

COLD LASER



Cold Laser: The newest technology helping your patients feel better faster.

What is Laser Therapy?

Cold Laser (also known as **Low Level Laser Therapy**) is the application of red and near infra-red light over injuries or lesions to improve healing and give relief for both acute and chronic pain. It is used to:

- Increase the speed, quality and tensile strength of tissue repair
- Provide pain relief
- Resolve inflammation



How does Low Level Laser Therapy (LLLT) work?

The intensity of LLLT lasers is not high like a surgical laser as there is no heating effect. The effect is photochemical similar to photosynthesis in plants. LLLT aids in the production of ATP thereby providing the cell with more energy. As a result the cell is in optimum condition to speed up the healing process and return the cell to a normalized state. It is painless, non-toxic, non-invasive, non-thermal and very safe if applied by a trained practitioner.

For the doctors



The biochemical science behind LLLT:

Like photosynthesis, the correct wavelengths, power and frequency of light at certain intensities for an appropriate period of time can act on the mitochondria and at the cell membrane to increase ATP production and cell membrane perturbation leading to permeability changes and second messenger activity resulting in functional changes such as increased synthesis, increased secretion and motility changes. Red and near infrared light at 635nm wavelengths show the most consistent results in human pain and wound healing studies. In short LLLT has been found to modulate various biological processes in a phenomenon called photobiomodulation. Activation of mitochondrial respiratory chain components results in the initiation of a signaling cascade that promotes cellular proliferation and cytoprotection. Cytochrome oxidase is a key photoacceptor of light in the far-red to near-IR spectral range and is an integral membrane protein that contains four redox active metal centers and has a strong absorbance in this spectral range. 600-680 Nm of irradiation has been shown to increase electron transfer in purified cytochrome oxidase, increase mitochondrial respiration and ATP synthesis in isolated mitochondria and up-regulate cytochrome oxidase activity in cultured neuronal cells. **Copies of research articles to support this information can be requested from our office.**

