

Skin Care and Deep Penetrating Pain Relief

Skin Care

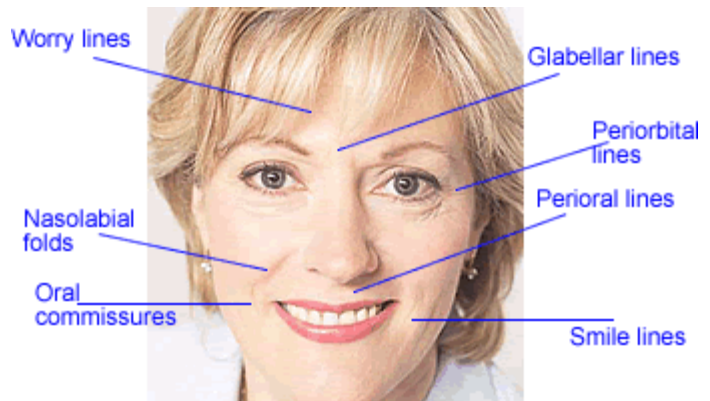
Anti-Aging & Pain Control...using proven NASA technology

Anti-Aging and Wellness is a priority for our DPL™ Therapy Systems. Our goal is to use the power from Light Emitting Diodes for the slowing, prevention, treatment and reversal of age-related problems.

The DPL™ Therapy System uses a proprietary design based on NASA Study specifications.

Reduces the visible signs of aging

- Wrinkles and fine lines
- Loss of firmness
- Skin thinning
- Lessen skin roughness
- Improves skin tone
- Reduces brown spots

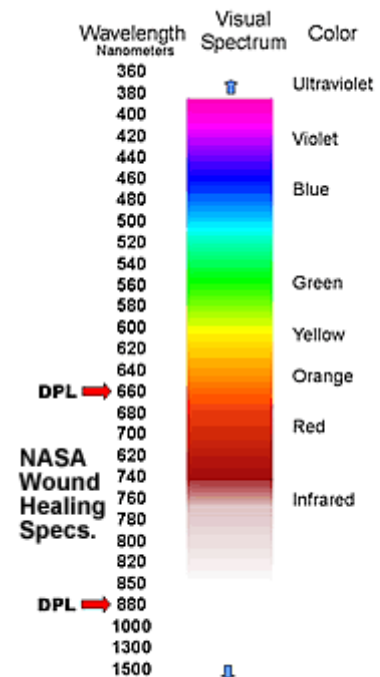


Treats pain and sore muscles - accelerating healing

- Activates production of Endorphins
- Blocks pain-transmitting chemicals
- Reduces swelling
- Heals black & blue tissue damage
- Heals wounds, sores and cuts

DPL™ System uses a form of energy called “Photons” to stimulate deep into the skin to repair damaged tissue. The DPL™ System consists of specifically designed and engineered Red and Infrared LEDs which have been proven to diminish fine lines, creases, furrows and crow’s feet.

A smoother, younger complexion is the result with none of the painful and expensive surgery, peels, or injections. It’s all natural - your skin is plumped, refreshed and replenished from deep within, using Deep Penetrating Light - DPL™ Therapy.

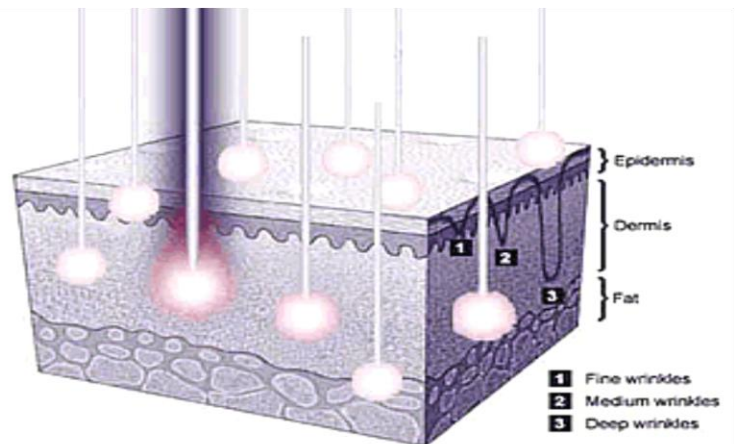


DPL™ Therapy

Laboratory studies have shown that skin cells grow 150-200 percent faster when exposed to certain LED light wavelengths. Independent research for over 40 years has shown LED Red and Infrared light

delivers powerful therapeutic benefits to living tissue. Both visible Red and Infrared light has been shown to affect at least 24 different positive changes at a cellular level.

