CUTTING EDGE LASER TECHNOLOGIES

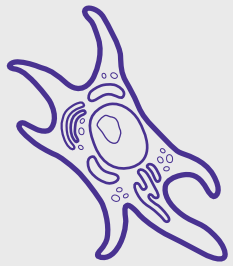
Improving Care for Neuropathy Patients with Laser Therapy.

Discover how you can offer neuropathy patients an effective drug-free and non-invasive solution to their pain with laser therapy.

What is Laser Therapy?

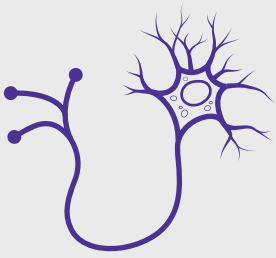
Low level laser therapy, sometimes referred to as laser biostimulation or photobiomodulation therapy, uses specific wavelengths of light to favor and accelerate the body's natural healing process.

As the laser beam is moved over the skin, photons penetrate the tissue and interact with chromophores. This causes the chromophores to undergo a conformational change that excites the cell, expedites cellular reactions, and stimulates different biological effects. While therapeutic laser technologies vary in their mechanics and biological effects as a result, they commonly include:



Promoting tissue regeneration and wound healing by stimulating fibroblast development in damaged cells.

Reducing inflammation and edema by stimulating blood flow and lymphatic drainage.



Inducing analgesia by easing nociceptors and stimulating the release of endorphins and enkephalins to block the transmission of pain sensations to the brain.

Laser Light vs. Ordinary Light

Light is essential to almost all forms of life.

Laser light and ordinary light, such as that from the sun or a typical light bulb, are both electromagnetic waves. However, laser light has very unique properties that cannot be seen in nature.

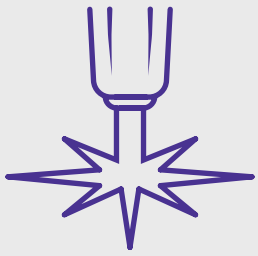
Measured in nanometers, each wavelength frequency along the electromagnetic spectrum has precise physical parameters. Only a narrow range of frequencies along this spectrum are visible to the human eye. This range exists approximately between 400 nm (violet light) and 700 nm (red light).

Ordinary light is composed of electromagnetic waves covering a wide range of frequencies within and outside of the visible light spectrum. These different wavelengths move irregularly and in different directions from the source.

On the other hand, laser light is an induced emission of a highly concentrated beam in which all photons move coherently in the same direction and at the same wavelength frequency.

