Case Report:

Fitting Keratoconus with a ScanFitPRO

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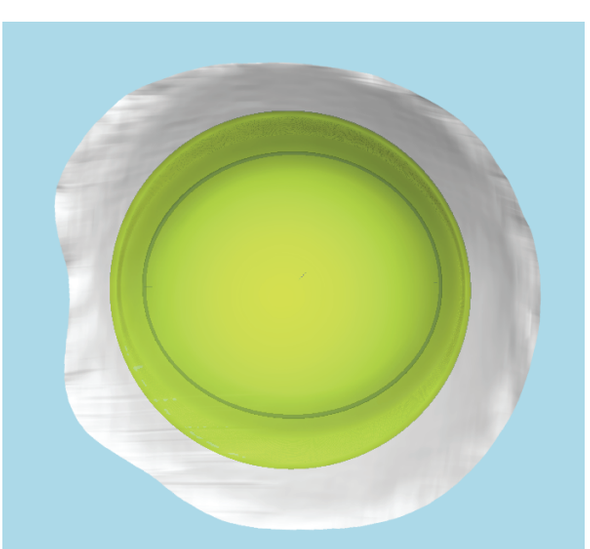
Dr. Tom Arnold has a private group practice in Sugar Land, Texas. With a long-standing interest in specialty contact lenses, he is a Fellow of the Scleral Lens Education Society and an associate member of the International Society of Contact Lens Specialists. Along with Dr. Melissa Barnett, he is the co-chair of the International Congress of Scleral Contacts (ICSC). Dr. Tom Arnold has been a consultant for and spoken on behalf of Blanchard Lab, Bausch + Lomb Specialty Vision Products, Boston Sight Sclerals, EyePrint Prosthetics and AccuLens. Currently he is an Ambassador for Eaglet Eye.

Introduction

Hispanic male presents with keratoconus and associated Vogt striae and paracentral corneal thinning. Manifest Refraction: Right eye S-1.75 C-5.50 x 040, left eye S-1.25 C-3.50 x 145. Corrected visual acuity RE 20/40 and LE 20/4. Due to poor experience with previous scleral lenses (primarily comfort), a ScanFitPRO lens was suggested to reduce the chair time and increase the chances of a successful outcome.

ScanFitPRO

ScanFitPRO is developed by EyePrint Prosthetics, the makers of EyePrintPRO. It bridges the gap between large fully customized scleral lenses made based on a mold and conventional scleral lenses, offering spherical and toric haptics.



ScanFitPRO offers 15 to 17mm diameter lenses fully customized and designed based on profilometry data. The image below (see Figure 1) shows the shape of eye (light gray) as well as a model of the lens on top (green/yellow). The oval shaped ring represents the limbus.

Profilometry Measurement

Profilometry with the Eye Surface Profiler (ESP) showed an image of 20mm by 20mm horizontally and vertically. In a single shot image, with no stitching and extrapolation, the ESP provides a very high level of precision when creating scleral maps. The ESP's Bisphere Elevation map revealed a moderate cone and a sclera shaped "with the rule" (see Figure 1).

