

ORTHOKERATOLOGY

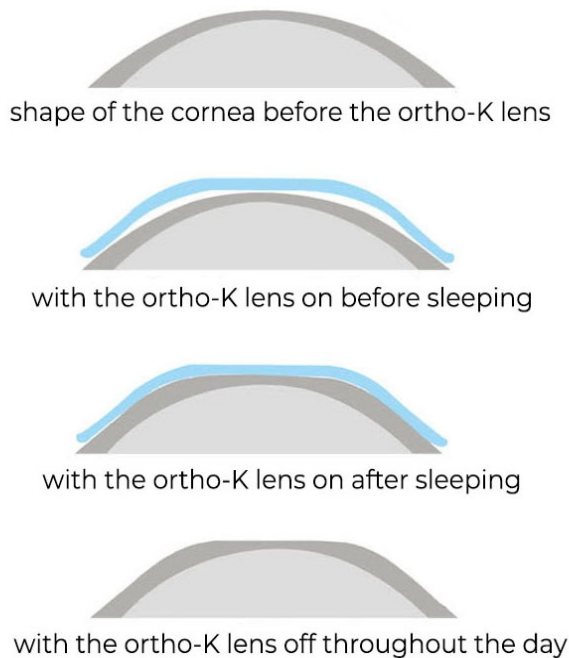
What is orthokeratology?

Orthokeratology, or ortho-K, is a non-surgical procedure using specially designed retainer lenses to gently and safely reshape the front of the eye to improve vision. These retainer lenses are worn overnight, temporarily molding the cornea to provide clear vision without the use of glasses or daytime contacts. The vision correction can be maintained as long as you keep wearing the lenses and continue care with your optometrist to make any changes to the lens design that may be necessary over time. By the same token, the effects are reversible; if you stop wearing the lenses, your corneas go back to their pre-treatment shape and your vision becomes blurry again.

How does it work?

Short answer: The cornea focuses light onto the tissue in the back of the eye (the retina). The corneal tissue is flexible, so we can alter its shape, thereby altering how light focuses on the retina. In nearsighted, or myopic, individuals, light focuses *in front of* the retina, so vision at a distance is blurry. Through the use of ortho-K retainer lenses, we can reshape the cornea to have light focus *on* the retina, providing a clear image.

Long answer: The ortho-K retainer lenses are specially designed to be fit flatter in the center. This makes the tear film underneath the center of the lens thin, while the tear film is thicker in the midperiphery. This creates a negative-pressure gradient, which causes the cells in the outer layer of the cornea (the epithelium) at the center to dehydrate and become thin, while the cells in the midperiphery of the cornea take up fluid and become thicker. This redistribution that occurs in the cells of the corneal epithelium essentially makes the center of the cornea flatter and the midperiphery steeper.



source: isee.com

Is it safe?

All of the ortho-K retainer lenses we use are made of a material that has been FDA-approved with no age limitations. These lenses are made of a highly gas-permeable material, allowing your eyes to “breathe” overnight.

As with any contact lens wear, there is a risk of infection and complications, particularly because these lenses are worn overnight. Microbial keratitis is the most serious complication of ortho-K, though the risk has been found to be similar to other overnight modalities (1). Risk of infection is greatly reduced by following the proper cleaning regimen and maintaining the follow-up visits with your optometrist.

Can it slow near-sightedness in children?

Yes! When a myopic person is corrected with traditional single vision glasses or contact lenses, light focuses *on* the central part of the retina (making vision clear), but focuses *behind* the retina in the periphery. This is called peripheral hyperopic defocus, and it is thought to be the stimulus that causes the eye to elongate and become more myopic. Because the ortho-K retainer lens steepens the mid-peripheral cornea, it reverses the peripheral hyperopic defocus that normally occurs, allowing light to focus *in front* of the peripheral retina, thus reducing the elongation of the eye.

Orthokeratology retainer lenses are FDA-approved to correct myopic refractive error, but not specifically to control myopia; thus, they are used “off-label” for this purpose.

What can I expect?

