

[Light therapy improves wound healing by creating new blood vessels for improved circulation](#)

December 22, 2013

Light therapy has gained considerable recognition in the medical community for wound healing many clinics are now starting to incorporate this procedure, documenting astounding results. Now, studies are being performed to understand the mechanism of action inside the body when light therapy is delivered. This particular study looked at angiogenesis (new blood vessel formation) in wound healing and found that the angiogenesis was increased towards the wound. This gives us insight that improved blood flow through angiogenesis may be one of the key factors in light therapy's ability to help improve the wound healing process <[view study](#)>

[Improving muscle performance in elite athletes with Light Therapy](#)

November 30, 2013

This study, performed in order to demonstrate the effectiveness of light therapy on muscle activity, found that the simple addition of light, was able to cause an increase in the muscle torque at the beginning of the exercise and maintained the levels of lactate after resistance exercise. Therefore, the authors concluded that light therapy could be utilized in rehabilitation to improve muscle performance in elite athletes <[view study](#)>

[Low power light therapy for osteoarthritis](#)

November 30, 2013

This study took a group of rats and injected them with a cartilage-degenerating protein to replicate the degenerative changes that are normally seen in osteoarthritis patients. They then added ONE single application of low level light therapy (infrared light spectrum) and found that there was a significant reduction in inflammatory proteins. They also noted that low power light therapy had a greater effect than high power <[view study](#)>

[Light therapy benefits during exercise](#)

November 21, 2013

Light therapy has demonstrated benefits for use during exercise, and this study confirms the timing of the light applications. Researchers found that by applying light therapy (red and infrared spectrum) **BEFORE the exercise**, 2 benefits were seen; firstly, muscle *performance was improved*, and secondly, *muscle recovery was accelerated* <[view study](#)>

[Potential implication for light therapy in the management of Eczema](#)

November 7, 2013

This study demonstrated that, combination therapy of low level light therapy (850 nm) and low-dose Tacrolimus, showed a significant reduction in the severity of skin lesions (AD-like skin lesions) <[view study](#)>

[Light therapy helps preserve muscle activity following nerve damage](#)

October 31, 2013

In this study, part of the sciatic nerve was removed and the affected muscle area was observed for 30 days with the addition of light therapy. This area where the light therapy was applied, showed a significant reduction in muscle breakdown that would normally be observed following the innervation to the muscle. It was then concluded that light

therapy would benefit by in the early stages of muscle atrophy, preserving the denervated muscle <[view study](#)>

[light therapy improves hair count in male pattern baldness](#)

October 29, 2013

This study (a double blind randomized controlled trial) looked at red light therapy using either 655 nm lasers or 655 nm L.E.D's and found that both groups had significantly increased their total hair count after the course of the 16 week study. Both groups applied the light every other day for a total of 60 treatments, and both groups benefited by around a 35% increase in hair count <[view study](#)>

[Low level light therapy helps protect cortical brain cells](#)

October 15, 2013

Light therapy (infrared wavelength at 810 nm) has shown benefits for a wide variety of neurological conditions, like strokes, TBI's, neurodegenerative diseases, and even spinal cord injuries. This study may explain how this therapy can have such a diverse application, as researchers noted that the localized light application to the cortical region of the brain, produced a very significant increase in ATP. It was also found in these regions that there was a raising mitochondrial membrane potential, reducing intracellular calcium concentrations, reducing oxidative stress and reducing nitric oxide levels. These changes that were found are associated with protecting the brain cells from excitotoxicity (which is normally seen following brain injuries or in neurodegenerative disorders, and even in spinal cord injuries) <[view study](#)>

[light therapy may help older individuals with muscle degeneration](#)

October 12, 2013

Following muscle damage, older rats were subjected to light therapy and this procedure demonstrated to be effective for muscle regeneration. The researchers of this study concluded, and showed evidence, that this effect occurred directly through its anti-inflammatory effects <[view study](#)>

[Light therapy independently increases nitric oxide levels](#)

September 26, 2013

Researchers at the Medical College of Wisconsin (Department of Medicine, Division of Cardiovascular Medicine), knowing the critical role of nitric oxide in angiogenesis (new blood vessel growth/collateral circulation), and understanding low level light's influence (670nm) on increasing nitric oxide levels, decided to perform a study to see if low level light therapy was able to independently effect nitric oxide levels and angiogenesis. As expected, the study concludes with supporting light therapy's ability to independently increase nitric oxide levels and increase new blood vessel growth in oxygen-deficient areas. This study is now published in the journal of molecular and cellular cardiology <[view study](#)>

