

RED LIGHT THERAPY

A practical guide to healthy light, recovery and energy

Compiled based on the VIVO ebook

About this booklet

This booklet was compiled and rewritten in its own words by Dutch Health Store, based on the original book on red light therapy written by Michel Peters of VIVO Red Light Therapy. Dutch Health Store thanks Michel and VIVO for the knowledge and inspiration this booklet builds on. All rights to this text belong to Dutch Health Store. No part of this publication may be reproduced, stored in an automated data file, or made public, in any form or by any means, without prior written permission from Dutch Health Store.

Why light is more than just seeing

Today we measure and optimise everything: steps, heart rate, calories, sleep. Yet one of the most basic factors for our health tends to fade into the background: light. Not light to see by, but light as a biological signal that tells your body when to be active and when it may recover.

Modern life creates a skewed balance: plenty of blue artificial light during the day and in the evening through screens, and hardly any of the warm, restorative light frequencies of sunrise and sunset. As a result, the body often stays in a kind of permanent alert mode, when it should actually be winding down. That can show up as poor sleep, low energy, a short temper, and a disrupted hormone balance.

Part of the retina isn't meant for seeing at all, but for registering light as a control signal for the biological clock. These light-sensitive cells, which contain melanopsin, tell the body whether it's time to produce melatonin, to recover, or to be active. In that sense, light isn't a side issue, it's information that almost every system in the body responds to: sleep, digestion, hormones, mood and the immune system.

Red and near infrared light are naturally strongest around sunrise and sunset, and are evolutionarily linked to recovery and regeneration. By offering these wavelengths in a targeted way through a good device, you're effectively giving your body the signal that it's safe to recover.

Light as a daily rhythm



Red and amber light are the only colours safe in the evening for your melatonin production, while blue daylight keeps you alert.

Blue daylight keeps you alert, while red and amber light at sunrise and sunset tell your body when it's safe to relax and recover.

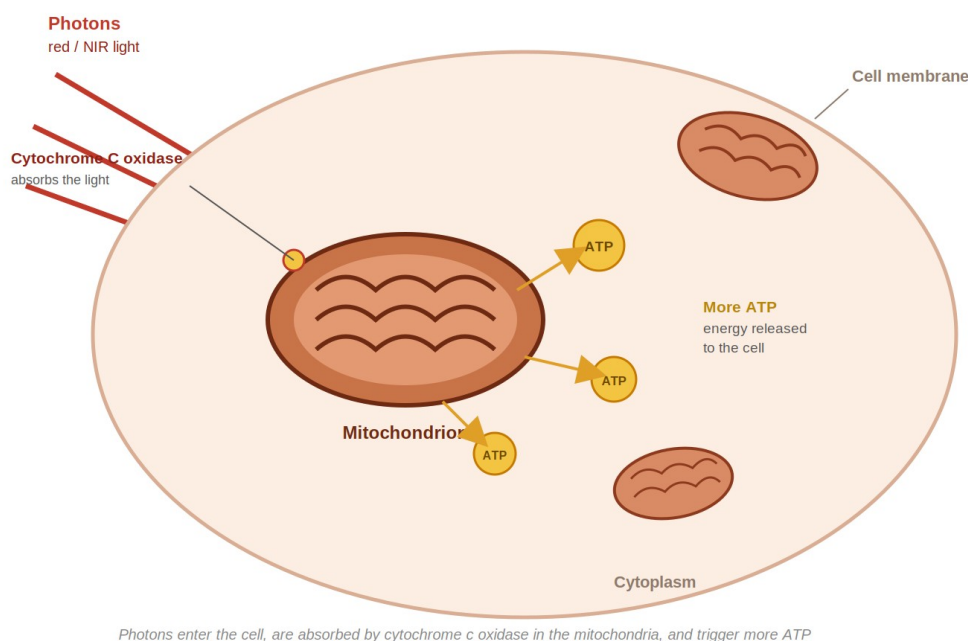
How red light works at the cellular level

The body consists of tens of trillions of cells, and almost every cell depends on the mitochondria inside it. Mitochondria produce ATP, the energy molecule that powers muscle movement, hormone production, cell repair, brain activity and immune function. When mitochondria work less well, you notice it as low energy, slow healing, brain fog and increased fatigue.

Photobiomodulation, the scientific term for red light therapy, acts directly on this process. Photons from red and near infrared light are absorbed by an enzyme in the mitochondria called cytochrome c oxidase. That absorption boosts ATP production, reduces inflammatory processes and lowers oxidative stress. The result is a cell that works more efficiently, recovers faster and communicates better with other cells.

The difference with a supplement or medication is that no substance is added that needs to be digested or broken down. The body receives a physical energy signal in the form of photons, and converts it itself. At the correct dose, this places no burden on the liver or kidneys, carries no risk of dependency, and often produces a measurable effect within minutes.

