Deep Penetrating Light

Power for Muscle & Pain Relief

THE SECRET IS IN THE SCIENCE

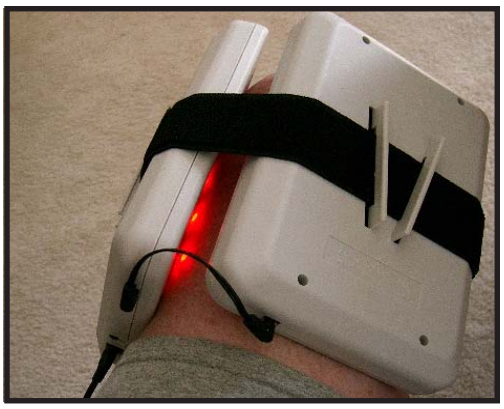
THE POWER IS IN THE LIGHT

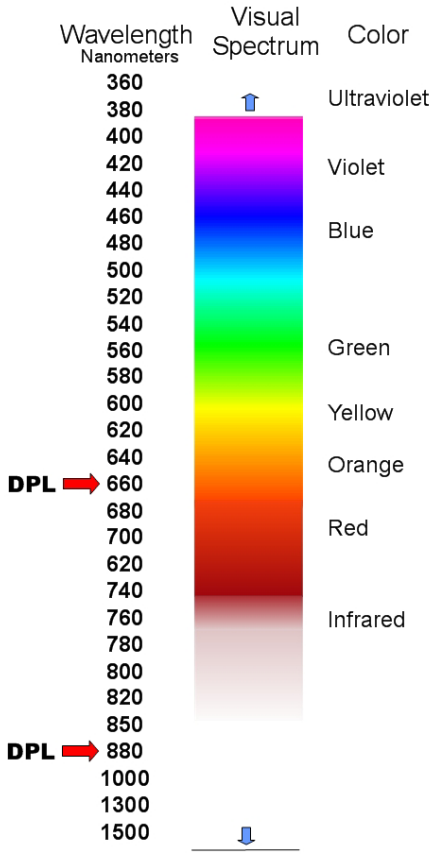
DPL™
Deep Penetrating Light

Relief from Pain & Sore Muscles

LED Technologies, LLC manufacturers the DPL™ Therapy System for the treatment of pain, relief of muscle and joint aches, sprains, back pain and the pain and stiffness associated with arthritis.

The DPL™ System uses a form of energy called “Photons” to penetrate deep into the body easing pain and repairing damaged tissues. The DPL™ Therapy System is a non-invasive, drug free therapy which can be applied to your specific and individual needs.





Light therapy has been shown in over 40 years of independent research worldwide to deliver powerful therapeutic benefits to living tissues and organisms. Both visible RED and INFRARED light have been shown to affect at least 24 different positive changes at a cellular level. Visible RED light at a wavelength of 660nm penetrates tissue to a depth of about 8-10 mm. It is very beneficial in treating problems close to the surface of the skin such as wounds, cuts, scars, and treating infection. INFRARED light at 880nm penetrates to a depth of about 30-40 mm which makes it more effective for bones, joints and deep muscle problems.

The Science Behind DPL™ Therapy

Evidence indicates that cells absorb photons and transform their energy into “adenosine triphosphate” (ATP), the form of energy that cells utilize. The resulting ATP is then used to power metabolic processes; synthesize DNA, RNA, proteins, enzymes, and other products needed to repair or regenerate cell components; foster mitosis or cell proliferation; and restore homeostasis.

DPL™ Applied to Tissue

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Absorption in the Mitochondria and Cell Membrane by Chromophores

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Elevation of ATP Synthesis and formation of low amounts of ROS
(Reactive O_2 species e.g. H_2O_2, etc.)

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DNA & RNA synthesis; protein synthesis; mitosis and cell proliferation

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Tissue Repair & Pain Control

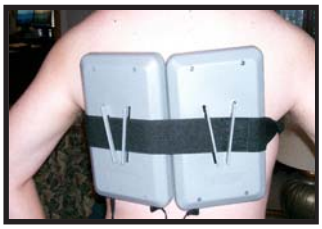
ATP

Short for *adenosine triphosphate.*

An organic compound, $C_{10}H_{16}N_5O_{13}P_3$, that is composed of adenosine and three phosphate groups. It serves as a source of energy for many metabolic processes. ATP releases energy when it is broken down into ADP by hydrolysis during cell metabolism.

The result is that the absorbed energy is used to repair the tissue, reduce pain and restore normalcy to a otherwise impaired biological process.

