

Laser types

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Types of lasers used in medicine.

A laser is a device that converts energy into light. Electrical or optical energy is used to excite atoms or molecules, which then emit light. A laser consists of a cavity, with plane or spherical mirrors at the ends, that is filled with lasable material. This material can be excited to a semistable state by light or an electric discharge. The material can be a crystal, glass, liquid, dye, or gas as long as it can be excited in this way.

Gas Lasers: Carbon dioxide, Argon, Copper vapor etc. An electric current is discharged through a gas to produce light. These were the first lasers which emit a constant beam of light for longer durations of exposure. Gas laser was invented in 1960. Carbon dioxide laser for instance, is used instead of scalpel.

Solid State Lasers: Nd:YAG, Er:YA, KTP etc. These emit interrupted emissions of constant laser energy. Solid state lasers have lasing material distributed in a solid matrix (such as yttrium-aluminum garnet "Yag" lasers). The neodymium-Yag laser emits infrared light at 1,064 nanometers.

Liquid Lasers: Dye lasers. Pulsed dye lasers emit high energy laser lights with very short pulse durations and longer intervals between each pulse.

Diode Lasers: Also known as semiconductor lasers, have several wavelengths and are suitable for soft tissue procedures. Often used in dermatology.

Excimer lasers: Powered by chemical reaction involving an excited dimer, which is formed from two atoms and at least one of them should be in an excited electron state. These kinds of lasers produce ultraviolet light and are used in eye surgery.

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