



the HEALING POWER *of* LIGHT

Getting on the right wavelength is the secret to this cutting-edge treatment that's revolutionising the way we heal the body.

BY STEPHANIE OSFIELD

Future homes may have “smart” lighting systems that change from cool blues in the morning, for alertness, to warm tones at night, for sleeping.

There's a luminescent new treatment causing a buzz among some health professionals as well as beauty therapists. Backed by thousands of studies, it's already being used to treat everything from brain conditions and back pain, to skin blemishes and wounds. All it involves is the gentle application of light – not direct sunlight, but special light frequencies, especially at the red end of the light spectrum.

Lighting up your cells

Just as plants absorb sunlight and convert it to energy to help them grow, you also absorb light into your body, where it helps to energise your cells. “In the last few decades, we've discovered that all our cells, even the ones deep within the brain, have special receptors that respond to

light,” says John Mitrofanis, Professor of Anatomy at the School of Medical Sciences at the University of Sydney. This is most likely because light helped us evolve from single-celled creatures to the complex humans we are today.

Having discovered that all our cells are receptive to light, it's now being trialled as a treatment for a range of conditions.

The power of red light

Modern light therapy took a giant leap forward in 1993, when NASA scientists used it on astronauts in space. They found it substantially reduced astronauts' loss of muscle and bone, and it also boosted wound healing. Such impressive results led to an explosion of research into the benefits of light therapy. Here's how these new light treatments can help you. ►

HOW LIGHT THERAPY WORKS

So how does it work? This new cutting-edge therapy uses wavelengths of light that are “non-thermal”. This means they don’t heat up your skin or internal organs, which is why this light treatment is often called “cold laser” or low level light therapy (LLLT). Unlike direct sunlight, it’s stimulating, but not damaging, and the light comes from multiple light-emitting diodes (LEDs). These special lamps, panels or probes deliver the healing light from a short distance of around an arm’s length away from the body. It’s best not to look directly into this light with the naked eye, so protective goggles are worn during treatment. Unlike lasers, which use one colour (or wavelength) of light at a time, LEDs can mix different light colours together to treat large areas of the body with minimal side effects. As those light waves are longer than the ones we feel from the sun, they penetrate deeper below the skin. Though scientists are a little in the dark about exactly how light therapy works, they believe it impacts on your cells to change:

Energy production The light enters your cells to stimulate chemical reactions that recharge the mitochondria, which are like tiny batteries in your cells. This energy boost helps them work more efficiently and can help damaged cells repair themselves.

Cell health and repair Light increases blood circulation and supply to your cells and triggers your body’s immune responses, boosting the healing process. The knock-on effect reduces inflammation and increases tissue and cell repair and regeneration.

Slowing skin ageing

Low-level light therapy may help slow your ageing clock and provide a fast track to more firm and flexible skin. Dermatologists and beauty therapists throughout Australia are already using it. German research has shown it prompts a measurable change in collagen levels in the skin. “It can help reduce wrinkles, speed up wound healing and improve the tone, texture and appearance of your skin,” says Dr Adam Sheridan, dermatologist and director of Specialist Dermatology Surgery and Laser clinics in Melbourne and Adelaide. “Red light waves help treat pre-cancerous sun spots, sun damage, superficial non-melanoma skin cancers and acne. Near infrared light penetrates

into your subcutaneous tissue, where it can reduce inflammation, promote faster wound healing and even reduce swelling and bruising.”

Unlike the laser machines used to treat spider veins or acne scars, low-level light treatment doesn’t require anaesthetic because it doesn’t cause any pain. It has few side effects, but may cause a little warmth during and after the session. “The only sign you’ve had the treatment may be a slight redness of the skin that usually passes within hours,” Dr Sheridan explains. Sessions usually last between five and 30 minutes and cost between \$50 and \$200. As eight to 10 treatments are usually recommended, most clinics offer packages for a course of treatments.

Meanwhile, below the skin, light therapy may also help to blitz cellulite. American research has shown it can help change fat cells, possibly by encouraging the leakage of fats from the cell so that the cell then shrinks. This means it may become a safe, natural alternative to liposuction.

