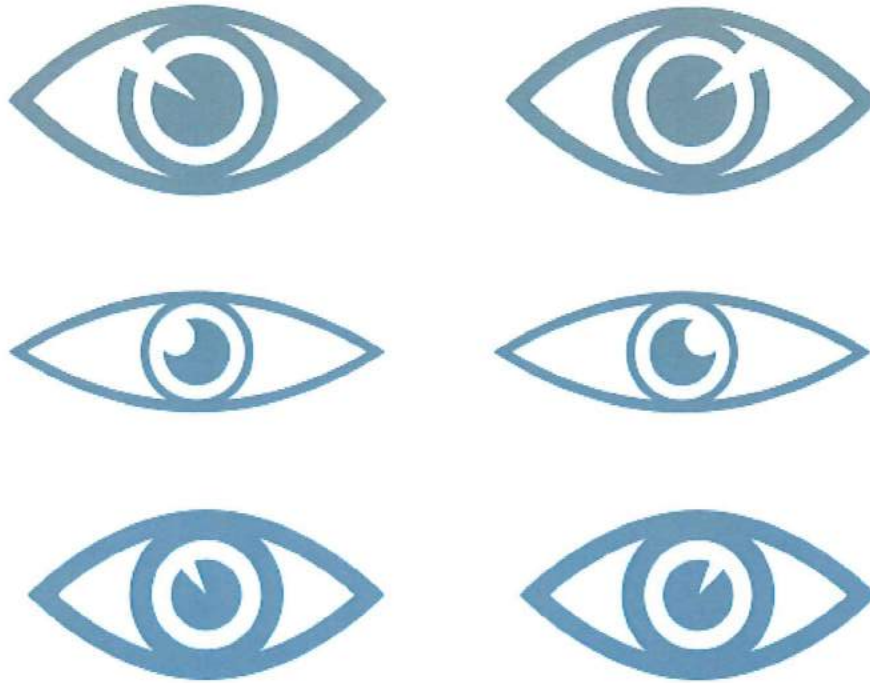


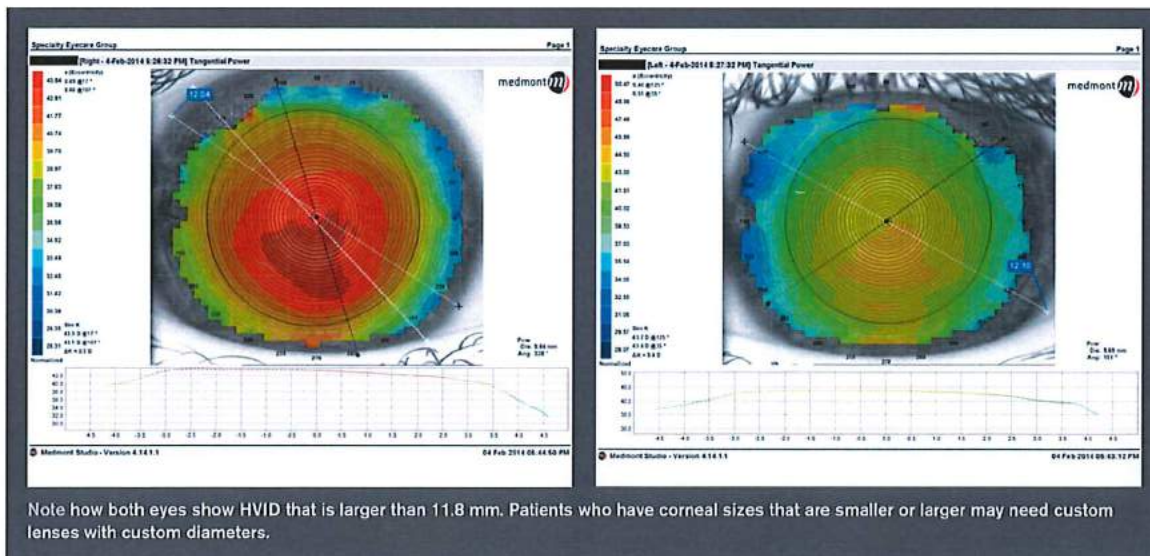
Corneal size does matter in contact lens fit

One case shows even subtle size abnormality can make contact lens wear difficult



January 13, 2015

By [David Kading OD FAAO FCLSA](#), [Jeanette Strommen OD](#)





DAVID KADING, OD, FAOD, FCLSA owns a three-physician, two-location practice in the Seattle area.



BY JEANETTE STROMMEN, OD is the anterior segment disease/contact lens resident at Davis Duehr Dean Eye Clinic in Madison, WI.

