practitioners should not hesitate to reach for NaturalVue multifocal for their young myopes with higher levels of astigmatism.



Brett O'Connor, OD, FAAO, practices in Jacksonville, FL, where he splits his professional time between patient care and research and development for new myopia management technologies. He is an alumnus of Southern College of Optometry and a fellow of the American Academy of Optometry, also serving as President of the Northeast Florida Optometric Society.



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MKT-MM-AP13

NATURALVUE MULTIFOCAL INDICATIONS FOR USE

NaturalVue (etafilcon A) Multifocal 1 Day Disposable Soft Contact Lenses are indicated in the US for daily wear for the correction of refractive ametropia (myopia and hyperopia), and/or presbyopia in normal eyes. The lenses may be worn by persons who exhibit astigmatism of 2.00 diopters or less that does not interfere with visual acuity.

This information may describe uses for this product, i.e., Myopia Progression Control, which have not been approved by the FDA for use in the United States and is intended for educational purposes only.

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