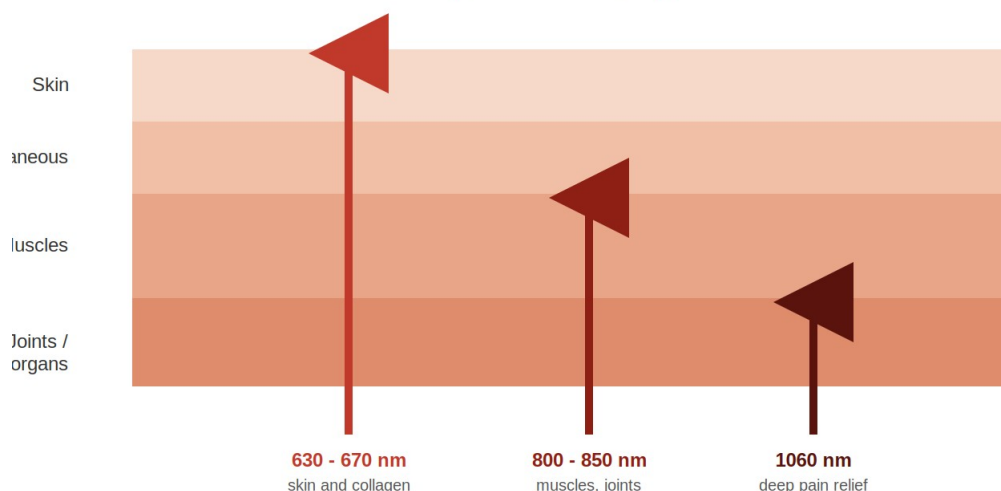
What happens inside the cell



Photons enter the cell and are absorbed by cytochrome c oxidase in the mitochondria, boosting ATP production.

Not every wavelength does the same thing. Red light between roughly 630 and 670 nanometres works mainly on the surface, targeting skin, wound healing and collagen. Near infrared light between 800 and 850 nanometres, and around 1060 nanometres, penetrates deeper and reaches muscles, joints and brain tissue.

How deep does the light penetrate?

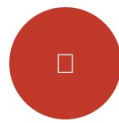


Shorter wavelengths work mainly on the surface, longer wavelengths penetrate deeper into the tissue

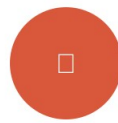
Shorter wavelengths work mainly on the surface, longer wavelengths penetrate deeper into the tissue.

Applications of red light therapy

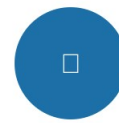
What red light therapy can help with



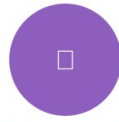
Muscles and joints



Skin and collagen



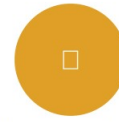
Sleep and energy



Hormones and metabolism



Brain and mood



Immune system and recovery

Muscles and joints

For athletes and people with pain complaints or stiffness.

Near infrared light penetrates deeper than visible light. It reaches muscles, connective tissue and even joint capsules. There it stimulates anti-inflammatory processes, blood flow and cell division.

Applications

- Muscle recovery after training or injury
- Chronic pain from overuse or arthritis
- Faster recovery after a fall or surgery
- Reducing muscle soreness (DOMS) in athletes
- Rehabilitation for tendon or joint complaints

Many physiotherapists combine PBM with dry needling, massage, cupping or exercise therapy for faster results.

Skin and collagen

For anyone who wants to support their skin without invasive treatments.

Red light gives skin cells a stimulus to produce collagen and reduce inflammation, contributing to healthier, more resilient skin.

Applications

- Reduction of fine lines and wrinkles
- Improved skin structure and elasticity
- Support for acne and blemishes
- Support for scars, rosacea and eczema
- Faster healing of minor wounds and skin irritation

Consistent use over four to eight weeks usually shows the clearest results.

Sleep and energy

For anyone who wants to sleep better and wake up feeling fitter.

Red light helps restore your circadian rhythm: the day and night cycle that governs everything from sleep quality to hormone balance. It boosts melatonin, lowers cortisol, and supports mitochondria in producing energy.

Applications

- Falling asleep and staying asleep more easily
- Recovery from jet lag or shift work

- Morning energy without caffeine
- Reducing the afternoon slump
- Strengthening natural melatonin production

Red and amber light are the only light colours you can safely use in the evening without disrupting your melatonin production.

Hormones and metabolism

For anyone who wants to restore their internal balance, from thyroid to fat burning.

Your hormone system is like an orchestra, and red light helps the conductor give the right instructions. From the thyroid to the adrenal glands, from blood sugar to sexual function: it all starts with cell energy and inflammation balance.

Applications

- Support for an underactive thyroid (hypothyroidism)
- Improved insulin sensitivity (blood sugar)
- Support for female hormone balance (PMS, PCOS)
- Support for testosterone production in men
- Positive influence on libido and fertility

Studies show that red light on the lower abdomen, lower back or thyroid can contribute to hormonal regulation, provided it's dosed correctly.

Brain and mood

For anyone who wants to think more clearly, feel calmer and more positive.

The brain is extremely energy-dependent and sensitive to oxidative stress. Fortunately, neurons respond strongly to near infrared light. Red light therapy applied to the forehead, or indirectly via the blood, is increasingly being studied for neurological complaints.

Applications

- Reducing brain fog
- Improving concentration and focus
- Support for mood and depressive symptoms
- Preventive use for neurodegenerative conditions
- Reducing stress and feelings of anxiety

There are promising studies underway into PBM for Parkinson's, Alzheimer's and TBI (traumatic brain injury).

Immune system and general recovery

For anyone who wants to recover faster from illness, stress or strain.

Red light doesn't just affect cells locally, it also has systemic effects. Through the blood, lymphatic system and nerve pathways, broader recovery responses occur. You're essentially activating the body's self-healing capacity.

Applications

- Faster recovery after illness or surgery
- Relief for autoimmune conditions (such as rheumatism, Hashimoto's)
- Support for lymphatic drainage and detox
- Improved wound healing
- Soothing skin reactions from chemotherapy or radiotherapy

Did you know you can even activate your thymus, an important part of the immune system, with light?

