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THE BENEFITS OF USING AN INFRA-RED THERAPY DEVICE

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WELCOME TO YOUR INFRA-RED THERAPY BED TREATMENT



HISTORY

Empower Your Wellness with the most effective Infrared Therapy available

Throughout history it's been well documented in many ways (and in many different cultures) that human beings have used the power of light (or light Therapy) for therapeutic purposes and have worshipped the Sun as the giver of life

The ancients of India documented information that was written in the Hindu Atharva Veda text in 1400 BCE, and the Aztecs inscribed scenes in rock of people with mental disorders being healed by the sunlight streaming on them.

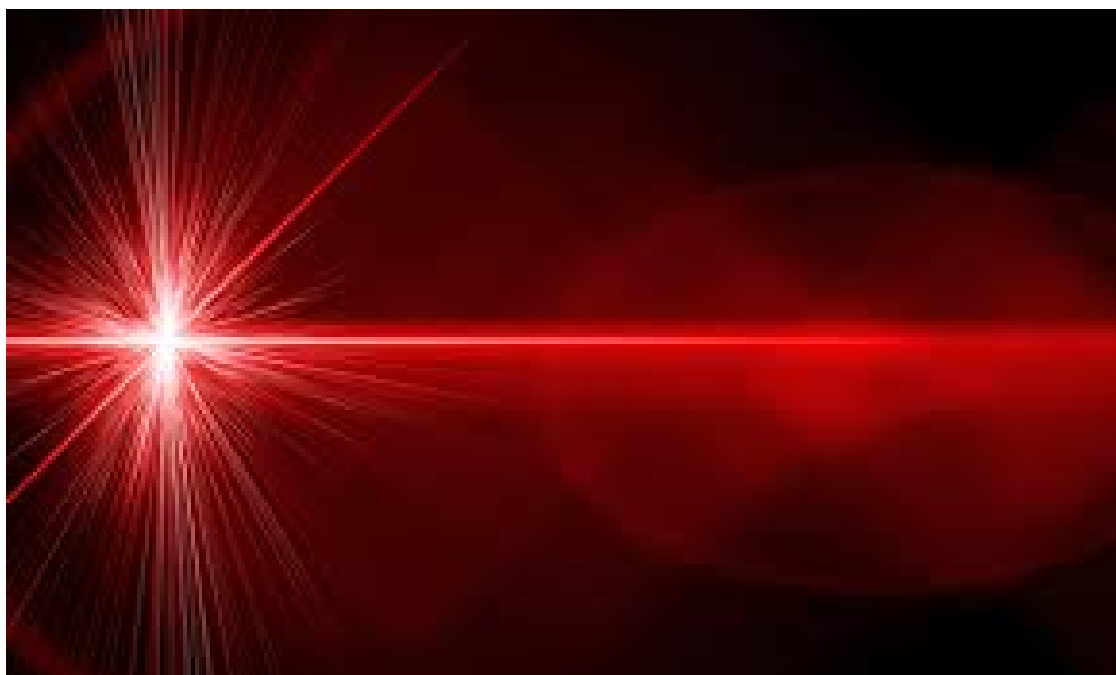
Records of healing with sunlight in Europe are dated as early as 1735 and a facility that was established in St Moritz in 1905 to promote the healing of wounds was well received, and the practice broadly accepted. That facility was later superseded by the first purpose-built Sun Therapy Clinic in the world and was termed the technique Heliotherapy, or Sunlight Therapy

The use of Red-Light Therapy (or red and near-infrared light) began experimentally in the 1960's and its ability to heal tumors, or repair damaged cells faster soon became apparent. Between then, and 1990 hundreds of studies were conducted and chronicled with the success of the treatment being confirmed

In 1990 NASA began experimenting with red and near-infrared light due to the success rate with their interest being primarily for the purposes of growing plants during space missions. The experiments weren't as successful as hoped but they soon found the red light affected damaged human cells positively, and they quickly went on to refine the technology to assist their astronauts in the case of healing chronic wounds, and maintain muscle and bone mass while in space

Since those days, thousands of studies have been conducted and the positive results for a wide range of conditions and outcomes has seen the technology develop into Near-infrared (NIR) and red-light Therapy devices that are seen in Clinics, and Health Practitioner Offices worldwide

