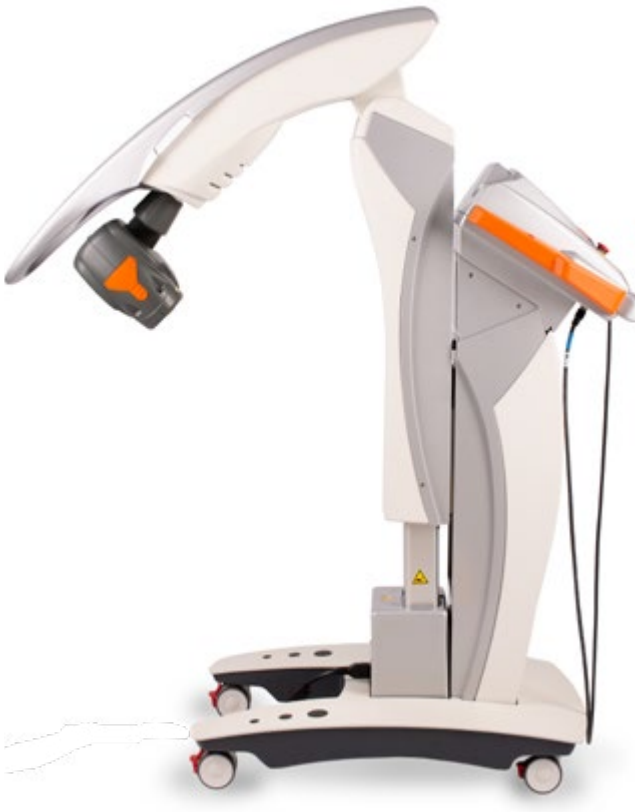
ORTHO LAZER
Orthopedic Laser Center

M8 MLS® Laser – The Technology

MLS, the Multiwave Locked System, is a patented Low Level Light Therapy system that combines both the 905nm and 808nm wavelengths for pulsed and continuous emissions.



The M8 MLS Laser was developed by ASA Laser to overcome some of the limitations of previous LLLT systems. The aim of the M8 Laser is to provide concurrent actions on pain, inflammation, and edema. It is possible to achieve strong anti-inflammatory, anti-edema, and analgesic effects simultaneously and in a short period of time.

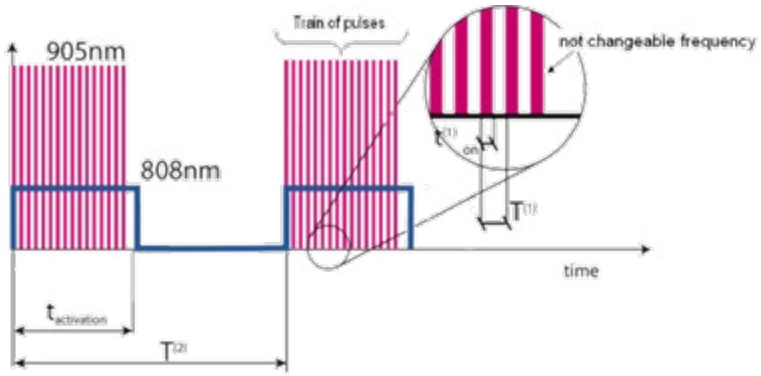
The unique synchronized laser wavelengths are emitted in balance and intensity using a safe and effective delivery method. The diode optical design of the delivery system transfers energy 2-5cm deep to affect the targeted tissues at a cellular level. The synchronized wavelengths act in synergy resulting in analgesic and anti-inflammatory effects together that are greater than emissions of two single lasers.

