

THE PROTOCOL GUIDE

Red light therapy, without the guesswork.

A practical breakdown of coverage, wavelengths, session length, and what to look for before buying.

HEALTH CANADA CLASS II

FDA REGISTERED

MADE IN CANADA

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Every quantitative claim in this guide is anchored to peer-reviewed research linked from thehale.ca/science. When the evidence is preliminary, we say so.

HOW TO USE THIS GUIDE

A 5-minute read before your first session.

Most red light therapy questions come down to four variables: which wavelengths the device delivers, how much energy it puts on your tissue, how long each session lasts, and how often you treat. This guide walks through each in plain language and gives you a checklist for evaluating any panel against the same criteria.

Every claim in this document is anchored to peer-reviewed research linked from thehale.ca/science. If a benefit is not supported by a clinical study, we say so or omit it.

WHAT YOU'LL FIND INSIDE

- Coverage: how to match panel size to the treatment area, not just LED count.
- Wavelengths: which colors of light reach which tissues, with a printable depth chart.
- Dose: the biphasic curve that explains why more light is not always better.
- Session length: realistic timings for daily use and clinical protocols.
- A buying checklist: six specs to verify before you spend.

ABOUT HALE HEALTH

Hale Health makes Health Canada Class II licensed red light therapy panels assembled in Canada. The RLPro series covers eight wavelengths from 630 to 1060 nm and delivers verified irradiance of 197 mW/cm² or higher at six inches. Health Canada licensure is a clinical-device standard most consumer brands do not hold.

PART 01

The fundamentals.

Two variables most buyers never think about: how much of the body the panel reaches, and which wavelengths it actually delivers.

SECTION 1

Coverage: panel size matters more than LED count.

A panel with 1,500 LEDs in a small footprint will deliver intense light to a tiny area. A panel with 1,500 LEDs spread across a body-length surface will deliver less per square centimeter but reach more tissue per session. Both have valid use cases. The marketing number that matters is irradiance at treatment distance combined with the active emission area, not the raw LED count.

THREE COVERAGE TIERS

- Targeted (face, joint, shoulder): a single 30-50 cm panel at six inches. Sessions are short and focused. Best for skin, post-injury joint work, and morning hormonal-light exposure.
- Sectional (back, full leg, torso): a 90-120 cm panel covers half the body per position. Most consumer use sits here. Two positions per session covers the whole body in roughly 20 minutes.
- Full-body (front and back coverage simultaneously): a 180+ cm panel like the Hale RLPro 2000 reaches the entire front torso and legs in one position. Clinical operators favor this format because it removes patient repositioning and increases room throughput.

DISTANCE CHANGES EVERYTHING

Light intensity falls with the inverse square of distance from the panel. A panel rated 200 mW/cm² at three inches will deliver roughly 50 mW/cm² at twelve inches. Manufacturers who only publish the peak irradiance at the closest possible distance are technically not lying, but the number is not what you experience in real use. Always ask for irradiance at your actual treatment distance.

KEY TAKEAWAY

A 189 cm Hale RLPro 2000 covers the entire front torso and both legs in a single position. Most consumer panels need two or three repositionings to reach the same area, which silently triples session time.

SECTION 2

Wavelengths: red for skin, near-infrared for depth.

Different wavelengths of red and near-infrared light are absorbed at different depths in the body. The poster on the next page summarizes the standard penetration ranges. The rule of thumb is straightforward.

THE FOUR WORKING BANDS

- 660 nm (visible red): one to two millimeters. Skin work — wrinkles, scars, stretch marks, surface inflammation, fibroblast and collagen stimulation.
- 810 nm (near-infrared): five to ten millimeters. Superficial muscle, fascia, lymphatic, and transcranial applications.
- 850 nm (near-infrared): fifteen to twenty millimeters. Deeper muscle, joint capsule, tendon, and ligament work. The workhorse wavelength for recovery.
- 1060 nm (near-infrared): the deepest commonly used wavelength in the photobiomodulation window. Reaches large joint structures and bone marrow at the upper end of the published depth range. Less common in consumer panels; standard on the Hale RLPro series.

