



## UNDERSTANDING LASER AND LIGHT THERAPY



MODEL D



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LHB-A

# Understanding Low Level Laser Therapy

## **Overview of Low Level Laser Therapy**

Low Level Laser Therapy (LLLT) utilizes a special “cold-beam” or “soft” laser light (without heat) that emits from a laser device that produces a beneficial wavelength of laser light to stop hair loss and promote the growth of new hair. Clinical data has concluded that this beneficial light can help treat hair loss safely, and according to FDA findings Low Level Laser radiation has “No Significant Risk” (NSR) to the participant. In other words, LLLT is safe and does not create side effects. Laser light improves microcirculation and stimulates the scalp tissue, triggering cellular metabolism and protein synthesis which energizes follicular cells.

## **Uses of Laser Therapy**

LLLT rejuvenates the scalp creating a healthier environment to regenerate hair especially involving pre/post-operative hair transplant surgery because it allows newly transplanted hair follicles to forego their inactive stage. Using the laser also improves the healing process helping to reduce skin redness and evidence of surgery. LLLT is recommended as a post operative therapy for faster healing, and also for better patient acceptance of the procedure (with less trauma to the patient) of treating harvested and recipient areas during the same treatment session.

## **Who may benefit from the use of the laser?**

While everyone experiencing hair loss is a potential participant in the laser treatment program, it is after a thorough scalp and hair evaluation/diagnosis is conducted by a professional that determines if the use of the laser is suitable for the type of hair loss and/or baldness involved. Baldness is graded on the internationally established Hamilton / Norwood scale, and research has demonstrated that the Laser Hair Therapy can reduce baldness on most classifications. Starting in Laser Hair Therapy in the early stages of hair loss is the best solution. Treating baldness in the later stages is difficult with less of a chance of reversing the problem condition.

## **What is a laser?**

LASER is the short for – L ight - A mplification by - S timulated - E mission of - R adiation

Light is energy and lasers are the latest and most advanced of our light sources which generate pure light. A single wavelength nanometer (nm) is not a whole spectrum light like an ordinary light bulb. Light from laser is highly ordered and well organized (coherent), while light from an ordinary light bulb is typically unorganized or a non-coherent source of light. Hair regrowth has been shown to be effective at a wavelength of 650nm (or red) light.

There are different types of lasers with two main groups.

1. High Power Lasers: Often referred to as surgical lasers, this one replaces the scalpel of the surgeon and is used to cut, coagulate, and evaporate tissues.

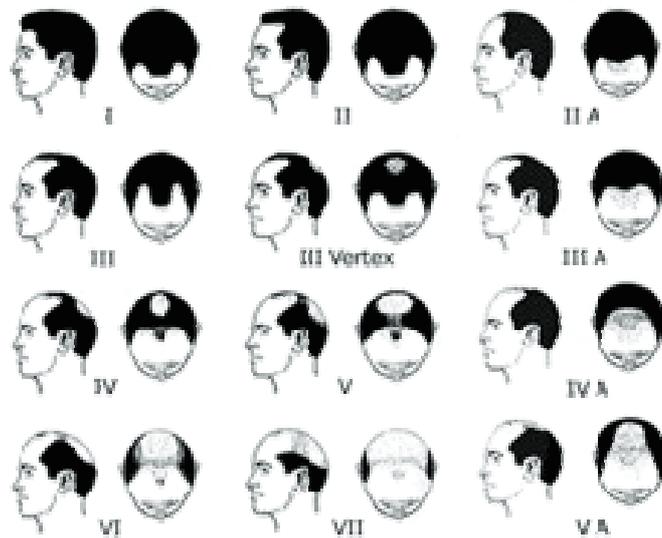
2. Low Level Lasers: Their biological effect is not thermal (invasive), like with surgical lasers and can be used for the stimulation of cell function; dental, skin treatment such as lesions, carpal tunnel, depression, etc. With this type of laser light, photons are absorbed by antenna pigments (chromophores) within the cells. The pure light of the lasers causes photochemical reactions in the cells and induces increased production of cellular energy (ATP) which leads to normalization of cell function, pain relief and healing. The effect of Low Level Laser Therapy (LLLT) is especially striking in areas of the body where cells are under stress.

### Does it have to be a laser?

Monochromatic non-coherent light, such as light from LED's can be useful for skin treatment and superficial tissues such as wounds. However, in comparative studies, lasers have shown to be more effective than monochromatic non-coherent light sources. Non-coherent light will not be effective in deeper areas.

