

OVERNIGHT CONTACTS CARRY Unforeseen Eye Risks

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EVEN IF YOU WEAR GLASSES DAY IN and day out, the promise of better vision while you sleep seems almost too good to be true.

For decades, though, eye clinics around the country have been selling rigid contact lenses that shape your cornea overnight. One of the biggest draws of this procedure—known as orthokeratology or corneal refractive therapy—is that in the morning, you can remove the lenses and still see great all day, with nothing in your eyes.

But for one woman from Williamsburg, Virginia, the near-perfect sales pitch quickly turned sour. She had taken her son, then age 9, to a local optometrist for the treatment. For a while, everything went as their eye specialist had explained.

“It sounded like a really amazing thing,” says the woman, who asked that her name not be given to protect her son. “He was in

them for about six months. Then he just woke up one morning and said his eye hurt.”

After visits to several doctors, her son was finally diagnosed correctly with a fungal infection that was eating through his cornea, threatening to destroy his eyesight. This prompted an emergency cornea transplant at Wills Eye Hospital in Philadelphia, Pennsylvania, a week after the pain had started in her son’s eye.

Now 10, he will need to use eye drops daily to avoid rejection of the new cornea. And because the cornea is not completely attached, he will no longer be able to play team sports.











According to the mother, the optometrist that prescribed the lenses never gave any indication that there were risks involved with the procedure.

“He reassured us that it was perfectly safe,” she says.



Keep an Eye Out For...

If you develop any of the following symptoms in your eyes, take out your contact lenses. These signs might indicate eye irritation or infection. If the symptoms persist for more than two hours or get worse, call your eye doctor.

-  blurry vision
-  burning, itching or gritty feeling
-  discomfort
-  excess tearing or discharge
-  feeling of a foreign body in the eye
-  increased sensitivity to light
-  irritated, red eyes
-  pain in or around the eyes
-  swelling
-  whitish halo around the edge of the eye



MARKETING TARGETS CHILDREN WITH NEARSIGHTEDNESS

Orthokeratology has been around in some form since the 1960s. But developments in the 1990s made it possible for people to start wearing the lenses overnight to correct their vision during the day.

This included changes to the materials used to build the lenses, such as to make them permeable to gas. Doctors also improved how well they measured a patient's cornea, which allowed them to shape it more accurately.

The first lenses for shaping the cornea overnight were approved by the Food and Drug Administration in 2002. The effects of the lenses, though, are temporary, which means they must be worn every night. If you stop wearing the lenses, your eyes will lose any improvements in vision gained.

Depending upon how rigid the cornea is, some people may be able to get away with wearing the lenses every two to four nights.

The lenses work in people of all ages. Some of the marketing for these products, though, directly targets parents whose children have myopia, or nearsightedness. This is based on the belief that the lenses can slow the progression of nearsightedness in children. This is not supported by any strong research studies.

The cost of the lenses is another big draw for people, especially parents hoping to help their children see better without glasses. The price for the lenses runs between \$800 and \$2,000, which is much less than laser surgery. The procedure and the lenses, however, are not usually covered by insurance.



RESEARCH HIGHLIGHTS RISKS OF OVERNIGHT CONTACT LENSES

As with traditional contact lenses, proper hygiene and care of the lenses can reduce the risk of eye infections. But wearing contact lenses overnight may increase these potential problems.

A 2008 study by the American Academy of Ophthalmology, published in the journal *Ophthalmology*, identified over 100 cases of vision-threatening eye infections documented in other research reports. These infections were caused by cornea-shaping lenses worn overnight. The authors called for more research into the safety and effectiveness of orthokeratology, especially in children.

More recent research, including a 2014 study in the *American Journal of Ophthalmology*, found similar eye infections in children and teens wearing contact lenses, including overnight orthokeratology. They also noted that the number of eye infections had increased between 1998 and 2012.

In addition to medical studies, information provided by contact lens manufacturers to the FDA also lists the potential risks of wearing the lenses overnight. This includes corneal ulcers and infiltrates. The latter is caused by the migration of inflammatory cells into the corneal tissue. Left untreated, infiltrates can lead to ulcers.

The FDA also requested a review of the safety of that manufacturer's product, the results of which were presented in a 2013 study in the journal *Optometry and Vision Science*. The researchers found that out of 677 children who were using overnight contact lenses, six developed corneal infiltrates along with a painful red eye. Two of these cases were caused by bacterial infection in the eye, although neither child experienced loss of vision.



BALANCING RISKS AND BENEFITS OF CONTACT LENSES IN CHILDREN

Unlike laser eye surgery, overnight contact lenses provide a nonsurgical option for improving vision. But like all contact lenses, those worn to shape the cornea come with certain risks, especially when worn overnight.

Because any improvements in vision are temporary, children will need to wear the lenses every night. This frequent use of the lenses will also increase the chance of developing eye problems.

The Studies

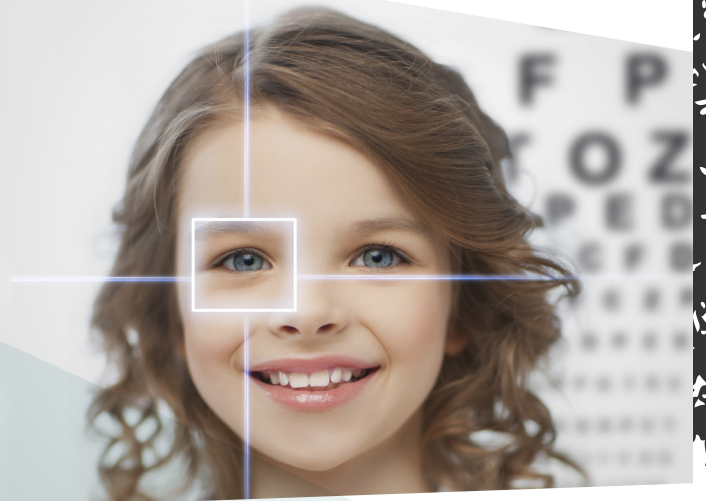
Safety of Overnight Orthokeratology for Myopia OTA
bit.ly/SafetyForMyopia

Eye Infections in Children & Teens
bit.ly/ChildrenTeens

Safety Warnings
bit.ly/SafetyWarnings

The risk of microbial keratitis with overnight corneal reshaping lenses
bit.ly/lensinfections

Patient Information Booklet For Potential Users of Rigid Gas Permeable Contact Lenses for Orthokeratology
bit.ly/FDAcornealstudy



Parents considering overnight contact lenses for their child need to carefully weigh the risks and benefits. If your doctor doesn't explain them to you right away, ask to see the safety information that comes with the lenses.

According to the FDA, the most common side effects of wearing rigid contact lenses are staining or swelling of the cornea. Other side effects are similar to those experienced by other contact lens users, such as redness, irritation, abrasion or pain in the eye. All of these can lead to blurred vision.


More serious problems can happen, although they are much less common. These include scarring of the cornea, partial or complete loss of vision, eye infections or ulcers in the cornea.

You can reduce the risk of many of these problems by

following the instructions on handling and wearing the lenses properly.

Because of the severity of these potential problems, though, some doctors only recommended overnight contact lenses for children if they are mature enough to handle the lenses correctly and keep up with the cleaning schedule.

If you decide to try out overnight contact lenses, for you or your child, it is important to stay alert for signs of any eye problems. If you notice anything unusual, stop using the lenses immediately and contact your doctor.

Also, be sure to keep any regularly scheduled follow-up eye visits. Even minor eye problems can quickly turn into something more serious. 



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