

Anti-Aging LED Light Therapy

Aging could be described as the degradation of the metabolic process. For as long as we can remember, humans have pursued ways of minimizing the effects of aging and increasing longevity. We do this because we all want to get the most joy and fulfillment from our finite time on earth. We want more quality time with our spouse and children, more belly laughs with our friends, more time to travel, and more time to leave our mark on the world. We would all like to achieve this without aging, and with less pain or disease.

Many spas and wellness centers now offer specific anti-aging treatments to combat a wide variety of side effects related to the aging process, including red LED light therapy. And while we can't literally turn back the hands of time, there are steps we can take now to improve and maintain our best appearance, slow down the signs of aging, and give ourselves a bit more longevity.

So how can we safely and effectively reduce and even reverse the effects of aging and treat a number of common issues that come along with aging? There are countless research studies available discussing the benefits to our cells and tissue that can be achieved with regular use of light therapy treatments.

Collagen

When it comes to aging, a significant factor that leads to wrinkles, fine lines, and joint pain is due to inadequate collagen levels. Collagen is the main structural protein found in your skin and other connective tissue. Collagen literally holds our bodies together. An easy way to remember what collagen does is to look at the Greek prefix 'kolla' which means glue.

Increased fibroblast proliferation is just one benefit of LED red light therapy. Fibroblasts make collagen fibers, so it stands to reason that the more, and healthier, fibroblasts we have in the skin, the more and better collagen fibers are made. And as we all know, collagen synthesis and maintenance is the bedrock of anti-aging. Collagen is a key to longevity.

Healthy collagen levels are what give us a glowing complexion, firm skin, strong nails, dense bones, and healthy hair. It is also essential in keeping muscles, joints, and tendons in healthy working order. Simply put, the more our bodies produce collagen, the better we'll look and feel as we age and attempt to delay tissue and cell degeneration.

Signs of Aging

Fibroblast cells are responsible for producing collagen and elastin, the two most common proteins in connective tissue. However, as we age, our fibroblast cells become compromised resulting in lower levels of these proteins. We might start noticing decreased elasticity in our skin, wrinkles, and our joints may not move as freely as they used to. This is because lower levels of collagen lead to breakdowns in cartilage which can cause inflammation, soreness, stiffness, arthritis, and prolonged recovery time after physical activity. Other common signs of aging can include:

- Skin and tissue deterioration
- Melasma
- Arthritis
- Inflammation
- Chronic joint and muscle pain
- Keratosis

If you're experiencing one or more of these signs, then it could be an indicator your collagen levels are deficient.

What the Research Says

The depth of each wavelength adopted in LED therapy (blue, red, and near infrared) have differing primary targets and photoreactions in the target cells through photon absorption, intracellular signal transduction and finally the cellular photo-response.

Visible wavelengths stimulate cellular metabolism by triggering intracellular photobiochemical reactions. The observed effects include increased ATP, an organic chemical that provides energy, modulation of reactive oxidative species (ROS), alteration of collagen synthesis, stimulation of angiogenesis and increased blood flow. Research also demonstrated the increase in the production of multiple growth factors and the inhibition of apoptosis or “cell death”. All studies have demonstrated a statistically significant improvement in skin rejuvenation, as well as enhancing existing rejuvenation treatments (3,4)

Clinical studies in the use of red LED (630-700nm) on human and animal tissue, have demonstrated it activates fibroblast growth factors, increasing type 1 procollagen, an increase in Matrix metalloproteinase-9 (MMP-9) and a decrease in MMP-1. (2). These result in the reduction of fine lines and wrinkles, improvement in photo-aging, a decrease in melanin and softer, smoother healthier looking skin. Skin analysis studies reveal an increased collagen density in the papillary and upper reticular dermis with the collagen bundles more packed and well organized. The thickness was observed to be greater than when evaluated before red LED treatment.

Anti-Aging Treatment with LED Light Therapy

Now that we've established a base understanding of why collagen is essential as we age, let's look at the most groundbreaking and natural way to effectively generate more collagen in your body using the anti-aging effect of LED light therapy.

Proven by research, the red and near-infrared wavelengths utilized in the Celluma SERIES of LED light therapy devices combat the signs of aging. These specific wavelengths of light energy are clinically verified to enhance your body's natural ability to generate collagen and elastin by activating the fibroblast cells.

No prescriptions. No medications. No injections. No surgery. Just safe, natural wavelengths of effective, proven light energy.

The Celluma Difference

Uniform delivery of the light energy is crucial to successful energy absorption by the cells. For this reason, we designed each of our Celluma products to conform closely to the area of treatment resulting in the unmatched ability to deliver the optimal amount of restorative light energy in each session. Celluma products stand in stark contrast to the traditional light-therapy devices which are flat and rigid and cannot contour to the body, dramatically reducing the ability of cells to absorb the optimum amount of light energy and thereby effectiveness. Bodies are not flat, therefore it makes sense that your light therapy device should contour to the area of treatment.

Products such as our Celluma PRO can be formed into a C-shape to treat facial wrinkles and fine lines while you lie comfortably on your back. Or, you can shape it to wrap easily around any body part including hands, feet, or joints to combat the effects of aging.

Celluma Works to Boost Collagen Production

Let's quickly run through two biology basics: the Krebs Cycle and Adenosine Triphosphate (ATP).

1. The Krebs cycle is what generates cellular energy inside your body. Light activation boosts the body's natural Krebs Cycle which in turn assists in creating more ATP.
2. ATP is the energy currency of all the cells in your body. When your body has sufficient ATP levels, then it has more energy to spend on restorative processes such as collagen and elastin production – these are the proteins your body uses to heal itself.

In summary: **Light Therapy = Enhanced Krebs (energy) Cycle = Greater ATP Availability = More Collagen**

When all of those important metabolic events are happening, it then results in greater outcomes beyond just collagen production. We see a cascade of benefits such as:

- Cell generation to replace old cells (mitosis)
- Reduction and prevention of cell death (apoptosis)
- Neurogenesis (new neurons)
- Development of new capillaries (angiogenesis)
- Increased blood flow
- Enhanced Nitric Oxide production

The synergistic effect is that your body is optimized to heal itself. Patients who use Celluma LED light therapy devices begin seeing:

Skin rejuvenation and the reduction of wrinkles and fine lines

Accelerated healing of chronic wounds. *

General pain reduction including muscle, joint and arthritic pains.

All of these great benefits can be achieved at home and at your leisure. Most people can even use Celluma devices while taking a nap or watching television.

What Does It Feel Like to Use Celluma?

Using Celluma light therapy devices is very relaxing. Simply adjust yourself into a restful position and wrap the treatment area with your Celluma. A single treatment lasts approximately 30 minutes. Most patients experience immediate results and leave their skin feeling like it is glowing. Stiff, sore and painful joints may experience improvements with one to three sessions. Keep in mind that results vary from patients to patient depending on the patient's inherent health, the severity of the condition and adherence to protocols.

Celluma's anti-aging LED therapy is designed to truly change the way people rejuvenate and recover. We no longer need to rely solely on costly medications, risky injections, or invasive surgery now that we have the technology to give our bodies the boost to heal naturally.

*Celluma is not FDA-cleared for wound healing. (But is EU approved)

<https://www.celluma.com/pages/anti-aging-light-therapy>