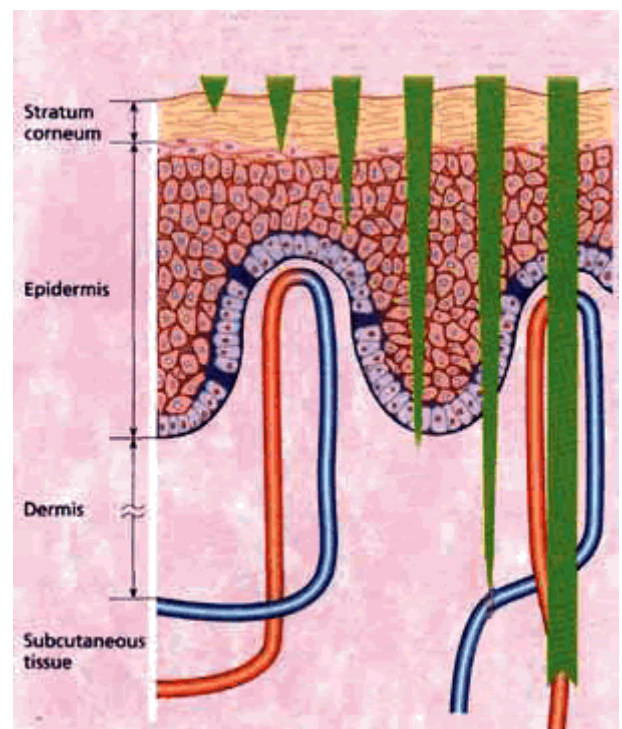
Visible Red light, at a wavelength of 660 nanometers and invisible Infrared light at 880 nm penetrates tissue to a depth of 8-10 mm. LED light is very beneficial in treating problems close to the skin's surface such as wounds, cuts, and scars. Skin layers, because of their high blood and water content, absorb red light and infrared light waves very readily and deliver energy to stimulate a response from the body to heal itself.



LED Photons must be absorbed to produce a biological response. All biological systems have a unique absorption spectrum, this uniqueness determines which wavelengths of light will be absorbed to produce a given therapeutic effect. The visible red and invisible infrared portions of the spectrum have been shown to be highly absorbent and produce unique restorative effects in living tissues. It is known that light photons are absorbed by the skin and underlying tissue triggering biological changes within the body in a process know as photobiomodulation.

Although the exact mechanism of action is still undergoing study, what is known is that monochromatic light increases oxygen and blood flow, facilitating wound healing.

DPL™ Therapy is a non-invasive procedure that activates skin cells with pulses of low-level, non-thermal light energy. DPL™ Therapy converts light energy within the skin cells, like photosynthesis, which takes sunlight and converts it into food energy in plants. DPL™ Therapy is one of the few non-invasive ools available that can reverse the effects of aging skin, such as wrinkles, mottled skin tone and enlarged pores.



