

Not All Light Is the Same

Erchonia: The World Leader in
Low-Level Laser Therapy (3LT®)



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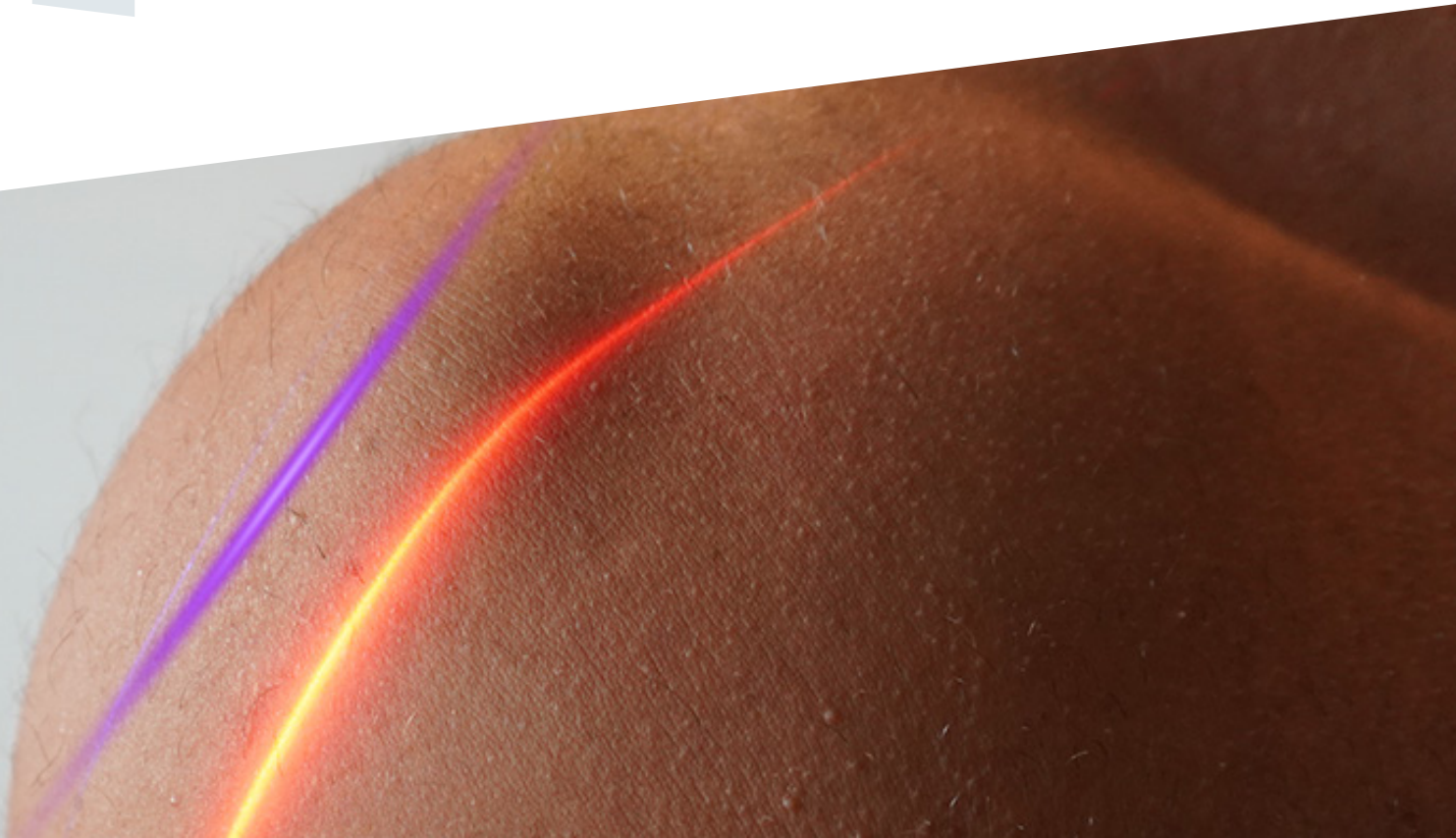
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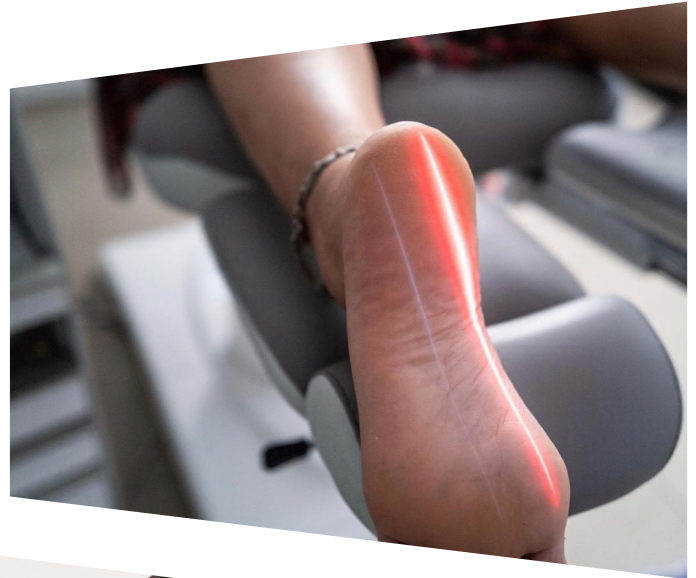
Why 3LT