Ordinary Light

Non-Directional Distribution
Highly Divergent
Polychromatic
Incoherent



Laser Light

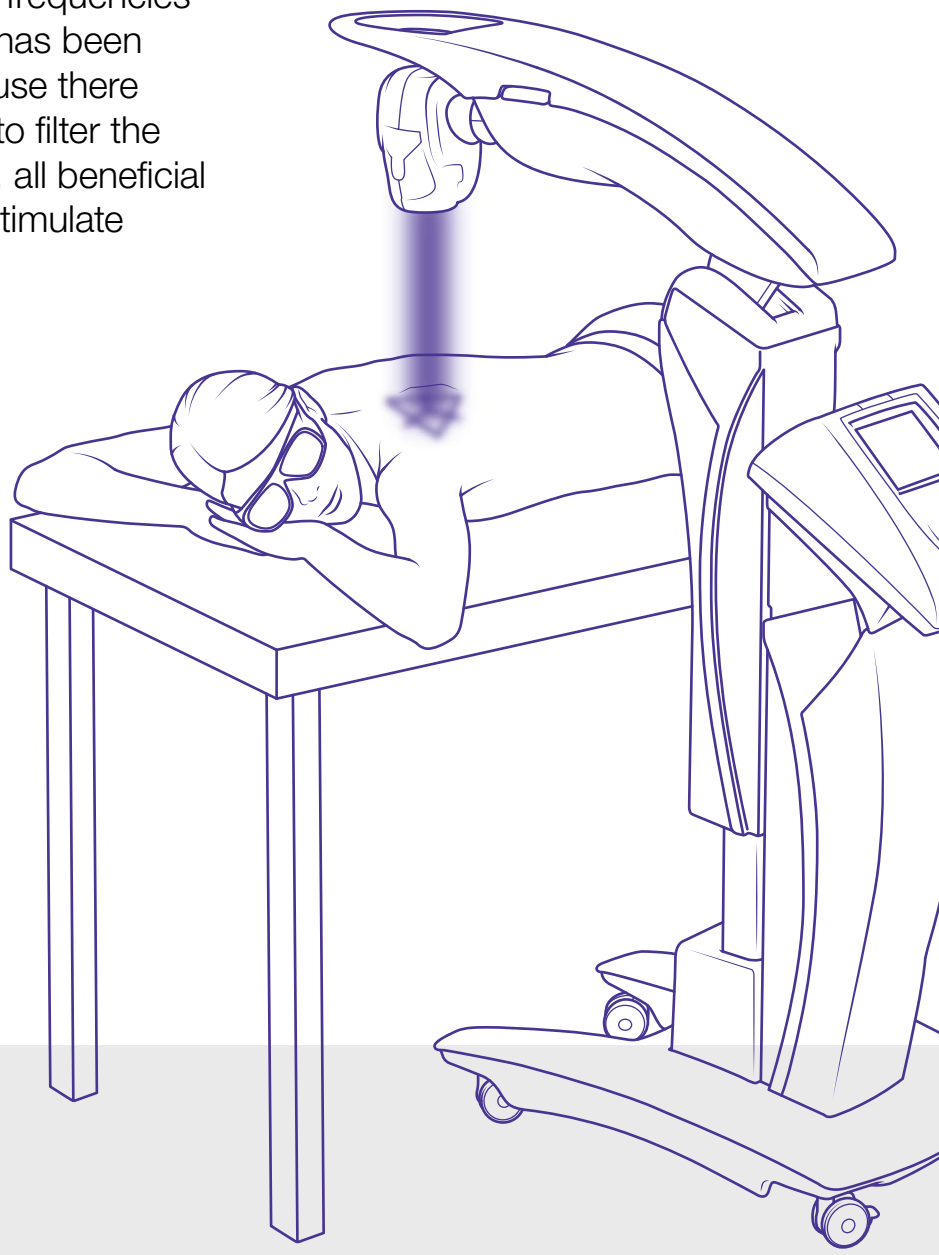
Directional Distribution
Minimally Divergent
Monochromatic
Coherent

The Healing Power of Light

It has been scientifically proven that certain light emissions are able to effectively transfer energy to cells and tissue to stimulate the body's natural healing process. However, some light emissions are more efficient than others.

Research has found that the effectiveness of laser therapy is dependent on several factors including treatment location, concurrent medications, and dosimetry regarding adequate levels of energy delivered, irradiance, and pulse structure.

Therapy lasers often emit wavelength frequencies between 600 nm and 1200 nm. This has been deemed the **therapeutic window** because there are no chromophores with the ability to filter the light emission in this range. Therefore, all beneficial light energy is able to penetrate and stimulate photoreceptors in the cells.



Current research on the effects of laser therapy focus on the mitochondria of the cells. This organelle generates chemical energy in the form of adenosine triphosphate (ATP) to power biochemical reactions in the cell.

Photons of near infrared light are absorbed by the mitochondria, activating enzymes to increase production of ATP and accelerate cellular metabolic activity, cell growth and tissue repair.

Laser Classifications

Lasers are classified by their potential to cause biological damage. The Food and Drug Administration recognizes four major classes of lasers (I to IV), including subclasses. The higher the class, the greater the power and potential to cause biological damage. The relevant criteria includes:

- Output of energy and power
- Wavelength frequency
- Exposure duration
- Maximum accessible emission level allowed within a particular class

I

Class I lasers are not considered to be hazardous under all reasonably anticipated operating conditions

IIA

Class IIA is not considered to be hazardous if viewed for less than or equal to 1,000 seconds but are considered a chronic viewing hazards for longer periods of time.

II

Class II levels of laser radiation are considered to be a chronic viewing hazard.

IIIA

Class IIIA is considered to be, depending on the irradiance, either an acute intrabeam viewing hazard or chronic viewing hazard, as well as an acute viewing hazard if viewed directly with an optical instrument.

IIIB

Class IIIB lasers are considered to be an acute hazard to the skin and eyes from direct radiation.

IV

Class IV levels of laser radiation are considered to be an acute hazard to the skin and eyes from direct and scattered radiation.

