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Short Communication

# Low Level Laser Therapy and Musculoskeletal pain

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Musculoskeletal pain affects many people annually costing them medical bills, lost productivity and missed office or school. All therapeutic treatments have their benefits, but also possess different side effects, risks and/or complications.

Many studies in both experimental and clinical trials have demonstrated analgesic and anti-inflammatory effects provided by Low Level Laser Therapy (LLLT) also known as photobiomodulation therapy (PBMT) or Cold Lasers.

## LLLT and its functioning

A form of light therapy which benefits the human body through absorption of photons by cellular photoreceptors and triggering biochemical changes within the cells is known as Low-Level Laser Therapy (LLLT).

While Lasers are widely used in medical field, for physiotherapy rehabilitation class3B (with wavelength of 660 nm to 905 nm) are commonly used. This non-invasive approach provides analgesic effect thereby alleviating both acute and chronic pain.

When different wavelength and outputs of low-level light is applied directly to the targeted area, the light from the laser penetrates the skin and is absorbed by body cells where the cellular components such as cytochrome c oxidase, a key enzyme in the production of primary source of cellular energy-adenosine triphosphate (ATP) activates thereby improving circulation, reducing inflammation, accelerating tissue regeneration.

## Classification of LASER based on Power output (in milliwatts)

- Class 1: low power < 0.5mW- used in Laser pointers, CD players.
- Class 2: low power < 1mW- used in Laser pointers, CD players.
- Class 3A: low power < 5mW- used in Laser pointers, very low LLLT devices.
- Class 3B: Medium power <500mW-used in Low Level Laser Therapy (LLLT)
- Class 4: High > 500mW- used in Surgical Lasers

## LLLT in pain management

LLLT has shown its versatality and proven to be a viable option in treating many musculoskeletal disorders like Frozen Shoulder, Meniscal Injury, Tennis elbow, Osteoarthritis, Acute neck pain, Fibromyalgia, Tendinitis, post operative pain, ankle sprains, Epicondylitis, Plantar fascitis, Carpal tunnel syndrome.

LLLT could be the new cost-effective therapy and safe technique for managing painful conditions thereby elevating quality of life while reducing financial strains. It may become an increasingly valuable tool for revolutionary treatment of pain in various clinical settings.