Bonus: eyes, hair and fertility

Specific applications worth mentioning.

- Hair loss: red light stimulates the hair follicle (for FFA, alopecia or thinning hair)
- Eyes: indirect exposure with closed eyes may support eye health and is being clinically studied
- Fertility: improving mitochondrial function in egg cells and sperm is an emerging application

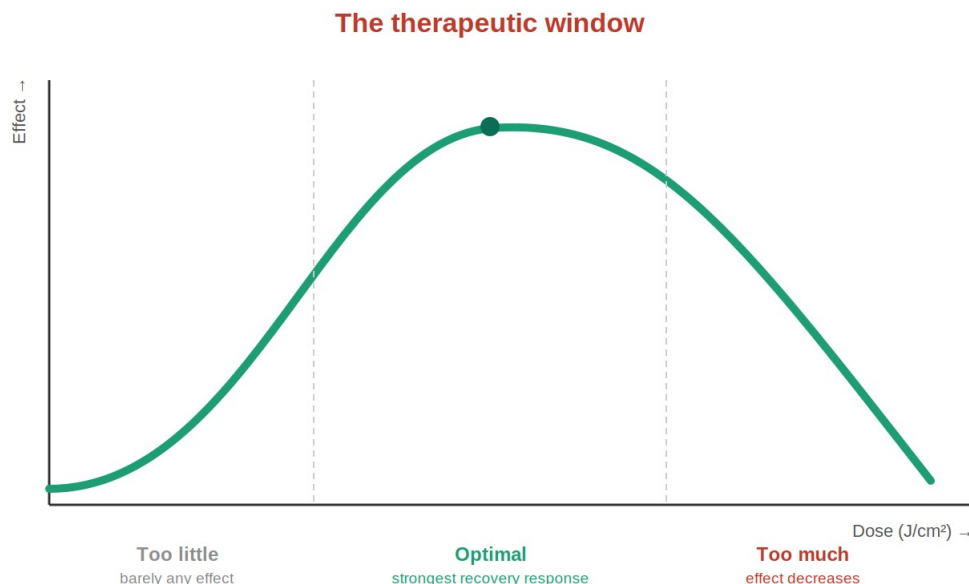
How do you choose what suits you? The right application starts with a clear goal. You don't need to improve everything at once. Choose one or two goals that matter most to you right now and work on them consistently for six to eight weeks.

The dosage guide table further in this booklet will help you step by step. Can't figure it out? Feel free to contact us.

Dosage: why the right amount makes the difference

More light isn't automatically better. Red light therapy follows what's known as a biphasic dose response: too little stimulation produces barely any effect, just the right amount gives the strongest result, and too much can weaken or even reverse the effect. This range within which the therapy works optimally is also called the therapeutic window.

Three factors determine where you land within that window: the light intensity of the device (in mW/cm²), the distance to the device, and the length of the session. Together they determine how much energy your skin or tissue absorbs, expressed in Joules per cm² (J/cm²).



Too little light barely has an effect, too much actually reduces the effect. The best result sits in the middle.

How much time that takes depends on the intensity of your device and the distance to the skin: divide the desired dose (J/cm²) by the device's intensity (mW/cm²), then multiply the result by 1000. With a device at 220 mW/cm² and a target dose of 10 J/cm², that works out to around 45 seconds of treatment time.

$$\text{dose (J/cm}^2\text{)} \div \text{intensity (mW/cm}^2\text{)} \times 1000 = \text{treatment time in seconds}$$

You don't need to work this out yourself: in the dosage guide table for each device on page 6 you'll find these times already calculated for every device, application and distance.

A more powerful device isn't automatically better: the stronger the lamp, the greater the risk of getting too much light in too little time, which can reduce effectiveness or, in sensitive people, even trigger a stress response. The best gauge is your own body: if you feel more energetic, calmer or clearer after a session, you're doing it right. If you feel restless, more tired or irritable, choose a bit more distance, a shorter session, a lower intensity, or every other day instead of daily.

Because everyone reacts differently, the dosage guide below takes into account your device, the application and the distance to the skin, with a recommended minimum, maximum and optimal treatment time for each situation.

Dosage guide per device

For each device below you'll find the recommended treatment time, depending on the application (superficial or deep tissue) and the distance to the skin. Min is the shortest recommended treatment time for a safe and noticeable effect, optimal is the recommended treatment time for the best result, and max is the longest treatment time recommended. Superficial applications include, for example, skin improvement, skin complaints, eyes or minor wounds; deep tissue applications include muscles, joints and organs.

BioPhoton 2.0 / 3.0

Application	Distance	Min	Optimal	Max
Superficial	15 cm	3m 5s	13m 7s	23m 9s
Deep tissue	0 cm	14m 53s	32m 15s	49m 36s
Deep tissue	15 cm	23m 9s	50m 9s	77m 10s

Joules: Superficial 8.169 J | Deep tissue 31.233 J | Treatment area 961 cm²

BioPhoton Max Bi-Tone

Application	Distance	Min	Optimal	Max
Superficial	15 cm	1m 13s	5m 11s	9m 9s
Superficial	30 cm	1m 28s	6m 13s	10m 58s
Superficial	40 cm	1m 34s	6m 39s	11m 44s
Superficial	50 cm	1m 44s	7m 23s	13m 1s
Deep	0 cm	1m 57s	4m 14s	6m 30s
Deep	15 cm	9m 9s	19m 50s	30m 32s
Deep	30 cm	10m 58s	23m 45s	36m 33s
Deep	40 cm	11m 44s	25m 26s	39m 7s
Deep	50 cm	13m 1s	28m 13s	43m 24s

