



British and Éire Association of Medical Retina Specialists

Eye laser therapy is a medical treatment used in the management of various eye conditions. It involves using a focused beam of light to treat specific areas of the eye. Laser therapy can be used to treat a wide range of eye problems, including retinal diseases, glaucoma, and cataracts. The primary goal of laser therapy is to either repair or prevent damage to the eye, stop the progression of the disease, or improve vision.

Types of Eye Laser Therapy and Their Uses

1. Laser Photocoagulation

- Indication: Primarily used in the treatment of retinal conditions such as diabetic retinopathy, retinal vein occlusion, and retinopathy of prematurity (ROP).
- How it works: The laser uses focused light to create small burns in the retina, which helps to seal blood vessels, stop leakage, and prevent further damage. It also encourages the growth of new, healthier blood vessels in the retina.
- Conditions treated:
 - Diabetic Retinopathy: Laser therapy can be used to treat areas of abnormal blood vessel growth, especially in the back of the eye in diabetic patients.
 - Retinal Vein Occlusion: To reduce fluid buildup in the retina or prevent abnormal blood vessel growth.
 - Retinopathy of Prematurity (ROP): A laser can be used to stop abnormal blood vessel growth in premature infants to prevent retinal detachment.

2. Laser Trabeculoplasty

- Indication: Used for the treatment of glaucoma, particularly open-angle glaucoma.
- How it works: In this procedure, the laser is used to help improve the drainage of fluid from the eye, which helps reduce intraocular pressure (IOP). This procedure may be used when medications are not sufficient to control eye pressure.
- Conditions treated:
 - Open-Angle Glaucoma: It helps to lower the eye pressure by improving fluid drainage in the eye.

3. Laser Iridotomy and Laser Iridoplasty

- Indication: Used for angle-closure glaucoma.
- How it works: A laser is used to create a small hole in the iris (the coloured part of the eye) to allow fluid in the eye to drain more freely, thereby reducing intraocular pressure.
- Conditions treated:
 - Angle-Closure Glaucoma: This procedure is especially useful in preventing an acute glaucoma attack, which can cause sudden vision loss.

4. Laser Capsulotomy

- Indication: Performed after cataract surgery to treat a condition known as posterior capsule opacification (PCO).

- How it works: After cataract surgery, a cloudy membrane (the posterior capsule) may form behind the intraocular lens. A laser is used to make a small hole in this clouded capsule to restore clear vision.
- Conditions treated:
 - Posterior Capsule Opacification (PCO): A common condition after cataract surgery where the lens capsule becomes cloudy.

5. Laser Peripheral Iridoplasty (LPI)

- Indication: This procedure is often used for chronic angle-closure glaucoma.
- How it works: The laser is used to shrink a portion of the peripheral iris to allow the angle between the iris and cornea to open up, improving fluid drainage and lowering eye pressure.
- Conditions treated:
 - Chronic Angle-Closure Glaucoma: Laser can be used to create a small hole in the peripheral iris to relieve the blockage and reduce intraocular pressure.

6. Photodynamic Therapy (PDT)

- Indication: Used in the treatment of wet age-related macular degeneration (AMD) and some types of retinal vein occlusion (RVO).
- How it works: This therapy combines a drug that is injected into the bloodstream and is activated by a laser. The activated drug destroys abnormal blood vessels in the retina that cause fluid leakage and damage to the macula.
- Conditions treated:
 - Wet AMD: Used to treat abnormal blood vessels that leak fluid in the macula.
 - Retinal Vein Occlusion (RVO): Helps reduce swelling and leakage in the retina.

Benefits of Eye Laser Therapy

- Minimally Invasive: Laser therapy is a non-invasive procedure that doesn't require cuts or stitches. It can often be performed in an outpatient setting.
- Quick Recovery: In many cases, recovery is rapid, and patients can resume their normal activities soon after the procedure.
- Precision: Laser therapy offers a high level of precision, allowing the doctor to target specific areas in the eye without affecting surrounding tissues.
- Effective Treatment: Laser treatment can often prevent the progression of certain eye conditions, improve vision, and, in some cases, save sight.
- Reduced Risk of Complications: Compared to traditional surgery, laser therapy often has fewer risks and complications.

Potential Risks and Side Effects

- Damage to surrounding tissues: In some cases, the laser may inadvertently affect healthy tissue, leading to temporary or permanent vision changes.
- Increased Intraocular Pressure: After laser procedures, there may be a temporary increase in eye pressure.
- Inflammation: In rare cases, laser treatment can lead to inflammation in the treated area, which may require additional treatment or medications.
- Temporary Blurry Vision: Some patients experience temporary blurred vision or discomfort immediately following the procedure.
- Incomplete Treatment: In some cases, laser therapy may not fully resolve the issue, and additional treatments may be needed.
- Retinal Detachment (Rare): In rare cases, laser treatment may contribute to retinal detachment, especially in conditions like diabetic retinopathy.

Conclusion

Laser therapy is a highly effective treatment option for a variety of eye conditions, ranging from retinal diseases and glaucoma to complications following cataract surgery. It provides a minimally invasive approach to treating serious eye conditions and can help preserve or improve vision when used appropriately. However, as with any medical procedure, it is essential to discuss the potential risks and benefits with an eye care specialist to determine the best treatment approach for each individual case. Regular monitoring and follow-up care are also crucial for ensuring the success of laser therapy and the continued health of the eyes.