Food and Drug Administration, 21 C.F.R. §1040.10 (2021)

Classifications of Therapy Lasers

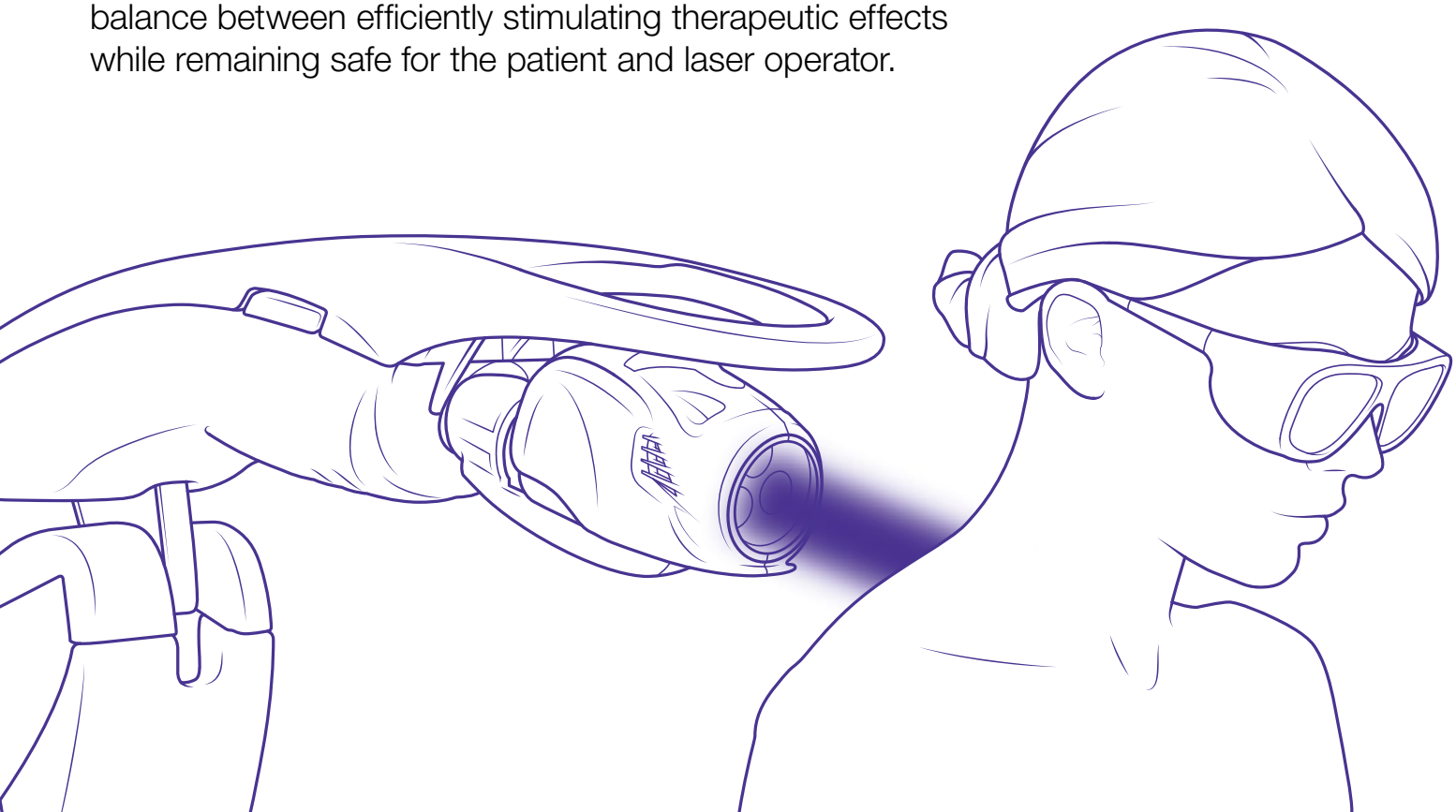
While all therapy lasers are unique, many are classified within Class IIIB or Class IV. Class IIIB lasers are often referred to as “cold lasers” since they do not produce heat. While still hazardous for naked eye exposure, Class IIIB therapy lasers produce less energy than Class IV and are generally not considered a burn hazard.

However, this limitation in power provides limited biostimulatory effects and mitochondria excitation. This often requires patients to undergo longer treatment times and receive many sessions before seeing results.

