

KERATOCONUS

What is keratoconus?

We see through the cornea, which is the clear, central part of the front surface of the eye. The cornea normally has a round shape, like a ball. Sometimes, however, the structure of the cornea is just not strong enough to hold this round shape. The normal pressure inside the eye makes the cornea bulge outward like a cone, and this condition is called keratoconus.

Why do people get keratoconus?

Often the cause of keratoconus is unknown. Some studies have found that keratoconus runs in families, and that it happens more often in people with certain medical conditions. But most often, there is no eye injury or disease that could explain why the eye starts to change.

Keratoconus usually begins in the teen-age years, but it can also start in childhood or up to about age 30. The changes in the shape of the cornea occur slowly, usually over several years.

Someone with keratoconus will notice that vision slowly becomes distorted. The change can stop at any time, or it can continue for several years. In most people who have keratoconus, both eyes are eventually affected.

Can keratoconus damage vision?

Keratoconus does not make people go blind. However, the changes to the cornea will make it impossible for the eye to focus without eyeglasses or contact lenses. Keratoconus can be dangerous if laser vision correction surgery - LASIK or PRK - is performed on the eye. Anyone with even a small amount of keratoconus should not have laser vision correction surgery.

How does the doctor know whether someone has keratoconus?

The doctor may notice some things during the examination, or the patient may mention symptoms, that could be caused by keratoconus. These are:

- Sudden change of vision in just one eye.
- Double vision when looking with just one eye.
- Objects both near and far look distorted, but not blurred. In other words, small details of the objects are clear, but the shapes or colors look wrong. Later, distant objects do become blurred.
- Bright lights look like they have halos around them.

These things might be related to keratoconus, but your doctor must measure the curvature of the cornea to make sure. Several different instruments can be used to measure the curvature of the cornea. None of them actually touch the eye.

One instrument, called a keratometer, shines a pattern of light onto the cornea. The shape of the reflection of the pattern tells the doctor how the eye is curved. There are also computerized instruments that make three-dimensional "maps" of the cornea, a process called corneal topography.

How is keratoconus treated?

Only a doctor can recommend the right treatment for someone with keratoconus. Treatment usually starts with new eyeglasses, and then contact lenses are recommended. These will correct the vision problems caused by keratoconus.

Keratoconus changes vision in two ways:

- As the cornea changes from a ball shape to a cone shape, the smooth surface also becomes slightly distorted. This is called irregular astigmatism.
- As the front of the cornea expands, the eye becomes more nearsighted. That is, only nearby objects can be seen clearly. Anything too far away will look like a blur.

New eyeglasses can usually make vision clear again in mild cases of keratoconus. Eventually, though, it will probably be necessary to use contact lenses. Rigid lenses are used most frequently in keratoconus patients.

Contact lenses actually "ride" on the tear fluid of the eye, so they make a shape more like a normal, round cornea. The contact lens must flatten out the cornea a bit in order to fit well, so soft lenses cannot be used to correct keratoconus.

Is there any way to correct keratoconus surgically?

For most people with keratoconus, the only treatment needed is the correct prescription for eyeglasses or contact lenses. A small number of cases of keratoconus keep getting worse, however, and, eventually, contact lenses cannot give clear vision. In other cases, the keratoconus or the use of contact lenses over the years will have side effects. These side effects can make the cornea cloudy.

When these things happen, corneal transplantation might be recommended. Corneal transplantation is a very successful surgical procedure. More information on this form of treatment is available in the Corneal Transplantation fact sheet