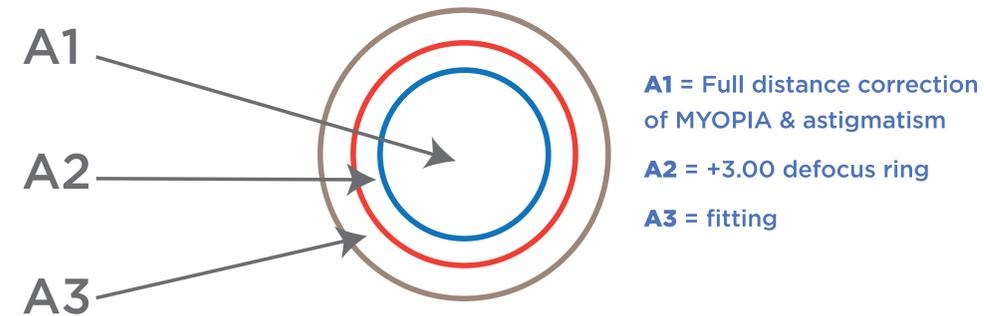


Hyperopia Reduction Soft Contact Lens Management

By Paul Douglas Becherer, O.D., F.A.A.O. / 2020 Global Specialty Lens Symposium

Custom designed MYOPIA Management Lens

Using Distance Center Design Optics surrounded by a PLUS ADD



Both lenses designed using Arc Length Design based on HVID plus cornea radius of curvature and adding 5 mm. to the length of the arc.

Results: Myopia Management

18 youth subjects using lenses over 1 year up to 7 years

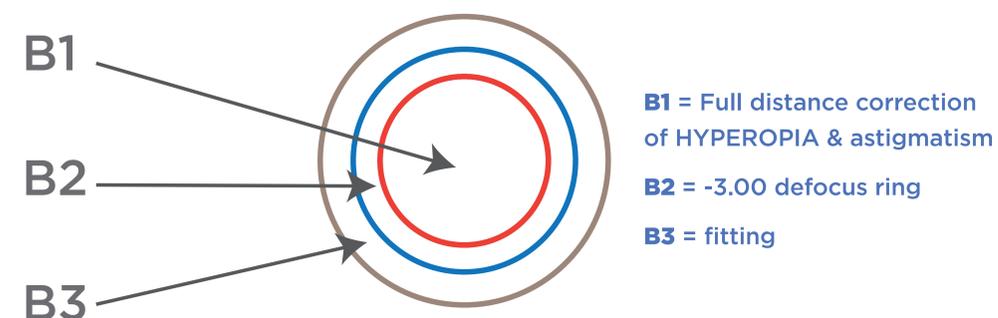
9 subjects stabilized

8 subjects continued to increase in myopia

Specular microscopy: no changes to any subject

Custom Designed HYPEROPIA Management Lens

Using Near Center Design Optics surrounded by a NEGATIVE ADD



Both lenses designed using Arc Length Design based on HVID plus cornea radius of curvature and adding 5 mm. to the length of the arc.

Results: Hyperopia Management

8 youth subjects using lenses over 1 year to 2 years

3 subjects decreased in hyperopia

5 subjects did not change

Specular microscopy: no changes to any subject

Purpose

Can a Myopia Management Custom Soft Contact Lens be Reversed Engineered to Reduce Hyperopia?

Different projects have illustrated how center distance soft contact lens bifocals can reduce the progression of myopia over time. Could a reverse engineered soft custom lens create a decrease in hyperopia?¹²³⁴

Methods

Myopic patients and hyperopic patients in a private practice setting were offered the appropriate procedure to establish if the procedures would affect their ametropic condition. Specular microscopy was performed at each visit to monitor any changes to the corneal endothelium.

Conclusion

MYOPIA In this small preliminary study, myopia management lenses met the goal of myopia stabilization in slightly over half of the subjects.

HYPEROPIA In this small preliminary study, hyperopia management lenses met the goal of hyperopia reduction in slightly less than 40% of the subjects.

Overview

If the subject is left to conventional correction, the myopic subject may increase in myopia and the hyperopic subject may remain a similar amount of hyperopia.

MYOPIA If the myopia is addressed using myopia management lenses, there is a reasonable chance of slowing or stabilizing the myopia.

HYPEROPIA If the hyperopia is addressed using hyperopia management lenses, there is a reasonable chance of decreasing the hyperopia toward normalization.

Further investigation should pursue:

- A larger subject base is needed using A-scan comparisons, repeated cycloplegic refractions, and manifest refractions.
- Standardization whether an equal decrease in both the right and left contact lens correction could enhance hyperopia reduction.
- 2 different studies conducted to isolate anisometropic hyperopes and hyperopes of balanced powers OD to OS.

The material used for the custom designed soft contact lenses was hioxificon 54% water.

All subjects were monitored to ensure there was no endothelial cell polymorphism using specular microscopy.

SpecialEyes Contact Lens Co. supplied the custom designed lenses.

1 Walline JJ, Greiner KL, McVey ME, Jones-Jordan LA. Multifocal contact lens myopia control. *Optom Vis Sci.* 2013 Nov;90:1207-1214

2 Smith MJ, Walline JJ. Controlling myopia progression in children and adolescents. *Adolesc Health Med Ther.* 2015 Aug 13;6:133-140

3 Aller TA, Liu M, Wildsoet CF. Myopia Control with Bifocal Contact Lenses: A Randomized Clinical Trial. *Optom Vis Sci.* 2016 Apr;93:344-352

4 Anstice NS, Phillips JR. Effect of dual-focus soft contact lens wear on axial myopia progression in children. *Ophthalmology.* 2011 Jun;118:1152-1161