Erchonia Corporation was founded in **1996** as a small family business, and even though we've grown into an international enterprise, we still operate under the founding principles that guided us to our present success.

Low-Level Laser Therapy (3LT®) is almost 50 years old and recently has been getting increasing acceptance from the scientific, medical, and veterinary communities.

Our laser technology is created for physicians, chiropractors, physical therapists, health clinics and veterinarians worldwide. The lasers we manufacture are cleared to treat many symptoms.

We have 22+ FDA Market Clearances and in this eBook we'll review clinical research that shows the effectiveness of 3LT® for chronic low back pain. We'll also discuss how our 3LT® technology provides an effective alternative to prescription opioids.



Our commitment to the legitimate advancement of **Low-Level Laser Therapy (3LT®)** through scientific and clinical research has transformed Erchonia into a world leader in the field of 3LT® technology.

Our company's **integrity, diligence, quality, and commitment** are evident in the rigorous process we follow to take a research hypothesis from concept to viable, agency-approved products and treatment methods.

Treating Lower Back Pain

Low back pain (LBP) is a common musculoskeletal problem globally. A study estimated the global prevalence and years lived with disability (YLD) of LBP.

Data spanning from 1990-2017 found that 7.5% of the world's population suffers from low back pain. Research concluded LBP as the leading global cause of YLDs. Greater attention is urgently needed to mitigate this increasing

burden and the impact it is having on health and social systems.¹

7.5% of the world's population suffers from low back pain¹

How does Erchonia help treat lower back pain?

FDA-CLEARED STUDY: Determine the effectiveness of a low-level laser device for providing temporary acute relief of minor episodic chronic low back pain of musculoskeletal origin: **Erchonia® FX-635™**

- Subjects received eight 20-minute treatments to the lower back region over a 4-week period consisting of two procedures per week, 3 to 4 days apart.²
- Erchonia® FX-635™ is a Class 2 device comprised of three independent 17 mW, 635 nm red laser diodes.²
- The primary efficacy assessment was the change in **visual analog scale (VAS) pain scores**.²

Results: 72.4% of subjects treated with the low-level laser achieved a $\geq 30\%$ decrease in low back pain VAS scores vs. 27.6% of sham-treated subjects.²

