

# NASA Light Therapy NIR & LED

<http://eaglescenter.blogspot.com/2012/07/nasa-light-therapy-nir-led.html>

1. Significant Relief of Joint & Muscle Pain
2. Easier Weight Loss
3. Younger-Looking Skin
4. Increased Levels of Anti-Aging hGH
5. Improved Learning Performance
6. Slower Mental Deterioration
7. Better Bowel Movements
8. Faster Wound Healing

Light Therapy (or Photo Therapy) uses a powerful combination of NIR (Near Infra Red) and LED (Light Emitting Diode) technologies which provide huge beneficial effects for the body, starting at a deep cellular level. The benefits of Light Therapy have been verified in independent research by highly respected scientists and physicians.

For over 30 years now, NASA has been using Light Therapy to help astronauts maintain optimum health and fitness in deep space. Due to the long flights and extreme conditions, metabolic processes slow down dramatically and the body starts to weaken. What's more, astronauts are at a high risk for injuring themselves and a slow metabolism make healing much more difficult. Light Therapy addresses these problems because it speeds up the metabolism which keeps the body working better, hastens wound healing, and alleviates pain.

## **The cutting edge of slimming science**

In a study at the Huddinge University Hospital in Sweden, Visible Red Light and NIR were shown to speed up the healing of stress ulcers by over 49%. The average ulcer size was reduced to 10% in 5 weeks compared to 9 weeks for the controls.(16) Doctors are now examining how this kind of Light Therapy can help hard-to-heal wounds, such as diabetic skin ulcers, bed sores, and even burns.

**Visible Red Light** occurs between the wavelengths of 630 to 700nm. It can penetrate tissue to a depth of about 10mm. It's effective in treating surface problems related to wounds, cuts, scars, trigger points, and acupuncture points. It's particularly beneficial in treating infections.

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By Dr. Sungkyoo Lim, PhD

Both visible red light and infrared light are proven to be highly absorbable in living tissues, which produces unique therapeutic effects. They can create more than twenty positive changes at a cellular level to restore normal cell activity which may have been disrupted by injury or sickness.

Based on its impact on healing and the metabolism, Light Therapy with NIR and LED is now being used around the world for weight loss, pain relief, wound healing, and much more. This revolutionary process also generates cellular energy, which helps the body burn more calories.

Light therapy is the forefront of slimming technology, a perfect compliment to diet and exercise, and an essential part of any weight loss program. It works by sending out certain wavelengths of NIR that stimulate the mitochondria (the powerhouses inside the cells) to produce more adenosine triphosphate or ATP (the cellular energy used by the human body for all its metabolic processes).**(1)(2)**

ATP helps the body to burn more fat, maintain its muscle mass, increase circulation, flush out harmful toxins, reduce unsightly cellulite, and eliminate excess flab. The result can be significant fat reduction in the stomach, thighs, hips, arms, neck, and other areas of the body where fat is stored.

Unlike other forms of light, NIR can penetrate deeply enough to impact the cells inside the body. NIR can travel up to up to 40 centimeters through tissue and activate color-sensitive chemicals in the cells. This triggers the cells to produce the necessary energy (ATP) for optimum weight loss.**(1)**

**Independent research has shown the weight loss  
& anti-cellulite benefits of Light Therapy**

**Lower body fat and greater muscle mass.**

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A study was performed on women using stationery bicycles for exercise over a 4-week period. The women who were exposed to Light Therapy with NIR and LED during their workouts **lost an average of 444% more centimeters** compared to the women who were not exposed.(3)

## **Less visible cellulite**

Cellulite is created by trapped fat and toxins, and then held in place by flabby skin. In a study by Alster and Tanzi, it was proven that Light Therapy with NIR and LED can **rebuild connective tissue, increase skin elasticity, and flush out fat and toxins** to diminish noticeable cellulite.(4)

## **Relieves joint & muscle pain for improved flexibility**

Studies have proven that Light Therapy **reduces pain, improves flexibility and increases circulation** in both joints and muscles. In this process, the light is delivered in the form of photons, striking and stimulating the photoreceptors of damaged cells. This effectively jump-starts the healing process, resulting in an overall decrease in healing time and a significant reduction in pain, inflammation, swelling and edema. Light Therapy is especially beneficial for arthritis, neuralgia, bursitis, sprains, tendonitis, tennis elbow, Carpal Tunnel syndrome (wrist pain), stiff neck, frozen shoulder, lower back pain, and even fibromyalgia. Light Therapy also triggers the release of circulation-enhancing Nitric Oxide (NO) **(12)(13)**. NO relaxes the blood vessels and prevents the formation of blood clots. As a result, blood circulation to the affected area improves, speeding up the healing process. Light therapy also has been shown to improve circulation by increasing the formation of new capillaries to replace damaged ones. These new capillaries supply extra oxygen and nutrients that the body uses for healing.