WORTH NOTING: *These devices have been FDA approved for several purposes so far including anti-aging, hair-loss reversal, acne treatment, pain relief, stress and anxiety relief, slow to heal wounds, and fat loss, amongst other purposes. This goes to prove that (for it to gain FDA approval), the abundance of research showing the benefits of the therapy has proven safe, and effective in numerous trials*



Why Humans Require Sunlight To Be Healthy



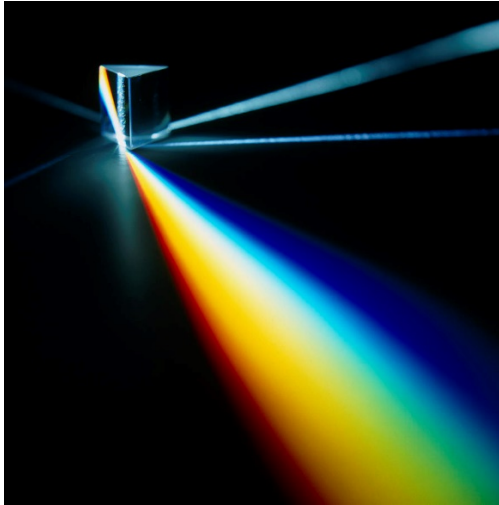
Research has determined that Sunlight deficiency has been linked with numerous diseases such as:

- Neurodegenerative diseases like Alzheimer's, dementia, Multiple Sclerosis, and Parkinson's
- Many different types of cancer
- Obesity
- Diabetes
- Metabolic syndrome
- Heart disease

Let's Talk About Light

For human beings, if our cells are to function well light is just as necessary for our cells as the nutrients from food are. Most importantly, it's necessary to understand that the human body needs light to be healthy, and how that light can be beneficial for our health

Let's start with White Light. If you pass white light (like sunlight) through a prism, it will separate out the different colors based on their wavelengths which is what we see coming out the other side. This is also how we get rainbows which give us the colors red, orange, yellow, green, blue, indigo, and violet



But if you talk about red light, only a certain range within these colors is visible to the naked eye and at the highest end of the range (between 600nm – 700nm), we see the red light. Above that range (700nm – 1100nm) is where we find the near infra-red light

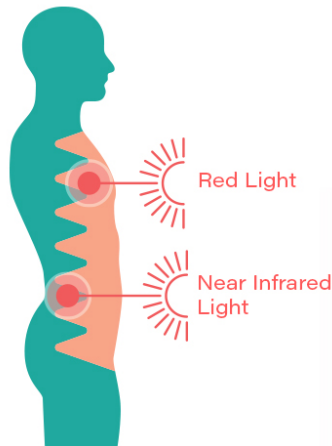
And unlike many conventional treatments, red light therapy is safe, non-invasive, uses no chemicals or drugs, and is not associated with harmful side effects. Red light therapy simply harnesses the natural healing and rejuvenating benefits of a specific range of therapeutic natural light and delivers this targeted energy at a higher rate than the sun—without harmful UV rays.

A major study conducted by Harvard and MIT researchers in 2013 on light therapy praised light therapy for its *“non-invasive nature and almost complete absence of side effects.”*

Over 3,000 studies have now clearly shown that light in the red and near-infrared wavelengths can have amazing effects on human health. Red and near-infrared light therapy can:

- Increase your energy
- Combat aging and make your skin healthier, reduce wrinkles, and help get rid of cellulite
- Speed up fat loss
- Improve muscle recovery and athletic performance
- Improve mood and cognitive function
- Speed healing from injury
- Improve metabolism and hormonal health

Clinically Proven Wavelengths of 660nm and 850nm



Red Light at 660 Nanometers:

This specific wavelength is absorbed at a higher proportion by the skin tissue, making it especially effective for boosting skin health and increasing collagen production.

Near Infrared Light at 850 Nanometers:

This wavelength is actually outside of the visual spectrum, so it may appear as if the NIR lights are not working, but they just can't be seen by the naked eye. Near infrared light has a particularly strong ability to penetrate deeper into the tissue, organs, and joints, making it ideal for enhancing muscle recovery and reducing joint pain.

