

Background of Photo-Rejuvenation

In over 40 years of independent research worldwide, Intense Light Therapy has shown powerful therapeutic benefits to living tissues. The cosmetic use of light therapy has grown dramatically over the past decade as physicians and aestheticians discovered the healing effect of light on the skin. Presently, many physicians use laser based light therapy in conjunction with their other treatment modalities to improve skin appearance.

The more recent development of non-laser, LED light therapy devices has brought photo-rejuvenation out of the physician's office and placed it in the hands of aestheticians and skin care specialists. Current estimates suggest that over 3,000 skin care locations nationwide are using photo-rejuvenation. LED light therapy is FDA approved.

The machines currently in use for cosmetic purposes utilize a combination of visible red and infrared light. Both visible red (620nm - 700nm) and invisible infrared light (700nm - 1200nm) clearly show at least 24 different positive changes at a cellular level.

Visible red light, at a wavelength of 620 to 700nm, penetrates human tissue to a depth of about 8-10 mm. Skin layers, because of their high blood and water content, easily absorb red light. It is extremely beneficial in treating problems close to the surface such as wrinkles, age spots, broken capillaries, wounds, cuts, and scars, trigger points, and have shown particular effectiveness in treating infections.

Infrared light at 950nm penetrates to a depth of about 30-40 mm which makes it more effective for bones, joints, deep muscles, etc. Although both red and infrared wavelengths penetrate to different depths and affect tissues differently, their therapeutic effects are similar.

Wavelength dependent photo-biochemical reactions occur throughout nature and are involved in such things as vision, photosynthesis, tanning and Vitamin D metabolism. In this view, red and infrared intense light is really a form of phototherapy. Red and infrared light emitting diodes (LED's) and lasers are important in that they are convenient sources of intense light at wavelengths that stimulate specific physiological functions (Lasers in Surgery and Medicine 9:1-5, Mayo Clinic, Rochester, Minnesota, 1989). All studies to this date show that LED pulsed light treatment is as effective as or more effective than laser treatment.

Cosmetic use of this therapy has produced no reported discomfort or side effects.

Several studies establish that it is the light itself at specific wavelengths that are therapeutic in nature and not the machine that produced it. As such, there is no therapeutic difference between Lasers and LED therapy. All biological systems have a unique absorption spectrum that determines what wavelengths of radiation will be absorbed to produce a given therapeutic effect. The visible red and invisible infrared portions of the spectrum have been shown to have highly absorbent and unique therapeutic effects in living tissues, particularly the skin, connective, and muscle tissue.