Class IV is the highest and most potentially hazardous classification of lasers. The higher level of power is often assumed to lead to more efficient treatments, but it is important to remember that wavelength frequency, emission coherence, and impulse have a greater influence on therapeutic effect than power.

Additionally, a higher level of power is often accompanied by an increased risk of thermal tissue damage when not used properly. Since heat in itself is not a form of energy that can be directly used by the cells, it is important that this energy transfer is not thermal to avoid breaking down the sensitive cellular substrata.

This requires therapeutic laser emission systems to strike a balance between efficiently stimulating therapeutic effects while remaining safe for the patient and laser operator.



Multiwave Locked System® Laser Therapy

Based on over 30 years of research, the Multiwave Locked System (MLS®) was developed in an effort to produce an efficient and simultaneous effect on pain and inflammation, exceeding the limits of traditional low level therapy lasers while avoiding concerns of higher power Class IV therapy lasers.

The Multiwave Locked System is a unique type of Class IV laser technology that utilizes a patented emission system to precisely synchronize simultaneous dual wavelengths to provide optimal clinical effectiveness.

Falling within the therapeutic window's precise interval of 600 nm to 1200 nm, these two wavelengths are able to reach the deepest anatomical structures often associated with the ailments that MLS Laser Therapy is most suitable to treat.

Continuous 808 nm

This wavelength emission decreases inflammation by stimulating blood flow and lymphatic drainage, inducing the reabsorption of fluid buildup, and interacting with the synthesis and degradation of inflammation mediators.

Pulsed 905 nm

This wavelength emission affects the transmission of pain at the level of superficial nociceptors and on the afferent nervous fibers. This results in an increase of the cell and nervous fiber's stimulation threshold and therefore a reduced sensation of pain.

Through the synchronization of these emissions, MLS Therapy Lasers induces an immediate analgesic effect while providing a strong anti-inflammatory action at the same time. The MLS emission takes advantage of each wavelength's unique benefits that, when synchronized, reinforce each other to achieve results greater than the sum of its parts.

The MLS Difference

Enhanced Safety Profile

Unlike early-generation Class IV therapeutic laser technologies, MLS Therapy Lasers have the capability of delivering controlled laser energy by modulating the energy output to an appropriate level considering the maximum possible power level, pulse width, and treatment duration.

With this unique safety feature, MLS Therapy Lasers provide more accurate therapeutic dose delivery while decreasing the risk of thermal collateral tissue damage. This allows the patient and practitioner to experience the benefits of a Class IV therapy laser, such as more efficient biostimulatory results in a shorter period of time, while minimizing the risks associated with many Class IV technologies.

Clinical Research

MLS Laser Therapy has been developed and tested following a strict course of biomedical and clinical research. The effectiveness of the combined emissions were initially tested in vitro, in vivo, and by means of controlled clinical trials run by major state-of-the-art health organizations for treating traumatic and degenerative painful diseases.

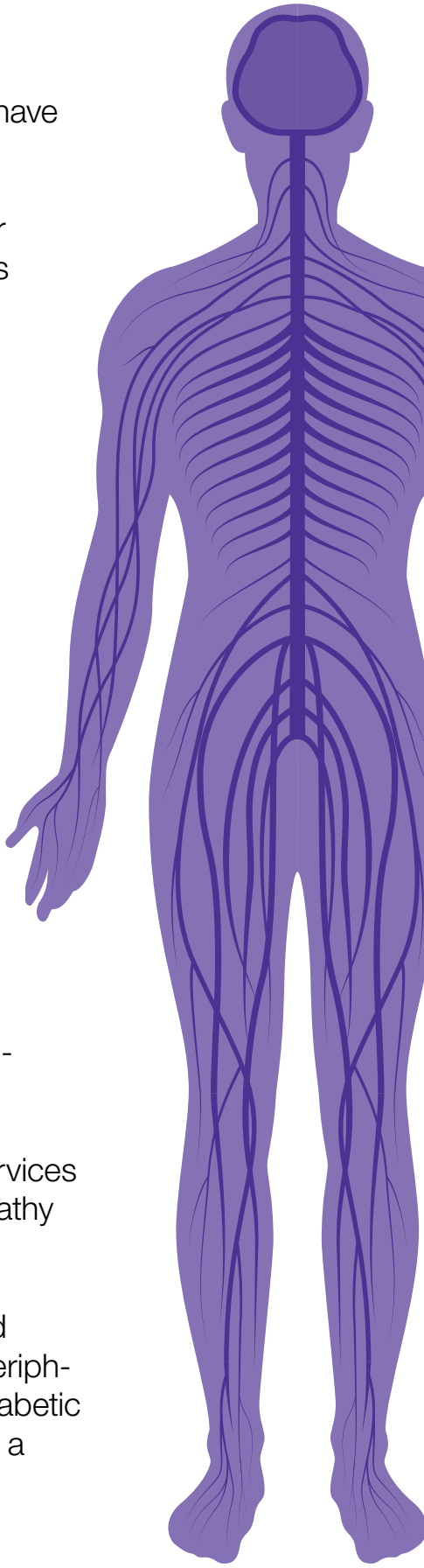
Italy's University of Turin's biology department as well as Brazil's University of Padova's departments of biology and anatomy have studied and verified that the clinical effectiveness of the MLS pulse provides more efficient biostimulatory results with less energy in considerably reduced times in comparison to traditional low level laser therapy.