Joules: Superficial 20.196 J | Deep 77.220 J | Treatment area 2376 cm²

Vivo Lux 450 S.2

Application	Distance	Min	Optimal	Max
Superficial	15 cm	0m 26s	1m 52s	3m 17s
Superficial	30 cm	0m 31s	2m 11s	3m 51s
Superficial	40 cm	0m 36s	2m 35s	4m 33s
Deep tissue	15 cm	3m 17s	7m 8s	10m 58s
Deep tissue	30 cm	3m 51s	8m 20s	12m 49s
Deep tissue	40 cm	4m 33s	9m 51s	15m 9s

Joules: Superficial 35.700 J | Deep tissue 136.500 J | Treatment area 4200 cm²

Vivo Lux 300 S.2

Application	Distance	Min	Optimal	Max
Superficial	15 cm	0m 26s	1m 49s	3m 12s
Superficial	30 cm	0m 31s	2m 11s	3m 51s
Superficial	40 cm	0m 36s	2m 32s	4m 28s
Deep tissue	15 cm	3m 12s	6m 57s	10m 41s
Deep tissue	30 cm	3m 51s	8m 20s	12m 49s
Deep tissue	40 cm	4m 28s	9m 40s	14m 53s

Joules: Superficial 23.460 J | Deep tissue 89.700 J | Treatment area 2760 cm²

Vivo Lux 150 S.2

Application	Distance	Min	Optimal	Max
Superficial	15 cm	0m 25s	1m 46s	3m 8s
Superficial	30 cm	0m 31s	2m 11s	3m 51s
Superficial	40 cm	0m 38s	2m 43s	4m 48s
Deep tissue	15 cm	3m 8s	6m 46s	10m 25s
Deep tissue	30 cm	3m 51s	8m 20s	12m 49s
Deep tissue	40 cm	4m 48s	10m 25s	16m 2s

Joules: Superficial 12.240 J | Deep tissue 46.800 J | Treatment area 1440 cm²

Vivo Lux 60 S.2

Application	Distance	Min	Optimal	Max
Superficial	15 cm	0m 31s	2m 11s	3m 51s

Superficial	30 cm	0m 54s	3m 50s	6m 45s
Superficial	40 cm	1m 20s	5m 40s	10m 0s
Deep	15 cm	3m 51s	8m 20s	12m 49s
Deep	30 cm	6m 45s	14m 38s	22m 31s
Deep	40 cm	10m 0s	21m 40s	33m 20s

Joules: Superficial 5.177 J | Deep 19.793 J | Treatment area 609 cm²

Vivo Lux 35 S.2

Application	Distance	Min	Optimal	Max
Superficial	15 cm	0m 35s	2m 29s	4m 23s
Superficial	30 cm	1m 7s	4m 43s	8m 20s
Superficial	40 cm	1m 35s	6m 45s	11m 54s
Deep	15 cm	4m 23s	9m 30s	14m 37s
Deep	30 cm	8m 20s	18m 3s	27m 47s
Deep	40 cm	11m 54s	25m 48s	39m 41s

Joules: Superficial 2.125 J | Deep 8.125 J | Treatment area 250 cm²

Vivo Red Light Cap 2.0

Application	Distance	Min	Optimal	Max
Superficial	0 cm	0m 51s	3m 38s	6m 25s
Deep	0 cm	6m 25s	13m 54s	21m 24s

Joules: Superficial 3.009 J | Deep 11.505 J | Treatment area 354 cm²

Vivo Torch 2.0

Application	Distance	Min	Optimal	Max
Superficial	3 cm	0m 24s	1m 44s	3m 3s
Superficial	20 cm	1m 48s	7m 41s	13m 33s
Deep	0 cm	1m 41s	3m 40s	5m 38s
Deep	3 cm	3m 3s	6m 36s	10m 9s
Deep	20 cm	13m 33s	29m 22s	45m 10s

Joules: Superficial 77 J | Deep 293 J | Treatment area 9 cm²

Your red light therapy plan

A simple guide to getting started with red light therapy.

Your plan in five steps



1. Choose your goal

- Sleep better
- Less lower back pain
- More energy during the day

2. Choose the right device

- Surface area
- Intensity

- Distance or skin contact

3. Use the dosage guide table

- How far from the device
- How long per session

4. Make it a ritual

- Morning or evening
- Or both

5. Build up gently

- Start with the minimum effective dose

How to get started with red light therapy

You now know what red light is, how it works, and what you can use it for. But you might still feel a bit hesitant:

- How do I know if I'm doing it right?
- How often should I use it?
- Can I do something wrong?

Good news: if you start with attention and intention, there's almost nothing you can do wrong. But with the right approach you can achieve much more, faster, safer and without frustration. This chapter helps you through it step by step.

Step 1: choose your goal (and limit yourself to one or two at a time)

Light works broadly, but you don't need to want to improve everything at once. Better to choose one or two clear goals to focus on, that gives you calm and measurable results.

Examples of goals:

- Sleep better
- Less lower back pain
- More energy during the day
- A nicer complexion
- Less trouble with hormonal fluctuations

Choose a goal you truly feel. What would concretely improve your health today?

