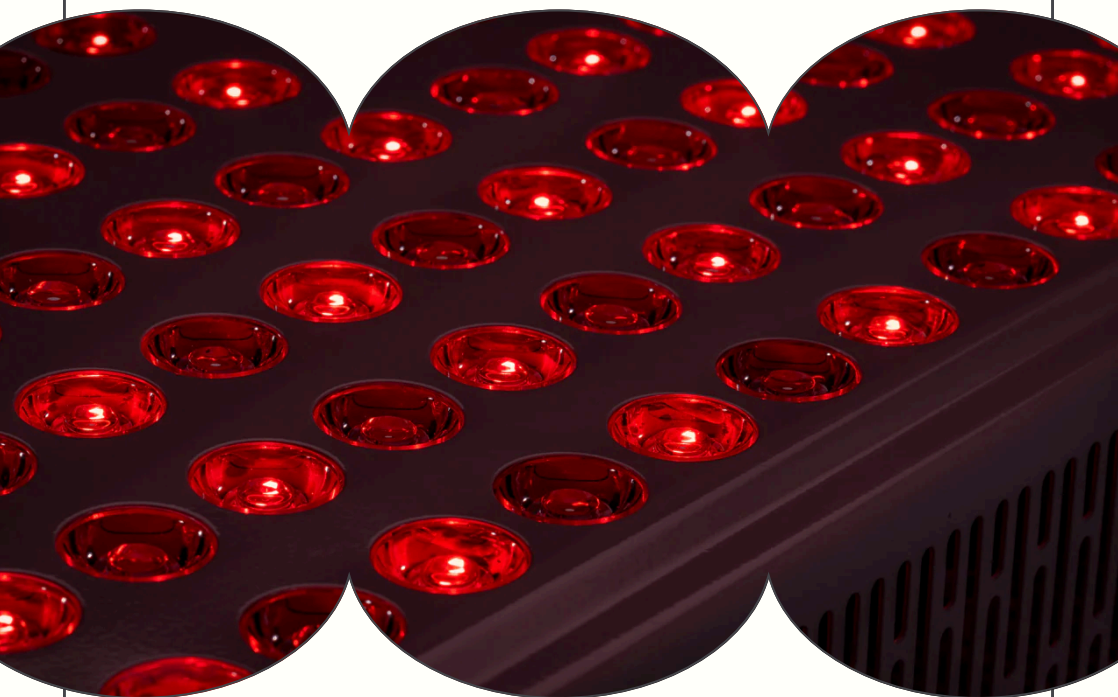




OSTEOTHERAPY PRESENTS



RED-NIR LIGHT THERAPY

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01 | Introduction



Advancing health and Longevity

Red light therapy (RLT), also known as photobiomodulation, is a non-invasive treatment that utilises specific wavelengths of red and near-infrared light to support healing, reduce inflammation, and enhance cellular energy. While it may seem like a modern innovation, the therapeutic use of light dates back to the early 20th century, when Danish physician Niels Ryberg Finsen was awarded the Nobel Prize in 1903 for his pioneering work using light to treat skin diseases such as lupus vulgaris. Since then, the science has advanced significantly, with modern research uncovering how red and near-infrared light can stimulate mitochondria—the energy centres of our cells—to boost ATP production and promote repair.

What Do You Expect?

Recent studies, particularly in the past few years, have shown that RLT can play a beneficial role in managing chronic pain, enhancing recovery after exercise or injury, improving skin health, and even supporting brain function. Its ability to reduce oxidative stress and support circulation has made it a valuable tool not only in clinical practice but also in wellness and performance settings. These effects are increasingly being explored in relation to healthy ageing and longevity.



02 | History



Advancing health and Longevity

The concept of light as medicine is not new. In 1903, Danish physician Niels Ryberg Finsen was awarded the Nobel Prize for his pioneering work using light therapy to treat tuberculosis-related skin conditions. More recently, technological advances have allowed for the development of targeted red and near-infrared devices with far-reaching therapeutic applications.

Red and near-infrared light therapy align well with other therapies such as Osteopathy, Manual Lymphatic Drainage etc, as both promote the body's natural capacity for repair and homeostasis.

