Visual Acuities of Custom Silicone Hydrogel Toric Contact Lenses vs BVA Spectacle Rx

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Purposes of Study

To compare astigmatic patients’ best visual acuity with custom molded silicone hydrogel (Silly) toric contact lenses to acuities with their best spectacle refraction.

Methods

18 subjects (36 eyes) associated with Southern College of Optometry and
— Free from active anterior segment pathology
— Refractive astigmatism of at least 0.75 diopters.
— 22 eyes with spectacle prescriptions
— Contact Lens prescriptions
— Contact Lens prescriptions
— Contact Lens prescriptions
— 14 eyes with spectacle prescriptions
— Contact Lens prescriptions
— Subject’s initial Intelliwave toric lenses were:
— Designed by Art Optical consultants
— Using:
— Subject’s Keratometry
— Meldstrom Topographer
— Manufactured by
— Art Optical
— Meldstrom Topographer
— Art Optical
— Medmont Topographer
— Medmont Topographer
— Medmont Topographer

When the custom toric contact lenses arrived from Art Optical Laboratory, we followed the manufacturer’s dispensing guidelines

Results

Initially Dispensied Custom Toric Silly Intellilwave Lenses

17 of the 18 subjects had binocular acuities that allowed them to wear the lenses until the follow-up visit.
— In the 17 eyes that were evaluated custom toric Silly lenses, provided mean acuities were 50.60 ± 1.98 (4.40)
— In comparing initial lens acuities for subjects whose CL prescriptions fell within standard “toric lens parameters vs. outside the standard parameters
— Subjects with “standard” toric prescriptions had statistically high and low central acuities with the initial lenses.

Final Custom Toric Silly Intellilwave Lenses

80.3% of all the eyes had the same or better high contrast acuity with their custom toric Silly lenses than with their BVA spectacle Rx.
— Paired t-testing (2-tailed) failed to show a significant difference in the mean V As with spectacles vs. Intelliwave Toric Lenses with either standard or non-standard prescriptions
— Final Mean V As by value (Snellen). Final CL Rx were: 0.02 ± 0.06 (50.60), 0.08 ± 0.02 (4.40), 0.25 for high contrast testing and 0.42 ± 0.06 (10.00), 0.42 ± 0.06 (10.00) for low contrast.
— The subjects mean V As were easily within one line (Snellen equiv) on the same contrast level for their contact lenses and spectacle refraction.

Conclusions

• Most subjects have the same or better high contrast acuities with the final modified Intellilwave custom toric contact lenses than with their best spectacle prescription.
• Intellilwave custom silicone-hydrogel contact lenses can provide a practical alternative for patients requiring soft lenses but have significant refractive astigmatism or require unusual lens parameters.
• Intellilwave custom toric-hydrogel contact lenses also provide a viable alternative for soft lens patients who have “standard” refractive astigmatism and do not require unusual lens parameters.
— Most patients with standard or non-standard astigmatic correction can see well enough from initially designed lenses to wear the lenses home.

Acknowledgements

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References