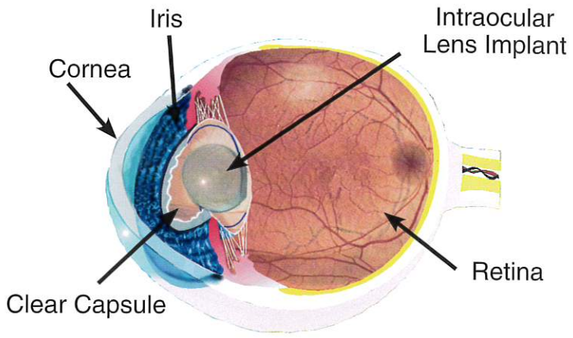
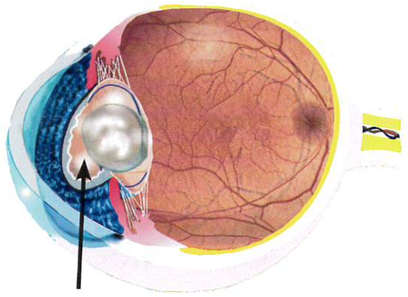
The normal lens of the eye is like a grape, having an outer skin and an inner gel-like material. When a cataract forms, the material inside the lens (nucleus) turns cloudy and interferes with good vision. Cataract surgery removes the cloudy lens and replaces it



with an intraocular implant. During cataract surgery the fine skin (posterior capsule) of the lens is left in place to support the intraocular lens implant. In some cases, through a normal process of cell regeneration this capsule may turn cloudy.



Cloudy Posterior Capsule

The cloudy capsule interferes with good vision in a similar way a cloudy cataract lens blocks good vision. When this clouding develops, the YAG laser can be used to create an opening in the capsule and a clear path for light to enter the eye. The procedure leaves the capsule intact to continue supporting the IOL. Vision can be restored quickly and painlessly with an outpatient laser procedure.

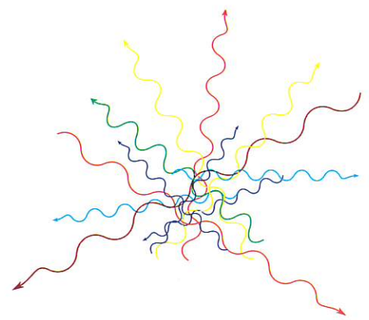
Lasers, a "miracle" of light!

The development of lasers and their use in medicine has revolutionized the way many eye diseases are treated. With lasers, sight loss can be stabilized more effectively and safely than was ever before possible with conventional surgical instruments. In some cases, this sight saving tool can also be used to restore previously lost vision. Not only are lasers an effective means of treatment, but they have also reduced the time, cost, and complexity of many procedures.

What is laser light?

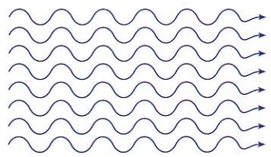
Normal light from the sun or a light bulb is made up of a range of energy that scatters and radiates in all directions. A rainbow shows the spectrum of visible colors, from red to violet, that make up normal or white light. The different colors of light have different uses. For example, white light (a mix of light energy from the entire spectrum of visible light) lights up our world and allows us to see; infrared light keeps us warm; and ultraviolet light helps plants grow.

LIGHT SPECTRUM (above)



Sun light is made from a spectrum of energy ranging from infrared to ultraviolet. Light from the sun or a light bulb scatters and radiates in all directions.

Laser light is not radiation, like x-rays, cosmic rays or gamma rays. It is made of a single color or wavelength of light, with all of the light rays traveling in the same direction (coherent light). The light itself is safe and does not become effective in medical treatment until it becomes highly concentrated through the use of special mirrors and lenses.



With laser light all of the rays are the same color (wavelength) and are traveling together.

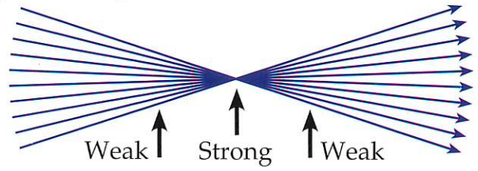
How do lasers work?

An ophthalmic laser contains a device to create light in a similar manner, but more sophisticated and precise, as a light bulb. When an electric current is passed through a tube containing a special gas, a reaction occurs that produces light energy. The kind of light, its intensity and release of the light from the tube, are precisely controlled and are the elements that determine the type of laser and its use in ophthalmology.

After the light is produced, it passes through a system of mirrors that result in all of the light rays traveling in one direction. When this coherent light is released it passes through a system of lenses that concentrate the energy to a fine point.

Some lasers convert the light into heat (photocoagulation) while others create tiny openings (photodisruption).

When light first exits the laser it is relatively weak and not concentrated. As it gets closer to the focal point, the energy becomes more concentrated and the beam gains strength.