Recent Research Highlights

Modern studies continue to expand the clinical applications of RLT and NIRLT, including:

- **Traumatic Brain Injury (TBI):**

A 2024 study from the University of Birmingham found that 810nm near-infrared light significantly improved cognitive and motor outcomes following mild TBI in animal models. Published in: *Frontiers in Neuroscience* (2024)

- **Spinal Cord Injury (SCI):**

Red light at 660nm enhanced nerve survival by up to 45% post-injury and stimulated neuroregeneration. Published in: *Journal of Photochemistry and Photobiology B: Biology* (2024)

- **Hair Regrowth and Skin Health:**

Red and near-infrared light at wavelengths between 650–950nm have been shown to stimulate hair follicles and improve skin elasticity through increased collagen production. Published in: *Lasers in Medical Science, Journal of Cosmetic and Laser Therapy* (2023–2024)

- **Muscle Recovery and Performance:**

Athletes using NIRLT reported faster muscle recovery, reduced DOMS, and improved mitochondrial efficiency. Published in: *Photomedicine and Laser Surgery* (2023)

- **Neurodegenerative Support:**

Ongoing trials are investigating the role of transcranial photobiomodulation in cognitive enhancement and delaying progression in conditions like Alzheimer's. Published in: *Journal of Alzheimer's Disease Reports* (2023–2024)



03 | Mechanism



Mechanism of action

Red light therapy (RLT), also known as photobiomodulation, is a non-invasive low-level light treatment that works by stimulating the mitochondria- the energy centers of our cells- to produce more ATP (adenosine triphosphate), the molecule responsible for cellular energy. Cytochrome C oxidase (CCO) is a key enzyme in the electron transport chain (ETC) within mitochondria. Red and Near infrared light photons are absorbed by CCO, which boosts the efficiency of the ETC. Additionally Red/Nir Light therapy (RLT) displaces nitric oxide in the body (which binds to CCO inhibiting oxygen usage), allowing oxygen to bind again - restoring the proton gradient across the mitochondrial membrane. Resulting in improved healing, reduced fatigue, reduced inflammation and overall cellular function.

Benefits of the light therapy

- **Radiant skin:**

Achieve radiant, youthful skin with red light therapy- naturally boost collagen, reduce fine lines, calm acne-prone skin, and enhance your skin's natural glow, all without harsh chemicals.

- **Combat fatigue:**

Boost your energy naturally with red/near light therapy - stimulate mitochondrial function, enhance cellular energy production, and support overall vitality at the source.

- **Neuropathic pain relief & reduce inflammation:**

Target the root cause of chronic discomfort, improve circulation and support cellular repair. May help alleviate pain associated with nerve damage, such as carpal tunnel syndrome, sciatica and diabetic neuropathy.

- **Enhance athletic performance:**

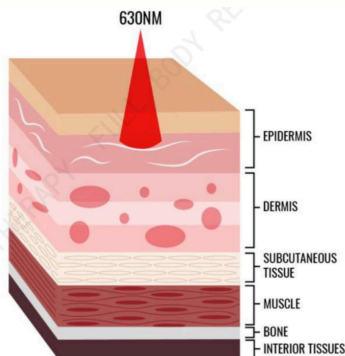
Speed up recovery, boost muscle repair, reduce soreness and optimise energy production at the cellular level. Accelerates the healing process in injuries like strain, sprain and contusions. Aids recovery of damage to muscles, tendons and ligaments

- **Faster wound healing:**

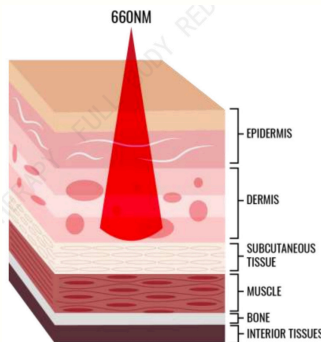
Accelerate wound healing by stimulating cellular regeneration, improve circulation and reduce inflammation for faster, more complete recovery. Such as surgical incisions, or diabetic ulcer.



03 | Red Light



630NM

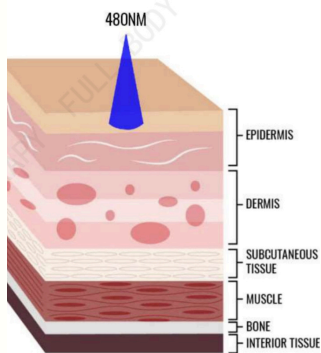


660NM

1.Red Light at 630nm 660nm

Red lights act on the "power plant" in your body's cells called mitochondria.

They can absorb light wavelengths and are stimulated to work with other cells more efficiently, then improve skin appearance, enhance collagen production, smooth tiny wrinkles and fine lines, reduce acne and scars, boost fresh cell growth and enhance skin rejuvenation.