Benefits of DPL™ Therapy



DPL™ Therapy activates production of endorphins and blocks pain-transmitting chemicals, causing non-narcotic analgesia. Recent studies have proven the efficacy of 660nm and 880nm LEDs in the management of sports and muscle injuries, and pain.

Accelerates Healing for the Following Conditions:

- ✓ Tennis Elbow
- ✓ Golfers Elbow
- ✓ Bone Spurs
- ✓ Bone Chips
- ✓ Leg Pain
- ✓ Carpal Tunnel Syndrome
- ✓ Wrist Pain
- ✓ Shoulder Pain
- ✓ Sore Back
- ✓ Tight Muscles
- ✓ Arthritis
- ✓ Eliminate Post-Event Stress
- ✓ Increase Range of Motion
- ✓ Tendon Problems
- ✓ Deep Muscle Problems
- ✓ Swelling
- ✓ Bruises
- ✓ Ankle Problems
- ✓ Plantar Fasciitis
- ✓ Tissue Repair
- ✓ Bone Fractures
- ✓ Inflammation
- ✓ Articulations
- ✓ Nerve Injuries
- ✓ Strains & Stress
- ✓ TMJ
- ✓ Spasms & Knots
- ✓ Arthritic Pain
- ✓ Muscle Atrophies
- ✓ Cartilage Wear
- ✓ Bursitis
- ✓ Bedsores
- ✓ Neuralgia
- ✓ Speed Healing of Hematomas
- ✓ Pain Relief
- ✓ Prevent Formation of Scar Tissue
- ✓ Reduce Existing Scar Tissue
- ✓ Neck Pain & Stiffness
- ✓ Ligament Tears
- ✓ Torn Cartilage

The DPL™ Therapy System uses specific LEDs that match the NASA Study protocol. The DPL™ Therapy System is engineered to treat pain and sore muscles and accelerate healing in order to reduce or eliminate the need for potentially harmful drugs and expensive and invasive surgery.

Benefits of DPL™ Therapy

DPL™ Therapy Can:

1. Increase Vascularity:(circulation) by increasing the formation of new capillaries, which are additional blood vessels that replace damaged ones. New capillaries speed up the healing process by carrying more oxygen as well as more nutrients needed for healing and they can also carry more waste products away.

2. Stimulate the Production of Collagen: Collagen is the most common protein found in the body. Collagen is the essential protein used to repair damaged tissue and to replace old tissue. It is the substance that holds cells together and has a high degree of elasticity. By increasing collagen production less scar tissue is formed at the damaged site.

3. Increase Lymphatic System Activity: Edema, which is the swelling or natural splinting process of the body, has two basic components. The first is a liquid part which can be evacuated by the blood system and the second is comprised of the proteins which have to be evacuated by the lymphatic system. Research has shown that the lymph vessel diameter and the flow of the lymph system can be doubled with the use of light therapy. The venous diameter and the arterial diameters can also be increased. This means that both parts of edema (liquid and protein) can be evacuated at a much faster rate to relieves swelling.

4. Stimulate the Release of Adenosine Triphosphate (ATP):ATP is the major carrier of energy to all cells. Increases in ATP allows cells to accept nutrients faster and get rid of waste products faster by increasing the energy level in the cell. All food turns into ATP before it is utilized by the cells. ATP provides the chemical energy that drives the chemical reaction of the cell.

5. Increase RNA and DNA Synthesis: This helps damaged cells to be replaced more promptly.

6. Reduce the Excitability of Nervous Tissue: The photons of light energy enter the body as negative ions. This calls upon the body to send positive ions like calcium among other to go to the area being treated. These ions assist in firing the nerves thereby relieving pain.

7. Stimulate Fibroblastic Activity: This aids in the repair process. Fibroblasts are present in connective tissue and are capable of forming collagen fibers.

8. Increase Phagocytosis: Which is the process of scavenging for and ingesting dead or degenerated cells by phagocytes cells for the purpose of cleaning up. This is an important part of the infection fighting process. Destruction of the infection and clean up must occur before the healing process can take place.

9. Induce Thermal Like Effect in the Tissue: The light raises the temperature of the cells through a Photo-Chemical reaction.

10. Stimulate Tissue Granulation and Connective Tissue Projections: Which are part of the healing process of wounds, ulcers or inflamed tissue.

11. Stimulate Acetylcholine Release: Acetylcholine causes cardiac inhibition, vasodilatation, gastrointestinal peristalsis and other parasympathetic effects.