How it Works

EFFECTIVE ORTHOPEDIC TREATMENT

- The synchronized dual-wavelength M8 MLS delivery system provides synergistic results
- As a result, pain reduction is greater with the M8 MLS Laser than with an equivalent single wavelength beam
- Reduces inflammation and edema
- While the 905nm super pulsed laser is treating pain and promoting healing, the 808nm wavelength reduces inflammation and edema

M8 MLS Laser Emissions



905nm SUPER PULSED LASER EMISSION FOR PAIN

Fast acting analgesia and accelerated healing

Has been shown to significantly increase the activity of mitochondrial respiratory chain complexes I, II, III, IV and succinate dehydrogenase

The 905nm emission induces an increase in ATP synthesis that aids in accelerating the healing process

808nm CONTINUOUS LASER EMISSION FOR INFLAMMATION

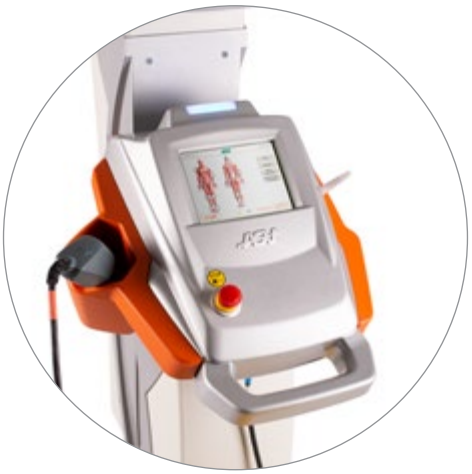
Decreased edema and inflammation

The 808nm emission has an immediate anti-edema and anti-inflammation effect

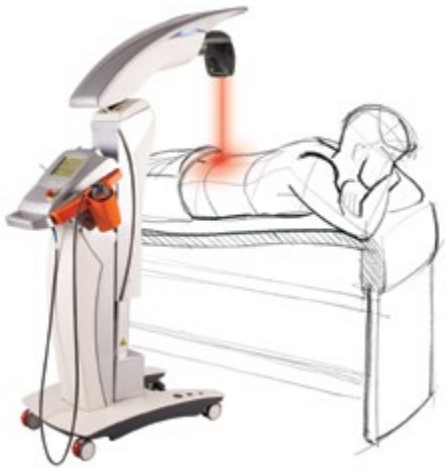
It falls within the second absorption peak of cytochrome oxidase, which in turn activates mitochondria to increase ATP production

Features

- Peak power 75W
- Orthopedic-specific user interface
- Specially curated protocols and applications
- Robotic delivery
- Hand wand option for targeted tissue
- Large treatment area with 3 diodes



M8 MLS Laser vs Other Lasers



Traditional laser scanning devices cause reflection; they have a large divergence angle of the laser beam.

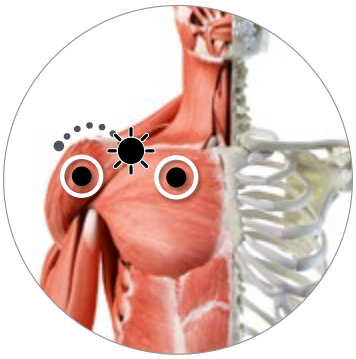
> MLS is a collimated laser with very little scatter or reflection.

Traditional laser scanning coverage area is not homogeneous; beams overlap on the sides, while in the central zones some parts are not reached by radiation.

> The M8 MLS is homogeneous by robotic delivery. The whole intended treatment area is reached by the laser emissions.

Since light distribution is homogeneous (much more than in traditional scanning laser devices), all photoreceptors in the treatment area are promptly activated because of the optimal energy dose; large tissue volume is activated at the same time.

Biological Benefits of MLS Laser Therapy



Scientific literature and experiments carried out in part by ASA Campus laboratories have identified the specific biological interactions as well as the therapeutic effect of the MLS Laser. Review in-depth scientific studies — **OrthoLazer.com/science-studies**