WHY MULTI-WAVELENGTH PANELS MATTER

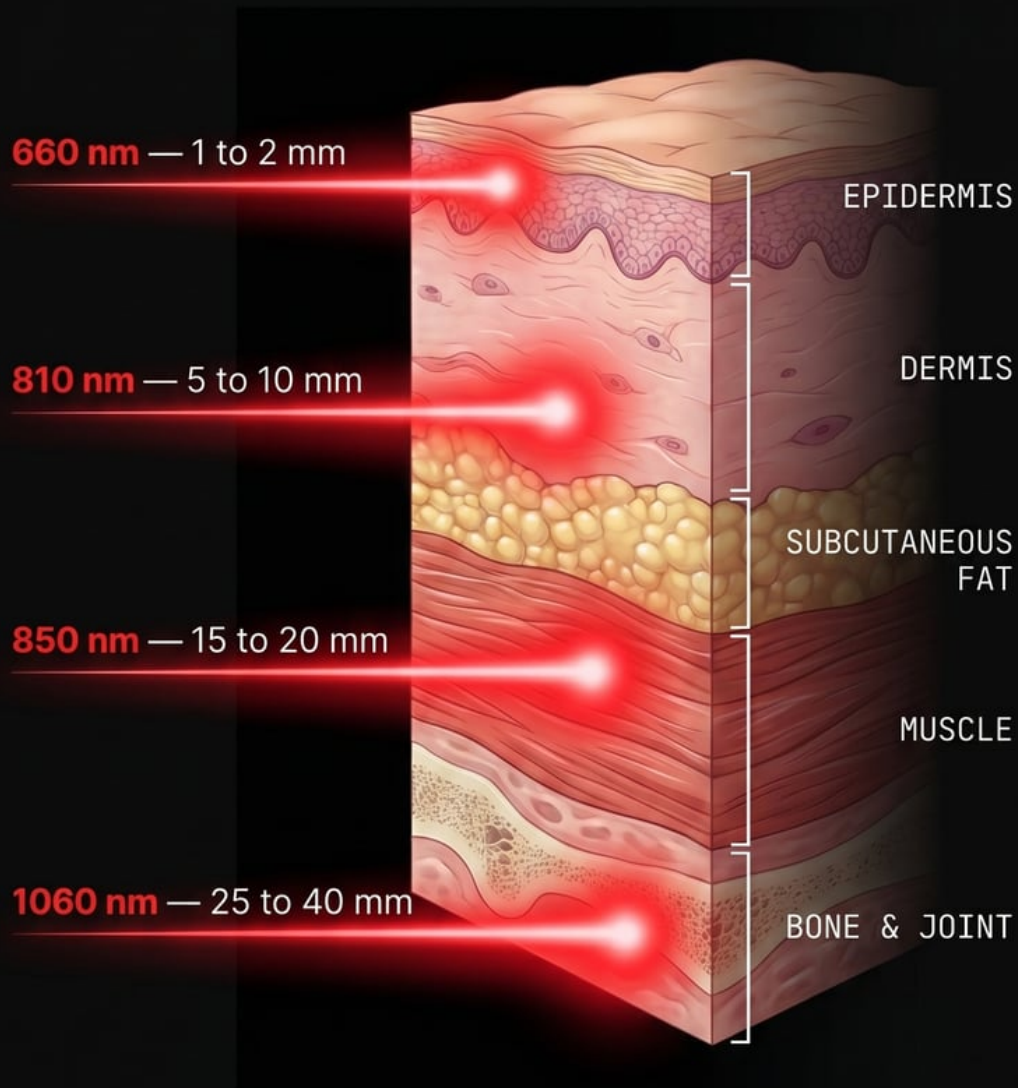
Most affordable panels deliver only 660 and 850 nm. Those two wavelengths cover roughly 80% of common use cases, which is why the pairing became standard. But cytochrome c oxidase, the primary photoacceptor in the mitochondria, has multiple absorption peaks across the 600 to 1100 nm range. Panels that deliver more wavelengths in this window engage more of those peaks per session.

HALE SPECIFICATION

Eight wavelengths: 630, 650, 660, 670, 810, 830, 850, and 1060 nm. The 1060 nm channel is rare in consumer panels and standard across the RLPro series.

WAVELENGTH MEETS DEPTH

How red light reaches each tissue



PART 02

The practice.

Dose response is the only part of red light therapy where more is genuinely worse. The next four sections explain why, and what a real session looks like.