Certain wavelengths of light can:

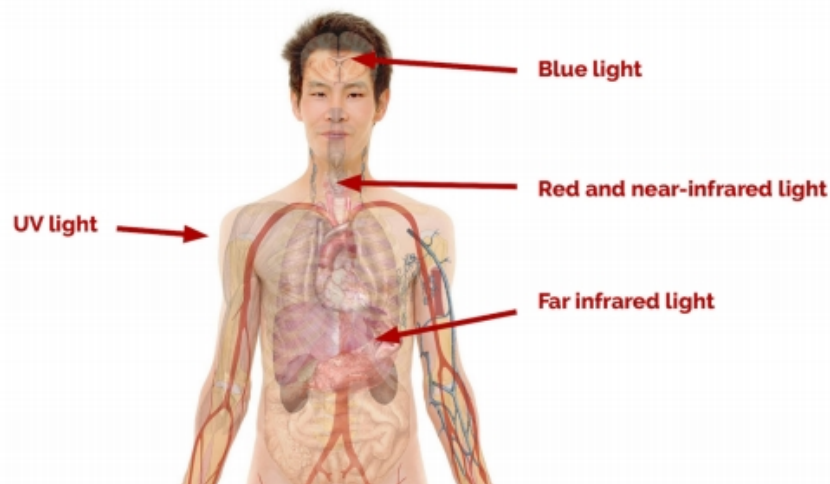
- Affect our hormones and neurotransmitters
- Help power up our cells
- Balance our mood
- Enhance physical performance
- Hasten recovery from stress
- Increase alertness
- Improve sleep
- Positively affect the expression of our genes

Many different types of light are “bioactive” in humans (which means they affect the functioning of human cells), but most of us are deeply unaware of the fact that our health is largely influenced by the dosage of these different types of light that we get each day

These are the five types of bioactive light in humans:

1. **Blue light** – sets the circadian rhythm in our brain, which in turn regulates numerous different neurotransmitters and hormones
2. **UV light** – allows us to synthesize vitamin D from the sun
3. **Far-infrared** – acts to heat up our cells (this is the part of the sun’s spectrum that you feel as heat) which stimulates changes in cell function, as well as circulation changes
4. **Red light** – acts on the mitochondria in our cells to stimulate increased cellular energy (ATP) production (among other mechanisms discussed in this book)
5. **Near-infrared (NIR)** – acts on the same pathways as red light – particularly in the mitochondria in our cells to stimulate increased cellular energy (ATP) production among other mechanisms

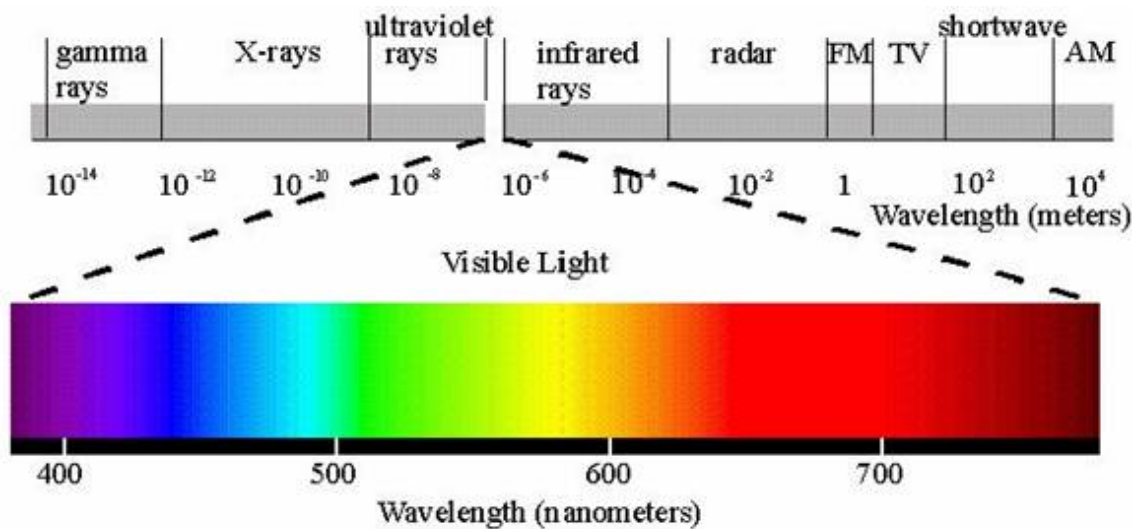
THE 5 TYPES OF BIOACTIVE LIGHT IN HUMANS



It has been well established that light is in fact an essential nutrient for human's survival and our health depends on getting the right dose of these five types of light. Because our ancestors lived outdoors in the sun all of the time, they didn't have to worry about how much light they were getting and what type of light it was as they were able to get exactly what the body needed at the right dose