Bonus Resource

MLS Laser Therapy Scientific Report

Download the Scientific Report to read more about the biomedical research and clinical confirmations behind the innovative MLS Laser Therapy technology.

Neuropathy



More than 20 million people in the United States are estimated to have some form of peripheral neuropathy.

Diabetes is the leading known cause of neuropathy responsible for about 30% of cases. An estimated 30-40% of the remaining cases are considered idiopathic, but can be affected by conditions and events such as physical traumas, alcoholism, HIV/AIDS, or various other health conditions and disorders.

Many patients experiencing neuropathy seek pharmaceutical assistance to manage their pain, but fewer than half of these patients report satisfactory relief of their symptoms. Additionally, pharmaceuticals such as opioids can be associated with harmful side-effects or lead to drug dependencies.

In 2017, more than 191 million opioid prescriptions were dispensed to Americans. According to the Center for Disease Control, 1 in 4 patients receiving long-term opioid therapy for chronic pain within a primary care setting struggle with addiction.

These statistics call for a new solution for neuropathic pain management. Some states are taking action to protect patient wellbeing by passing regulations that limit opioid prescriptions. Conjunctly, patients' demands for effective pain management techniques without harmful side-effects is on the rise.

To meet this demand, many providers are adding laser therapy services to their arsenal of natural and holistic pain relief options for neuropathy and other difficult to treat conditions.

Research has found that photobiomodulation can reduce pain and inflammation in addition to improving the regeneration of injured peripheral nerves. Laser therapy has also been used to manage other diabetic complications, such as foot ulcers and wounds healing, as well as a wide range of neuromuscular, musculoskeletal, degenerative, and inflammatory conditions.

Backed by Research

Laser biostimulation was first discovered in 1967 by Endre Mester, MD at the Semmelweis Medical University in Budapest, Hungary. Since then, over 100 phase-III, randomized, double-blind, placebo-controlled clinical trials have been published and supported by over 1,000 laboratory studies investigating the primary mechanisms and secondary effects of laser therapy.

Many of these studies reported a significant reduction in pain associated with a wide range of conditions. Clinical studies specifically observing the effects of photobiomodulation on nerves have revealed that laser therapy can increase nerve function, improve capacity for myelin production, and promote axonal growth in injured nerves. Studies also indicate potential therapeutic effects for traumatic brain injuries, stroke, and neurodegenerative diseases.

In addition to promoting peripheral nerve repair processes and faster myelinization, MLS Laser Therapy decreases inflammation associated with neuropathic pain. This is a key consideration since nerve inflammation plays an important role in the development and progression of neuropathy.

In vitro studies have found that MLS Laser Therapy induces an increase in NLRP 10, a protein with anti-inflammatory action. The decrease in inflammation encouraged by this protein leads to a normalization of vascular function to decrease edema and thus pain.

Other studies have found that laser therapy can decrease inflammation by means of microglia and macrophage activation in rats.

Macrophages and microglia have two different activated states that exhibit a range of responses to injury, including pro-inflammatory and anti-inflammatory actions. Injury to peripheral nerves cause these cells to release pro-inflammatory factors that can cause heightened sensitivity of nerves, as well as the disinhibition of pain modulation. Laser therapy can cause a shift in the activated state encouraging these cells to begin releasing anti-inflammatory factors instead, therefore decreasing mechanical hypersensitivity.