### Picture Gallery and Testimonials

The following are examples of patients from Doctors and non-surgical hair restoration specialists working with the Laser Hair Therapy treatment program. The Norwood / Hamilton scale is defined below:





Before



After



Pre-Laser Hair Therapy



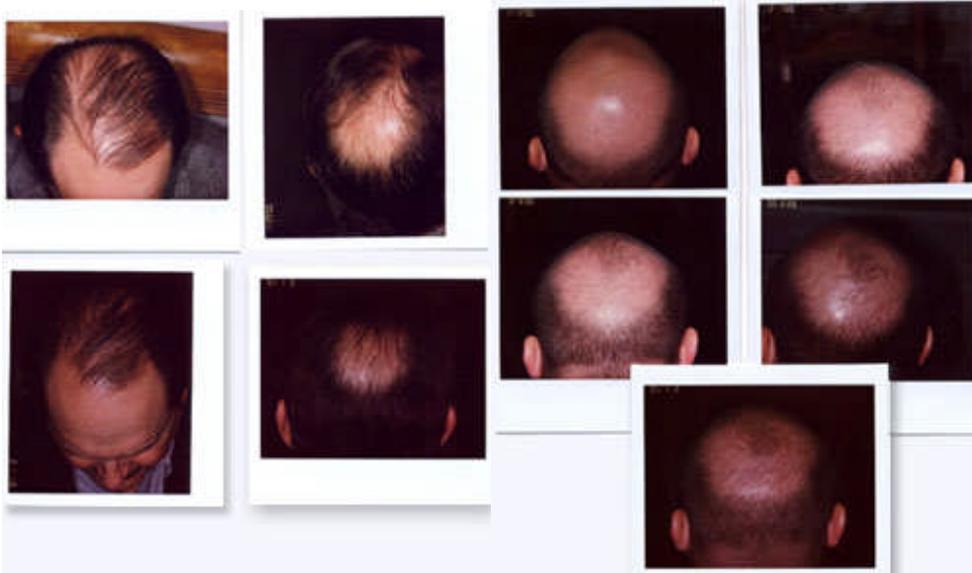
Crown Area 6 Months



Pre-Laser Hair Therapy



Crown Area 6 Months



**Female Alopecia Areata patient.**

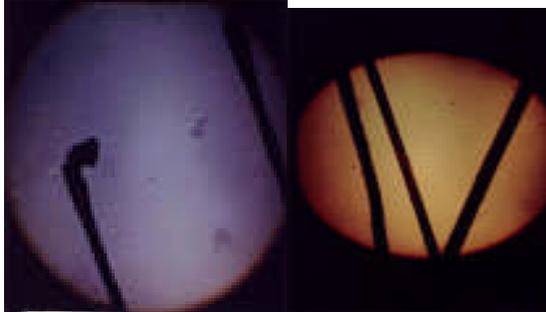
This process took six months. First three months with laser and wet-line products only, second three months with laser treatment combined with Rogaine.



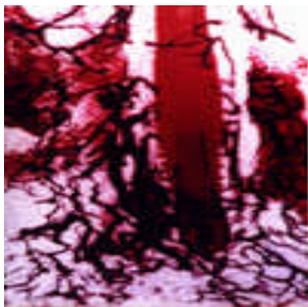
**History.** Various medical researchers both in Europe, the USA, and Asia have proven the effectiveness with increased hair growth in a range of medical studies both on humans and animals. The very first research report came from Hungary in 1968. The late Prof. E. Mester reported increased hair growth on mice around wound areas if irradiated with LLLT. He also reported slower hair growth with higher dosages given over time. The latest medical studies have shown increased hair growth with specific energy doses of specific lasers.

The treatment method has many names in research literature. The most common term used today is

LLLT, Low Level Laser Therapy. The following names also used: Low level laser radiation; Low reactive level laser; Soft laser; Cold laser; Biostimulation and Photobiostimulation laser



Comparative macro photo of hair follicle. The left is normal, the right taken from the lesion's edge at the beginning of laser treatment. In the center, a new hair from the areata lesion regenerated following laser treatment. Observe the good cylindrical shape of this hair, even though it is much finer when compared to a normal hair.



Histology to demonstrate active circulation improvement.

### **Summary:**

Laser therapy treatment method is simply phototherapy, a clinically proven scientific approach to treating hair loss, baldness and problems associated with the scalp without drugs, surgery or side-effects. It is a medically tested, effective and proven method that uses a low level laser energy to treat and control scalp problems. The same applies for laser light and LED light therapy for skin treatment where a certain dose (energy) has to be given to achieve an effect.