

Therapeutic Laser Treatment

For Patients with Spinal Cord Injury

Program Vision

Neuro Muscular Connection (NMC) provides a class IV laser focused rehabilitation program for spinal cord injury (SCI) patients. NMC emphasizes the benefit of a holistic approach by providing additional complementary therapies such as adaptive exercise, functional retraining, lifestyle modification, and family involvement. NMC's motto is "Dare to Live Again!" This program is a great fit for individuals who would embrace the challenge of moving toward personal independence through new rehabilitation techniques.

The rehabilitation model for this program is based on the SAID principle, i.e. Specific Adaptation to Imposed Demand. This model of care asserts that the body's nervous system has the potential to reorganize itself after substantial injury in response to appropriate demands. NMC's program investigates how Class IV laser therapy can serve as this appropriate demand to prompt healing in the body.

NMC's program recognizes that every patient experiences a unique progression through rehabilitation stages and recovery. For that reason, Program Director, Dr. Steven Shaffer, D.C., consistently re-assesses each patient's treatment plan to suit their individual needs.

The overarching goal of NMC's SCI rehabilitation program is to help improve the patient's overall wellness and functional independence through a holistic therapeutic approach that emphasizes Class IV laser therapy techniques and gait training.

What are the clinical benefits of laser therapy?

Laser therapy facilitates healing in patients starting at the cellular level. The laser therapy stimulates biochemical mechanisms that promote a wide range of benefits:

- **Reduced pain and inflammation**
- **Increased circulation, immune response, movement, and flexibility**

What is a therapeutic laser?

A laser is a device that uses stimulated emission of amplified electromagnetic waves, or light. NMC's therapeutic lasers are Class IV diode lasers. These lasers operate at 980nm, which falls just outside the visible color spectrum (400-700nm) and within the near infrared range (700nm-2,500nm). Near infrared light is different from ordinary light because it is directional and highly concentrated in energy and power. This quality makes it possible for the laser's light to safely penetrate deeply into tissues to promote healing; however, it does pose some danger to our eyes.

To ensure safety during laser treatment, both patient and technician wear eye protection designed to block near-infrared light.



How does therapeutic laser treatment promote healing?

Laser light is made up of small energetic packages called photons. The human body's ability to absorb these photons in its bone, nerve, muscle, and other soft tissue cells is key to understanding how laser therapy works. All human cells contain small, energy powerhouse structures called mitochondria, which facilitate important chemical reactions that help restore cell function. Tiny structures on the mitochondria called chromophores absorb the laser light photons.

When this absorption happens, a process called photobiostimulation takes place. This process is a cascade of biochemical events that promotes:

- **Decreased pain, inflammation, and scar tissue formation**
- **Increased cellular metabolism, tissue repair, nerve function, formation of new blood vessels, and immune system regulation**

The laser light expedites this healing photobiomodulation process in which the cells revert back to their healthy functional state.

How does Neuro Muscular Connection approach therapeutic laser treatment?

The program fine-tunes the broad application of laser therapy to meet the patient's specific therapeutic goals. Accordingly, the amount of laser light the patient receives will vary as treatment progresses.

The total joules (watts of energy over time) are determined for each treatment session. Laser light may be administered in a continuous or pulsed output depending on the treatment goal. For instance, pulsed output is more successful when the goal is pushing inflammation out of an area. Continuous output is more applicable when the treatment goal is penetrating deeper tissues to elicit a photobiostimulation response. For spinal injury patients, continuous output is most commonly used to stimulate muscle activity.

What will you feel during laser treatment?

A hand piece administers the treatment by shining the light directly onto the skin. The light will feel warm when administered. Laser treatment is often paired with specific movements.

Is our program a good fit for you?

Please contact us at Neuro Muscular Connection to schedule an initial patient evaluation with Dr. Shaffer.

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