

# Vision Correction Without Surgery

Nearsighted patients can now greatly reduce their dependence on glasses, or eliminate the need to wear them altogether...without surgery! This new development in vision care, approved by the FDA in June 2002, is called Corneal Refractive Therapy, or CRT.

## Myopia and its correction

Nearsightedness (myopia) is caused by a mismatch between the optical structures of the eye and the length of the eye. When the eye's optical structures (cornea and lens) are of the ideal strength, they focus light from distant objects precisely on the inside back of the eye (the retina). This results in the clearest vision. In myopia, the optical structures of the eye are too strong and focus light from distant objects in front of the retina, resulting in blurry vision.

Normally, correction of myopia involves reducing the overall focusing power of the eye's optical elements by introducing a "minus" lens in front of the eye. If you are nearsighted, your prescription contains negative numbers. These negative numbers indicate the minus lenses needed to cause light to focus precisely on your retina and give you the clearest vision.

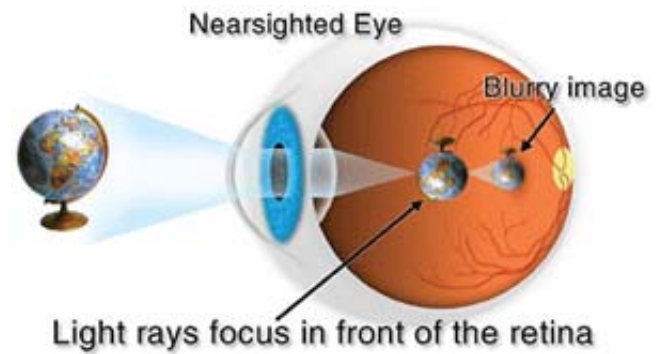
While both the internal lens of the eye and the external cornea determine the eye's overall light focusing strength, the cornea is by far the more powerful of the two. The curvature of the cornea is largely what determines how strongly it focuses light. The more curved the cornea is, the more focusing power it has. Through corneal reshaping, the curvature of the cornea can be reduced. Reducing the corneal curvature has the same effect as introducing a minus lens in front of the eye.

## The CRT procedure

The cornea is very elastic and can be molded easily. Patients insert the specially designed CRT lenses when they go to bed. During the night, the lenses gently reduce the curvature of their corneas. In the morning, the CRT lenses are removed. Since the corneal curvature has been temporarily reduced, the amount of nearsightedness present has been reduced as well. For many people, vision is improved enough that glasses will not be needed during the day.

Over 10 years of testing and clinical trials went into the development and manufacture of Paragon CRT lenses. The development of CRT rose from sophisticated new technologies in computerized corneal mapping and oxygen permeable contact lens materials, making the process both safe and highly effective.

Most patients have rapid improvement in the first few days of treatment and have achieved nearly their optimum vision in 10 to 14 days. A small percentage of patients will not improve enough to function under all conditions without additional correction. One of the nice advantages of CRT is that if you have to get up in the middle of the night, you will be able to see clearly.



CRT is reversible - if you quit wearing the lenses completely, your eyes will return to their original shape. The fact that CRT is reversible is one of the factors that many people find comforting.

CRT is for people of any age who are nearsighted - even children and teenagers. The FDA has approved CRT for people with up to six diopters of myopia (-6.00 as the first number in your prescription); CRT is also approved for use with up to -1.75 diopters of astigmatism.

CRT is not for correction of farsighted vision problems. Also, people with severe nearsightedness or severe astigmatism are usually not good candidates. Except in selected cases, CRT is not used to correct focusing problems that develop in middle-age.

What other medical conditions exclude someone as a candidate for CRT?

- Any inflammation or infection of the eye.
- Eye disease, injury, or abnormality that affects the cornea or surrounding tissue.
- Allergic reactions of eye, which may be caused or made worse by wearing contact lenses or use of contact lens solutions.
- Any systemic disease that may affect the eye.
- Eyes that are red or irritated, or suffer from severe dryness.

Corneal refractive therapy offers convenience and puts an end to the need to wear glasses during the day for many patients. Whether you are playing sports, working in a dusty or windy environment, or simply applying makeup, with CRT nothing needs to stand between you and excellent vision. To determine if you are a good candidate, consult your eye doctor. Be sure to mention that you have an interest in CRT when you call. **HB**

For more information on this topic, please contact Dr. Ivan Tsai or Dr. Shilah Tsai of Huntington Beach Optometry by phone at (714) 840-2020 or via e-mail: [drivantsai@hboptometry.com](mailto:drivantsai@hboptometry.com) or [drshilahtsai@hboptometry.com](mailto:drshilahtsai@hboptometry.com)