



Comparison of Profilometry and Practitioner Based Scleral Lens Trial Lens Selection

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Introduction

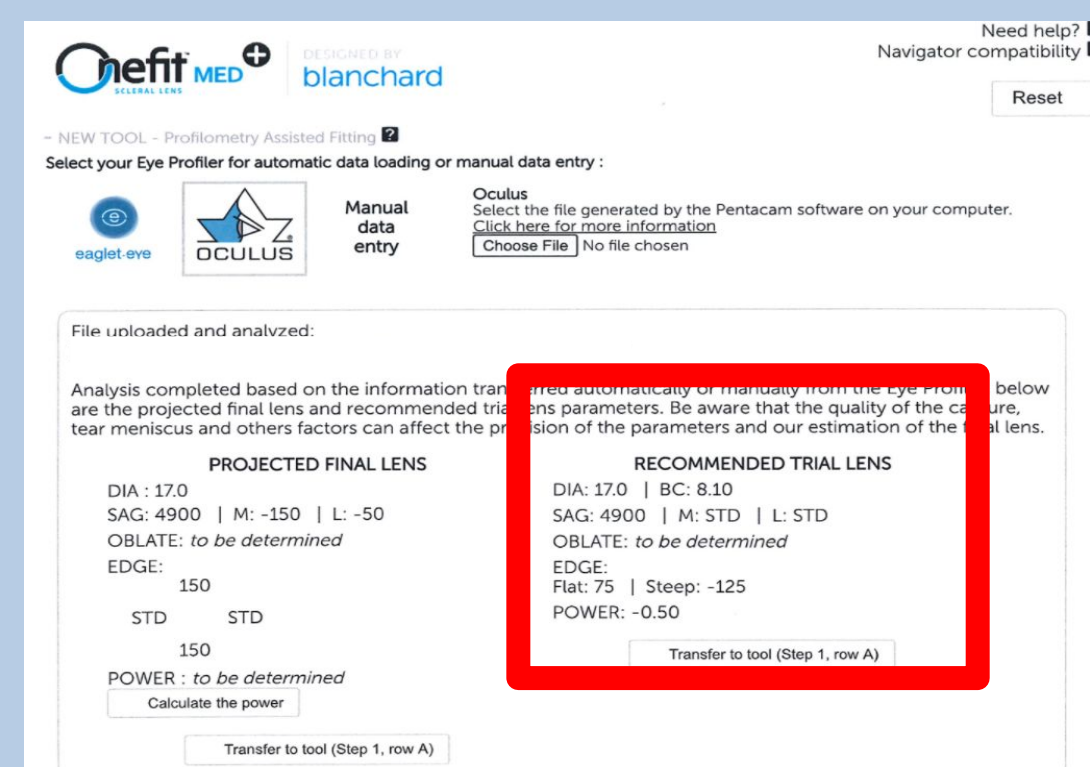
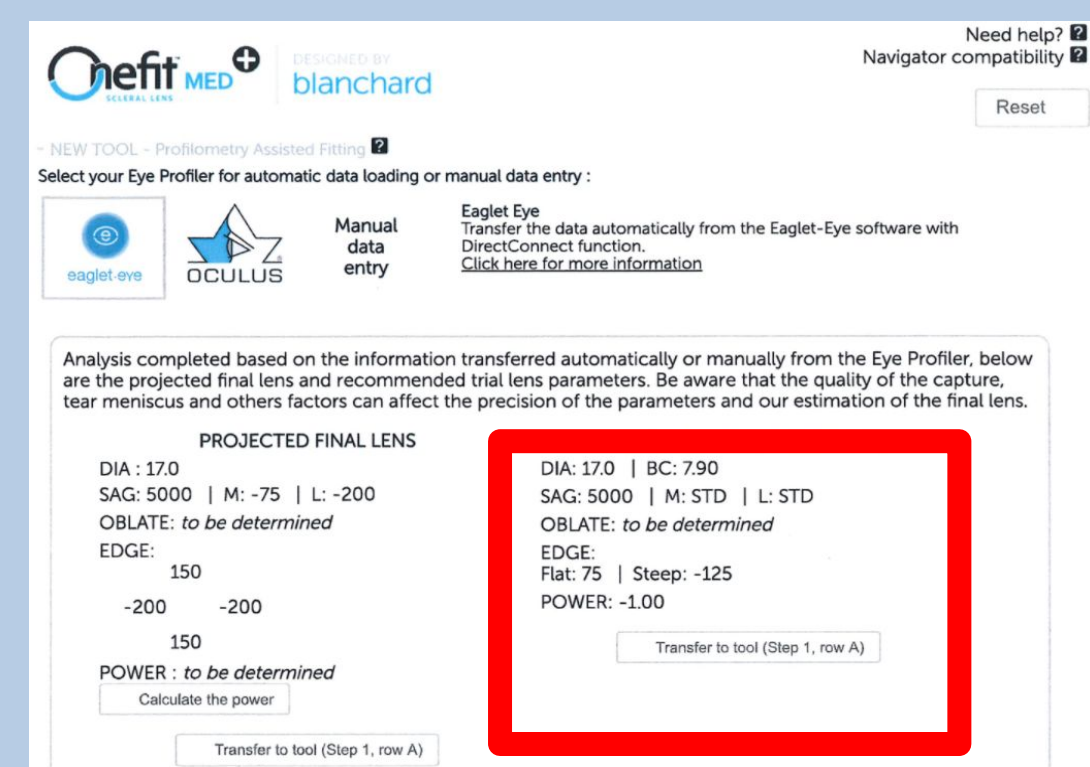