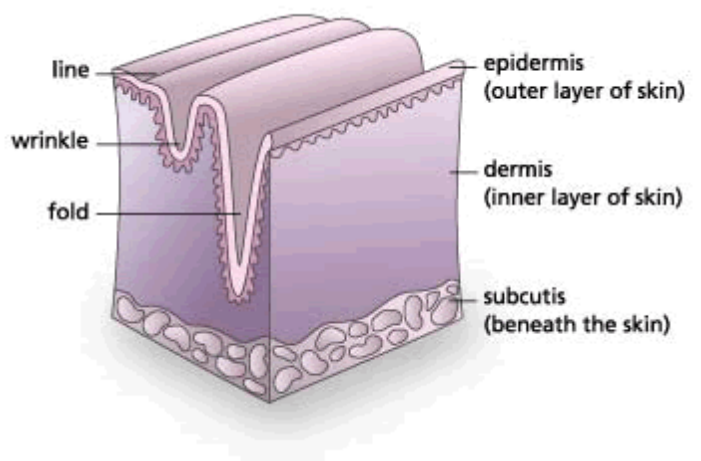
Benefits of DPL™ Therapy

- Minimizes fine lines and wrinkles
- Reduces crow's-feet
- Heals blemishes
- Improves skin tone
- Regeneration/stimulation of collagen
- Restores the skin's natural cellular collagen activity
- Activates fibroblast cells which create collagen and elastin
- Helps sun-damaged skin
- Creates more skin moisture which will help fill out skin
- Increases circulation, providing a healthier skin tone
- Reduces melanin production, which causes brown age spots
- Promotes nutritional elements existing within the skin
- Helps irregular pigmentation
- Lessens skin coarseness
- Lessens pore size
- Stimulates and activates the metabolic function in skin cells
- Smooths skin texture
- Reduces skin degradation
- Reduces overall redness, flushing, dilated capillaries
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The Problem - Aging Skin

Premature Aging has a negative impact on careers, a person's social life, and their self-image. Wrinkles can have a pronounced impact on self-esteem. Indeed, the stigma attached to looking old is evidenced by the fact that Americans spend more than \$12 billion each year on cosmetics to camouflage the signs of aging. Our current society places a premium on youthfulness and age discrimination in the workplace, although illegal, has stalled many a person's career. Indeed, the emotional ramification of aging explains in large part why the cosmetics industry and plastic surgeons thrive.



Understanding the structure and function of the skin helped in the development of products that reduce the visible signs of facial aging.

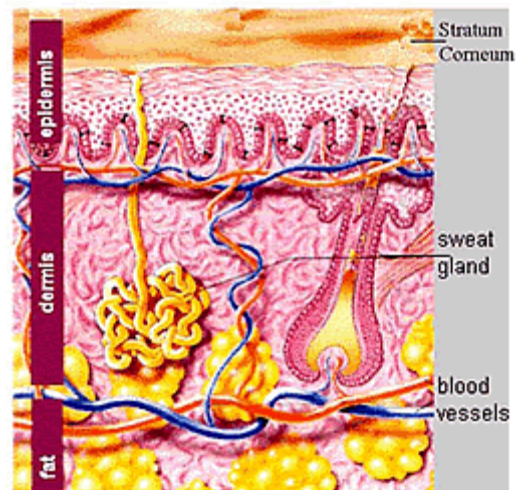
As we get older components of our skin - collagen and elastin - degenerate setting the stage for the appearance of wrinkles, creases, folds, and furrows. The breakdown of these components, accelerated by sun exposure and gravity, result in sagging skin. Skin is easily damaged, by external factors such as sunlight, pollution, harsh soaps and chemicals, and by internal causes such as cigarette smoke and diet. Source: The National Institute on Aging. Free Radicals

According to the American Academy of Dermatology (AAD), with aging all skin cells begin to produce excess amounts of free radicals - unstable oxygen molecules - that, under ideal circumstances, are removed by naturally occurring antioxidants within the skin's cells. In aging skin cells, antioxidants are in short supply. The free radicals generated are left unchecked and cause damage to cell membranes, proteins, and DNA. These free radicals eventually break down a protein substance in connective tissue (COLLAGEN) and release chemicals that cause inflammation in the skin. It is a combination of these cellular and molecular events that leads to skin aging and the formation of wrinkles.

Considerable research has been done to understand the aging process and studies now show that products containing or producing bioactive effects (those that interact with living tissues or systems) can benefit sun-damaged, discolored, and aging skin.

Skin & Aging

As we age, each layer of the skin grows thinner. In addition, the Stratum Corneum becomes rough. Collagen is one of the substances that gives our skin its youthful suppleness and tautness, but it is also especially susceptible to damage from free radicals. Normally, collagen molecules "slide" over one another, which gives skin its softness and resiliency. But once they've been damaged they become stiff and inflexible and that conditions tends to make the skin look "old."



The energy delivered by DPL™ Therapy treatments enhances cellular metabolism, accelerates the repair and replenishment of damaged skin cells, as well as stimulates the production of collagen.

