

The NaturalVue Multifocal Contact Lens – Astigmatism ‘Masking’ Or ‘Correcting’?

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Optical treatments for myopia control include spectacles and contact lenses. Contact lens options for myopia control are attractive because generally their myopia regression control efficacy has been shown to be better than progressive addition and bifocal spectacles.¹

When prescribing contact lenses (CLs) for children, daily disposable CLs are the safest contact lens modality, compared to reusable soft CLs or orthokeratology. Read more about messaging on this in our blog [Contact Lens Safety in Kids](#). When it comes to the logistics of CL wear, one study showed that 8-11 year old children are capable of handling daily disposable CLs independently.²

In this case, RH is looking for daily disposable contact lens for a 10-year-old child who has low astigmatism. The [discussion](#) is described below.

- RH** Hi everyone, thoughts regarding a young 10yo. Rx -2.50/-1.00x180 ou. Just tested a -2.75 Ds Biofinity to assess CL feel and she was v happy at school for the day. Looking to go with DDCL options. Which will mask the astig the best: MiSight, NaturalVue? TIA Rob
- MJ** NaturalVue
- LC** NaturalVue masks cyl better but kids like misight better and has more research
- PC** NaturalVue, but I've got some younger patients with -0.75 to -1.00 cyl on MiSight and they are happy. A couple of 14-16yo teens have glasses with their residual cyl to use as needed, but the vast majority of the time the minor cyl isn't a problem functionally. If they are picky about their vision, fit orthoK.
- DS** Use the Biofinity Multifocal Toric D lens. No need to mask anything
- DB** The NaturalVue multifocal, with it's extended depth of focus design, partially corrects the astigmatism, rather than just masking. Available to-12.25 in 0.25 steps...
- KC** If the topographical map doesn't look too funky, or the Ks are in average range (40-46D), I would also consider discussing ortho-k option with the family. The patient's age and Rx status seems ideal.

Two daily disposable soft CL options have been researched and commercially released for myopia control - Visioneering Technologies' NaturalVue Multifocal,³ and CooperVision's MiSight.⁴

The optical design of these two lenses is quite different. You can read more about the lens design and evidence base for myopia control in [Understanding the NaturalVue Multifocal contact lens.](#)

It is a standard approach to fit spherical contact lenses - whether single vision or multifocal - for patients up to and including 0.75D of astigmatism. Correcting 0.75 to 1.75D of astigmatism in adults has been shown to improve acuity and reduce eye strain.⁵ The same research has not been undertaken in children.

The NaturalVue multifocal lens can also be used for presbyopia, in which case the [NaturalVue fitting guide](#) advocates selecting patients with no more than 1D of astigmatism. The more extensively detailed [Professional Fitting and Information Guide](#), though, states that "The [multifocal] lenses may be worn by persons who exhibit astigmatism of 2.00 diopters or less that does not interfere with visual acuity."

This potential for correcting higher levels of astigmatism than is typical in spherical multifocal CLs is likely due to the unique optics of the NaturalVue lens, where the 'extended depth of focus' design is explained to create a '[virtual pinhole aperture](#)'. With practitioner knowledge of how a pinhole typically works, a 'virtual pinhole' raises the question of correcting for higher levels of astigmatism.

Astigmatism 'masking' or 'correcting'?

The child to be fitted with contact lenses in this case has 1D of astigmatism. RH asked if any lens could 'mask' this astigmatism, and the majority of the commenters suggested NaturalVue.

'Masking' astigmatism is a term used to describe the reduction of the visual impact of low to moderate amounts of astigmatism in a spherical CL correction. Right back in 1989, 'masking' 0.50 to 1.00D of astigmatism in spherical CL wear was shown not to be effective.⁶

This was confirmed in a more detailed 2005 study where adults with 0.75 or 1.00D of astigmatism were fit with aspheric single vision CLs. There was no visual impact of the uncorrected astigmatism with 2mm pupils but there was with 4mm and 6mm artificial pupil sizes.⁷

So why is the NaturalVue Multifocal potentially suitable for up to 2D of astigmatism, according to the manufacturers? It is likely not 'masking' astigmatism but rather 'partially correcting' it through the 'virtual pinhole aperture' created by the optics of the design. This reflects the comment of DB above.

"The NaturalVue Multifocal [is] potentially suitable for up to 2D of astigmatism... it is likely not 'masking' but rather 'partially correcting' it through the optics of the design."

How should we manage astigmatism in contact lenses?

Trial lens fitting, with at least 10 minutes of settling time, is recommended in the NaturalVue Multifocal CL fitting guide. The [three-step fitting guide](#) also states the importance of refracting the patient to 6/5 (20/15) and then inputting their full spherocylindrical refraction into the [QuickStart Calculator](#) to optimize the chances of adaptation and fitting success.

If acuity is too impaired by the uncorrected astigmatism, but the safety and handling advantages of a daily disposable CL are of key importance to you and your patient, some practitioners advocate correcting residual astigmatism with spectacles worn over the CLs. Read our case report on [NaturalVue Multifocal Contact Lens Fitting And Astigmatism](#) for an example where this clinical approach was taken.

Some of the commenters suggested orthokeratology for astigmatism. Orthokeratology is also the only intervention for which there is research data on myopia control efficacy for higher levels of astigmatism, up to 3.50 DC.⁸ Dependent on corneal toricity, spherical orthokeratology lenses can correct for up to 1.50D of astigmatism and provide good acuity.⁹ Ultimately this decision will be based on the pros and cons of each modality and practitioner access to the various contact lens options available.

Take home messages

1. The NaturalVue Multifocal contact lens is purported to be suitable for patients up to 2D of astigmatism, provided good acuity is maintained. This recommendation is a lot higher than typical multifocal CL designs, likely due to a 'partial correction' offered by the unique optical design.
2. 'Masking' of astigmatism in spherical soft CLs is not considered to be successful, but the terminology persists.
3. Trial lens fitting and following the manufacturer's fitting guide will allow the best chance to assess the impact of uncorrected astigmatism when fitting a spherical multifocal lens like NaturalVue.

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“ ‘Masking’ of astigmatism in spherical soft contact lenses is not considered to be successful, but the terminology persists... follow the manufacturers fitting guide for the best chance of success”

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