

# The Low-Down on Laser Hair Removal

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*She blinded me with science*

– Thomas Dolby

Have you ever walked barefoot across an asphalt parking lot on a hot Savannah day? Most of us learn at an early age to scurry to the nearest white paint line to avoid burning our feet. Surprisingly, this unpleasant scenario is similar to the principle used by modern medical lasers for hair removal. Laser energy is used to selectively heat and destroy hair follicles by targeting the naturally occurring dark pigment, melanin, without heating the surrounding skin. This process is referred to as selective photothermolysis. Dark hair on a fair skinned individual is optimal for photothermolysis. Blonde, gray, red and white hair tend to be more difficult to destroy. The concept of thermal relaxation time (TRT) also plays a role in laser hair removal. It is a measure of how quickly a substance can cool. Superficial skin has a TRT of 7-10 milliseconds while a coarse hair follicle may take in excess of 50 milliseconds to cool. This difference allows for the laser to superheat and destroy the hair without injuring the surrounding skin. Several different wavelengths of laser energy have been used for hair removal and they are typically defined by the lasing medium (eg. Ruby laser) and their wavelength in nanometers. Although Ruby lasers (694nm), Alexandrite lasers (755nm), diode lasers (810nm) and others have proven successful for most procedures, it is the neodymium-YAG (1064nm) that is considered the current gold standard as it can be more safely used in a greater range of patients including darker skin types. Nearly all hair removal lasers utilize a cooling device such as cold air flow or short bursts of cryogen to keep the outer layer of skin from suffering

thermal damage.

Hairs are most vulnerable to laser energy when they are in an actively growing stage, known as the anagen stage. After laser treatment, the germinal centers (responsible for hair regrowth) of follicles in the anagen stage are typically disabled. Follicles in the catagen stage (regressive phase) or telogen stage (resting phase) of the growth cycle, are more resistant to laser energy and not as easily destroyed. At any given time, various percentages of hairs are in the anagen, catagen or telogen phase. Thus, a more complete eradication of hair requires multiple treatments, usually spread 4 to 12 weeks apart depending on the area treated.

*Safety Dance*

– Men Without Hats

Thankfully, modern hair removal lasers are generally painless, fast and effective. This does not mean that safety protocols can be overlooked. Eye protection is a must for all room occupants as direct or even reflected laser energy can cause serious eye injury. Laser energy also can injure the skin if administered incorrectly. Darker skinned individuals are at increased risk for superficial burns. Be certain that the laser technician has documented training and is carefully supervised by a physician. Surprisingly, the most common hazard associated with laser



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hair removal is the igniting of flammable material such as drapes, carpet and clothing.

*Smooth operator*

– Sade

A careful history and physical should be performed by the physician prior to any laser hair treatment. Patients should be instructed to avoid excessive sun exposure and to utilize sun protection both before and after treatment. Prophylactic treatment of conditions, such as cold sores, might be instituted prior to treatment. Waxing, plucking and electrolysis should be avoided before laser hair removal.

Preparation for laser hair removal includes shaving the area to be lasered within 24 to 48 hours prior to treatment. A topical anesthetic cream can be applied at home or in the physician's office if a sensitive area is to be addressed. The procedure is not pleasant, but not particularly painful, and thus analgesic medications are not routinely used. The laser used for hair removal should have a scanner handpiece. This device allows for precise areas to be treated and it separates the laser pulses allowing for greater skin cooling. The scanner also allows for overlap that can not be matched by even the most skilled laser technician. Following the treatment the skin may become mildly reddened and this can be addressed with icepacks or a cooling gel.

*Anticipation*

– Carly Simon

The loss of hair on one's head is generally perceived as emotionally detrimental, but for some, excessive hair growth is equally problematic. Expectations tend to be high when patients undergo this fairly expensive procedure. Two to three weeks following the treatment, there will be a considerable reduction in the amount of visible hair growth. As mentioned above, repetitive treatments will allow for a more thorough and prolonged hair removal. Patients need to be fully aware of this prior to their initial treatment. The good news is that patient satisfaction tends to be very high after laser hair removal. Most patients are thrilled to no longer have to deal with the time and expense of shaving.

Lastly, you can sound intelligent at cocktail parties by mentioning that LASER stands for Light Amplification Stimulated by the Emission of Radiation.

*For more information on laser hair removal, Dr. Fabrizio may be reached at Premier Medical Weight Loss and Aesthetics in Savannah, Georgia at 912.353.8188. Visit his website at [www.GoodBodyDoctor.com](http://www.GoodBodyDoctor.com).*

Note: This article is intended to give a general overview of laser hair removal and purposely does not address the specific nuances of the various lasers available.