Step 2: choose the right device

Not every device is suitable for every goal. The difference lies in:

- The area you want to treat (face, back, full body)
- The intensity (for superficial or deeper effect)
- Whether you work with skin contact or distance
- How much time you have per day

Get advice based on your goal, budget and preference, and you'll get a clear overview of suitable models.

Tip: the BioPhoton+ combines power with flexibility. You can use it both at a distance and with skin contact, ideal if you're looking for convenience, effectiveness and versatility in one device.

Step 3: use the dosage guide table

This is where the difference is made: dosage. The dosage guide table for each device on page 6 directly gives you, based on your device and application:

- How far you should sit from the lamp
- How long the session should last

Working smarter means faster results. No guesswork.

Step 4: make it a ritual (routine gives results)

Red light works best with regularity. You don't need to invest hours a day, five to fifteen minutes per session is often enough. But daily or every other day, especially at the start.

Choose one fixed moment:

- Morning, for energy, focus and rhythm restoration
- Evening, for rest, sleep and recovery
- Or both, with shorter sessions at fixed times

Tip: combine it with something you already do, such as brushing your teeth, breathing exercises, meditation or listening to a podcast.

Step 5: build up gently

- Better to start too light than too heavy. So start with the minimum effective dose
- Skin contact is only allowed with devices that are safely tested, such as VIVO's skin-contact models with low EMF and flicker-free design
- Don't use make-up or sunscreen on the skin

A simple healthy foundation and red light are already worth their weight in gold. Once more, in a list:

- Choose your goal
- Select the right device
- Use the dosage guide table
- Plan fixed session moments
- Start gently and build up

And remember: light isn't a quick fix, but a biological stimulus that activates your cells' self-healing capacity. Each session builds on the last, step by step, at the pace your body sets.

Real health can't be forced. It follows a rhythm. Your rhythm.

Frequently asked questions

You now have a good picture of what red light therapy involves. But as with any therapy, there are logical questions. You might still have doubts about safety, applications or effect. Good, that means you're being thoughtful about it.

Below we answer the most frequently asked questions, based on our practical experience and the science.

Is red light therapy safe?

Yes. Red light therapy is a safe method used worldwide, including in hospitals, clinics and sports rehabilitation centres. Red and near infrared light emit no UV radiation and cause no burns or cell damage. All VIVO devices are CE certified, tested for flicker and low EMF. You can use them safely every day, provided the dose is correct.

Can I look into the light?

Red light is visible and pleasant to the eyes, but staring directly into it for long periods isn't necessary or recommended. For applications targeting the eyes or brain: keep your eyes closed. VIVO includes free protective glasses with every device, except the BioPhoton 2.0 due to its mild light output. You can use them for direct facial treatment or if you're sensitive to light.

How often should I use it?

That depends on your goal. Generally: three to seven times a week is ideal for complaints or intensive goals. Once to three times a week is enough for maintenance or prevention. Sessions last four to fifteen minutes on average per zone. The dosage guide table further in this booklet gives concrete, tailored advice per device.

Can I do something wrong?

Rarely in practice. But watch out for these points: don't go too long and too close with a device not designed for it. Don't use make-up or sunscreen during the session, as they can block light. Build up gently, especially with sensitive skin or a reduced energy response.

Can I use it for medical complaints?

Red light therapy is often used to support chronic complaints, inflammation, pain, skin problems and fatigue. But note: in case of pregnancy, cancer, epilepsy or photosensitive conditions, always consult your doctor. Some medication, such as antibiotics or hormones, can cause light sensitivity, consult if in doubt.

Is it also suitable for children or the elderly?

Yes, provided it's correctly dosed and tailored to the user. For children under twelve: preferably use at a distance, unless otherwise indicated. For the elderly: start with shorter sessions. Red light therapy is very suitable for recovery, scars or joint complaints. For cognitive complaints, such as forgetfulness or brain fog, many customers choose an application via the forehead, with eyes closed, two to seven times a week.

Can I combine it with skincare?

Yes, but always use it on clean skin. No SPF, no make-up, no oils during the session. Using a serum or cream afterwards? Choose products without fragrance or alcohol. Red light temporarily makes your skin more receptive, an ideal moment to nourish it, not to irritate it.

Why would I choose VIVO instead of a cheaper lamp?

Good question. The difference isn't in more light, but in the quality, safety and effectiveness of the light.

Is red light therapy the same as infrared (sauna or heat) lamps?

Many heat lamps and infrared saunas use wavelengths above 1000 nanometres (mid or far infrared), which mainly generate heat for sweating and blood flow. Therapeutic red light lamps work in the 600 to 850 nanometre range instead, which targets cell metabolism without heating. VIVO devices barely get warm and you certainly won't sweat from them. A completely different form of therapy, in other words. You can perfectly well use both treatments alongside each other.

- Seven specific therapeutic wavelengths
- Transparent measurement values and dosage guidance
- Low EMF, flicker-free, measurably and noticeably safer
- Sturdy, durable and handmade devices
- Personal advice, genuine customer service, and a complete dosage guide overview

What sets VIVO apart from other providers

You may have already looked around. Online, there are hundreds of red light devices for sale: on bol.com, Amazon, AliExpress or at large wellness stores. They look cheap, sometimes look slick, and all say the same thing: powerful light, visible red, top quality. But as soon as you look a bit closer, or turn the device on, differences appear.

Some you feel. Others you measure. And a few you only notice after weeks.