But in the last few generations, modern humans have made the switch to living indoor lives with electricity, man-made artificial lighting systems and limited sun exposure. Therefore, we have developed light deficiencies and toxicities that are having a massive impact on our health and well-being

We are now seeing the huge deficiencies in exposure to specific wavelengths of light, like red/NIR, far infrared, and UV light so modern humans are now becoming deficient in the benefits of all of these five wavelengths of light, and there are health consequences when we don't get enough



How Does Red Light Therapy Work?

Natural red-light powers your cells. A purpose designed light therapy device delivers red & near infrared wavelengths directly to your body with medical-grade LEDs. These photons of natural, therapeutic light produce a chemical reaction in the mitochondria of your cells that boosts energy production and regeneration. The two primary effects are:

More ATP Energy: Light therapy reduces oxidative stress and increases adenosine triphosphate (ATP) production. ATP, produced through cellular respiration, is a crucial molecule required by all living things to make usable energy for your body. It's often called "the energy currency of life."

Enhanced Cell Signalling: Specific wavelengths of light help to create a better oxidative environment in your cells. This results in the activation of numerous intracellular signalling pathways, increased protein synthesis, enzyme activation, and enhanced cell cycle progression.

What is the Difference Between Near and Far Infrared?

To begin with, infrared heat is what we feel as the invisible part of the spectrum, naturally occurring from the sun. It has the ability to gently and comfortably penetrate human tissue to produce a host of health benefits such as boosting your immune system. Infrared light also comes in several forms. Each form offers unique wellness perks that together provide a holistic approach to better mind and body

Near Infrared

Near infrared technology is used in cosmetic and healing devices. The LED technology these devices use to produce consistent near infrared without extreme heat or light, making it a safe option for near infrared use. Near infrared waves have a shorter frequency range and penetrate the epidermis layer of the skin. This is how near infrared is able to impact your body at the cellular level, encouraging tissue growth, speeding up muscle recovery and strengthening your immune system.

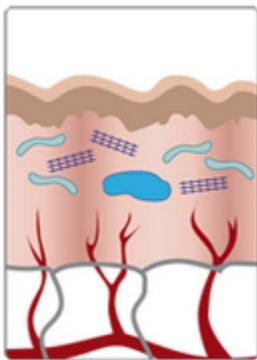
Far Infrared

Because far infrared therapy heats the body directly rather than simply warming the air, it raises the core body temperature and produces a deep, detoxifying sweat at the cellular level, where most toxins reside. Your sweat then pushes out the toxins, cleansing your body and rejuvenating your skin. Far infrared also aids in blood pressure reduction and weight loss, along with a wide range of other health benefits

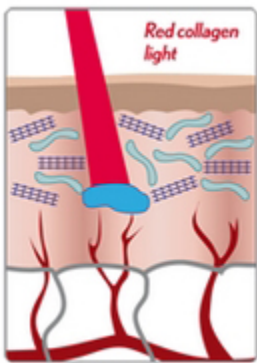
Tissue Mechanisms:

- **Muscles:** Numerous studies have shown that red/NIR light affects muscle performance, recovery from exercise, and adaptations (i.e. enhanced strength, endurance, muscle growth, fat loss) to exercise.
- **Brain:** Red/NIR light has been shown to benefit brain function as well. Studies have shown improvements in cognitive performance and memory, improved functioning after traumatic brain injury, improved mood, as well as improvements in certain neurological diseases (e.g. Alzheimer's disease). The improvements in mitochondrial function, reduction in inflammation, and increased Brain-Derived Neurotrophic Factor (BDNF) likely all play a role in enhancing neuron health.
- **Nerves (Pain):** Some studies have shown that red/NIR light can dull pain due to blocking conduction at nerve fibers. Anti-inflammatory actions, as well as blocking of substance P, likely play a role in this effect.
- **Healing (Bones, Tendons, and Wounds):** Numerous studies have shown that red/NIR light can stimulate and accelerate healing of numerous types of injuries – from tendon/muscle/ligament tears to bone fractures, and skin wounds. This is likely by affecting local growth factors involved in cellular repair, as well as effects on the inflammatory processes.
- **Hair:** Red/NIR light is also used in the context of hair re-growth, and numerous studies have shown it to be effective for this purpose. This is likely due to local blood vessel dilation and anti-inflammatory effects.

