

LOW LEVEL LASER THERAPY (LLLT)

Also known as cold or soft laser therapy, it is a noninvasive, low energy, light-emitting medical device. Cold lasers used in LLLT have been in medical use for over 30 years and have a long record of successful clinical studies demonstrating medical efficacy and safety. In 2002, the FDA approved the first cold laser device based on positive research for the effectiveness of cold lasers in the primary treatment of Carpal Tunnel Syndrome. In contrast to general surgical and cosmetic lasers that produce heat and thermo-destructive laser energy, Low Level Lasers produce no heat and cause no harm to human tissue in normal use and thus are classified by the FDA as a Class IIIB medical device.

Through the action of photo-stimulation of light reactive biological receptors (chromophores) in the body, Low Level Laser Therapy (LLLT) has demonstrated the ability to significantly accelerate and enhance the body's natural defenses, and repair components in the presence of injury, inflammation and certain disease processes. As the light receptive chromophores, present in both cellular and sub-cellular locations in various tissues, are irradiated with coherent laser light, they are stimulated to more active levels of function and increased interaction. Due to the powerful effect photo-stimulated enzymes exert, both local and systemic cascade reactions occur within the tissues irradiated that resulting in immunomodulation and inflammatory mitigation.

Laser light, which penetrates much deeper than other light wave forms, activates mitochondria within the cells, resulting in increased mitochondrial ATP synthesis. Laser irradiation also stimulates endorphin release and increased prostaglandin synthesis. Damaged skeletal, connective and neurological tissues and structures react with enhanced healing in the presence of low level laser irradiation as collagen synthesis and production, satellite cell presence and cellular metabolism are increased as a result of the light stimulation and improved vascular, lymphatic and enzymatic activity.

By modifying the effects, limiting the duration of inflammation, and enhancing specific repair and healing processes, LLLT is consistent in providing pain relief and reducing damage and loss of function, facilitating more rapid repair and stronger healed tissue structures.