SECTION 3

Dose and session length: the sweet spot is narrower than you think.

Photobiomodulation follows a biphasic dose-response, often called the Arndt-Schulz curve. Too little light produces no effect. The right amount triggers ATP production, collagen synthesis, and inflammatory modulation. Too much can reverse the response and inhibit the same pathways. The poster two pages from here summarizes the curve.

WHY 197 MW/CM² CHANGES THE MATH

Most consumer-grade red light therapy panels deliver 15 to 30 mW/cm² at six inches. At those numbers, you need five to ten minutes per area just to reach the lower edge of the therapeutic dose range. The Hale RLPro series measures 197 mW/cm² at the same distance — roughly five to thirteen times the output of a typical consumer panel. That changes what a session looks like.

TIME TO 10 J/CM² AT 6 INCHES

- Cheap consumer panel at 15 mW/cm²: about 11 minutes per area.
- Mainstream competitor at 100 mW/cm²: about 1 minute 40 seconds per area.
- Hale RLPro at 197 mW/cm²: about 51 seconds per area.

SECTION 3 CONTINUED

What a real Hale session looks like.

- Skin and surface work (face, scars, wrinkles): 1 to 3 minutes at 6 to 8 inches. Hits the therapeutic optimum without crossing into inhibition.
- Muscle and joint recovery: 3 to 5 minutes per area at 12 inches. Delivers roughly 24 to 48 J/cm² to deep tissue.
- Full-body (front and back): typically 8 to 12 minutes total. Two positions on a Hale RLPro 2000, no repositioning on an RLPro 1200 mounted high.
- Frequency: three to five sessions per week. Daily is fine but not necessary at this irradiance.

WHEN TO ADJUST

- Skin treatment: shorter sessions at closer distance (6 inches, 1 to 3 minutes). 660 nm dominates here.
- Deep tissue, recovery, joint: longer sessions at moderate distance (10 to 12 inches, 5 to 8 minutes). 850 and 1060 nm dominate.
- Sensitive or photosensitive skin: start at half the recommended session length and progress over two weeks.

THE SINGLE MOST COMMON MISTAKE

Treating for an hour expecting "more is better." The biphasic curve means doses above roughly 50 J/cm² in a single session can suppress the same response you are trying to stimulate. Short, consistent sessions beat long, occasional ones.

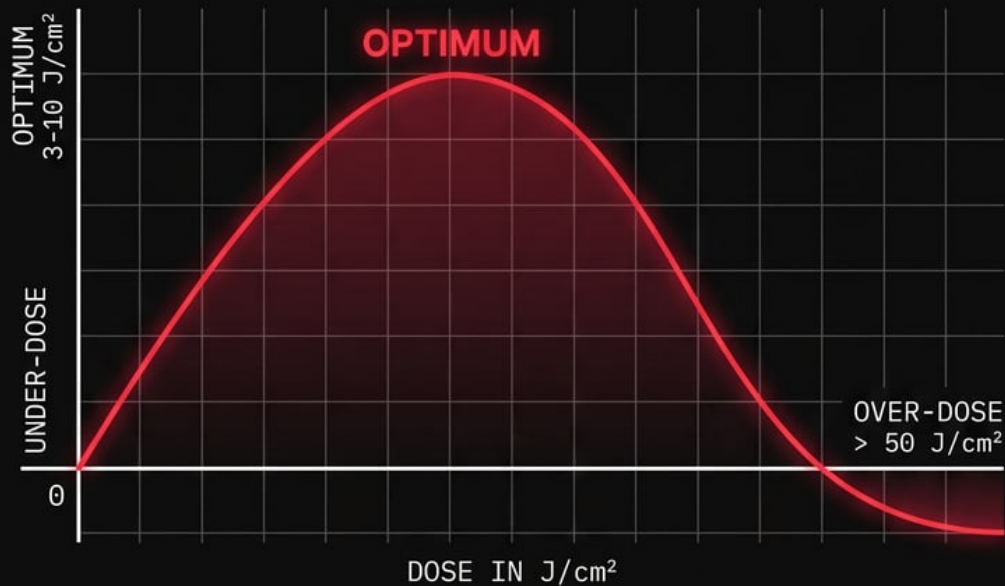
PRACTICAL RULE

If your session feels like a chore, you are probably doing more than the science calls for. Five minutes of focused exposure beats an hour of half-attention every time.