In order to create an ortho-K retainer lens, we obtain a map of the front part of the eye using a corneal topographer. This device uses light reflected off the eye to map the curvature of the cornea; it does not touch your eye. Our doctors then take this information along with your prescription and other measurements to design a custom retainer lens for molding your cornea. These lenses are not one-size-fits-all. Much like orthodontics, they are designed specifically for you.

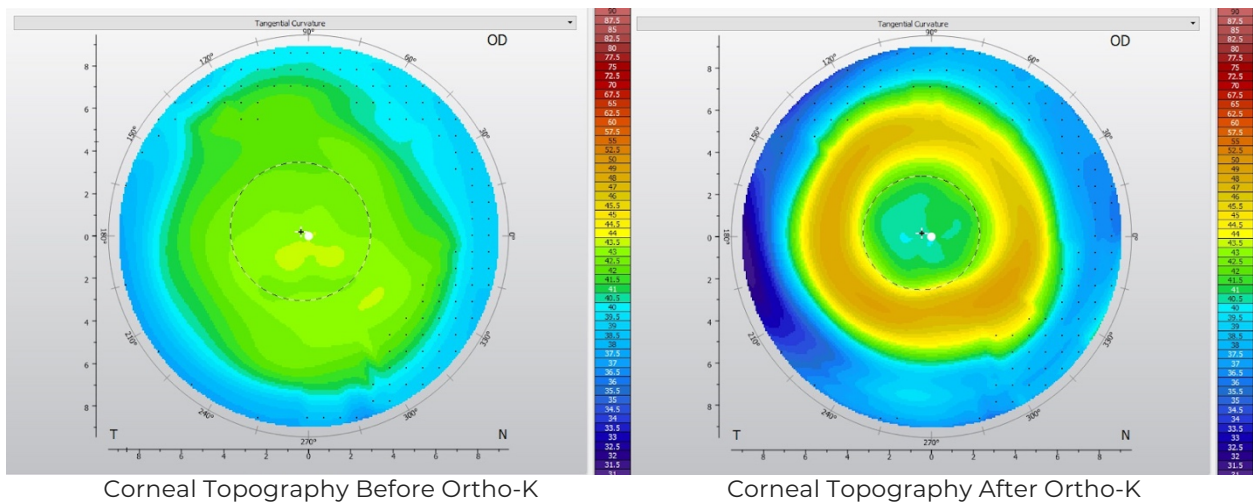
During the initial consultation visit, we will gather information about your eyes (corneal topography, prescription, pupil size, etc), discuss whether or not you are a good candidate, discuss risks/benefits, and answer any questions you may have. If you decide to proceed, we will then create and order the customized ortho-K retainer lenses. We will have you come in and try the lenses on to make sure they fit appropriately. If so, we will train you how to insert and remove them, as well as how to properly clean and care for the lenses. Once the training is successfully completed, you will then go home and sleep in your new lenses!

We will see you again the next morning to see how effective the lenses were in reshaping your corneas. Based on this assessment, we will make changes as we need to.

The typical schedule for progress checks would be 1 week, 1 month, 3-6 months, and every 6 months going forward. This allows us to monitor for changes in vision or

changes in corneal curvature that may need to be corrected by altering the retainer lens design. It also allows us to check for any complications that may arise.

Most patients reach full correction within two weeks. You may experience slight regression/blurry vision toward the end of the day, but this should improve over time. You may also need multiple temporary lenses until the desired amount of correction is achieved.



**** The success of orthokeratology therapy is dependent on a combination of patient compliance, proper retainer lens fitting, good adherence to follow-up schedule, and expeditious treatment of any complications. ****

Am I a good candidate for Ortho-K?

- Are you mildly or moderately nearsighted with no/low amounts of astigmatism?
- Are you inconvenienced by glasses and/or contacts?
- Do you have an active lifestyle that would benefit from the convenience of good vision without glasses or contacts?
- Are you interested in LASIK but hesitant about eye surgery?
- Do you have allergies and/or dry eye, making contact lens wear uncomfortable?
- Are you highly nearsighted and concerned about your child's nearsightedness?
- Is your child's nearsightedness progressing each year?

If your answer to any or all of the above questions is YES, consider setting up an appointment for an ortho-K consultation to learn more and determine if ortho-K is right for you.



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