1. We measure what we say, and say what we measure

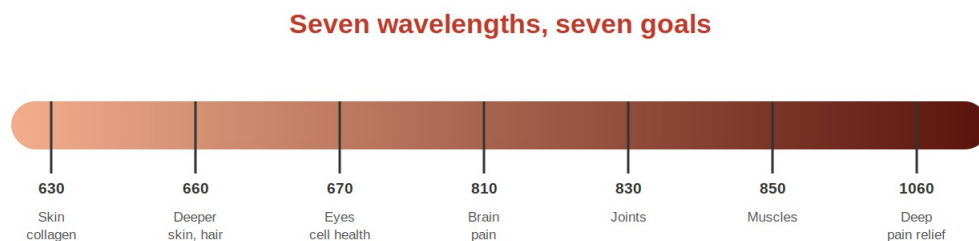
Many providers boast terms like 1000W power or up to 100 mW/cm², but rarely show proof. Light power values are often measured incorrectly with cheap solar power meters, not because they're accurate, but because they give high, impressive-sounding numbers.

At VIVO we do it differently:

- Every device is professionally tested for light intensity at various distances, with reliable equipment and measurement protocols
- You get exact wavelengths and, on the online product page, the full spectrum analysis report
- We're also honest and concrete about EMF and flicker. No vague claims like EMF-free, since that's technically incorrect. We show the actual values, measured at various distances, so you know where you stand

2. Seven unique wavelengths, broader effect than standard panels

Most panels use two or four wavelengths. VIVO uses five to seven, based on scientifically supported studies and biological activity. This lets you cover multiple layers and systems at once in a single session.



VIVO uses five to seven evenly distributed wavelengths, instead of the two or four wavelengths that most other panels use.

Wavelength (nm)	Biological target area
630	Skin surface and collagen
660	Deeper skin layers and hair follicles
670	Eyes and cell health
810	Brain and pain relief
830	Joints
850	Muscles
1060	Pain relief

3. Skin contact possible: for those who want to get the most out of the therapy

With most panels you have to stay 15 to 50 centimetres away. Not with VIVO. The specially designed BioPhoton models are the only panels suitable for safe skin contact thanks to:

- Low electromagnetic field (EMF)
- No flicker or stroboscopic effect
- Optimal heat dissipation without risk of overheating

Why does that matter? Because with skin contact, less light is reflected away and more photons go directly into the skin. Result: shorter sessions, deeper effect, less loss.

4. The power lies in the balance: why VIVO chooses responsible light distribution

Did you know that many LED lamps for red light look impressive on paper but fall short in substance? They claim multiple wavelengths, for example 660, 850 and 810 nanometres, but when you measure, you see that more than 50 percent of the light comes from just one frequency, usually 660 nanometres.

The valuable, deeper-acting wavelengths such as 810 nanometres are often only marginally present, sometimes less than 5 percent, added purely so it can be printed on the packaging: with 810 nm. But

for real effects in your brain, nervous system or for pain modulation, the ratio matters just as much as the presence.

At VIVO we only use clinically relevant wavelengths, in sensible ratios. So you don't just have a nice list on paper, but actually feel the biological effect in your body.

To illustrate: with a standard manufacturer, the light typically comes for about 37.5 percent from 660 nanometres and 37.5 percent from 850 nanometres, with only 12.5 percent from 630 nanometres and 12.5 percent from 810 nanometres. With the VIVO BioPhoton+, the light is evenly distributed instead: roughly 20 percent each across 630, 660, 810, 830 and 850 nanometres.

5. Low EMF and flicker-free: genuinely, measurably safe

EMF, electromagnetic radiation, and flicker, flickering at mains frequency level, are often ignored, until it turns out you're sensitive to them.

- VIVO panels are flicker-free as standard
- EMF at zero to five centimetres from the panel is always safe and sometimes extremely low

No disruptive EMF that burdens your nervous system. For anyone who's sensitive, such as with high sensitivity, sensory sensitivity, burnout or recovery from illness, this makes a world of difference.

6. Sustainable, handmade and honestly designed

- No mass production, no dropshipping, but sustainable, handmade craftsmanship
- Every device is built modularly: that makes it easier to repair and future-proof
- Every unit is genuinely tested before shipping, by people

7. Service the way you'd want it yourself

You don't email an anonymous support team. You get a reply from an experienced specialist.

- Personal answers to your questions
- Thinking along with your health goals
- Knowledgeable customer service, not a call centre with scripts

VIVO compared with many other brands

Feature	VIVO	Many other brands
Transparent measurement values	Yes	Often unclear or not measured
Seven therapeutic wavelengths	Yes	Often two or four
Skin contact possible	Yes	Often not possible
Flicker-free and low EMF	Yes	Often no real measurements
Handmade and sustainable	Yes	Often mass production or dropship products
Personal advice	Yes	Often standard answers via a call centre

What you can do for your health today

Let's summarise the essence one more time, clearly.

What you now know:

- Healthy light isn't a luxury, it's a basic biological need
- Red light works deep at the cellular level, by activating your mitochondria
- Your body uses light as information, to recover, sleep and function
- Dosage is crucial, it's not about more, but about exactly right
- Red light therapy is broadly applicable: from skin and muscles to sleep, brain and hormones
- With the right approach and device, you can start today

Whether you choose a device right away or still have a few questions, we're here for you. Three ways to move forward now:

- Use the dosage guide table: further in this booklet you'll find the recommended distance and treatment time per device, so you don't have to calculate it yourself
- Ask for advice by email or chat: torn between two devices, or want to know what works for your complaints? Feel free to send us a message. You'll get a reply from a human, not a chatbot

Still have questions? We're here for you.

