DolorClast® High Power Laser

no opioids, no sedatives, no more pain!

EMS

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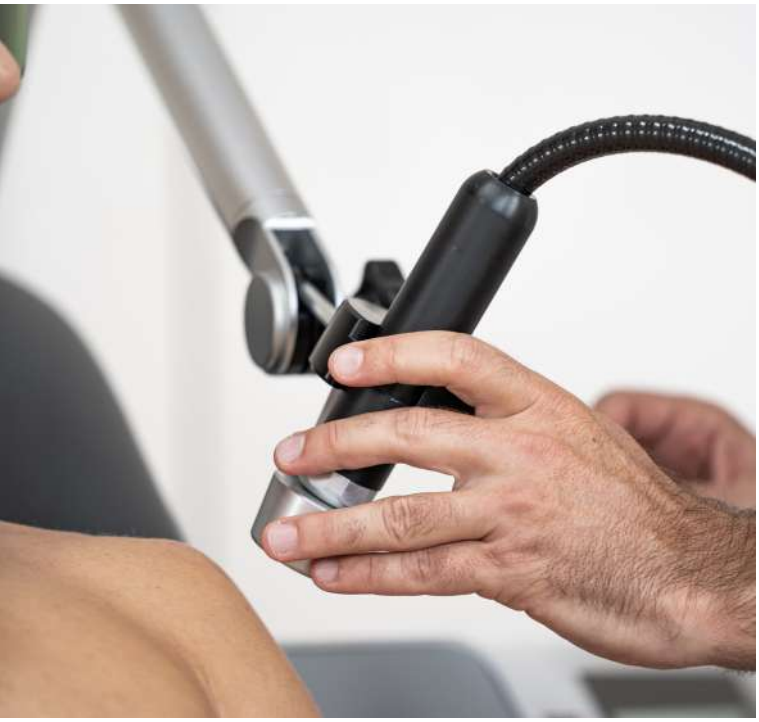
Guided DolorClast® Therapy - mastering the waves for pain-free daily activity

The grouping ‘musculoskeletal disorders’ encompasses a variety of conditions; however, they are frequently characterized by pain. These conditions lead to discomfort and limitations in everyday activities that negatively affect quality of life and mental well-being [1].

Pain and associated stress can prolong the healing process. **This is why pain management is a key step in the Guided DolorClast® Therapy (GDT) solution and one of the most important determinants of therapeutic success.** GDT is based on a 6-step treatment protocol and gets patients back on their feet by tackling 90% of all major musculoskeletal disorders! In addition, we believe that a patient–centered approach based on experience and feedback is integral to proper patient management and recovery.

Reduce pain and acute inflammation - treat with DolorClast® High Power Laser

Especially in the acute phase musculoskeletal injuries are frequently described by patients as highly painful. The most common strategy to manage disabling pain is to take analgesic medication, usually NSAIDs (Non-Steroidal Anti Inflammatory Drugs). Unfortunately, these continue to be recommended and prescribed routinely despite the common risk of adverse events such as addiction, bleeding and gastric mucosa damage.