[light therapy stimulates dental stem cells](#)

September 7, 2013

Light therapy has been used for decades in the field of dentistry for many different applications. This study looked at dental stem cells following the application of light therapy and found there to be a stimulatory effect on the proliferation of these cells <[more](#)>

[Light therapy for the treatment of hair loss](#)

August 23, 2013

This publication looked at review of articles using light therapy for hair loss. They concluded that this therapy appeared to be both safe and effective for hair loss in men and women. One study in mice showed that light therapy stimulated hair growth in mice subjected to chemotherapy-induced hair loss. As they went through the actual mechanisms, the main one that is hypothesized is to be “stimulation of epidermal stem cells in the hair follicle bulge and shifting the follicles into anagen phase” <[view study](#)>
[light therapy for fat and cellulite reduction](#)

August 22, 2013

Researchers at Massachusetts General Hospital in Boston are encouraging further studies to be performed as they found that “the studies as of today suggest that LLLT has a potential to be used in fat and cellulite reduction as well as in improvement of blood lipid profile without any significant side effects <[view study](#)>

[Rationale for 30 years of physician-administered light therapy for diabetic neuropathy](#)

August 21, 2013

This study was performed on 60 patients with diabetic neuropathy, whereby they were given light therapy twice per week for a full month. The results showed the improvement of neuropathy outcomes in the light-treated group. This study supports and validates the use of light therapy in which the authors noted has been used over the past three decades by physicians for the management and the treatment of diabetic peripheral neuropathy <[view study](#)>

[Light-based technologies introduce new ways to manage keloids and scars](#)

August 21, 2013

Keloids and hypertrophic scars represent a large concern in the cosmetic industry, mainly for aesthetic reasons. This article reviewed all the recent literature and studies on both lasers and L.E.D. light therapy and showed that both applications of light proved to enhance patient outcomes, affecting quality of life <[view study](#)>

[Brain stimulation with low level light therapy](#)

August 15, 2013

Many studies have clearly demonstrated benefits of trans-cranial application of low level light therapy (red and infrared wavelengths). This article goes over the main mechanisms involved which is based on photon energy absorption of cytochrome oxidase (a photoreceptor) Once these high energy photons transfer their energy to the these photoreceptors of the brain, now allowing for cognitive enhancement and higher-order brain functioning. In addition, this energetic transference from these high energy light particles allows for neuroprotection, which can explain many previous studies on the benefits of light therapy for neurological conditions <[view study](#)>

[Light Therapy shows promise for Alzheimer's Disease](#)

August 14, 2013

The Journal of Neuroscience has just published a study identifying key elements in the brain that are stimulated with light therapy for regulating neuronal functioning to help benefit patients with Alzheimer's disease <[view study](#)>

[Light therapy demonstrates pain reduction following surgery](#)

July 21, 2013

This study followed mice that were exposed to light therapy following plantar incision. The results demonstrated an analgesic effect from the application of light therapy and the authors went over some of the pathways involved in gaining this response <[view study](#)>

[light therapy in angiogenesis](#)

June 21, 2013

This study looked at blood vessel growth and angiogenesis by exposing human blood vessel cells to red and infrared light. The results showed beneficial growth and an influence of two key growth factors — vascular endothelial growth factor (VEGF)-A and transforming growth factor (TGF)- β <[view study](#)>

[light therapy effective for enhancing new bone formation](#)

June 21, 2013

There have been plenty of studies documenting the ability of light therapy to effectively enhance bone formation. This study confirmed many of these previous studies when they took a group of rabbits and exposed them to light therapy following implants, every other day for a 2-week duration <[view study](#)>

[light therapy on scar tissue](#)

June 15, 2013

Low level light therapy “showed a tendency to decrease older scars’ thickness” <[view study](#)>

[light therapy for muscle performance and fatigue](#)

April 20, 2013

“Since it is becoming agreed that mitochondria are the principal photoacceptors present inside cells, and it is known that muscle cells are exceptionally rich in mitochondria, this suggests that LLLT should be highly beneficial in muscle injuries” <[view study](#)>

[light therapy benefits sciatic nerve injury](#)

April 8, 2013

After researchers evaluated using light therapy following injury to the sciatic nerve, they concluded that “based on these results, it is recommended that Low level light therapy should be started as soon as possible after peripheral nerve injury” <[view study](#)>

[Light helps reduce severity of oral mucositis](#)

