

Low Level Laser Therapy

by Jerome Rerucha D.C.

Low Level Laser Therapy (3LT™), commonly known as LLLT, is a form of phototherapy which involves the application of low power coherent light to injuries and lesions to stimulate healing. Low Level Laser Therapy (3LT™) is used to increase the speed, quality and tensile strength of tissue repair, resolve inflammation, increase range of motion and give pain relief. **Erchonia Medical is the leading research** company on lasers and they are the developer of 3LT™ technology. Cold laser therapy is a major advancement in healing and is rewriting the medical books on what is possible for chronic injuries, pain management, neurological impairment, and facilitating the healing process in disease conditions.

How Does Low Level Laser Therapy work?

The effects of Low Level Laser Therapy (3LT™) are photochemical (cold), not thermal. Hot lasers in the medical world are used for surgical precision while cold lasers are used for healing precision. During treatment of the tissue with the 635 nm laser, an interaction between cells and photons takes place---a photochemical reaction. Photons from the laser affect the tissue at the cellular level. The cold laser enters the tissue, alters cell membrane permeability, and at the cellular level is absorbed in the mitochondria. The mitochondria are the “Powerhouse” of the cells and make ATP which is needed for the life enhancement process of every cell which facilitates:

- Rapid cell growth. The laser accelerates cellular reproduction and growth.
- Faster wound healing. The laser stimulates fibroblast development in damaged tissue. The reduction in recovery time is an important consideration.
- Increased metabolic activity. Helps the body increase output of specific enzymes, greater oxygen to blood cells and more effective immune response are induced by laser.
- Reduced fibrous tissue formation. The laser reduces the formation of scar tissue following tissue damage from cuts, scratches, burns, or following surgery.
- Anti-inflammatory action. The laser reduces swelling caused by bruising or inflammation of joints to give improved joint mobility.
- Increased vascular activity. The laser stimulates lymph and blood circulation, to allow the affected tissue to have the best possible circulation.
- Stimulated nerve function. Slow recovery of nerve function in damaged tissue can result in "dead" limbs or numb areas. Laser will speed the process of nerve cell

reconnection to bring the numb areas back to life. Laser also increases the amplitude of action potentials to optimize muscle action.

These physiological changes affect macrophages, fibroblasts, endothelial cells, mast cells, bradykinin, nerve conduction rates and the energy communication pathways throughout the fascial network (liquid crystalline living matrix). The energy transferred to the cell can increase its kinetic energy, and activate or deactivate enzymes or alter physical or chemical properties of macromolecules.

Research has shown that the cells of your body actually communicate with each other through coherent light (laser). With the Erchonia Medical laser there are specific pulsations (hertz) that can be programmed with the laser frequency allowing the practitioner to talk “cell talk” with the body. Specific pulsations have been shown to create different physiological responses of the cell. This is extremely important when working with a variety of injury and disease conditions to promote *healing*. The metabolism of injured and diseased tissue is decreased and the laser creates an increase in metabolism and cell communication immediately. The common response from doctors and patients, when this safe and effective modality is applied, is WOW!

What are the advantages over other modes of therapy?

The Erchonia Laser has been found to offer superior healing and pain relieving effects when compared to other electrotherapeutic modalities. The results seem equally untouchable for early stages of acute injuries, and for chronic problems. The Erchonia Laser can also be used for acupuncture point stimulation.

Erchonia Low Level Laser Therapy (3LT™) is a universal method of treating muscle, tendon, ligament, connective tissue, bone, neurological dysfunction or damage, and skin tissue with one simple piece of equipment. When the laser is applied with chiropractic care the best results are achieved to organize the nervous system and promote healing. Erchonia laser therapy is a major advantage for athletes due to the neurological applications and the extremely fast results that can be achieved.

Clinical uses of Low Level Laser Therapy (3LT™)

There are a number of potential clinical uses for the Erchonia Laser. The Erchonia Laser is very effective as a “point and shoot” modality, however, a basic understanding of neurology and applications taught in this seminar will allow the practitioner to maximize the healing precision. Erchonia Lasers are being used by those in chiropractic, medical, dental, acupuncture, podiatry, osteopathic, veterinary, physiotherapy, acupuncture practice and cosmetic applications. This therapy is very effective and safe for children.

The portability and diversity of battery powered diode laser systems allows treatment to be carried out in clinical and field locations. This opens up possibilities for the immediate and therefore more effective treatment of sporting and athletic injuries, such as sprains, strains, muscle tears, and inflammatory conditions.