Photochemical

Direct transfer of energy to sublayers

Increase in ATP production

Modulation of cellular metabolism

Effect on pain perception threshold

Photothermal

Increase in circulation

Increased supply of oxygen and nutrients

Photomechanical

Acceleration of lymphatic peristalsis

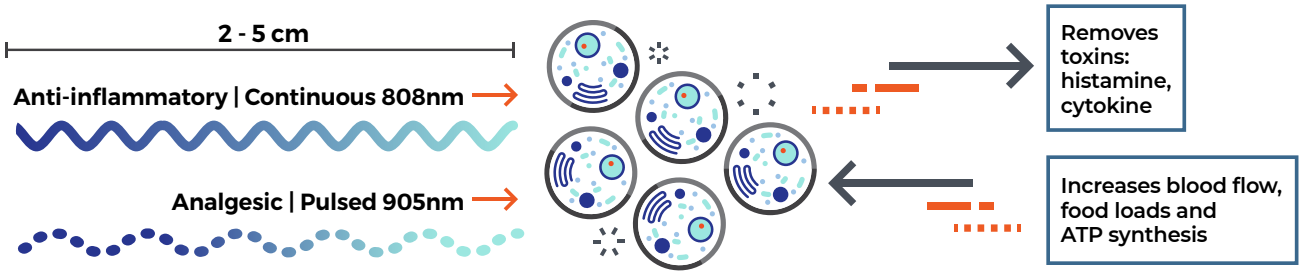
Re-absorption of edema

Reactivation of microcirculation

Direct Biological Effects

CELLULAR LEVEL

- Increases ATP synthesis
- Increases the synthesis of the proteins that bond ATP, making it more usable for metabolic and anabolic processes at a cellular level
- Increases cell proliferation
- Induces differentiation processes
- Releases fibroblasts
- Increases the production of molecules of the extracellular matrix (fibroblasts and chondrocytes)
- Increases PP1 protein and alkaline phosphatase activity, both which promote cell return to a basic state, modulate the metabolism of glycogen and the muscle relaxation/contraction process
- Increases the MyoB α-enolasi, PP1 proteins, which regulate myogenesis and mediate the reconstruction of damaged muscle fibers
- Increases the anti-inflammatory protein of NLRP-10 that inhibits the production of pro-inflammatory interleukin



ON TISSUES

- Modulates inflammation processes
- Extracellular matrix remodeling
- Induces myogenesis and reconstitution of damaged muscle fibers
- Modulates production of the structural proteins of the muscle, such as actin and tropomyosin
- Increases the Galectina-3 and HNRNP K proteins, which can induce angiogenesis and regeneration of nerve fibers, and are important for neural function and lymphatic and vascular regeneration
- Stimulates endothelial function
- Reduces edema reabsorption times
- Prevents the formation of scar tissue

Direct Biological Effects

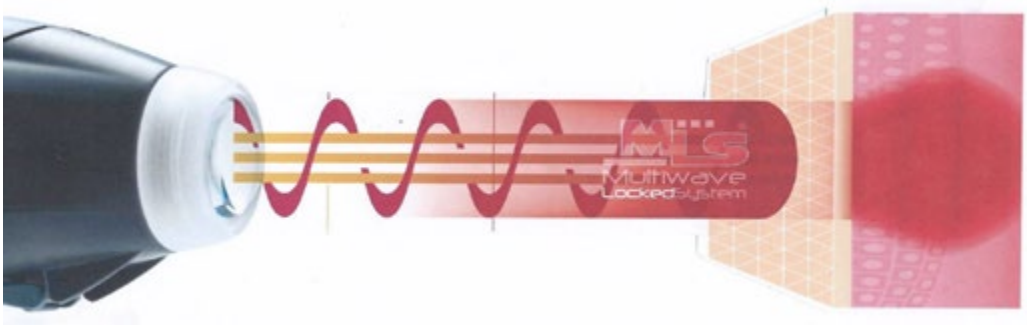
SYSTEMIC LEVEL

Analgesic effects

- Reduction of the inflammatory component
- Reduction of edema
- Reduction in muscular spasm
- Washes out allogenic substance
- Increased endorphin synthesis
- Modulation of pain stimulus conduction

Anti-inflammatory effects

- Vasodilation and permeability modulation of lymphatic and capillary vessels
- Washes out pro-inflammatory molecules
- Inhibited production of pro-inflammatory molecules



Biostimulation

- Increased supply of nutrients, oxygen and growth factors due to vasodilation
- Activation of the cell functions
- Recovery and modulation of the cell energy metabolism
- Modulation of cell proliferation and differentiation (e.g., nerve regeneration)
- Induction of the recovery of muscle fiber and damaged nerve endings
- Modulation of the synthesis and organization of matrix proteins
- Control of the formation and organization of scar tissue

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