Disclaimer and liability

Red light therapy is generally considered a safe, natural form of treatment that is widely used. Nevertheless, always start with care and attention. If you're currently taking medication, such as antibiotics, painkillers or allergy medication, your skin may become temporarily more sensitive to light as a result. Also in case of pregnancy, questionable skin conditions, epilepsy, cancer or recent use of steroids, whether by injection or ointment, we recommend consulting a doctor or practitioner first.

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Scientific sources

This chapter brings together the studies referenced in the booklet, organised by topic.

Skin contact method: advantages over treatment at a distance

- **Jafari S, Hassan M, Yao C, et al.**

Impact of probe tissue gap and surface curvature on the efficacy of photobiomodulation therapy: an in vitro and computational study.

Biomaterials. 2025;301:122291.

Key finding: even a small distance from the skin leads to significant light scattering, energy loss and reduced penetration depth. Skin contact is crucial for accurate and effective dosing.

- **Hu H, et al.**

Monte Carlo modeling of light transport in skin tissue: implications for photobiomodulation therapy with large beam spot size.

Biomed Opt Express. 2020;11(8):4639-4652.

Key finding: red light therapy with skin contact results in considerably deeper penetration of light photons than when used at a distance. Skin contact minimises reflection and scattering losses.

- **Zein R, Selting W, Hamblin MR.**
Review of light parameters and photobiomodulation efficacy.
Lasers Surg Med. 2018;50(1):7-16.
Key finding: skin reflection causes a large part of the light loss in treatments at a distance. Contact application significantly reduces these losses and increases the effective dose.
- **Xavier M, et al.**
Photobiomodulation therapy on expression of HSP70 protein and tissue repair in collagenase induced Achilles tendinitis in rats.
Lasers Med Sci. 2020;35(1):215-222.
Key finding: skin contact with the treatment surface resulted in increased HSP70 expression, collagen formation and faster tendon healing compared to non-contact application.
- **Domínguez A, et al.**
Photobiomodulation as oedema adjuvant in post orthognathic surgery: a randomized clinical trial.
Orthod Craniofac Res. 2019;22(4):234-240.
Key finding: for post-operative oedema, direct light application proved more effective than treatment at a distance, with faster reduction of swelling and better clinical results.
- **Wang P, et al.**
Comparative analysis of recurrence rates: day light versus red light photodynamic therapy in the treatment of actinic keratosis during a five year follow up.
Photodiagnosis Photodyn Ther. 2025;53:104562.
Key finding: a long-term study shows that skin contact with red light therapy gave a lower recurrence rate than daylight treatment, indicating better absorption and effectiveness with direct application.

Benefits of mild light intensity ('cold light therapy')

- **Hamblin MR.**
Mechanisms of low level light therapy.
Proc SPIE. 2006;6140:614001.
Key finding: low light intensities are often more effective than high intensities due to the biphasic dose response. More is not better.
- **Avci C, et al.**
The influence of photobiomodulation parameters on tissue penetration depth: a computational study.
Biomedicines. 2023;11(5):1355.
Key finding: higher light intensity mainly increases heat in superficial skin layers without additional therapeutic depth effect. Wavelength matters more than intensity.
- **Tuner J, Hode L.**
Laser Phototherapy: Clinical Practice and Scientific Background.
Prima Books AB, 2014.
Key finding: low doses over a longer period are more effective for reducing inflammation and cell growth than short sessions with high intensity, especially for healing processes.
- **Almeida P, Lopes-Martins RÁ, Tomazoni SS, et al.**
Comparison of the effect of low level laser therapy with different dosages and treatment durations on knee osteoarthritis: a randomized controlled trial.
Photomed Laser Surg. 2004;22(4):323-329.
Key finding: a lower dose of red light proved just as effective as a higher dose for reducing knee pain and improving mobility.
- **Oliveira Sato E, Tacani PM, et al.**
Photobiomodulation therapy in patients with fibromyalgia: a randomized, triple blind, placebo controlled clinical trial.
J Lasers Med Sci. 2022;13:e49.
Key finding: at a dose of 25.2 J/cm², significant improvement was found in pain threshold, tissue elasticity and blood pressure in fibromyalgia, without high intensity.
- **Barolet D, Boucher A.**
Prophylactic low level light therapy for the treatment of hypertrophic scars and keloids: a case series.
Laser Ther. 2010;19(1):35-40.
Key finding: at a low dose of 9.4 J/cm², red light therapy led to increased collagen density, fewer fine lines and better skin texture without side effects.

- **Zhao J, Tian Y, Nie J, Xu J, Liu D.**
Red light and the sleep quality and endurance performance of Chinese female basketball players.
J Athl Train. 2012;47(6):673-678.
Key finding: at 30 J/cm², red light therapy improved sleep quality, increased melatonin levels and endurance. Ideal for evening use.
- **de Oliveira MF, et al.**
Whole body photobiomodulation therapy to improve sleep quality, cardiorespiratory performance, and biomarkers after intensive exercise.
Life (Basel). 2022;12(8):1230.
Key finding: at 14.4 J/cm², a lower heart rate, improved HRV and shorter sleep duration were measured after sessions with red/near infrared light, without loss of recovery quality.
- **Zhao R, Huang Y, Zhao Y, et al.**
Dose response relationship in transcranial photobiomodulation for depression: a randomized controlled trial.
Biomed Opt Express. 2024;15(1):47.
Key finding: red light therapy with low intensity (0 to 50 mW/cm²) proved more effective for depression than higher intensity (50 to 100 mW/cm²), in line with the biphasic dose response curve.

