

FAQs on Hybrid Lens Technology for Keratoconus

Dianne Anderson, O.D.

Fitting hybrid lenses for keratoconus (KC) is as much of an art as it is a science. Here are a few answers to commonly asked questions on this exciting topic:



When should I fit hybrid lenses for KC?

- In patients with early manifestations of KC where a soft toric lens produces good acuity in the subclinical eye, but not the other. In most cases, a well-fit hybrid will be a more comfortable balance in the more progressed eye than a monocular GP.
- In patients who exhibit GP intolerance with decreased wearing time, persistent lens awareness, complaints of haloes and glare.
- In patients experiencing difficulty with an existing piggyback fit such as GP lens decentration, GP lens adherence, or difficulty dealing with multiple lenses.

What hybrid lenses are available for KC?

There are currently only four hybrid lens brands available: Softperm® (CIBA) and SynergEyes® A, KC and ClearKone™ (SynergEyes®, Inc.).

- Softperm®:
 - Center: 8.0mm spherical GP (14Dk)
 - Skirt: 25% water hydrogel
 - OAD: 14.3mm
- SynergEyes® A:
 - Center: 8.4mm spherical GP (100Dk)
 - Skirt: 27% water hydrogel, Steep or Flat
 - OAD: 14.5mm
 - This lens works well in early cones with a steep K <48.50D
- SynergEyes® KC:
 - Center: 8.4mm aspheric GP (100Dk)
 - Skirt: 27% water hydrogel, Steep, Medium or Flat
 - This lens works well in intermediate to advanced cones
- SynergEyes® ClearKone™:
 - Center: reverse geometry GP (100 Dk)
 - Skirt: 27% water hydrogel, Steep (7.6mm), Medium (8.0mm) or Flat (8.4mm)
 - This lens works well in decentered cones and cones with very high eccentricity

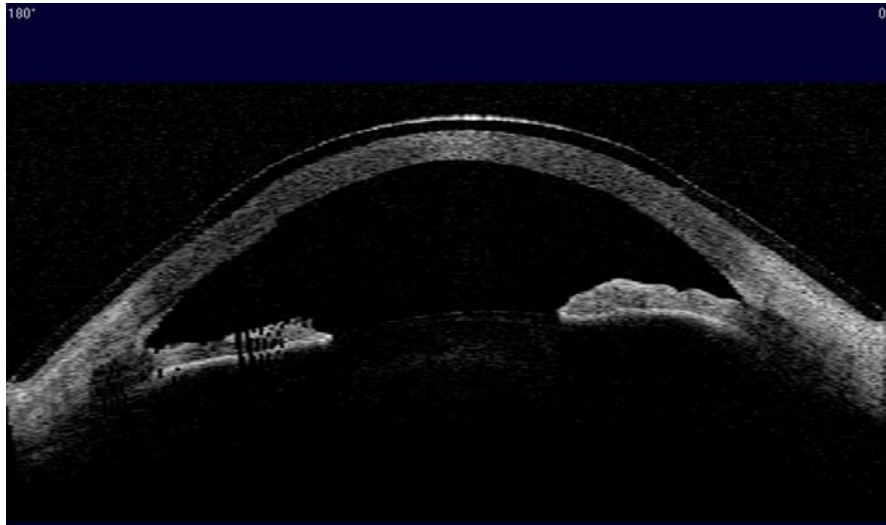


Figure 1. OCT image of SynergEyes[®] KC lens showing adequate central clearance with a 6.5mm base curve and adequate peripheral clearance with the steep (7.9mm) skirt curve.

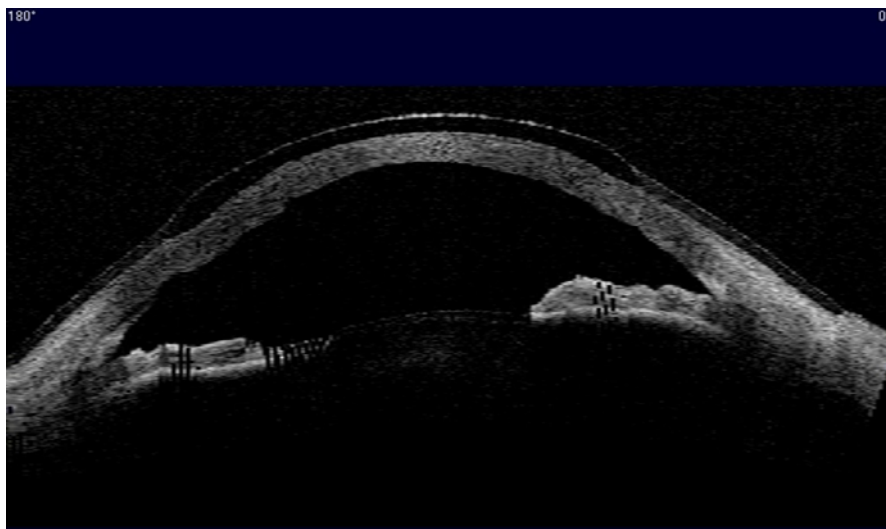


Figure 2. OCT image showing the reverse geometry nature of the ClearKone™ lens (250 micron vault, steep skirt, 7.4mm).

How are hybrid lenses fit for KC?

- Softperm[®]: initial base curve recommended is close to the steepest K reading.
- SynergEyes[®] A or KC: initial diagnostic lens selected with a base curve closest to or slightly steeper than the steep K reading with manual keratometry OR slightly steeper than the curvature at the cone apex, as measured with topography.^{1,2}
- ClearKone™: fit diagnostically, using the 250-micron lens as the starting point. The vault is then adjusted up or down until adequate central clearance is achieved.³
 - Those who have access to Visante™ OCT, Pentacam or sagittal depth on topography can measure the corneal height at the ClearKone™ chord of 4mm and begin the fitting process with that initial lens vault.⁴

In summary, properly fit hybrid lenses provide excellent centration and comfort for the keratoconic patient. Additionally, the reverse geometry ClearKone™ lens results in a lower overall power and decreased aberration.

Dr. Anderson served on the SynergEyes Advisory Board in 2007-2008 and has participated in clinical trials of the KC, PS and ClearKone lens designs. She has no current financial interest in SynergEyes, Inc.

Dr. Anderson is a graduate of Indiana University and practices in suburban Chicago, specializing in keratoconus and post-surgical contact lens fits as well as corneal reshaping and anterior segment disease. She is a contributor to many optometric journals and a clinical investigator for new contact lens designs and diagnostic equipment.

References:

1. SynergEyes, Inc. SynergEyes KC Practitioner Training. Available at: www.fitsynergeyes.com. (Accessed November 2009).
2. Anderson D. Applications and fitting process of SynergEyes hybrid lenses for keratoconus. Paper presented at :Global Keratoconus Congress (GKC); January 2007, Las Vegas, NV.
3. Anderson D. The concept of using vault to fit a SynergEyes "next generation" keratoconus lens. Poster presented at: Global Specialty Lens Symposium (GSLs); January 2009, Las Vegas, NV.
4. Anderson D. The benefits of a new reverse geometry hybrid lens for keratoconus. Paper presented at: Contact Lens Association of Ophthalmologists; September 2009, Montreal, Canada.

Please close this browser window to return to the *CLCS Newsletter*