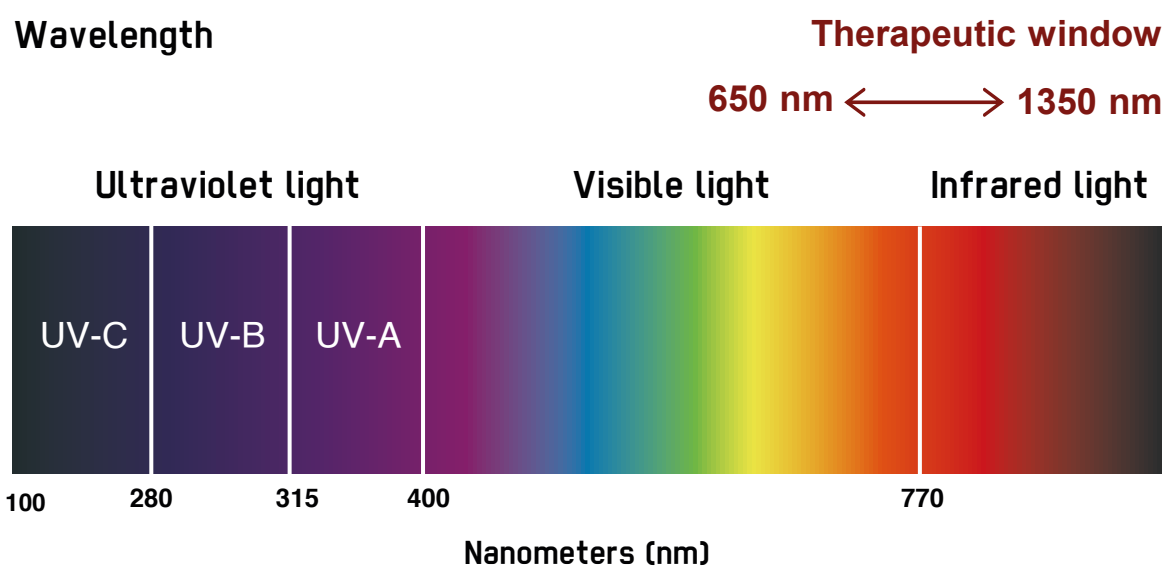
Therefore, the DolorClast® High Power Laser was developed to create an effective and well-tolerated form of pain management for use in your practice. Local anesthesia is not required, even when treating highly painful musculoskeletal disorders.

This is important because it allows you to continue your protocol and maximize your treatment outcomes. The Guided DolorClast® Therapy suggests you to continue with an extracorporeal shock wave treatment, which otherwise would be too painful or rendered ineffective by medication. **Rompe et al.** [2] showed that the use of local anesthesia prior to shockwave therapy is ineffective and may even negatively influence the molecular effect of shockwave treatment.

The DolorClast® High Power Laser enables you to offer a non-invasive and safe solution to patients suffering from pain or struggling with a low pain threshold during the rehabilitation process. **Be the game changer in your patients' recovery and pave the way for a completely new treatment experience!**

The therapeutic effects of DolorClast® High Power Laser

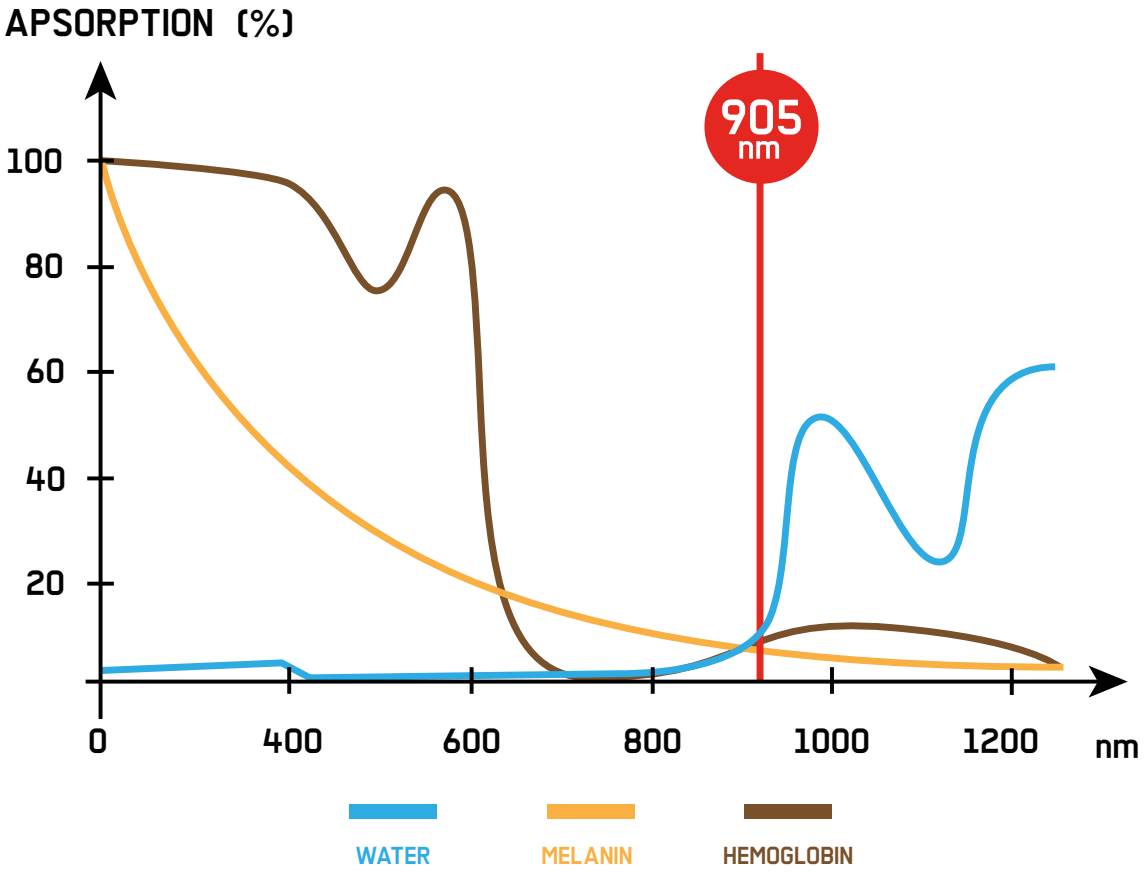
The power of DolorClast® High Power Laser lies in its specially selected laser wavelength (expressed in nanometers [nm]), which determines its depth of penetration. Wavelengths between 650 nm and 1350 nm are defined as the 'therapeutic window' for laser therapy. Within this window, the laser penetrates deeply into the tissues rather than being mostly absorbed by water, blood or melanin. As a result, the laser can trigger biological mechanisms crucial for the healing process.