April 6, 2013

Recently, there have been many reports that light therapy may benefit oral mucositis for those patients following whole body irradiation treatments for cancer. In this double-blind randomized controlled study, 24 adult patients underwent chemotherapy during 2009-2010. The results correlated with those shown in previous studies, where, the light therapy was able to decrease the effect of chemotherapy on oral mucositis and pain in a variety of malignancies. The significance of this study is quite huge, as oral mucositis represents a very painful disorder for those undergoing cancer treatments, where conventional therapies have not been effectively helping towards the intense pain that they go through <[read study](#)>

[Light therapy helps with hair loss](#)

April 3, 2013

40 subjects that were diagnosed with Androgenetic alopecia were given 18 minutes per day of low level light therapy at home (630 -660 nm) and after just 24 weeks of

treatment, the low level light therapy group showed significantly greater hair density <[view study](#)>

[light therapy helps repair perforated eardrums](#)

March 27, 2013

After perforating the tympanic membrane (eardrum) of a group of guinea pigs, low level light therapy was applied for 10 consecutive days. Researchers followed up 2 weeks later and noted significant healing of the membranes in this group <[view study](#)>

[Low level light therapy effectively targets cellulite in thighs and buttocks](#)

March 27, 2013

Cellulite is present in 90% of post-adolescent women. In this double-blind, placebo-controlled randomized trial, the treatment group was given low level light therapy (LLLT) for 30 minutes per day, three days per week, for a total of just two weeks. The researchers concluded that this was a “safe and effective for improving the appearance of cellulite in the thighs and buttocks. In contrast with other technologies, LLLT is effective as a stand-alone procedure without requiring massage or mechanical manipulation” <[view study](#)>

[light therapy is a fast growing technology for stimulating, healing, and restoring the skin](#)

March 21, 2013

Harvard Medical School Department of Dermatology is encouraging further testing of light therapy for dermatological conditions, particularly due to the “noninvasive nature and almost complete absence of side effects”. This published article goes over some of the potential benefits of light therapy for the skin including **wrinkles, acne, scars, psoriasis**, and healing of **burns**. <[view study](#)>

[light therapy helps sensitive skin](#)

February 10, 2013

Sensitive skin represents a major concern, both medically and aesthetically for the general population, due to its high prevalence. In this study, skin cells were treated with sodium laurel sulfate. Following the addition of this chemical agent onto the skin, light therapy was applied and ALL patients showed both subjective and objective improvements from the light therapy. The results suggest that low level light therapy could be a useful and safe treatment modality for sensitive skin

[light therapy increases venous nitric oxide levels for peripheral circulation](#)

February 3, 2013

In this study, low level light therapy (LLLT) was applied to the forearm of 15 subjects. Before and subsequent to this procedure, blood levels were regularly measured for levels of nitric oxide. The results demonstrated that LLLT increased NO levels in venous blood draining from the treatment site, and this phenomenon peaked after 5 minutes of light therapy <[view study](#)>

[safety of acne treatments need to be considered](#)

January 30, 2013

The Department of Dermatology, at the Wake Forest University School of Medicine in North Carolina, makes a strong argument for prescribing physicians and practitioners to be aware of the potential side effects; from local irritation with topical treatments to systemic side effects including liver function abnormalities and teratogenic side effects. This study reviews common acne treatments including benzoyl peroxide gel, topical

retinoids, topical antibiotics, oral antibiotics, hormonal therapy, isotretinoin, and light/laser treatments. Since light therapy has shown to be very safe, it would make sense that we should look into moving this up in the pedigree of standard of care for acne patients <[view study](#)>

[Attention, memory, and mood: neuropsychological testing shows improvements with light therapy](#)

January 29, 2013

Researchers at the University of Texas at Austin, published a study in the Journal of Neuroscience, stating that this was the first demonstrated study showing the beneficial effects of transcranial light stimulation on cognitive and emotional functions in humans. With particular focus on the frontal cortex of the brain, they looked at neuropsychological tests on attention, memory and mood, following transcranial light therapy. The results of the study showed that ALL 3 parameters measured were significantly improved. This lead them to conclude that “Transcranial infrared laser stimulation has also been proven to be safe and successful at improving neurological outcome in humans in controlled clinical trials of stroke. This innovative approach could lead to the development of non-invasive, performance-enhancing interventions in healthy humans and in those in need of neuropsychological rehabilitation” <[view study](#)>

[light therapy as a non-invasive tool for body contouring](#)

January 27, 2013

Researchers at George Washington University in Washington DC, assessed 86 participants who went through a course of 2 weeks of light therapy over the waist, hips, and thighs, for 20 minutes front and 20 minutes back. This procedure was done every other day for the 2 weeks and EACH person reported a statistically significant reduction with the mean loss being around 3 inches, over the 2 week duration <[view study](#)>