- **Skin:** Numerous beneficial effects on skin wrinkling and laxity, cellulite, collagen production and other aspects of skin health have been found



Lets talk about skin: Our skin consists of several layers. The protective layer is called the Epidermis or scarf skin and beneath this is a deeper layer called the Dermis, or the true skin. It is this layer that gives the skin its strength. It consists of a dense structure of connective tissue containing collagen and elastin fibres that keep skin firm and supple but as we grow older, the production of new cells diminishes, reducing the number of collagen elastin fibres. As a consequence, the skin gradually loses its elasticity, resulting in lines and wrinkles



Scientists have observed that exposure of the skin to yellow, orange and / or red light leads to higher production of collagen. This works as follows: In addition to collagen and elastin, the skin also contains fibroblasts. These are special cells that synthesize collagen. Light penetrates the skin to a depth of 10mm, causing the fibroblasts to grow and divide. Production of collagen and elastin are stimulated in this manner, improving the elasticity of the skin

Anti-aging of the skin is one of the most common uses for red/NIR light.

- **Fat:** The exact mechanisms of how this happens are still debated among researchers, but numerous studies have shown that red/NIR light can stimulate the release of fatty contents from fat cells, and ultimately, lead to body fat loss.

Given that virtually all modern humans now spend almost all of their time indoors we have become massively deficient in sun exposure. Therefore, we are massively deficient in red and near-infrared light exposure also, and the fundamental reason that red and near-infrared light has so many incredible benefits on our health is because it is correcting that deficiency

We should be getting plenty of red and near-infrared light from the sun naturally but as a modern-day man, living an indoor lifestyle we're not. But, we can apply a device in a targeted way to give us that light "nutrient"

This is where we find using the Red and Near-Infrared (NIR) Light Therapy bed comes in and where you can get profound benefits from it

We know that there are dozens of signaling pathways in our cells and between the cells that are affected by red/NIR light. Most experts are in agreement that the primary mechanism of how Red-Light Therapy works is to increase mitochondrial energy production, so in essence, red and near-infrared light "lights up" this engine of the cell, driving ATP production by the mitochondria. And since everything cells do depend on energy supplied by the mitochondria, red light and near-infrared light therapy have been linked with a wide range of amazing benefits:

- Anti-aging effects in the skin (enhancing collagen synthesis, production, and elastin production for youthful skin and dramatically reducing cellulite)
- Lowering inflammation
- Enhancing fat loss
- Enhancing physical performance and muscle recovery afterward
- Boosting testosterone
- Speeding wound healing
- Spurring neurogenesis in the human brain, strengthening synapses, spurring brain cell growth
- Helping prevent cognitive decline
- Reducing waist circumference and liberating fat from cells so it can be burned again
- Enhancing physical performance and muscle recovery afterward60
- Enhancing fertility
- Combatting gingivitis and promoting healthy gums
- Enhancing stem cell implantation and proliferation
- Enhancing gland health from the thyroid to the lymphatic system
- Clearing skin for sufferers of acne, rosacea, eczema, psoriasis
- Improving eye health
- Fighting chronic fatigue and fibromyalgia
- Potentially helping the body to fight cancer (in tandem with chemotherapy)
- Removing wrinkles, lines, and veins on the surface of the skin
- Increasing energy
- Improving the appearance of scars
- Killing pain
- Protecting cells against damage from stress

You might ask ... how could one technology benefit so many totally different types of conditions? This list might seem too good to be true so it's only natural to express skepticism. Yet, the reason it can benefit all these radically different conditions is actually quite simple: The health of every organ and every cell in the body depends on the energy being produced by the mitochondria in those cells. Therefore, because red/NIR light therapy works to enhance mitochondrial energy production in essentially every type of cell in the body, it can enhance the cellular processes and cellular health of potentially almost every type of cell in the body