12. Stimulate Endorphins and Enkephalins: Which are produced in the brain as well as chemicals from other areas of the body like adrenals which facilitate long term pain relief.

Pain

Nociceptive Pain (tissue)

Nociceptive pain is caused by an injury to body tissues. The injury may be a cut, bruise, bone fracture, crush injury, burn, or anything that damages tissues. This type of pain is typically aching, sharp, or throbbing. Most pain is nociceptive pain. Pain receptors for tissue injury (nociceptors) are located mostly in the skin or in the internal organs.

Neuropathic Pain (nerve)

Neuropathic pain is caused by abnormalities in the nerves, spinal cord, or brain. Neuropathic pain may be felt as a burning or tingling sensation or as hypersensitivity to touch or cold. Neuropathic pain includes such syndromes as phantom limb pain, postherpetic neuralgia, reflex sympathetic dystrophy, and causalgia.

Musculoskeletal Pain

(MSP) is a general pain condition that affects the muscles, ligaments, tendons and bones. MSP includes a wide-range of pain states; most prevalent of these are fibromylagia, low back pain, myofascial pain and osteoarthritis.

Postherpetic Neuralgia

Postherpetic neuralgiar esults from herpes zoster (shingles), which causes inflammation of nerve tissue. The pain is felt as a constant deep aching or burning, as a sharp and intermittent pain, or as hypersensitivity to touch or cold. The pain may be debilitating.

Reflex Sympathetic Dystrophy

Reflex sympathetic dystrophy (complex regional pain syndrome, type 1) and **causalgia** (complex regional pain syndrome, type 2) are chronic pain syndromes. They are defined as persistent burning pain accompanied by certain abnormalities that occur in the same area as the pain. Abnormalities include increased or decreased sweating, swelling, changes in skin color, and damage to the skin, hair, nails, muscle, and bone (including muscle wasting and bone loss). Both syndromes typically occur after an injury. Reflex sympathetic dystrophy results from injury to tissues other than nerve tissue (as in the shoulder-hand syndrome). Causalgia results from injury to nerve tissue.

Psychogenic Pain

Psychogenic pain is entirely or mostly related to a psychologic disorder. When people have persistent pain with evidence of psychologic disturbances and without evidence of a disorder that could cause the pain, the pain may be described as psychogenic. Pain that is purely psychogenic is rare. More commonly, the pain has a physical cause, but the doctor's assessment indicates that the degree of pain and the disability experienced are out of proportion to what most people with a similar disorder experience. Sometimes this type of pain is described as a chronic pain syndrome. Psychologic factors often contribute to disability and to an exaggeration of pain complaints. Any kind of pain can be complicated by psychologic factors.

DPL™ Therapy System

Benefits of The DPL™ Therapy System

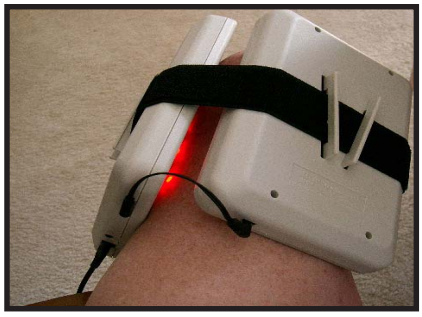
- All natural
- Non-invasive
- Non-ablative
- No downtime
- Fast; treat needed area in 9 minutes
- Large treatment area - 9” X 14” surface area
- Easy to use
- No side effects
- Safe and effective for all skin and pain problems
- Engineered to last for years

System Specifications and Features

- Auto-off function for safety
- Produces 4 Joules/cm² in 9 minutes
- Minimal heat output
- Velcro straps for hands free operation
- Two Removable LED Panels (with opening for strap)
- 154 - 880nm Infrared LEDs
- 20 - 660nm Red LEDs
- 9’ X 14’ (826 sq inch) treatment area
- 100V-240V (usable for non-USA electrical requirements)
- Electrical panel connector
- Stand
- Power Supply
- Eye shields
- Quick Start Guide
- Comprehensive User Guide
- 1 Year Warranty Card

Using the DPL™ Therapy System

- Lay panels on or within 1/2 inch of the skin, or
- Using velcro strap, wrap panels around pain or sore muscle area
- Press power button and release
- You will hear a beep and the Red LEDs will be visible
- You can only see the Red LEDs, the others are in the infrared spectrum and can’t be seen with the human eye
- The system beeps every minute for a total of 9 minutes
- The system automatically turns off at the end of 9 minutes
- For more severe pain or muscle spasms you may run the system several times in a row.



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