BY CRAIG W. NORMAN, FCLSA

A New Measurement Tool to Improve Presbyopic Lens Fitting

When fitting contact lenses, multiple measurements should be taken to ensure that the proper lens design and parameters are chosen for each patient. While Ks and spectacle Rx continue to be the parameters that manufacturers most commonly build their fitting guides around, there appears to be a resurgence in incorporating additional information such as horizontal/diagonal visible iris diameter (HVID/DVID), pupil size, distance from the lower eyelid margin to the pupil margin, and palpebral aperture size. This is especially critical in fitting lenses for presbyopes.

Additionally, sagittal depth/height has become the new buzzword (again), initially in the scleral lens area, but now in many soft lenses as well. Ever since Graeme Young's (1992) study, it has been demonstrated that corneal diameter has the most influence on sagittal height, so the ability to accurately measure this ocular parameter is paramount.

Recently, the new Volk Eye Check Contact Lens (VEC CL) device claims to eliminate the potential error that subjective measurements can cause by taking objective measurements (Figure 1) of the eye and eyelid.

At Michigan College of Optometry, we undertook a study designed to evaluate the accuracy and repeatability of the VEC CL device, specifically for corneal size. Under Institutional Review Board approval at Ferris State University, 70 eyes (35 subjects; 140 eyes total) were measured by two different observers. The subjects had their HVID and/or DVID measured objectively with the VEC CL (two different methods), the Oculus Keratograph 5M, the Nidek OPD-Scan III, and the Zeiss Humphrey Atlas 9000. Subjective measurements were taken with a PD ruler, Contamac HVID ruler (Figure 2), Medmont E300, Oculus Keratograph 5M, and by placing a soft contact lens of known diameter for comparison.

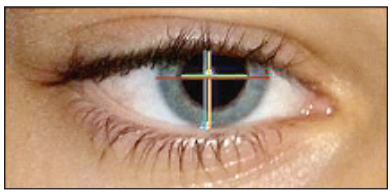

Figure 1. HVID, pupil size, and palpebral fissure width measurements with the VEC CL device.

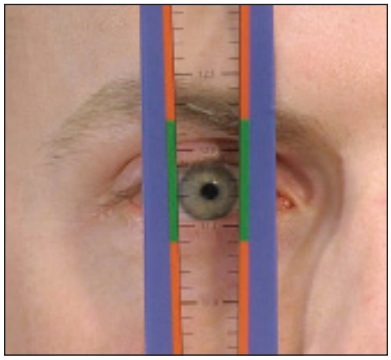

Figure 2. Measurement by the Contamac HVID Ruler.

Measurable Results

Because there is no current gold standard for measuring HVID/DVID, comparisons to the average of commonly used instrumentation were made to determine accuracy. Our findings demonstrated that the VEC CL device provided completely objective ocular measurements and produced results similar to the average of the devices tested. It also produced repeatable measurements between examiners, allowing for better consistency compared to subjective techniques.

More important is the actual inclusion of corneal diameter as a fitting parameter for presbyopia. If only one person in the office is making ocular measurements, a subjective technique may suffice. But if multiple staff members are involved, using an instrument that determines measurements objectively with high repeatability may be more suitable. **CLS**

For references, please visit www.clspectrum.com/references and click on document #238.

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