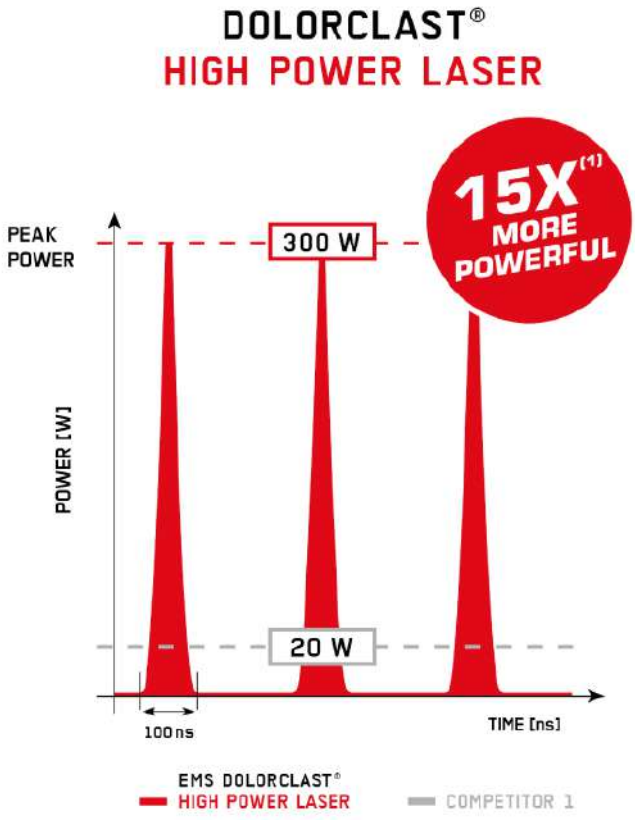
Based on detailed clinical research [3,4], **a wavelength of 905 nm was specially chosen for the DolorClast® High Power Laser.** The determination of this value was based solely on its desirable impact on the cellular metabolism within treated tissue and the ability to be absorbed to a lesser degree by the chromophores (blood and melanin) and water (and thus also edema). In addition, a 905 nm laser beam penetrates deeply into tissues without heating them.

This wavelength was compared with a wavelength of 1064 nm (also within the 'therapeutic window'). It has been demonstrated that a 1064 nm wavelength is absorbed to a much greater degree by water chromophore than the 905 nm. This is why the 1064 nm wavelength will create an unwanted and unpleasant thermal effect, because the laser energy absorbed by water is converted into heat.