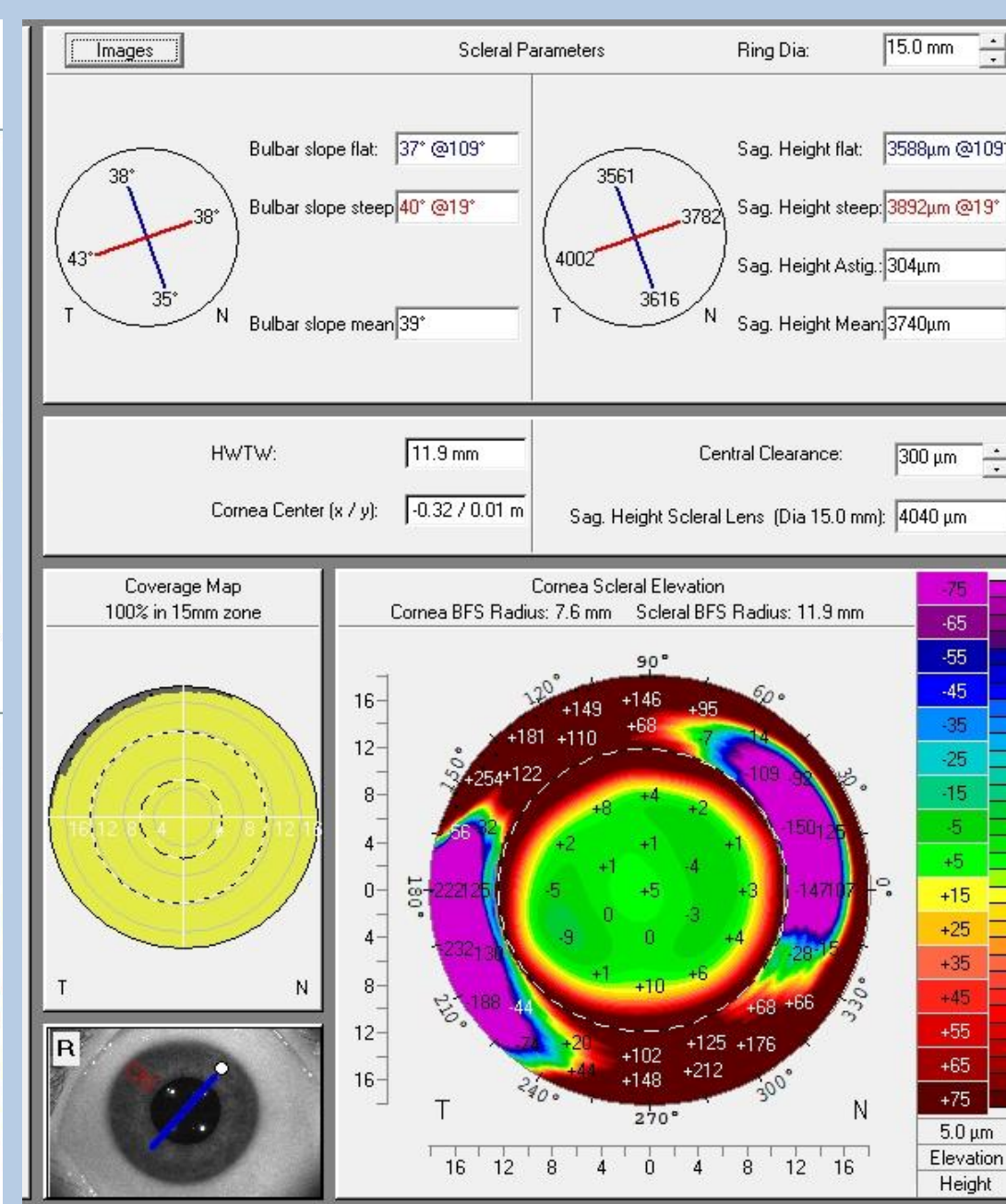
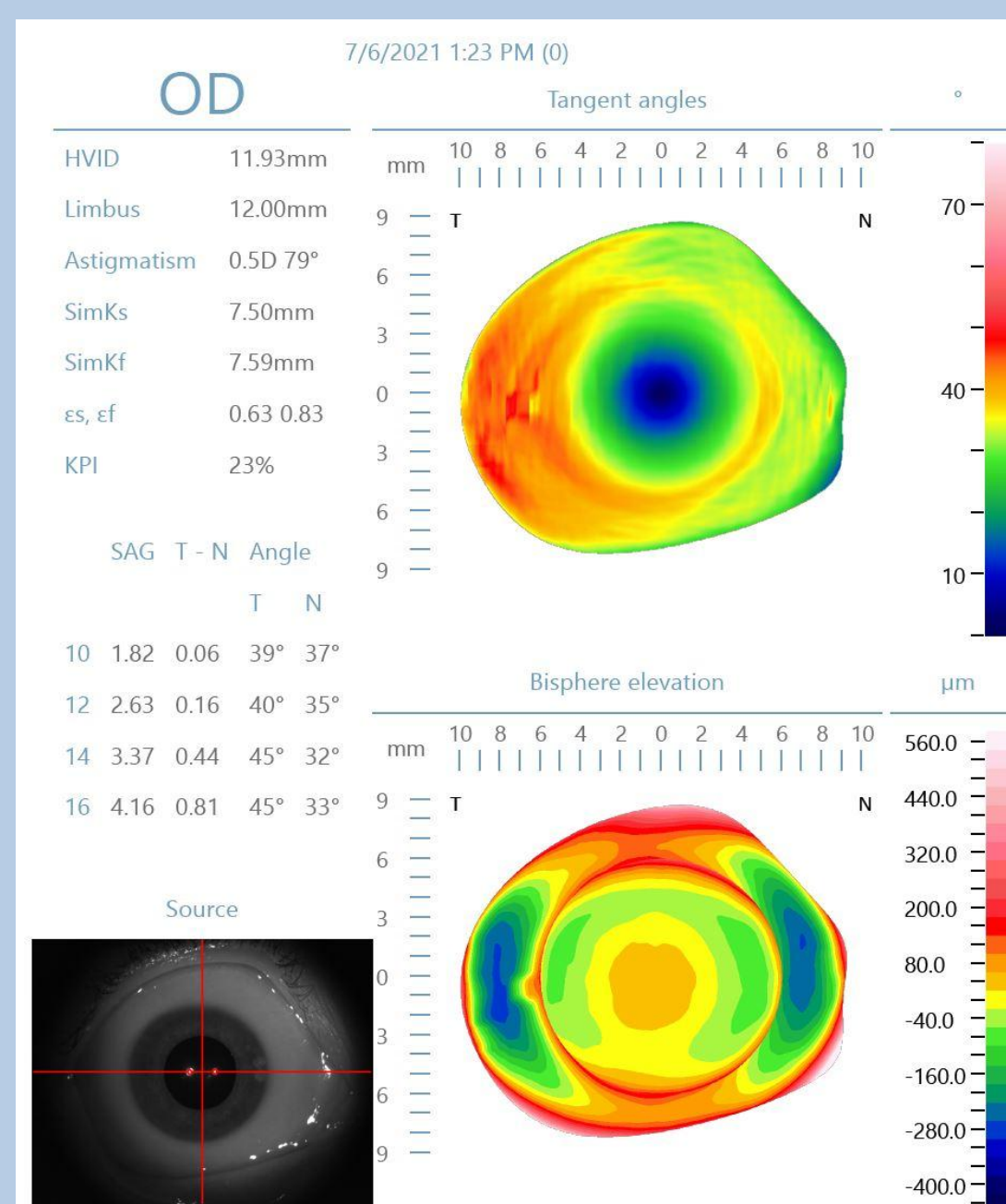
- Profilometry is used to measure corneal scleral geometry. The main technologies studied, rasterstereography profilometry (RP) and scheimpflug profilometry (SP) have been indicated as helpful to scleral lens (SL) fitting.
- Objective: To report on the number of trial lenses needed to achieve an adequate final trial SL fitting relationship by practitioner diagnostic scleral lens (pSL) selection versus calculated rpSL and spSL based SL selection.¹