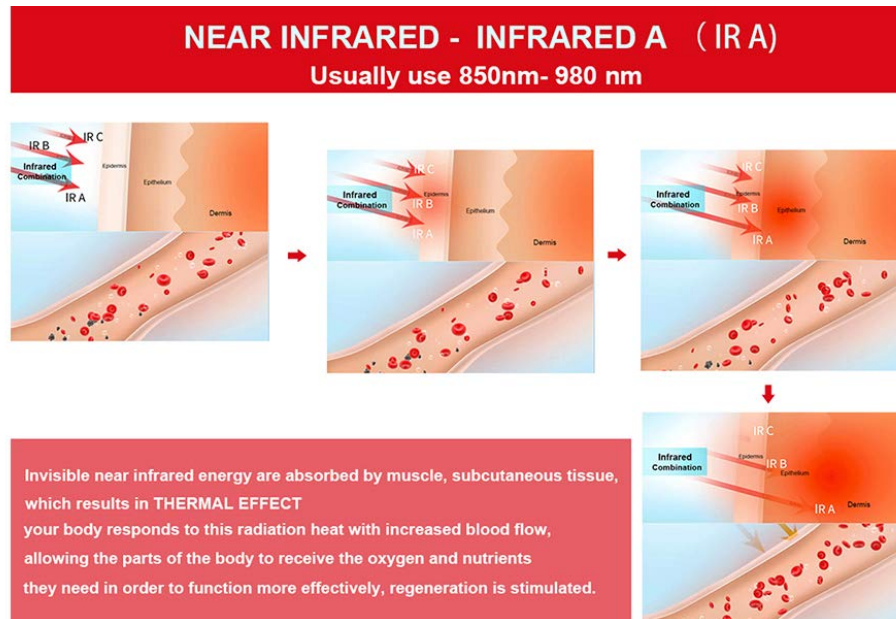


Benefits of Near-Infrared and Red-Light Therapy (Amongst others)

Today, research into the power of red light to improve health and treat disease is really gaining momentum. We are learning that red and near-infrared light therapy can benefit virtually every system of the body, and can even improve the way your skin looks

It can help you to shed inches of fat, reduce the signs of aging, regrow hair, increase the results you get from your workouts, reduce pain, speed healing, boost hormonal health, and lower inflammation

So, if we were to talk about the specific benefits of red and near-infrared light that have been shown in studies, these are the major benefits that have been proven by scientific research for near-infrared and red-light therapy:



Reverse Skin Aging and Get Youthful Skin with Red Light Therapy and Near Infrared Light Therapy

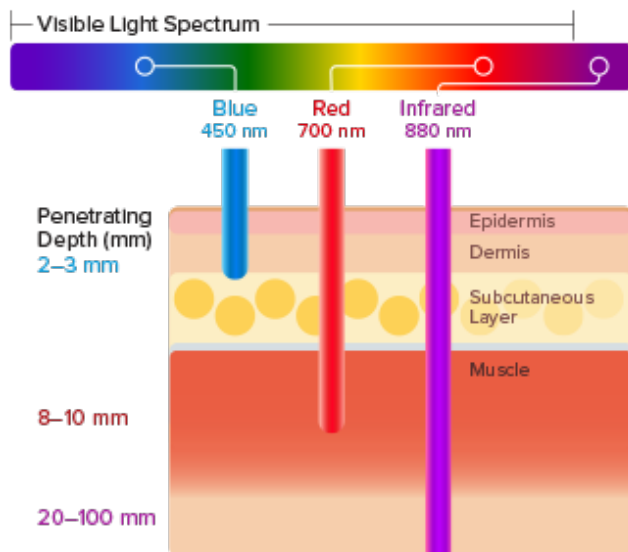
Red and near infrared light are working wonders in the anti-aging communities, and dermatologists and plastic surgeons. Because red light stimulates both collagen and elastin production, eradicates lines and wrinkles, as well as the appearance of scars, surface varicose veins, acne, and cellulite, red light therapy is fast becoming recognized as a safe and welcome alternative to injections and surgeries for anti-aging and skin rejuvenation

Collagen is important — not just for giving us youthful skin, collagen is needed to keep the entire body youthful, resilient, strong, and vital. In fact, collagen is the most abundant protein in the entire body. Even more important than what we can see on the surface of our body, collagen is also what gives our

muscles, skin, blood vessels, bones, and digestive system the healthy tissues that they need to keep us healthy, strong, and free from disease.