In contrast, the 905 nm wavelength produces exactly the desired effect **- quick achievement of pain relief and absorption of edema.**



To achieve the best clinical outcomes when treating deep musculoskeletal disorders, the penetration depth of the 905 nm laser light can be maximized with high peak power of 300W. In addition, the adjustable frequency of the DolorClast® High Power Laser device can alter the overall amount of delivered energy over 1s. As a result of these variable energy pulses, high energy is delivered more, or less, frequently. **To treat a tissue safely and minimize possible exposure,** energy needs to be smartly distributed. A high peak power coupled with a short pulse duration of 100 ns **guarantees efficient deep yet completely safe penetration.**



You might be wondering...

Is DolorClast® High Power Laser treatment painful?

No, the treatment is not painful at all! In comparison to other high power lasers, the patient perceives almost no thermal effect. This is thanks to the specially selected wavelength and short pulse duration of 100 ns, which keep the treated tissues below the thermal threshold and avoid the risk of burns. To be certain to avoid thermal heating, the action mode: “Hypersensitive” further avoids the risk of burns in certain patient groups and application areas, such as tattoos, sensitive skin etc.

No more pain - how does the body react to DolorClast® High Power Laser treatment?

A nociceptor (from latin ‘nocere’ = ‘to harm’) is a sensory neuron located at nerve endings that responds to damaging or potentially damaging stimuli by sending a threat signal to the spinal cord and brain. If the impulse is perceived as a threat, it creates the sensation of pain to focus attention to the body part, so the danger can hopefully be mitigated.

905 nm laser light exhibits the unique property of 'switching off' the aforementioned nociceptors after only 3 minutes of irradiation [3]. Thanks to the specially selected wavelength, the DolorClast® High Power Laser provides a quick and strong analgesic effect without the need for conventional painkillers.

You might be wondering...

How long does a DolorClast® High Power Laser treatment session last?

This depends on the pathology and the chosen course of treatment (that is, whether the DolorClast® High Power Laser is combined with the use of other GDT devices). It also depends on the practitioner's decision as to whether the treatment should be carried out manually or automatically. Once all these considerations are factored in, sessions can last from 3 to 30 minutes. DolorClast® High Power Laser offers a special pre-set 3-minute protocol to tackle pain quickly - an ideal solution prior to starting DolorClast® Shock Waves Treatment.

Clinical effects – 'wow' effect for pain-free patients

PAIN RELIEF [3] – The DolorClast® High Power Laser inhibits nociceptors located at the site of injury, which are responsible for the transmission of pain to the brain. Thanks to its specially selected wavelength, the DolorClast® High Power Laser provides a quick and strong analgesic effect without the need for conventional pain-killers.

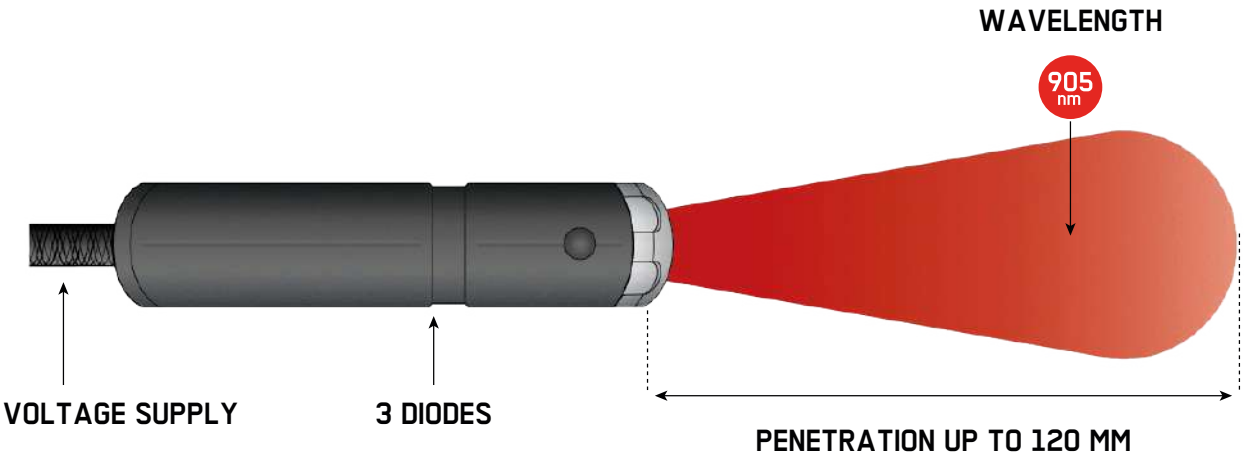
REDUCTION IN ACUTE INFLAMMATION [4] - The DolorClast® High Power Laser decreases the amount of Prostaglandin E2 (PGE2) - a fatty acid derivative responsible for mediating acute inflammation. When released in the tissues, PGE2 leads to dilatation and increased permeability of blood vessels, which in turn manifests clinically as an acute inflammation and accompanying redness and swelling. By mimicking the effect of nonsteroidal anti-inflammatory drugs (NSAIDs) while protecting patients from their side-effects and possible addiction, **905 nm wavelength effectively kick-starts the healing process.**