Hale Health.

FAST DOSE. RIGHT DOSE.

WHY 197 mW/cm² MATTERS



TIME TO 10 J/cm² AT 6 INCHES

Cheap consumer panel	15 mW/cm ²	11 min
Mainstream competitor	100 mW/cm ²	1 min 40 sec
HALE RLPRO	197 mW/cm²	51 sec

Sweet spot in 3-5 min at 12 in

Or 1 min at 6 in for skin work

Shorter sessions = no over-dose risk

SECTION 4

Six things to verify before you spend.

Red light therapy panels span from \$200 desk units to \$7,000+ clinical full-body systems. Within any price tier, the differences in actual delivered therapy can be order-of-magnitude. The poster a few pages from here distills six specs that matter; the notes here explain why each one made the list.

1. MULTI-WAVELENGTH ARRAY

A minimum of four discrete wavelengths. Two-wavelength panels (660 + 850) work but cover less of the absorption spectrum. The RLPro series uses eight wavelengths because the absorption peaks of cytochrome c oxidase are not all at the same nanometer.

2. VERIFIED IRRADIANCE AT TREATMENT DISTANCE

Brands often quote peak irradiance "at the surface" of the LED, which no one actually treats at. Ask for the number at six or twelve inches. Anything under 50 mW/cm² at six inches is sub-therapeutic for deep-tissue work.

3. HEALTH CANADA OR FDA CLEARED

Health Canada Class II licensure is a higher bar than FDA establishment registration. Both indicate the device has passed a regulatory review, but Class II involves clinical performance assessment. For commercial buyers (clinics, studios), licensure is what your insurer and provincial regulator expect.

SECTION 4 CONTINUED

Specs 4 through 6.

4. LOW EMF AT TREATMENT DISTANCE

Electromagnetic field emission is a legitimate concern at the panel surface where LED drivers run. Quality manufacturers test and publish EMF measurements at the intended treatment distance, not just at the surface. Cheap panels often show order-of-magnitude higher EMF right at the panel face and never disclose treatment-distance measurements at all.

5. LOCAL WARRANTY AND SERVICE

Cross-border returns on a \$4,000 device that ships from the US to Canada are punishing. A Canadian warranty service network is worth more than headline price differences. Hale ships from inventory in Ontario and the warranty is fulfilled in Canada — a single email, not a freight return through US customs.

6. INDEPENDENTLY PUBLISHED REVIEWS

Look for third-party measurements (Reddit r/redlighttherapy testers, athletic-performance reviewers, dermatologist YouTube channels). Anyone who has measured an actual irradiance number with a calibrated meter beats anyone quoting marketing claims.

BEFORE YOU BUY

PANEL CHECKLIST



- ✓ Multi-wavelength array (4 or more bands)
- ✓ Verified irradiance at treatment distance
- ✓ Health Canada or FDA cleared
- ✓ Low EMF at treatment distance
- ✓ Local warranty and service network
- ✓ Independently published reviews

CLOSING

Where to go from here.

You now have the working vocabulary that most red light therapy buyers never learn. The four variables — wavelength, irradiance, session length, frequency — are all you need to evaluate any panel against any other.

IF YOU WANT TO GO DEEPER

- The Science page (thehale.ca/science) walks through the cellular mechanism with peer-reviewed citations.
- The Hale RLPro series (thehale.ca/panels) is the eight-wavelength panel built around everything in this guide.
- The Blog (thehale.ca/blog) covers condition-specific protocols: shoulder pain, wrinkles, neuropathy, recovery, and more.
- For clinics and studios: thehale.ca/for-businesses has the deployment and pricing notes.

QUESTIONS

Reply to the email this guide came in, or write to hello@thehale.ca. A real human reads everything; we answer within one business day.

CITATIONS AND METHODOLOGY

Every quantitative claim in this guide is anchored to research catalogued at thehale.ca/science. Foundational citations: Karu 2008 (cytochrome c oxidase mechanism), Huang and Hamblin 2009 (biphasic dose-response), de Freitas and Hamblin 2016 (mechanism review), Wunsch and Matuschka 2014 (skin RCT), Avci et al. 2013 (LLLT in skin review).