Boosting memory and brain health

Light helmets are also showing promise for treating people with Alzheimer’s disease. “Though the light doesn’t reach all the way into the brain, it penetrates to a depth of about 20mm,” Prof Mitrofanis says. “That distance ►



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Healing light colours

Different cells in your skin, bones and muscles respond differently to wavelengths on the light spectrum. The five main colours used in light therapy are:

BLUE Studies show blue light can blitz the Staphylococcus aureus bacteria that causes acne. Just a single dose may kill up to 92 per cent of the staph strains that are resistant to antibiotics. Blue light is also being studied as a method for killing some cancer cells.

GREEN May boost levels of enkephalins and endorphins, which are natural pain-killing chemicals. It’s being researched as a treatment for migraines and chronic pain conditions such as fibromyalgia.

YELLOW May help treat issues like kidney problems as well as skin conditions like rosacea.

RED Beneficial for treating chronic pain and helping wounds heal.

NEAR INFRARED Has an even longer wavelength so it’s absorbed more deeply into your tissues, blood vessels, nerves, brain and bones. It’s being trialled in the treatment of wounds, brain injuries, heart problems, eye conditions, dementia, stroke, spinal injuries and much more.

'Light therapy made me well again'

Several years ago, 52-year-old yoga instructor, Tess Boes (pictured below), was suffering chronic fatigue and acute, debilitating back pain triggered by a series of stressful life events. "I'd tried all kinds of treatments, including Chinese medicine and diet changes, but nothing was helping my condition improve," she says. "Then a friend suggested I try red light therapy. I got on the internet and was so impressed by the scientific research about its benefits that, as soon as possible, I ordered a red light panel to use at home. After just one 60-minute session, I had more energy and an immediate reduction in pain. By the end of a week of sessions, I had far more energy and far less pain. Within weeks, I felt like a

different, much healthier woman. I now use red light therapy every day for 20 minutes in the morning and evening to help me stay well."

Impressed by her own healing, Tess encouraged her daughter to add red light lamps to her family-run Sydney yoga studio, now called Studio Red Yoga. "We're the first yoga studio in Australia to offer red light therapy," Tess says. "Our clients love it and report it has all kinds of benefits, such as boosting their energy and relieving muscle aches and pains," she says. "The lamps hang over the yoga mats. They're up high enough that we don't need protective glasses, but can enjoy soaking up low-level red light therapy for the entire hour-long yoga class."



PHOTOGRAPHY: STEVEN GUZMAN

Fast fact

In one case study, volunteers enjoyed immediate improvement in reaction time, memory and mood for several weeks after having light therapy.

is enough to boost circulation of the rich blood vessels in the scalp and stimulate changes to brain neurons that, in turn, may slow or even help to halt dementia."

These positive domino effects on cells may mean that light therapy becomes an effective treatment for anxiety and post-traumatic stress disorder (PTSD). Even in people with healthy brain function, it has immediate benefits. In one study at The University of Texas, near infrared light was applied to the foreheads of healthy volunteers, who enjoyed improvement in reaction time, memory and mood for several weeks.

In the future, people with dementia, depression and degenerative brain diseases like multiple sclerosis may be prescribed light therapy as their medicine. "Promising research shows that red and near infrared light may effectively help protect and revive brain cells damaged by trauma or affected by disease," says Prof Mitrofanis, who is about to take part in a clinical trial involving the University of Sydney and Parkinson's SA. The trial will use special light helmets to deliver light therapy to people with Parkinson's disease. "The initial research, involving 20-minute sessions, has shown that light therapy can help stabilise

the condition of patients by slowing (or possibly stopping) the progression of their disease," Prof Mitrofanis says. "This is an incredible outcome because Parkinson's disease has no cure."

Pain relief without pills

Light therapy now offers a drug-free method for relieving chronic aches and pains. "In our practice, we use red light and near infrared light to treat superficial wounds and problems with soft tissue, tendons and joints," says Tom Cartwright, director and head chiropractor of Cartwright Physicaltherapy, a Sydney practice that's been offering red light therapy for the past two years. "I've had patients coming here requesting light therapy for back issues and, in most cases, it helps to reduce their pain. I've also recently treated a lady with chronic shoulder pain she'd suffered for years. Sessions of light therapy substantially relieved her pain so that she can now take less medication." As well as reducing inflammation and increasing tissue repair and blood circulation, light therapy can alleviate pain. This may be because it changes the response of pain receptors while also increasing the production of endorphins and other hormones that offer natural pain relief. **■**