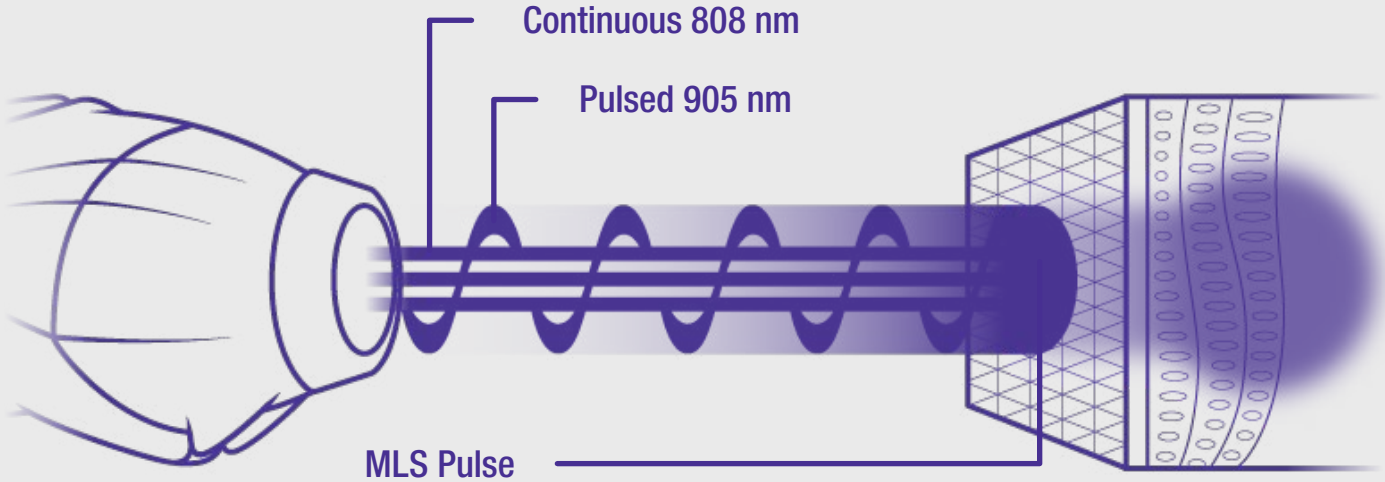
Roadmap to Success

Laser therapy can help physicians meet patient demands for natural and holistic pain management by minimizing their use of opioids, steroid injections, and anti-inflammatory medications that could present harmful side-effects.

The typical MLS Laser Therapy treatment package for acute conditions consists of six to ten sessions over the span of three to five weeks. Chronic and difficult-to-treat conditions, such as neuropathy, may require twelve sessions over the span of four to six weeks. After the initial twelve sessions, some patients may require additional maintenance sessions on a monthly basis.

Laser therapy treatments are cumulative. Each session builds on the last, gaining more momentum in biological processes with each treatment. With the MLS combined and synchronized pulse, an immediate response is induced, and results are long lasting.

In addition to health and medical benefits for patients, MLS Laser Therapy allows physicians to leverage technology to attract new patients, generate additional revenue, and ultimately improve their practices' bottom line.



MLS Pulse
These synchronized wavelengths produce immediate and long lasting synergistic effects while ensuring the deepest possible penetration.

Specializing with Laser Therapy

With increasing competition, specialization is becoming increasingly important for private practices to differentiate themselves and remain relevant. By increasing the value of their services by specializing, healthcare providers have the opportunity to out-earn those who don't.

With their specialty, healthcare providers can excel and invest in treatments common for the condition or group of conditions you focus on. Not only does this attract new patients, especially through referrals, but it allows them to charge more for their expertise and heightened quality of care.

> *"Many of my fellow chiropractors have specializations in nutrition, sports injuries or pediatrics, per say. We have taken the opportunity to use the MLS Therapy Laser as an extremely effective tool to set our practice apart from our competitors. It allows us to offer cutting-edge therapy that is extremely effective and has made a significant difference in our outcomes for our practice."*
>
> – Dr. Tim Brennan, DC
> Brennan Chiropractic & Laser Pain Solutions

Adjunctive Laser Therapy

MLS Laser Therapy can be used to complement post-surgical and rehabilitation care plans to improve function and speed-up recovery. Studies have shown that adding laser therapy treatment sessions to stretching and exercise plans for various conditions can shorten recovery times and lead to better results, including reduced pain and improved range of motion.