You might be wondering...

How long does it take to see results?

A powerful analgesic effect will be felt 5 minutes after the end of the DolorClast® High Power Laser treatment [3] and is likely to last up to 72h. In addition, the decrease of acute inflammation kicks in 60 minutes after the end of the laser session [4], leading to quick absorption of edema and faster healing in the damaged tissue.

Shed light to blind the pain & regenerate!



905 nm THE IDEAL WAVELENGTH FOR QUICK PAIN REDUCTION AND LASTING HEALING

You might be wondering...

How many DolorClast® High Power Laser sessions are required?

The number of DolorClast® High Power Laser sessions may vary depending on the pathology, pain severity and chronicity. An average of 6 to 12 sessions, 3x a week, may be required when the laser is used alone. An average of 3 to 8 sessions, 2x a week, may be required when the laser is combined with DolorClast® Radial or Focused Shock Waves Therapy.

DolorClast® High Power Laser - what great looks like?

1. PROVIDE A FAST ANALGESIC EFFECT & LONG LASTING HEALING

- Tackle your patients' pain as fast as 5 min after GDT protocol delivery.
- Reduce acute inflammation from the first treatment session.

2. EASE PRACTICE WORKFLOW TO INCREASE YOUR PROFITABILITY

- Treat more patients per day thanks to hands-free mode.
- Address most musculoskeletal pathologies and all types of patient thanks to the wide selection of pre-sets:
  - 1 custom GDT protocol
  - 40 integrated protocols to address specific pathologies
  - 7 pre-set protocols focusing on certain modes of action (e.g. avoidance of thermal effect in hypesensitive dark-skin patients, avoidance of pain in an algesic mode, reduction of edema in anti-inflammatory mode, etc.)

3. LASE WITH SAFETY

- Treat without risk of overheating - deliver the right energy dose without risk of burns
- Save time without compromising patient safety thanks to the handsfree mode

You might be wondering...

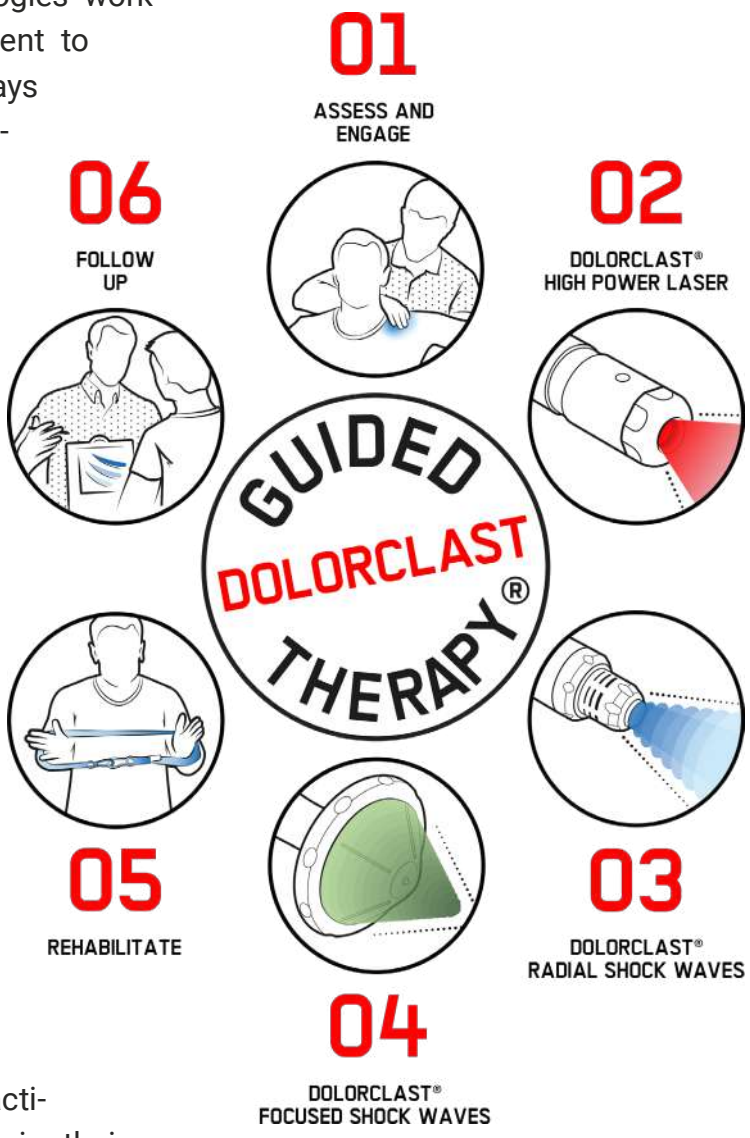
When can your patient resume their normal activities after a DolorClast® High Power Laser treatment session?