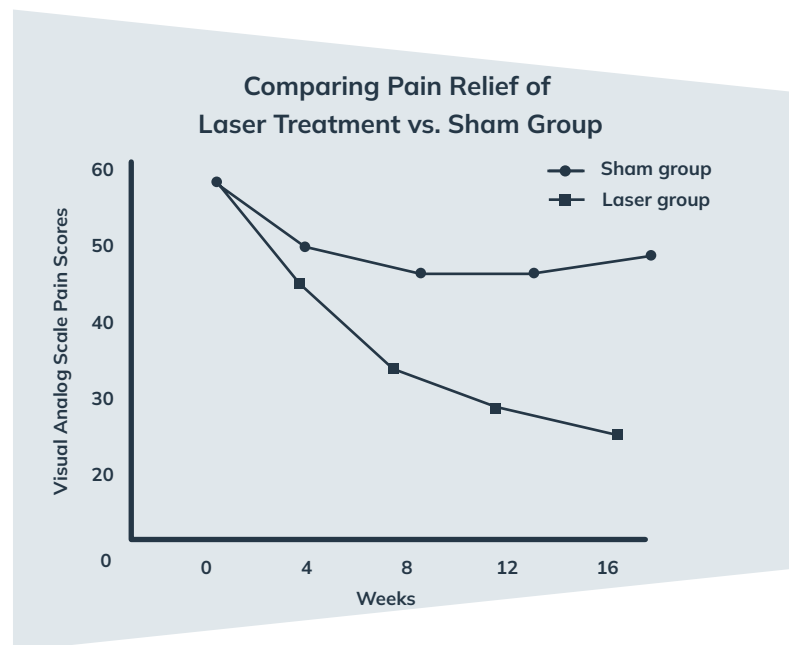


Figure 1. Changes in Visual Analog Scale Low Back Pain Scores

Based on the results of this randomized, double-blind, sham-controlled study the Food and Drug Administration (FDA) cleared the Erchonia® FX-635™ for indication of use to provide relief of chronic low back pain (K180197).²

Low-level laser therapy is an effective means for reducing episodic chronic low back pain of musculoskeletal origin.²

Providing an Alternative to the Opioid Crisis

Opioids attach to opioid receptors in the brain, gut, spinal cord, and other body parts and block pain messages sent via the spinal cord to the brain. While they relieve pain, increased use of opioids can have serious risks and lead to addiction.⁴

Most Recent CDC Data:

- Overdose deaths from synthetic opioids (primarily fentanyl) and psychostimulants such as methamphetamine also increased in the 12-month period ending in April 2021.⁵
- Overall, the opioid dispensing rate has decreased substantially since 2012, but in 2020 we saw opioid dispensing rates continued to remain very high in certain areas across the country.³
- In 3.6% of U.S. counties, enough opioid prescriptions were dispensed for every person to have one. While the overall opioid dispensing rate in 2020 was 43.3 prescriptions per 100 people, some counties had rates that were **nine times higher** than that.³
- Estimated overdose deaths from opioids increased to 75,673 in the 12-month period ending in April 2021, **up from 56,064 the year before.**⁵

3LT® Can Help Reduce the Need to Prescribe Drugs

While sometimes medically necessary, for issues like chronic low back pain (LBP), prescription drugs like Percocet, Palladone, OxyContin, Vicodin, and Fentanyl should be dispensed with the utmost caution by physicians and practitioners.

3LT® is a non-invasive treatment with no known and / or published adverse effects of low-level laser therapy.

Low-Level Laser Therapy is one of the best options that can provide pain reduction or relief, especially for patients seeking treatment that does not require medication or surgery. Since the therapy is a non-invasive procedure, it doesn't require prolonged recovery.



Light comparison

It is very important the distinctions between light and laser type are accurately portrayed. The different types have completely different biological effects. With the amount of misinformation about the science of low-level lasers and the manipulation by manufacturers to gain a sales advantage, it is sometimes hard to separate fact from fiction.

Laser Therapy Compared to LED Therapy

- Of the thousands of referenced and reported clinical and scientific studies and papers available, they are almost exclusively done with laser light sources as the medically beneficial light source.
- While LED light therapy does have some beneficial effect, it is limited to superficial tissue treatment only.
- The preponderance of opinion is that 3LT® can achieve much greater stimulative and therapeutically beneficial effects.
- There are a number of devices and therapies available that use LED's and super luminescent LED's (SLLED's) as the light emitting components for their therapies. Some of these are even advertised and promoted as lasers, which they are not.

“Many producers of therapeutic instruments have claimed that treatment with LED's is as effective as laser treatment. However, in light of the clear lack of peer-reviewed studies supporting these claims, LED producers make references to laser research in their marketing materials.”⁶



