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Therapeutic Laser for Symptom Management

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What is a Therapeutic Laser?

- LLLT low level laser therapy, is cold or athermic (no heat) laser therapy in the 905 nm near infrared and 660 nm visible red laser range.
- Safe, effective, painless, non toxic with no side effects.
- 90% efficacy rate.
- Non invasive laser for tissue stimulation which is not strong enough to damage cells.

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How It Works

- “Much of the safety and effectiveness of cold laser therapy lies in its ability to trigger the body to heal itself.
- Penetrating into targeted tissue, laser light stimulates mitochondria in target cells to produce additional ATP, which fuels cell repair and regeneration.
- The laser simply jumpstarts the healing process and since the laser used operates within a specific wavelength range that is non thermal (the "therapeutic window"), there is no risk of tissue damage or other complications.”
- http://theralase.wpengine.com/?page_id=1232

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Uses

- Pain Management
- Arthritis
- Wound Healing
- Anti-aging
- Addiction Rehabilitation
- Weight Loss
- In lupus we are concerned mostly with the first 3

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Pain Management

- Neuromuscular skeletal conditions are common in everyone, even more so in lupus.
- Inflammation causes pain, lupus is a disease full of inflammation.
- Laser therapy reduces inflammation.
- Laser manufacturers have specific protocols for their therapists including Raynaud's disease, carpal tunnel syndrome, fibromyalgia, plantar fasciitis, gout, and many other conditions.

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Pain Management

- “Pain is believed to originate from an ionic differentiation of potassium (K+) and sodium (Na+) ions across a cellular membrane.
- Theralase 905 nm super-pulsed laser technology increases cellular membrane permeability and causes a reabsorption of sodium and expulsion of potassium molecules, removing the gradient and thus the pain signal at source.” http://theralase.wpengine.com/?page_id=1232

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Pain Management

- "Anti-Inflammation - LLLT has an anti-oedemic effect, as it causes vasodilation, but also because it activates the lymphatic drainage system to drain interstitial fluid (drains swollen areas).
- Anti-Pain (Analgesic) - As a result of reduced inflammation, there is less oedema and therefore less pain. LLLT stimulates vasodilation and lymphatic drainage, which increases the reabsorption of pain-causing products." http://theralase.wpengine.com/?page_id=1232

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Pain Management

- “LLLT delivers 905 nm super-pulsed infrared wavelength light, which is absorbed by the bi-lipid layer comprising the cellular membrane and thus regulates the nerve cell's sodium-potassium pump.
- This pump maintains the potential across the membrane of a nerve cell, which leads to pain transmission signals. By regulating the pump, transmission of pain signals from the area can be eliminated.”
- http://theralase.wpengine.com/?page_id=1232

Arthritis

- Reduce inflammation in joints to reduce or eliminate pain
- Increase range of motion in joints
- Improve immune cell production and efficiency

Arthritis

- “No clinically tested modality is proven to be more effective for arthritis. While arthritis is a chronic condition without a cure, Theralase therapeutic laser treatments can provide substantial relief from symptoms by reducing inflammation of the joints, eliminating pain, increasing range of motion of the joints and improving immune cell production and efficiency.” http://theralase.wpengine.com/?page_id=1232

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Arthritis

- “Theralase lasers reduce inflammation in arthritis-affected joints by stimulating the lymphatic system, which drains interstitial fluid from tissues located in the injured area.
- Laser treatments also regenerate immune cells (lymphocytes).”
- http://theralase.wpengine.com/?page_id=1232

Arthritis

- “The lymphatic system carries these lymphocytes to the injured area where they excrete bioenergy used to destroy infection.
- When Theralase empowers the lymphocytes, each cell releases more bioenergy making it a better combatant.”
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Wound Healing

- Laser accelerates the 3 phases of natural wound healing:
  - Inflammation
  - Promotes cell proliferation or regeneration at the source of the injury
  - Remodelling
- Reduces pain and inflammation promoting wound healing and closure.

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Wound Healing

- Laser therapy
  - reduces pain,
  - reduces inflammation,
  - increases stimulation of connective (granulation) tissue,
  - increases capillary blood vessel production (angiogenesis),
- which results in increased blood flow during cell proliferation.

Wound Healing - Inflammation

- “Despite the pain associated with this stage, the inflammatory phase is necessary for tissue repair.
- First, in the area of the wound, there appear platelets and white blood cells to coagulate the blood and stop blood loss.”
- http://theralase.wpengine.com/?page_id=1232

Wound Healing - Inflammation

- “Next, an increased number of macrophages clean the area and remove dead tissue by engulfing and destroying foreign matter and damaged cells.
- Macrophages also release products (known as "factors") that stimulate proliferation - the second step of wound healing.”
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Wound Healing - Proliferation

- “This is the formation of "granulation tissue". There is an activation of fibroblasts and angiogenesis.
- Angiogenesis is the production of new capillaries (small blood vessels).
- Fibroblasts are connective tissue cells that form the basis of new tissue.”
- http://theralase.wpengine.com/?page_id=1232

Wound Healing - Proliferation

- “A special kind of fibroblast is the myofibroblast.
- This cell can contract itself like a smooth muscle cell and in this manner diminish the surface size of the wound.
- This process is known as collagen synthesis.”
- http://theralase.wpengine.com/?page_id=1232

Wound Healing - Remodelling

- “This is the final step of wound contraction, where the tissue starts to contract and return to its normal appearance.
- What happens when a laser is placed on an open wound?
- Laser treatment accelerates the different healing phases, preserving only the necessary components of the inflammatory phase, resulting in a shorter inflammatory reaction causing less pain.”
- http://theralase.wpengine.com/?page_id=1232

Wound Healing - Remodelling

- “Laser stimulates the fibroblasts during the proliferation phase, speeds up angiogenesis and causes temporary vasodilation (blood vessels increase in diameter).
- Greater blood flow equals more efficient delivery of oxygen and fuel molecules to the area and a faster removal of waste products; thus allowing a greater production of adenosine triphosphate (ATP) - the basic energy source of a cell.”
- http://theralase.wpengine.com/?page_id=1232

Wound Healing - Remodelling

- “In angiogenesis, the final result is a greater production of blood vessels through the growth of new tissue.
- Laser also accelerates the absorption of a haematoma through the stimulation of prostacyclin.”
- http://theralase.wpengine.com/?page_id=1232

Practitioners

- Medical doctor
- Physiotherapist/Kinesiologist
- Chiropractor
- Massage therapist
- Osteopath, cranial sacral therapist
- Naturopath
- Other related health care professionals

Laser Equipment Approvals

- Ask if the laser you are being treated with complies with:
  - Health Canada,
  - FDA,
  - CE,
  - ISO-13485 and
  - CSA-601 regulatory approvals.

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Referrals

- Ask your health care professional if low level laser therapy might be a good addition to your treatment plan.
- Ask for a referral to a clinic in your area. If your doctor does not know a laser therapy clinic near you, the manufacturers have “locate a clinic” buttons on their web sites.