Daily activities can be resumed immediately after the session, since DolorClast® High Power Laser treatment does not require any down-time. Indeed, thanks to the analgesic and anti-inflammatory actions of the laser, **patients are likely to feel much better even after the first session.**

Guided DolorClast® Therapy - 6 steps, 1 goal: pain-free patients

The Guided DolorClast® Therapy (GDT) protocol is a new treatment concept based on the combination of 3 technologies (High Power Laser, Radial and Focused Shock Waves). It is designed to enable practitioners to quickly, safely and successfully treat 90% of patients with musculoskeletal disorders.

1. **Assess and engage.** Take time to sit down with patients and discuss their pathological profiles. Explain, in simple terms, how GDT technologies work and how they can help the patient to overcome pain. Remember, always discuss openly and manage patient expectations in an upfront fashion!
2. **DolorClast® High Power Laser** - to numb pain and tackle superficial or deep, sub-acute or chronic musculoskeletal conditions. Importantly, lowering the pain threshold can allow more energy to be delivered during the subsequent shock wave therapy!
3. **DolorClast® Radial Shock Waves** - to tackle superficial sub-acute or chronic musculoskeletal disorders.
4. **DolorClast® Focused Shock Waves** - to tackle deep sub-acute or chronic musculoskeletal conditions.



5. **Rehabilitate.** GDT invites practitioners to get patients involved in their treatment regimens. We believe that combining DolorClast® High Power Laser and Shock Wave treatments with rehabilitation exercises (at the discretion of the practitioner) improves clinical outcomes.
6. **Follow-up.** We understand how challenging it is to ensure patients' compliance. GDT helps you retain patients at your practice or clinic!

6-step guidance for helping patients overcome pain. Manage musculoskeletal pathologies better!

Goodbye pain, hello freedom!

The DolorClast® High Power Laser is available to try out at your practice or clinic!

If you wish to obtain more detailed information about our products and carry out hands-on testing, you can request a free demonstration at your practice or clinic.

Contact form: www.ems-dolorclast.com/contact

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We rely on clinically proven evidence - always!

References:

1. https://www.who.int/news-room/fact-sheets/detail/musculoskeletal-conditions
2. Rompe, Jan D et al. “Repetitive low-energy shock wave application without local anesthesia is more efficient than repetitive low-energy shock wave application with local anesthesia in the treatment of chronic plantar fasciitis.” Journal of orthopaedic research : official publication of the Orthopaedic Research Society vol. 23,4 (2005): 931-41.
3. Mezawa, S et al. “The possible analgesic effect of soft-laser irradiation on heat nociceptors in the cat tongue.” Archives of oral biology vol. 33,9 (1988): 693-4.
4. Bjordal, J M et al. “A randomised, placebo controlled trial of low level laser therapy for activated Achilles tendinitis with microdialysis measurement of peritendinous prostaglandin E2 concentrations.” British journal of sports medicine vol. 40,1 (2006): 76-80; discussion 76-80.

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