Light comparison

Visible Lasers Compared to Infrared Lasers

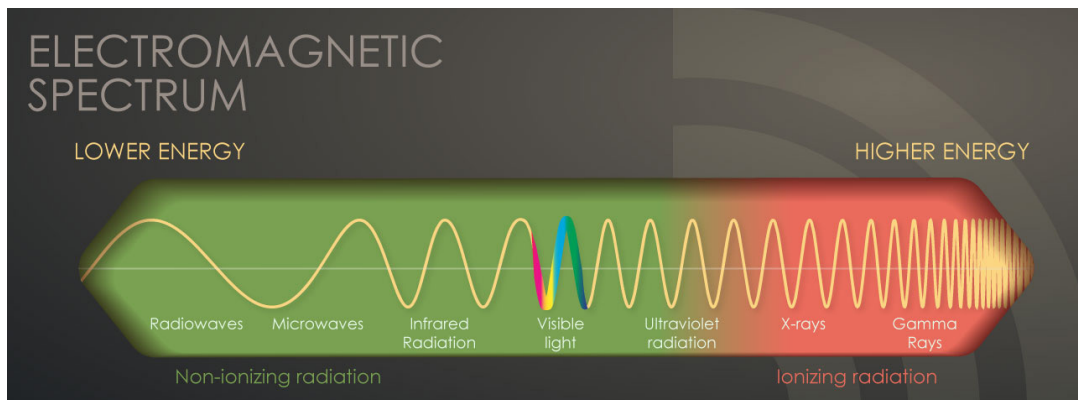
Photochemical effects. Visible Lasers.

- The more energy (ev) the photon absorbs the more energy it has to pass on to the next cell, then the next to create a stronger photochemical effect.⁷
- Visible light (400nm - 660nm) has sufficient energy to displace electrons in atoms to a higher energy state, without causing ionization.⁷
- Each wavelength of visible light (Violet, blue, green, red) will produce a distinct photochemical effect, through similar, if not the same biological pathways of pharmaceutical drugs.⁷
- Photochemical reactions in tissue only occur with **visible light**.⁷

Photophysical effects. Infrared lasers

- Infrared Light (IR) is not energetic enough to initiate photochemical processes.⁷
- Instead, the result of infrared absorption is heat formation due to an increase in molecular vibrational activity.⁷
- Because infrared only vibrates the molecules and does not cause photochemical effects, this is only beneficial for superficial heating of the tissue.⁷

Although visible light can produce photochemistry, infrared radiation only produces molecular rotations and vibrations.⁸



3LT[®] Consultations

Our mission statement—"Quality Not Compromise"—is ingrained in every aspect of our business, from an unwavering belief in the limitless potential applications of low-level lasers, down to the care and quality of the smallest component of our devices.

Erchonia[®] FX-635[™] is a Class 2 device comprised of three independent 17 mW, 635 nm red laser diodes. Based on the results of a double-blind, sham-controlled study, the Food and Drug Administration (FDA) cleared it for use to provide relief of chronic low back pain².

In addition, 3LT[®] has many more beneficial implications including reducing the need for physicians and clinicians to prescribe opioids for pain relief.



Would you like more information about Erchonia products and the facts around 3LT[®] ?

Contact us today to schedule a consultation!

Erchonia Corporation

650 Atlantis Rd.
Melbourne, FL 32904 USA
Phone: 321-473-1251
Fax: 321-473-1608
Toll Free: 888-242-0571



Endnotes

- ¹ Wu A, March L, Zheng X, Huang J, Wang X, Zhao J, Blyth FM, Smith E, Buchbinder R, Hoy D. Global low back pain prevalence and years lived with disability from 1990 to 2017: estimates from the Global Burden of Disease Study, 2017. *Ann Transl Med.* 2020 Mar;8(6):299. doi: 10.21037/atm.2020.02.175. PMID: 32355743; PMCID: PMC7186678.
- ² https://www.erchonia.com/wp-content/uploads/2020/03/Berry_Double-Blind-Study-Evaluating-FX-635-Laser-for-Treating-Lower-Back-Pain_eMedical-Research_03_20.pdf
- ³ <https://www.cdc.gov/drugoverdose/rxrate-maps/index.html>
- ⁴ <https://www.erchonia.com/non-opioid-alternatives-for-back-pain/>
- ⁵ https://www.cdc.gov/nchs/pressroom/nchs_press_releases/2021/20211117.htm
- ⁶ Tuner, Jan. Hode, Lars. *Laser Therapy Clinical Practice & Scientific Background.* Prima Books, 2002.
- ⁷ <https://www.erchonia.com/visible-vs-infrared-lasers/>
- ⁸ https://www.researchgate.net/publication/272860809_MOLECULAR_TARGETS_FOR_LOW_LEVEL_LIGHT_THERAPY