Repairing damage from UV rays requires that skin be able to repair cellular and DNA damage, much as it does when healing from wounds. Red light does this extremely well through stimulating collagen synthesis and fibroblast formation, anti-inflammatory action, stimulation of energy production in mitochondria, and even stimulating DNA repair. A wealth of human studies is proving near-infrared and red-light therapy can reverse the signs of aging, repair damage from UV rays, and reduce the appearance of lines, wrinkles, and even hard to remove scars.

A 2013 issue of *Seminars in Cutaneous Medicine and Surgery* featured a review of the research that highlighted dozens of studies proving near-infrared and red-light therapy can reduce the signs of aging. Another review of the research by Harvard professor Michael Hamblin, PhD has found that red and near-infrared light therapy can:



- Reduce the signs of damage, DNA damage, and aging from UV rays
- Reduce wrinkles
- Reduce color patches, hyperpigmentation, and skin discoloration
- Enhance collagen synthesis and collagen density (research has shown it can enhance production of collagen by 31%)
- Accelerate repair in the epithelial layer of skin
- Combat other skin conditions like acne, keloids, vitiligo, burns, herpes virus sores, and psoriasis
- Speed wound healing by enhancing skin tissue repair and growth of skin cells

In short, near infrared and red-light therapy is offering a new, completely safe and non-invasive alternative to various anti-aging skin surgeries, Botox injections, and more abrasive chemical peels. For combating skin aging, red and near-infrared light is an extraordinarily powerful tool

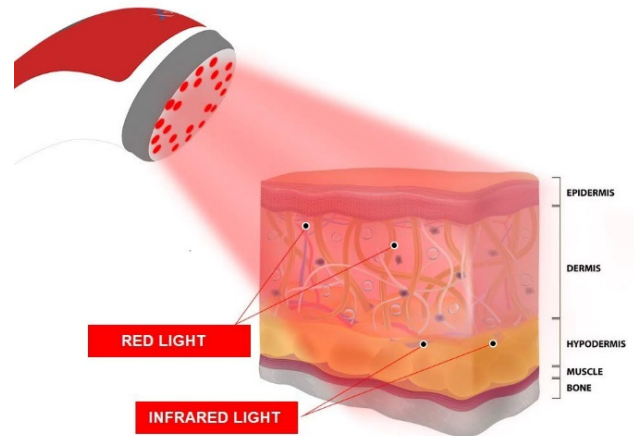
Speed Up Wound Healing with Near-Infrared and Red-Light Therapy

Near-infrared and red-light therapies are fantastic for wound healing. This was one of the original findings of the NASA research that really put red light therapy on the map. In fact, near infrared and red-light therapy has been found to help close wounds (even wounds resistant to healing), at a 20% faster rate and with less visible scarring. Near-infrared and red-light therapy also has proven to reduce the appearance of facial scars. It also increases circulation and the formation of new capillaries. Increased circulation and the formation of new capillaries means the wounded area receives more of the oxygen

and nutrients it needs to initiate and maintain the marvelous healing process. Red/infrared light accomplishes this in several ways:

- Cleaning up dead and damaged cells in skin (phagocytosis)
- Increasing ATP in skin cells, giving cells more energy to heal themselves
- Increasing the production of fibroblasts
- Increasing blood flow, supplying the wound more oxygen and nutrients needed for repair
- Stimulating the production of collagen and the health of the extracellular matrix
- Stimulating lymph activity
- Stimulating the formation of new connective tissue and blood capillaries on the surface of the wound

Infrared light and red light therapy works cohesively to penetrate deep into the skin to activate skin cells and accelerates healing. Infrared light penetrates deep into your skin and brings healing nutrients and boosts blood circulation for accelerated recovery.



Combat Fibromyalgia and Chronic Fatigue, and Increase Energy Levels with Near Infrared and Red-Light Therapy

Studies show that red light therapy is also effective at restoring energy and vitality in persons suffering with fibromyalgia. Because red light is so effective at reducing inflammation, it is proving effective at treating fibromyalgia which is partly caused by inflammation in the brain stem/hypothalamus region

This same effect would likely also benefit chronic fatigue syndrome (which shares many of the same symptoms as fibromyalgia), though it has not yet been studied. Near-infrared and red-light therapy is very effective for the treatment of fibromyalgia, for virtually all of the most problematic symptoms that accompany fibromyalgia. Multiple studies have found that near-infrared and red-light therapy offers:

- Enhanced quality of life for fibromyalgia patients
- Decreased pain
- Decreased muscle spasm
- Decreased morning stiffness
- Decreased total tender point number in fibromyalgia cases

Research – including a very recent 2017 study – suggests that this therapy method is a safe and effective treatment for fibromyalgia

Increase Bone and Injury Healing with Near-Infrared and Red-Light Therapy

Studies on animals and humans have found that red and near-infrared light therapy greatly aids in healing breaks, fractures, and bone defects. ATP production is interrupted in broken bones, and cells begin to die from lack of energy. Red and near-infrared light have been shown to:

- Stimulate energy production in the bone cells
- Increase bone growth factors
- Enhance blood vessel formation and blood flow to the affected area
- Modulate inflammation
- Enhance the attachment and production of collagen and procollagen and stimulates growth of bone cells – all of which accelerate the bone repair process

Overall, studies have found bone irradiated with near-infrared wavelengths show increased bone formation and collagen deposition

Also, for sports where breaks, sprains, and fractures are frequent, red and near infrared light therapy is being used to assist in the healing process with great success and is becoming very popular

Lower Inflammation (and Potentially Inflammation-Related Diseases) with Near Infrared and Red-Light Therapy



Red and near-infrared light therapy is proving highly effective in the treatment of chronic inflammation. It suppresses inflammation and the production of inflammatory cytokines, and dramatically reduces inflammation throughout the body. Since chronic inflammation is now being recognized as a major contributor to most chronic diseases from heart disease, depression, and cancer, to Alzheimer's and chronic fatigue syndrome, this effect of red-light therapy on inflammation is being recognized as very effective

In general, near infrared and red-light therapy powerfully downregulate the body's inflammatory pathways. This has profound implications for its potential role in disease prevention and longevity

Combat Depression and Anxiety with Near-Infrared and Red-Light Therapy

We know that bright light therapy and light boxes have shown great promise in treating seasonal affective disorder and depression. What about red light and near-infrared light therapy?

In a recent review of all existing studies on near-infrared and red-light therapy and depression/anxiety disorders, researchers found that these light therapies offer a “promising treatment” for major depressive disorder, suicidal ideation, anxiety, and traumatic brain injury

Improve Cognitive Performance with Near-Infrared and Red-Light Therapy

One very exciting aspect of human health that red light therapy almost always improves, is cognitive performance. It not only improves the metabolic pathways but also enhances the health of mitochondria in the brain. Since the brain is incredibly rich in mitochondria, (in fact the area of the body with the highest count of mitochondria), this is where people often notice positive effects the most

Researchers found that transcranial, near infrared and red-light therapy profoundly benefitted the brain and cognitive performance

Increase Fat Loss (And Burn Off Stubborn Fat) with Near-Infrared and Red-Light Therapy

While there is still some debate among researchers over the exact mechanisms involved, the research clearly shows that red light therapy does enhance weight loss, fat burning, and shrinks waist circumference. The most popular theory among researchers is that it causes fat cells to release stored fat into the blood stream where it can then be burned off during energy expenditure or via exercise

Research has shown that near-infrared and red-light therapy has a profound impact on reducing fat mass and fat tissue, and at eliminating cellulite. The therapy works to not only release the fat into the blood stream, but does so without negatively affecting blood serum lipid profiles

Where the best results are found for fat loss with near-infrared and red-light therapy though is when combined with exercise. The therapy alone does not see the same outcomes, but with planning and a specific red/NIR light and combined exercise protocol, even stubborn fat can be shifted. The results are dramatically enhanced with test studies showing that groups using NIR light therapy saw almost double the improvements in insulin resistance

Summarizing the Benefits of Red and Near-Infrared Light Therapy

Highly efficient, medical-grade LEDs are by far the best way to deliver the specific wavelengths of light and intensity needed for optimal, full-body light therapy. LEDs are uniquely capable of delivering a specific wavelength of light at great efficiency, with almost no heat and it is now possible for individuals to harness safe, effective light therapy at a reasonable price.

In summary, near infrared and red-light therapy are incredibly powerful tools you can use to dramatically enhance your health

Ref: The Ultimate Guide to Red-Light Therapy: How to Use Red and Near-Infrared 2018 – Ari Whitten

For more Red-Light Therapy information please see our Red-Light Sauna Handbook