Electromagnetic fields (EMF): possible health risks

- **Ahlbom A, Day N, Feychting M, et al.**
A pooled analysis of magnetic fields and childhood leukaemia.
Br J Cancer. 2000;83(5):692-698.
Key finding: a combined analysis of epidemiological studies shows an increased risk of childhood leukaemia with exposure to average magnetic fields above 0.4 microtesla.
- **Yakymenko I, Tsybulin O, Sidorik E, et al.**
Oxidative mechanisms of biological activity of low intensity radiofrequency radiation.
Electromagn Biol Med. 2016;35(2):186-202.
Key finding: low-frequency electromagnetic fields can cause oxidative stress, which can lead to DNA damage, disrupted cell signalling and increased inflammatory activity.
- **Huss A, Spoerri A, Egger M, Rösli M.**
Residence near power lines and mortality from neurodegenerative diseases: longitudinal study of the Swiss population.
Am J Epidemiol. 2009;169(2):167-175.
Key finding: living within 50 metres of high-voltage power lines was associated with an increased mortality risk from Alzheimer's and other neurodegenerative conditions.
- **WHO, International EMF Project.**
Electromagnetic fields and public health: exposure to extremely low frequency fields.
WHO Fact Sheet No. 322, June 2007.
Key finding: the World Health Organization acknowledges that long-term exposure to low-frequency electromagnetic fields is possibly carcinogenic (IARC Group 2B), particularly in relation to childhood leukaemia.

Skin

- **Wunsch A, Matuschka K.**
A controlled trial to determine the efficacy of red and near infrared light treatment in patient satisfaction, reduction of fine lines, wrinkles, skin roughness, and intradermal collagen density increase.
Photomed Laser Surg. 2014;32(2):93-100.
Key finding: increase in collagen density and reduction of wrinkles and skin roughness.
- **Sadick NS.**
A study to determine the efficacy of a novel handheld light emitting diode device in the treatment of photoaged skin.
J Cosmet Dermatol. 2008 Dec.
Key finding: LED therapy against photoaged skin.
- **Kim HK, Choi JH.**
Effects of radiofrequency, electroacupuncture, and low level laser therapy on the wrinkles and moisture content of the forehead, eyes, and cheek.

J Phys Ther Sci. 2017 Feb.

Key finding: effect on wrinkles, skin moisture and elasticity.

- **Baez F, Reilly LR.**
The use of light emitting diode therapy in the treatment of photoaged skin.
J Cosmet Dermatol. 2007 Sep.
Key finding: LED therapy for aged skin.
- **Fan L, Yin R, Lan T, Hamblin MR.**
Photodynamic therapy for rosacea in Chinese patients.
Photodiagnosis Photodyn Ther. 2018 Dec;24:82-87.
Key finding: photodynamic therapy for rosacea.
- **Zane C, Capezzera R, et al.**
Non invasive diagnostic evaluation of phototherapeutic effects of red light phototherapy of acne vulgaris.
Photodermatol Photoimmunol Photomed. 2008 Oct.
Key finding: red light for acne vulgaris.
- **da Silva Melo M, et al.**
LED phototherapy in full thickness burns induced by CO2 laser in rats skin.
Lasers Med Sci. 2018 Sep;33(7):1537-1547.
Key finding: LED for healing deep burns (rat model).
- **Silveira PC, Ferreira KB, et al.**
Effect of low power laser and LED on inflammatory response in burn wound healing.
Inflammation. 2016 Aug.
Key finding: anti-inflammatory effect for burns.
- **Alsharnoubi J, Shoukry K, et al.**
Evaluation of scars in children after treatment with low level laser.
Lasers Med Sci.
Key finding: reduction of scars in children after LLLT.
- **Combination 830 nm and 633 nm LED phototherapy.**
Shows promise in the treatment of recalcitrant psoriasis: preliminary findings.

Key finding: treatment of stubborn psoriasis.
- **Morita H, Kohno J, et al.**
Clinical application of GaAlAs 830 nm diode laser for atopic dermatitis.
Laser Therapy. 1993;5.
Key finding: clinical application for atopic dermatitis.

Pain and inflammation

- **Servetto N, et al.**
Evaluation of inflammatory biomarkers associated with oxidative stress and histological assessment of low level laser therapy in experimental myopathy.
Lasers Surg Med. 2010;42(6):577-583.
Key finding: inflammatory biomarkers in experimental myopathy.
- **Langella L, et al.**
Photobiomodulation therapy (PBMT) on acute pain and inflammation in patients who underwent total hip arthroplasty.
Lasers Med Sci. 2018.
Key finding: pain relief after hip surgery.
- **Lee JH, et al.**
Anti inflammatory effects of low level laser therapy on human periodontal ligament cells: in vitro study.
Lasers Med Sci. 2018;33(3):469-477.
Key finding: periodontal inflammation and LLLT.
- **Angelova A, Ilieva EM, et al.**
Effectiveness of high intensity laser therapy for reduction of pain in knee osteoarthritis.
Pain Res Manag. 2016;2016:9163618.

Key finding: pain reduction in knee osteoarthritis (HILT).

- **Fukuda VO, et al.**

Short term efficacy of low level laser therapy in patients with knee osteoarthritis.

2015 Dec;46(5):526-533.

Key finding: LLLT for knee osteoarthritis, randomised trial.