For patients with peripheral neuropathy, exercise intervention can also improve balance, gait, and mobility. By improving mobility and range of motion, patients can more quickly reach a stage of the healing process where exercise is easier to perform. Therefore, improving outcomes and expediting recovery.

Patient Education and Marketing

Patient education is vital for your success with laser therapy. Regardless of the channels you and your practice use to communicate with patients, it is crucial to elicit a response that positions you as an expert. When a patient feels that they have learned something about their condition and treatment options, they will feel confident in your expertise and inspired to continue the conversation.

Bonus Resource

Laser Therapy and Neuropathy: How to Create a Niche and Drive Patient Acquisition

In this on-demand webinar, renowned practice marketing consultant Dr. Vince Leone shares his strategy for building a successful niche practice by helping patients suffering from neuropathy. This presentation includes how he expanded his services with laser therapy by attracting, evaluating, and treating this patient population.

A Cash-Based Service

Given recent changes in insurance reimbursement models, it is important for independent practices to consider expanding their revenue streams with new technologies that satisfy patient needs while creating new sources of cash-based income.

While laser therapy is typically not covered by health insurance, many patients are able to recognize the value of its effectiveness and are willing to pay out-of-pocket for hard-to-treat conditions that have not responded well to other methods. For patients with neuropathy, laser therapy could be the solution that finally makes a difference in their pain.

> *"Without a doubt, the MLS Therapy Laser has been transformational in our approach to diabetic polyneuropathy and related nerve issues. The traditional treatment of medicine and surgery has now been enhanced with an alternative that is pain-free, easy to use, and devoided of side effects."*
>
> – Richard P. Jacoby, DPM, DABPS, FAENS
> Extremity Health Centers

It's also important to remember that laser therapy does not need to be limited to neuropathic pain or seen as a last resort. Patients are becoming increasingly hesitant to take pharmaceutical painkillers due to their potentially harmful side effects. Many also want to avoid painful injections and invasive procedures when possible. Laser therapy is becoming a go-to option for a wide range of painful conditions.

Bonus Resource

MLS Laser Therapy Indications Checklist

Download this indications checklist to identify the number of patients at your practice who could benefits from MLS Laser Therapy.

As a natural and holistic method to manage pain and inflammation, therapeutic lasers are filling the gap for non-pharmacological and non-invasive options for neuropathy and other nerve-related issues.

With recent innovations to laser technologies, including the development of the MLS Laser Therapy emission system, therapeutic lasers are becoming more efficient in their healing power while remaining safe for the patient and operator.

Backed by thirty years of research, MLS Laser Therapy precisely synchronizes simultaneous dual wavelengths to provide optimal clinical effectiveness while keeping power levels below the threshold for thermal tissue damage. The combined emission of the continuous 808 nm and pulsed 905 nm wavelengths provides an immediate analgesic response while promoting a strong anti-inflammatory action at the same time.

With fast and long-term results, MLS Laser Therapy is quickly becoming the standard of care for drug-free and non-invasive pain and inflammation relief.

Patients are becoming increasingly concerned by the side-effects of pharmaceuticals and underwhelmed with their unsatisfactory results. With MLS Laser Therapy, practitioners can leverage technology to satisfy patient demands for an effective solution to neuropathy and other inflammatory conditions.

Since nerve inflammation plays an important role in the development and progression of neuropathy, the anti-inflammatory actions provoked by the MLS impulse are crucial to its effectiveness for managing neuropathic pain.

In addition to the medical benefits, laser therapy is a cash-based service that offers an additional revenue stream and helps minimize reliance on insurance reimbursements. It also provides the opportunity to specialize or build a separate business around the modality.

Bonus Resource

Cutting Edge Knowledge Center

Discover more educational resources on MLS Laser Therapy at the Cutting Edge Laser Technologies online Knowledge Center, including webinars, case studies, eBooks and more!

Cutting Edge Laser Technologies is focused on providing non-pharmacological and non-invasive solutions for pain management, wound healing, post-surgical recovery, and tissue regeneration. The Cutting Edge mission is to assist health care professionals improve quality of patient care while strengthening their bottom line.

With 20 years of experience, Cutting Edge is the leader in designing and selling products that address the unique challenges associated with each profession we serve. We're achieved this leadership position by providing patented, clinically validated, best-in-class therapeutic technologies, world-class customer support, and an unparalleled practice integration program.

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