[Light therapy improves athletic performance](#)

January 21, 2013

The University of Florida (Department of Applied Physiology and Kinesiology) has just published a study in the journal of athletic training, demonstrating the effectiveness of low level light therapy on athletic performance. The looked at 12 randomized controlled trials and the data showed that if this light procedure was applied immediately before exercise, then there were many benefits that were noticed. Among these benefits included, a reduction of fatigue which positively affected physical performance, and post-exercise recovery <[view study](#)>

[Transcranial light therapy improves neurological performance in traumatic brain injured mice](#)

January 7, 2013

Transcranial light therapy is becoming more popular for treating patients who have had a stroke or traumatic brain injury. This study was able to reproduce significant improvements and attributed this to light’s ability to possibly aid in neurogenesis or the development for new brain cells <[view study](#)>

[light therapy enhances stem cell transplantation](#)

December 30, 2012

The growing popularity of stem cell s have run into a few challenges, with one major one being a rapid decline of these cells, following transplantation. This study looked at

using light therapy as a way to effectively handle this decline. They combined stem cell application with light therapy on a wound bed and observed the stimulatory effects caused by the addition of the light. This supports previous studies that demonstrates the ability of light therapy to help enhance stem cell therapy and the medical implications for this can be enormous <[view study](#)>

[light therapy for chronic kidney disease](#)

December 30, 2012

The purpose of this study was to investigate light therapy's effect on chronic kidney disease and for the researches believe that they were able to document, for the first time, that light therapy had a protective effect regarding renal interstitial fibrosis <[view study](#)>

[fibromyalgia — sleep, pain, and overall quality of life can be improved](#)

November 30, 2012

This study presents a simple protocol that can potentially help many sufferers from fibromyalgia. The protocol consists of a 4 week program where light therapy is applied 3 times per week and each application is followed by 50 minutes of exercise, consisting of 10 minutes of stretching, 30 minutes of aerobic activity, and another 10 minutes of stretching/muscle relaxing. Look forward to a double-blind randomized controlled trial that will be carried out at the Sleep Study Laboratory of the Post Graduate Program in Rehabilitation Sciences of the Nove de Julho University (UNINOVE) and the UNINOVE Integrated Health Center, located in the city of Sao Paulo, Brazil <[view study](#)>

[Light therapy produces significant collagen formation in diabetic wounds](#)

October 11, 2012

Many previous studies have shown that diabetic wounds can be positively affected with low level light therapy. In this study, it was shown that the type 1 collagen production was specifically increased as was overall wound healing <[view study](#)>

[Light therapy shown to penetrate through skull](#)

October 8, 2012

This study demonstrated that infrared and red light clearly penetrated through the skull and exerted its positive benefits directly on the brain tissue <[view study](#)>

[L.E.D. Light Therapy is here to stay for wound healing, pain control, inflammatory acne and skin rejuvenation](#)

November 12, 2011

This study published by the Department of Dermatology in Kangbuk Samsung Hospital *cited* that if low level light therapy was delivered with an appropriate wavelength and energy density, then the potential for a significant effect exists. It was also noted that infrared light is associated with improved blood flow and neovascularization (new blood vessel growth or angiogenesis). Based on these factors, the following are the clinical applications:

- 1 Accelerated wound healing, particularly non-healing wounds through collagen formation, with 'quicker and better' wound healing
- 2 Pain and inflammation, including pain that occurs post surgery and particularly where edema and inflammation are involved and where many states of

inflammation can be significantly reduced. Human patients were presented to show the benefits on treatment-resistant inflammatory disorders

L.E.D. Low Level Light Therapy “as an adjunct to conventional surgical or nonsurgical indications is an even more exciting prospect. LED-LLLT is here to stay” <[view study](#)>

[Light therapy improves thyroid conditions](#)

August 3, 2010

Low thyroid levels are a relatively common concern, and one form of this condition is due to an autoimmune disorder where the immune system attacks the thyroid gland causing a medical condition known as autoimmune thyroiditis. In this study, 15 patients diagnosed with this condition and who were on thyroid medication (levothyroxine), were evaluated from in a 2 week course of light therapy (consisting of only 10 sessions of light delivered bi-weekly). To objectively document the results, ultrasounds were performed before the light therapy, and then at 30 days following. Of more clinical relevance, **ALL 15 PATIENTS** who were evaluated after the conclusion of the study **reduced their thyroid medication** levels. What was even more astounding was that **7 of those 15** who participated in this study, **did NOT require any** at the **nine month follow up** <[view study](#)>