Low Level Laser Therapy (3LT™) is popularly used for:

- Soft Tissue Injuries
 - Sprains & Strains
 - Haematomas
 - Tendonitis and Tenosynovitis
 - Capsulitis
 - Bursitis
- Chronic Back & Neck Pain
- Myofascial Trigger Points
- Acupuncture points and meridian balancing
- Acute & Chronic Joint problems:
 - Osteoarthritis
 - Rheumatoid Arthritis
 - Ligament & Tendon injuries
 - Chondromalacia Patella
- Reduction of Inflammation
- Wound Management
 - Open Wounds
 - Pressure Sores
 - Post surgical healing
 - Ulcers
 - Diabetic ulcerations
 - Burns
- Dermatological Conditions
 - Eczema
 - Acne Vulgaris
 - Roseacea
 - Psoriasis
 - Herpes
 - Shingles
 - Dermatitis
- Fractures
 - Non Union
 - Small bone
- Metatarsalgia
- Trigeminal Neuralgia
- Brachial Neuralgia
- Plantar Fasciitis
- Frozen Shoulder
- Carpal Tunnel
- Strep throat
- Infections
- and more!

Abstract submitted to Laser and Surgery Medicine

TREATMENT OF CHRONIC NECK AND SHOULDER PAIN WITH 635 NM LOW LEVEL LASER THERAPY. A RANDOMIZED, MULTI-CENTER, DOUBLE BLIND, CLINICAL STUDY ON 100 PATIENTS.

Dr. Richard Amy, Steven Shanks

Background and objective

The purpose of this clinical study was to determine the effectiveness of the use of the Erchonia ML2000, in providing temporary relief of minor neck and/or shoulder pain of chronic origin by emitting 1mw of near-infrared light (630nm-640-nm) to the affected area(s) for short durations, under randomized, double blind, placebo controlled conditions. This study was approved by and IRB (Institutional Review Board) and was conducted at three clinics.

Methods

The primary outcome measure was the change in a subject's self-reported Degree of Pain rating using the Visual Analog Scale (VAS) from immediately prior to the treatment administration to immediately after the treatment administration. The individual subject success criteria was defined as a 30% improvement in Degree of Pain rating on the VAS across the two measurement periods. The overall study success criteria was defined as at least a 30% difference between groups, comparing the proportion of individual success in each group, anticipating that about 50% of subjects in the test group and about 20% of subjects in the placebo group would meet the individual success criteria. A total of 86 subjects completed the study, 43 in each of the test and placebo group. Subjects were randomly assigned to either the test or placebo group. Subjects were randomly assigned to either the test or placebo group. Subjects in the test group received the actual laser procedure using the specified treatment protocol and subjects in the placebo group received a "fake" laser treatment. "Pre-and Post" procedure linear range of motion (ROM) in the right and left sides of the neck/shoulder regions were recorded in degrees on case report forms. A "Chronic" condition was defined as longer than 30 days.

Results

65% (28 of 43) of the treated group met the individual subject success criteria which was significantly greater than 11.6% (5 of 43) recorded for the placebo group ($p < .0001$). The overall study success criteria of 30% was exceeded with the actual difference in the proportion of the individual subject successes between treated and placebo group subjects being 53.5%.

Conclusion

The Erchonia ML2000 low-level laser is an effective single treatment for chronic neck and shoulder pain resulting from Osteoarthritis, Muscle spasms, or cervical/thoracic sprain/strain conditions.

Safety considerations:

The Erchonia Therapeutic Laser will not burn or damage tissue no matter how long it is applied.

- Eye considerations

According to OSHA standards, the Erchonia PL Laser Series can be used without the use of protective eyewear. As a precaution, it has been claimed that prolonged direct exposure to the eyes can cause damage. Occasional passing over the eyes should not cause alarm. Always use the laser in a well lit room.

- Pace Maker and Other Implanted Devices

Although there is no conclusive research to substantiate not treating patients with pacemakers and or vagal stimulation devices, the manufacturer recommends not treating such patients in general. There is no documentation or reason not to treat patients with other implants such as metal rods, pins, dental, cochlear or breast augmentation devices.

- Pregnancy

There is absolutely no contraindicative research against treating pregnant women. That being said, the manufacturer suggests to avoid treating pregnant women.

- Excessive Toxicity

The Erchonia Laser has a detoxifying effect on cells and tissue. In rare cases, overly toxic patients (such as previous drug abusers) may experience a Herxheimer reaction. The manufacturer as well as Dr. Amy suggests ingesting copious amounts of water and to rest as needed. This will generally pass quickly. Such healing crisis is not a frequent occurrence.

Preface to Treatment Section

The Protocols in this book have been derived primarily from Rife Frequencies, Meridian/electrodermal screening computers, clinical trials and clinical experience. The protocols are in no way to replace traditional methods of treatment and should be used only as a conjunctive therapy.

Although this workbook is consistent with what is known at the general level of treating many conditions it is by no means the exhaustive source on the subject. The goal is to give you a reasonably comprehensive guide to increase your proficiency in using the laser at any level of competency.

This book contains the top 10-laser protocol along with an A-Z of many other conditions. Protocols can be used individually or combined together to enhance and facilitate the body's ability to heal itself.