

Class 4 LASER

What is laser therapy?

Laser therapy employs the use of a laser beam to activate certain areas of the body in order to gain very specific types of response. The type of response that can be obtained is dependent upon the strength of the laser beam.

The stronger the laser beam, the more penetrating it can be into the body. The low-level lasers can penetrate very little into the body because they lack the amplification to penetrate through tissues. As such, their application in the body is very limited. They reach a few millimeters into the skin, and they are able to stimulate the autonomic nervous system of the body to a certain degree.

The stronger laser beams are able to penetrate deeper into the body, reaching the bone, ligaments, joint surfaces, and other tissues to create various affects on those tissues.

The strongest lasers are used in surgery to ablate tissue, or to shrink tissue and perform other surgical procedures.

Laser therapy aims to bio stimulate injured and dysfunctional tissues. Clinical studies and trials of class three and class four laser technology has shown the following beneficial effects of light therapy on tissues and cells.

Accelerated Tissue Repair and Cell Growth

- Photons of light from lasers penetrate deeply into tissue and accelerate cellular reproduction and growth.
- Therapeutic lasers increased the energy available to the cell so that the cell can take on nutrients faster, and to get rid of waste products
- As a result of exposure to laser energy, the regenerative cells of tendons, bone, ligaments, and muscles repair disruption faster.

Faster Wound Healing

- Laser light stimulates fibroblast development (fibroblast are the building blocks of collagen, which is predominant in wound healing) in damaged tissue
- Collagen is the essential protein required to replace old tissue or to repair injuries to body tissues.
- As a result, laser therapy is effective on open wounds. Burns are repaired faster.

Reduces Fibrous Tissue Formation

- Low Level Laser Therapy reduces the formation of scar tissue following tissue damage from cuts, scratches, burns or surgery.

Anti-Inflammation

- Laser light therapy has an anti-edema effect as it causes vasodilatation, but also because it activates the lymphatic drainage system (drains swollen areas). As a result, there is a reduction in swelling caused by bruising or inflammation.

Anti-Pain (Analgesic)

- Laser therapy has a high beneficial effect on nerve cells which blocks pain transmitted by these cells to the brain and which decreases nerve sensitivity. Also, due to less inflammation, there is less edema and less pain. Another pain blocking mechanism involves the production of high levels of pain killing chemicals such as endorphins and enkephalins from the brain and adrenal gland.

Improved Vascular Activity

- Laser light will significantly increase the formation of new capillaries in damaged tissue that speeds up the healing process, close his wounds quickly and reduces scar tissue.
- Additional benefits include acceleration on angiogenesis (new blood vessel formation), which causes temporary vasodilatation, and increase in the diameter of blood vessels.

Increased Metabolic Activity

- Laser therapy creates higher outputs of specific enzymes, greater oxygen and food particle loads for blood cells.

Improved Nerve Function

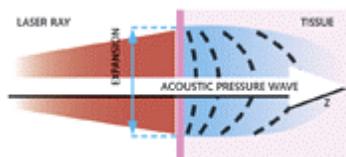
- Slow recovery of nerve functions in damaged tissue can result in numbness and impaired limbs.

Immunoregulation

- Laser light has a direct effect on immunity status by stimulation of immunoglobulin and lymphocytes.

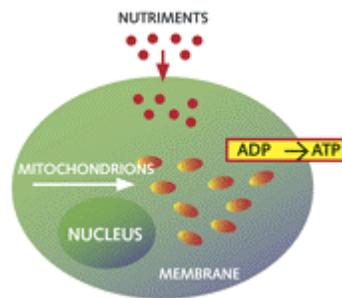
Trigger Point and Acupuncture Point Stimulation

PHOTOMECHANICAL EFFECT



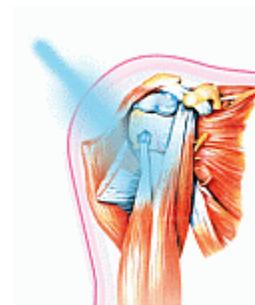
Pressure waves stimulate the lymph drainage system leading

PHOTOCHEMICAL EFFECT



Chemical homeostasis is restored. Leaking of

PHOTOTHERMAL EFFECT



Laser delivers photons providing energy for repair

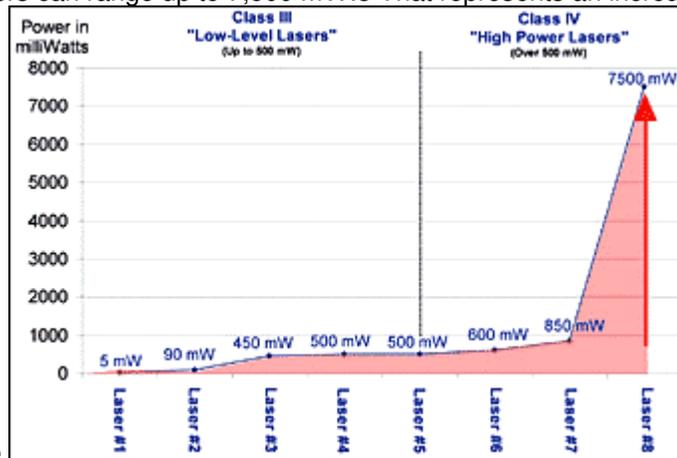
to dissolution of inflammatory mediators and promotes angiogenesis
inflammatory mediators is prevented leading to
analgesia and repair of
damaged tissues

Class IV "High-Power" Laser Therapy in Chiropractic and Rehabilitation

By Robert L. Wertz, DC

Abstract

The trend in laser therapy over the past 10 years has been to increase power density and dose, since this has been shown to improve therapeutic outcomes considerably.¹ The first therapeutic laser in the U.S. was cleared by the FDA in 2002 and had an output of 5 mW of power.² Now, only four years later, several manufacturers have entered the marketplace and the power of FDA-cleared, therapeutic lasers can range up to 7,500 mW.³ That represents an increase in power of



150,000 percent (Figure