Corneal size *does* matter. In fact, it can turn a simple soft contact lens fitting into a complex clinical puzzle. With increased corneal size, the sagittal depth does not match the size of the standard sagittal depth of off-the-rack soft contact lenses, making custom contact lenses a necessary means to an end.

We encountered this clinical conundrum when a 13-year-old young man came into the office complaining of an inability to wear contact lenses throughout the day. He had been to several eyecare practitioners, all of which resulted in unsuccessful attempts soft contact lens fittings. He was eager to transition into contact lenses because he is an active athlete, participating in lacrosse and football, both of which require helmets.

[Examining the symptoms, causes, and treatments of contact lens discomfort](#)

The use of spectacles can often inhibit performance in sports with helmet requirements. In comparison to contact lenses, spectacles limit the field of view and provide less steady optics due to lens movement during contact sports performance. Furthermore, glasses temples are caught in between the head and a tight-fitting helmet, which consequently applies extra pressure on the sides of the athlete's head. Contact lenses eliminate all of these variables and permit athletes to focus on the game rather than being annoyed at their glasses.

[Next: Looking at the cornea](#)

Looking at the cornea

Our patient was a seemingly straightforward contact lens fit with -2.00 D OU. Upon further evaluation of his eye, we noticed his K readings were 43.1/43.5 @ 017 OD and 43.4/43.7 @125 OS, indicating that he had essentially spherical corneas. All other aspects of his ocular health were unremarkable. We applied a soft contact lens of standard diameter and noticed that the contact lens was decentering uncomfortably. Noting the size of the cornea compared to the size of the contact lens, we were further able to evaluate that his corneal size was beyond normal.

We performed topography on his eyes and noted that his corneas had a diameter of 12.04 mm OD and 12.10 mm OS. The standard corneal size is 11.8 mm.¹ Thus, although the size is not significantly outside of the normal range, we have concluded that the size of the patient's corneas and the associated increased sagittal depth are the cause to the long history of soft contact lens fitting challenges in this patient. In this particular patient's case, the size abnormality was subtle, but significant enough to have threatened his desire to wear lenses.

[Managing discomfort and keeping patients happy in contact lenses](#)

[Next: Don't be afraid to customize your lenses](#)

Thus, we elected to order a [custom soft contact lens with a diameter that is larger than standard](#). In our particular case, we would order a contact lens with at least 1.5 mm of limbal coverage, so we will order a contact lens that is 14.5 to 15 mm in diameter. If solely customizing the diameter is not enough to stabilize the contact lens on particularly large corneas, then the base curve comes into play. These parameters work synergistically to increase the sagittal depth of the contact lens significantly when the base curve is decreased. The diameter will also increase. The result is a contact lens with a far greater sagittal depth, one that may better match the sagittal depth of the larger than average cornea, permitting a more harmonious contact lens experience.

Don't be afraid to customize your lenses

It is very common for patients who are wearing soft [contact lenses](#) to occasionally not find the comfort that they desire. They may present with uncomfortable contact lens wear, irritation throughout the day, or possibly hyperemia that develops after several hours of lens wear.

[What's so special about specialty lenses?](#)

We are very fortunate to have access to many custom contact lens laboratories. There are several retailers on the market that are able to customize soft contact lenses to our patients' individual needs. Our industry partners' lenses offers custom soft contact lenses with a customizable base curve, power, and diameter which suits the contact lens needs of atypical corneas and prescriptions. Several laboratories suggest ordering a contact lens with a diameter of 3.0 to 3.5 mm greater than the patient's horizontal visible iris diameter (HVID). Using our patient as an example, we would then order his contact lenses with a diameter of around 15.60 mm.

Turn to your local custom soft contact lens provider for further recommendations in ordering its particular lens.

In our clinic, we have found that corneal size is a major factor that needs to be followed and monitored. It can be a significant marker for contact lens comfort and success.

Know what sports your patients play: keep contact lenses in mind

With the welcomed safety requirements that we are seeing come into play with more and more of today's sports, it is important for us to identify the sports that our patients play. Eyeglasses are very difficult to wear under helmets. This is extremely critical for our patients who are children. These patients often will remove their glasses out of convenience and may not mention to their parents the significance of their visual problems.

Often, parents are aware of the significance that a child's refractive error can have on his daily life. This is even more important with high-intensity sports like football and lacrosse. Look closely at your patient's hobbies and remember to keep contact lenses in mind for patients who play sports. Sports with helmets include hockey, football, baseball, softball, lacrosse, snowboarding, snowskiing, water-skiing, bobsled, etc.

Reference

1. Caroline P, Andre M. The effect of corneal diameter on soft lens fitting, part 1. *Contact Lens Spectrum* 2002;17(4)56.
-