

LOW INTENSITY LASER THERAPY

THE TECHNOLOGY

This dynamic emerging technology utilizes superluminous and laser diodes to irradiate abnormal tissue with photons. These are particles of energy that are absorbed by a variety of micro-molecules within the cell, a process which initiates a number of positive physiological responses. In essence, light energy is converted into biochemical energy. The result – normal cell morphology and function are restored. The process is curative and as logic dictates, symptoms disappear.

Light in its various forms has been used for healing from the time of the ancient Egyptian and Greek civilizations. With recent advances in the engineering of devices and the development of appropriate protocols for effective therapeutic application, dramatic benefits and treatment of many complex medical conditions are achievable. The BioFlex System combines numerous sophisticated engineering advances with the capacity to control all parameters such as frequency, duty cycle, energy density, duration, etc. An infinitive range of protocols can then be delivered to tissue in standard fashion or a customized basis.

The monochromatic coherent and polarized characteristics of the therapeutic light beam permit penetration of deep tissues without affecting normal cells. Again, it should be noted that the end result is curative with regard to the pathology, rather than symptom modulation, the conventional approach for the management of pain.

THE ADVANTAGES OF LOW LASER INTENSITY LASER THERAPY

- Non-invasive
- Highly effective
- Non-toxic
- Cure rate >95%
- Easily applied
- No known negative side effects

SOME OF THE PHYSIOLOGICAL EFFECTS OF LOW INTENSITY LASER THERAPY

Short Term Effects

- Production and release of beta-endorphins (these are morphine like substances produced by the various cells in the body that inhibit the sensation of pain)
- Cortisol production is increased (cortisol is the precursor of cortisone). This enables the body to combat the stress associated with trauma or the disease process
- The short-term effect is significant in 5-10% of cases during or after the conclusion of the initial treatment, but is not as important as the long term or cumulative effect.

Long Term or Cumulative Effect

- ATP (adenosine triphosphate) production is increased resulting in improved cellular metabolism
- DNA (deoxyribonucleic acid) production; protein building block of tissue is substantially increased
- Neurotransmission is facilitated due to elevated levels of serotonin and acetylcholine
- Mitochondrial activity is stimulated resulting in cell replication etc. (i.e. replacement, regeneration and repair of abnormal cells)

- Modulation of macrophages, fibroblasts and other cells
- Angiogenesis (formation of new blood vessels)
- Regulates cell membrane potential, essential in NA, Cl and K ion transfer (electrolyte balance)
- Cytokines and other chemical enhancing cellular communications are released

Other Effects

- The immune response is stimulated
- Lymphatic drainage is improved
- The histamine response is positively altered
- Production of growth hormone is increased
- The body's natural healing processes are enhanced

The beneficial physiological changes noted above are the result of tissue regeneration and cellular stimulation. Many other positive activities are modulated including the humoral and cerebral spinal fluid effects which are highly significant and are currently under investigation in research laboratories to accurately delineate the scientific aspects of this process.

Medical Applications

The healing potential of low intensity laser therapy extends to a wide range of medical conditions. Some of the problems most effectively treated are listed below.

1. General

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| • Repetitive stress injury | • Rotator cuff tears |
| • Fibromyalgia | • Temporo-mandibular dysfunction |
| • Carpal tunnel syndrome | • Epicondylitis |
| • Reflex sympathetic dystrophy | |

2. Injuries

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| • Ligament and tendon tears | • Bulging and herniated discs |
| • Contusions | • Facet joint syndrome |
| • Fractures with associated soft tissue injuries | |

3. Inflammatory

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| • Tendonitis | • Plantar Fascitis |
| • Bursitis | • Synovitis |
| • Myositis | • Rheumatoid Arthritis |

4. Degenerative

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| • Osteoarthritis | • Spinal stenosis |
| • Discogenic and vertebrogenic radiculopathy | • Calcifications (e.g. bone spurs) |
| • Chondromalacia patella | |

5. Other Applications

- Wound healing
- Lymphedema (acute and chronic)
- Dermal ulcers
- Dermatology: (i) herpes zoster (shingles) (ii). eczemas (iii). psoriasis
- Burns (i) thermal (i) chemical
- Gout
- Neuropathies (diabetic etc)