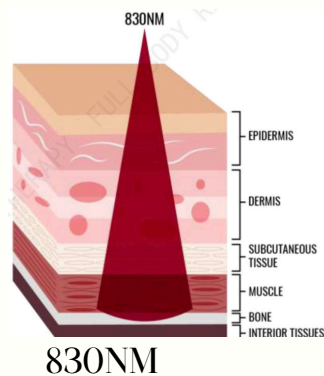
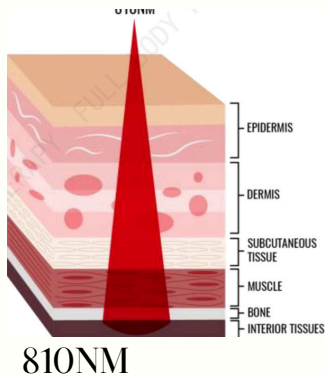
480NM

.2. Blue Light Therapy Effects Blue Light 480nm

Blue light stimulates the release of nitric oxide (NO), a vasodilator which increases circulation to deliver oxygen, immune cells, and nutrients to the treatment area. Along with the antibacterial and anti-inflammatory properties of blue light, this effect can result in faster wound healing, acnes and better skin health.

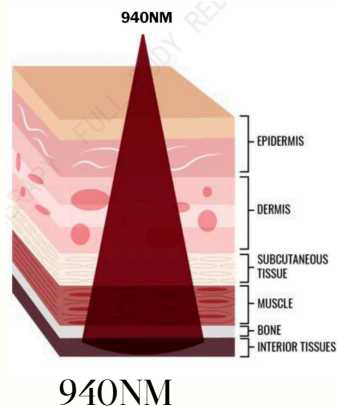
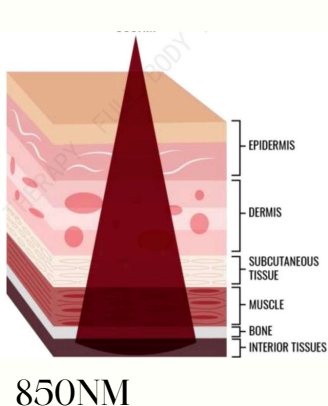
Blue light used with photosensitising agent has been found effective in treating actinic keratoses or precancerous lesions caused by sun damage. Treating an individual actinic keratosis lesion can prevent skin cancer. This effective treatment only targets diseased cells with minimal effect on surrounding tissue.etc. When utilising blue light, it is generally recommended to concurrently employ red light.

04 | NIR Light

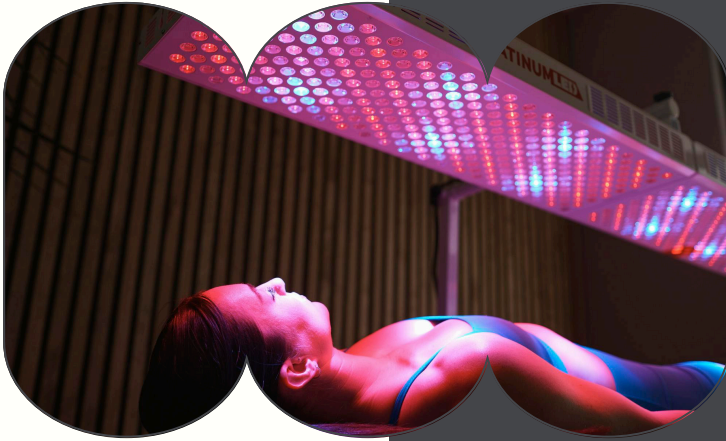


3. Near Infrared Light at 810nm 830nm 850nm 940nm

Infrared lights are invisible to the human eye, which have more penetrating power and can penetrate deeply into the subcutaneous tissues. Unlike the traditional warm methods, infrared rays generate radiant heat from inside, mimicking natural sunlight, and increasing the temperature more quickly. After the temperature of the subcutaneous tissue rises, tiny blood vessels open, blood flow speeds up and tissue metabolism is promoted. Then enhance the cells activation, facilitate excess fat consumption, reduce pain associated with joints and muscles, alleviate inflammation, improve sleep quality, relieve fatigue and boost mood, etc.



04 | Follow us



Osteotherapy

- Wellness clinic in Stanmore
- 15-19 Church Road, Stanmore. HA7 4AR

Other services available

- Osteopathy
- Manual Lymphatic massage
- Sports Massage
- The perrin Technique for Cfs/ME, fibromyalgia & long covid

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