

# LASER Surgery

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November 28, 2007

LASER is an acronym which stands for Light Amplification by the Stimulated Emission of Radiation. The theory of Stimulated Emissions was first proposed by Einstein in 1917. The idea was further explored by Charles Townes and Arthur Schawlow in during the 1950's where they developed the MASER. The Maser used microwaves instead of light. In 1958, they theorized about a visible laser using the spectrum of light.

A Laser works by generating an intense beam of light that is pointed in one direction. Lasers are able to create a beam of light using one specific color, meaning of the same wavelength. This can further be manipulated so that a desired intensity as well as pulse duration may be produced.

Due to the properties of lasers there are many medical applications that are possible due to this innovation. The laser beam itself is able to cut seal and vaporize skin tissue and blood vessels of the body. Due to the control over the pulse duration of the beam an Intense Pulsed Light can be created. IPL has the ability to treat certain blood vessel disorders as well as skin conditions. When treating certain parts of the body certain wavelengths of light must be used. This is determined by testing which color is more readily and effectively absorbed by the target cells.

Surgery involving the use of lasers on the skin include: the removal of tumors, scars, birthmarks, legions, moles, warts, wrinkles, and also tattoos. Here the laser is used to heat up the targeted cells until they burst. Surgery using lasers may also be directed towards the repair of blood or

lymph vessels. They may also be used to eliminate blockages in vessels. More commonly known is the use of lasers during LASIK eye surgery where the laser is used to reshape the cornea of the eye.



There are several types of laser that are used. The Carbon Dioxide and Erbium lasers are used mainly in cosmetic surgery to remove wrinkles or even to resurface the skin of the face. Yellow Light lasers are more readily absorbed by hemoglobin and may be used to treat blood vessel disorders, and also in the removal of birthmarks and rosacea. Red Light lasers are commonly used in treating brown lesions such as freckles, and are also important in tattoo removal.

## Works Cited:

- <http://www.cosmeticsurgery.com/research/cosmetic-surgery/>
- <http://healthguide.howstuffworks.com/laser-surgery-dictionary.htm>
- <http://www.hospitaltechnology.com/contractors/PRODUCTS/lasersurgery.html>