## **Rejuvenates aging skin**

The results of Light Therapy for skin rejuvenation are pretty amazing. Light Therapy can control and even reverse the visible signs of aging and help you look years younger without harsh chemical treatments or invasive surgical procedures.

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The skin has the ability to absorb light (especially Visible Red Light and NIR) and use it as energy to stimulate cellular regeneration. Since they don't contain UV rays, these forms of light don't age the skin like sunlight. In fact, they do the opposite, exciting the mitochondria in the fibroblasts (skin cells that produce collagen and elastin) and producing up to 10 times more energy or ATP than usual, which in turn fuels the cell's production of even more collagen and elastin.

This builds up the skin's dermis layer, which is made up of a firm and durable web of collagen and elastin fibers. While collagen restores the skin's strength and flexibility, elastin increases the skin's elasticity, allowing it to spring back to its original shape after it's been stretched. Once you start increasing collagen and elastin, some startling things start to happen – skin tightens up, wrinkles and crow feet's fade, smile and worry lines disappear, pores shrink, and redness diminishes. Studies have also shown that Light Therapy can be beneficial for various skin ailments such as eczema and psoriasis. In short, Light Therapy makes skin appear smoother, healthier, more radiant and more youthful.

## **Improves brain function & kickstarts learning ability!**

In 2008, the *Science Daily, UK* announced that medical experts had found the key to turning back the brain's biological clock and reversing the effects of dementia and memory loss. This pioneering research from the University of Sunderland showed that Light Therapy can indeed improve cognitive function and increase learning abilities. This could also be highly beneficial for the treatment for Alzheimer's or dementia **(15)**.

## **Other benefits of Light Therapy**

### **Detoxification**

In research presented to the *International Congress of BioEnergetic Medicine*, it was shown that Light Therapy sweeps PCBs, dioxins, phthalates, volatile organic compounds, and other toxins out of the body. These harmful substances can get stored as cellulite with devastating long-term results for health. **(5)**

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## **Anti-aging**

Light Therapy increases the release of hGH or Human Growth Hormone. This healthy hormone boosts calcium retention, encourages the burning of stored fat, and improves muscle mass.(14)

## **Faster and better workouts**

According to multiple studies, Light Therapy with NIR and LED boosts the production of ATP and increases the dilation of the circulatory system. This lessens the warm-up time needed before exercise and allows for safer, faster and more intense workouts.(1)(6)(7)

Other published research demonstrated that Light Therapy decreases muscle fatigue by up to 42.2% when used during exercise.(8)(9)

## **Quicker recovery time**

Toned muscles are created by the breakdown and repair of micro-trauma inside the muscles. According to a study performed by NASA, Light Therapy with NIR and LED increases certain tissue-regenerating proteins by 2-5 times, allowing for greater muscle tone and faster recovery time after exercise.(10)(11)

## **Speedy healing of stress ulcers**

**Near Infrared (NIR)** is a safe range of invisible light that occurs between the wavelengths of 700nm and 1,000nm. Because it can penetrate tissue to a depth of about 40mm, it is highly effective for relieving ailments of the bones, joints, and deep muscle tissues.

Higher ATP levels increase the energy inside the cells, allowing them to accept nutrients and expel waste products more readily. ATP provides the “spark” that ignites all chemical reactions in the cell, including boosting the metabolism.

**How can mere light waves have  
such a profound effect on  
your body and your weight?**

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Plants depend on sunlight to flourish. In the same way, the human body is dependent on light for its health and well-being.

Scientific studies have shown that the effects of light are more than psychological. Sunlight (made of UV light, visible light, and infrared light) encourage the human body to produce hormones that are directly responsible for improving mood and creating a sense of well-being. Sunlight also prompts the body's natural energy enhancers to help you feel relaxed, focused and revitalized.

There are many examples of how light is important for health and well-being. Here are two of them:

- Light is required for the production of Vitamin D in the body. This is crucial for the absorption and metabolism of calcium to maintain strong, healthy bones. Vitamin D is also an immune system regulator, helps to reduce the severity and frequency of asthma, reduces the risk of multiple sclerosis (MS), and may play a key role in helping maintain the brain well into later life.

Vitamin D helps maintain a healthy body weight, according to research at the Medical College of Georgia, USA. Vitamin D also may be a form of our body's protections against radiation, say radiological experts from the New York City Dept. of Health & Mental Hygiene. Lastly, numerous studies have shown that people with adequate levels of Vitamin D have a significantly lower risk of developing cancer compared to people with insufficient levels.

- SAD (seasonal affective disorder) is a condition caused by the seasonal change in the amount of available sunlight. People who suffer from this mood disorder are normal for most of the year, but during the winter months when there is less sunlight, they can experience low energy, fatigue, sluggishness, sleep problems, depression, inability to concentrate, memory loss, and loss of mental acuity.