Methods

- 3 patients (6 eyes) without corneal pathology were fit with SL (Blanchard, OneFit Med+, Manchester, NH) utilizing 2 techniques for initial trial lens selection.
- The first technique was traditional selection based on SL fit guide and practitioner's experience for pSL.
- The second was the use of an online lens calculator (Blanchard, OneFit Online Calculator) for automated analysis of RP (Eaglet, ESP, Netherlands) and SP (Oculus, Pentacam Wave AXL, CSP Pro, Germany) data for initial rpSL and spSL.
- The number of trial lenses needed to achieve an adequate final diagnostic SL fitting relationship, defined as corneal clearance >150um and <500um after 30 minutes of settling, for pSL and rpSL were compared.

Disclosures

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Results

- For pSL, the 3 eyes required 2 lenses, and the 3 fellow eyes required 1 lens to achieve a corneal clearance between 200 and 500um.
- For rpSL, 6 of 6 lenses showed corneal clearance. 4 of 6 showed 200um to 400um clearance, while 2 showed approximately 50um of clearance. 4 of 6 eyes were deemed an acceptable diagnostic fit in 1 lens and 2 eyes required 2 lenses.
- For spSL, 6 of 6 lenses showed corneal clearance between 200um to 300um. 6 of 6 eyes were deemed acceptable diagnostic lenses in 1 attempt.
- When comparing spSL to rpSL, in 3 of 6 eyes, predicted parameters were identical; 2 of 6 were 150um deeper, and 1 of 6 was 100um shallower.
- On average pSL required 1.50 ± 0.55 trial lenses.
- Compared to pSL, rpSL required 1.33 ± 0.52 ($p = 0.59$) and spSL at 1.00 ± 0.00 ($p < 0.01$).

Conclusions

- Calculated spSL were adequately fit with fewer trial lenses than pSL.
- Calculated rpSL showed a trend toward fewer trial lenses than pSL.
- This shows the potential for a successful and efficient scleral lens fitting with RP and SP data and the lens calculator.
- Future larger prospective studies are required to corroborate this data.

References

1. Bataille L, Molina-Martin A, Piñero DP. Comparative Analysis of Two Clinical Diagnostic Methods of the Corneoscleral Geometry. Eye Contact Lens. 2021 Oct 1;47(10):546-551