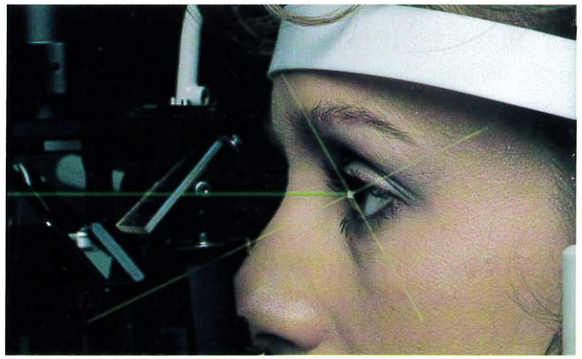
Laser light reaches its maximum strength at the focal point, the point where all the rays converge. Once the light passes the focal point, the strength of the beam is rapidly diminished.

YAG laser

The YAG (yttrium aluminum garnet) laser produces infrared light impulses which create tiny openings in the targeted tissue through photodisruption. These short bursts of energy are used to treat the cloudy capsule and the iris, and some retinal problems in the back of the eye.

Posterior capsulotomy

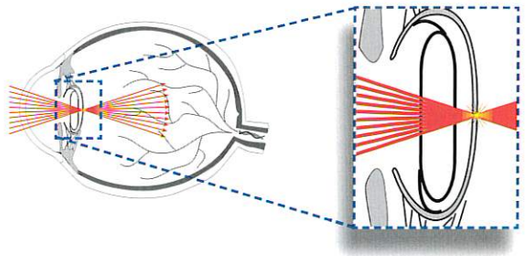
The procedure used to clear this cloudy vision is called a posterior capsulotomy or laser posterior capsulotomy.



YAG laser treatment offers the patient many benefits over traditional surgical procedures including:

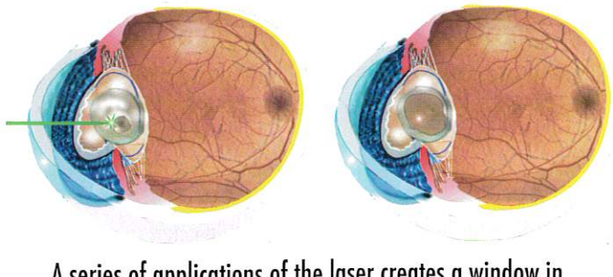
- Virtually pain-free treatment
- No risk of infection
- Performed on an outpatient basis
- Only takes a few minutes and cost is reduced
- Faster healing with less trauma to the eye

With a YAG laser capsulotomy the patient sits in a chair with their head in a support that looks just like a regular eye examination station. The doctor focuses the YAG laser onto the cloudy posterior capsule using a special aiming beam.

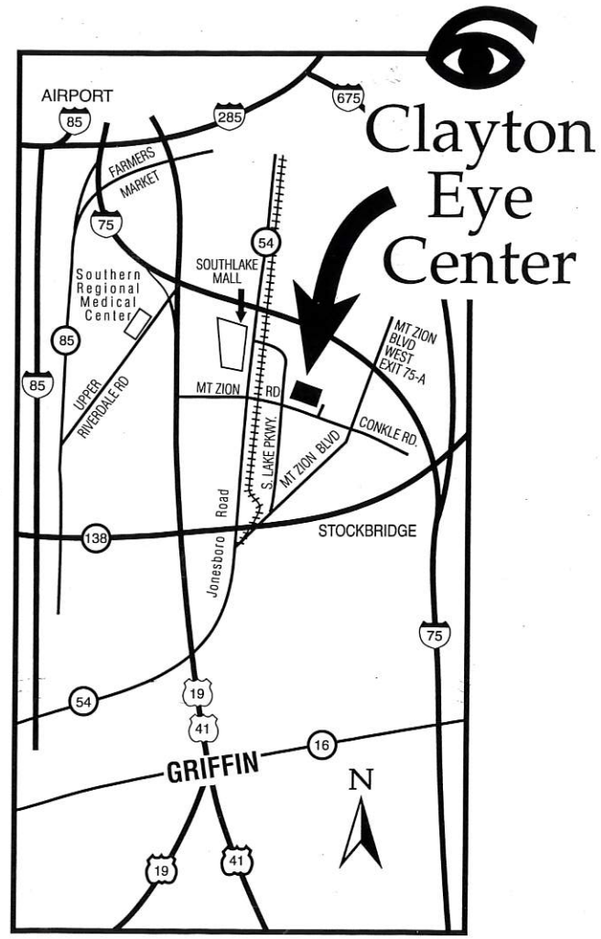


The laser beam passes through the clear cornea and lens implant. As the beam reaches its focal point on the cloudy capsule, the energy becomes highly concentrated causing disruption of the tissue and creating a tiny opening.

As the laser is activated a click may be heard. Multiple applications of the laser are usually required to create a new window in the cloudy capsule. The procedure only takes a few minutes and the patient is able to leave shortly after completion. In most cases pain medication is not necessary, occasionally however, some patients may require an over the counter pain reliever like aspirin or Acetaminophen. Good vision returns quickly.



A series of applications of the laser creates a window in the posterior capsule restoring good vision



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