Skin Damage

- Dryness
- Sun Damage
- Thinning
- Loss of Firmness
- Diminished Immune Response -The skin is home to Langerhan's cells, receptors for the immune system that registers the presence of foreign agents and toxins. Without them we are less likely to get a warning signal when we come in contact with irritants.
- Reduced Ability to Repair Damage
- Loss of Temperature Control

Deep Penetrating Light -Power for Muscle & Pain Relief

- The secret is in the science - the power is in the light -



Relief from Pain & Sore Muscles

Our DPL™ Therapy System is the home-use leader in the reduction of wrinkles and we have enhanced it to treat muscle and joint aches, sprains, back pain, muscle spasms, and the pain and stiffness associated with arthritis.

LED Technologies, LLC has enhanced our DPL™ Therapy System to more efficiently treat minor muscle and joint aches, minor sprains, minor back pain, muscle spasms and minor pain and stiffness associated with arthritis.

Our new, easily adjustable, strapping system helps you place one or both panels almost anywhere on your body allowing you to comfortably relieve pain and stiffness while relaxing, reading, watching TV or just about anything.

Minor pain is becoming the standard as our active and aging population becomes more prone to sports injuries, arthritis and the muscle and joint pain that accompany the aging process.



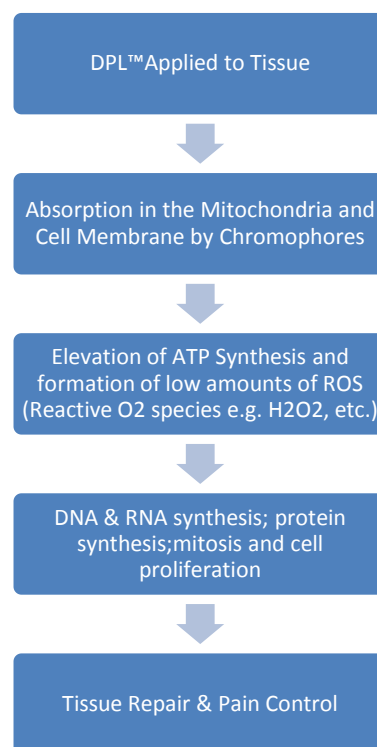
The American Pain Society estimates that 45% of the population seek medical help for persistent pain sometime in their lives. Medical economists estimate that pain costs the U.S. some \$100 billion every year, including 515 million workdays lost and 40 million doctor visits.

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.



ATP - Short for adenosine triphosphate.

An organic compound, C₁₀H₁₆N₅O₁₃P₃, 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 an 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.

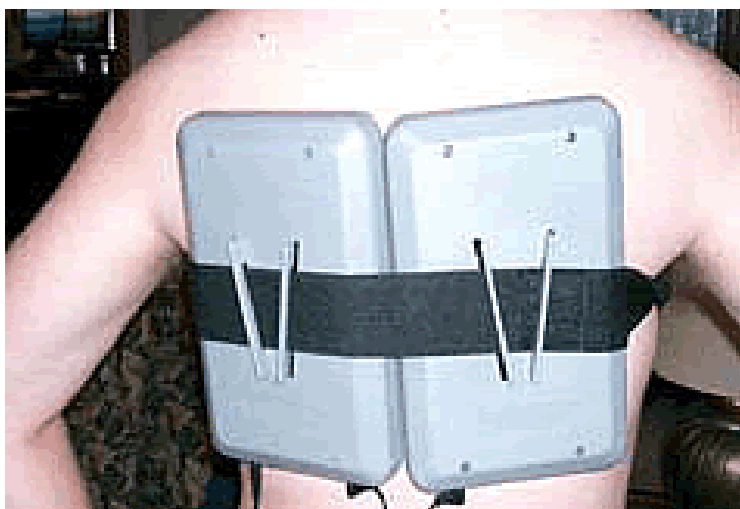
Accelerates Healing for the Following Conditions:

- 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



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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 relieve 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 fibromyalgia, low back pain, myofascial pain and osteoarthritis.

Postherpetic Neuralgia

Postherpetic neuralgia results 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.

Benefits of The DPL Therapy System

- All natural
- Non-invasive
- Non-ablative
- No downtime
- Fast; treat needed area in 9 inutes
- 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