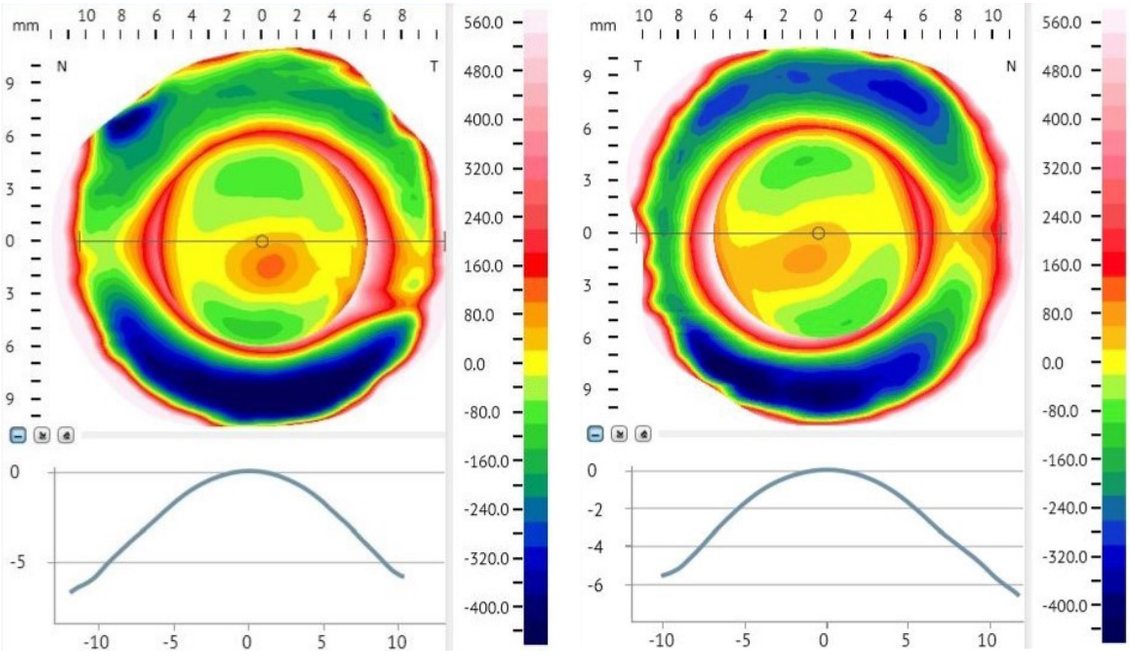


Figure 1

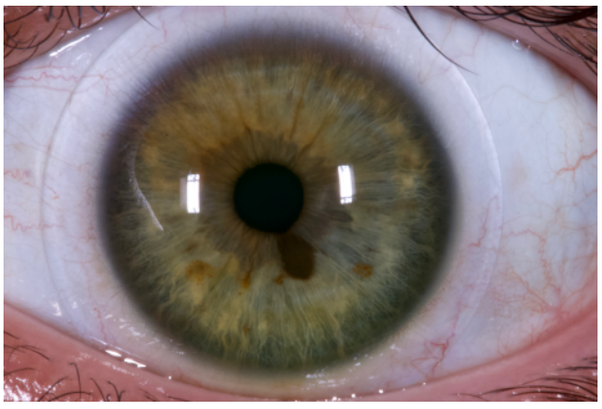
Empirical Fitting

The fit is as empirical as it gets these days. Not endlessly putting diagnostic lenses onto the eye or having to make repeated adjustments saves both time and money. The back-surface design is fast, easy and provides a better fit than based on diagnostic lens fitting. The only hands-on still required is a lens on eye to measure the power. Rigid gas-permeable lenses with base curves of 7.70 mm and 7.30 mm were used for the over-refraction. Simply adding these numbers into the software provided the final lens powers.

Final Lens Fit

The lenses dispensed based on the ESP data showed a uniform alignment and a gentle seal all around the landing zone of the lens. Due to customization of each meridian individually, both lenses centered very well. (see Figure 2).

One of the successful key factors is that the design includes an oval optic zone. While starting already at the central optical zone of the lens, the limbal clearance and especially the landing zone alignment is much improved. No redness, impingement or any other signs of an inadequate fit was observed.



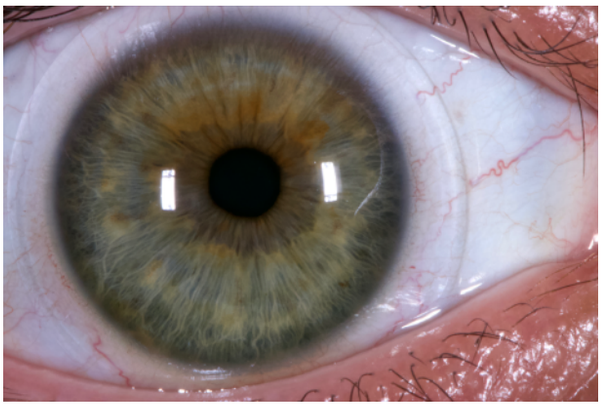


Figure 2

Conclusion

Combining scleral profilometry and a fully customized scleral lens design offers a practitioner and the patient an experience which is unbeatable. The chair time is reduced on the initial fit made possible with just one scleral profilometry measurement with the Eye Surface Profiler and one RGP lens on the eye for the over-refraction. Empirical fitting is a time-efficient and beneficial not just for the practitioner. It also provides a better experience for patients and is a great way to build your specialty lens practice.