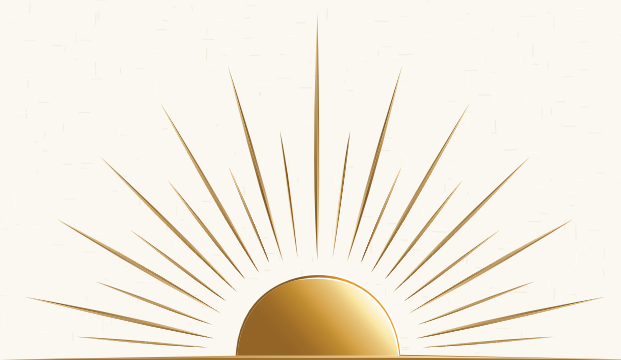


RECOVER
PERFORM
RECHARGE
BE YOUR BEST



AWAKEN

— RED LIGHT —

WELLNESS. ILLUMINATED.

CLIENT RESEARCH GUIDE

Athletic Performance & Recovery

RED LIGHT THERAPY / PHOTOBIOMODULATION

Selected published research, clinical findings & practical insights



FASTER
RECOVERY



IMPROVED
PERFORMANCE



LESS
SORENESS



OPTIMAL
WELLNESS



AWAKEN RED LIGHT | CLIENT RESEARCH GUIDE

Red light therapy for athletic performance & recovery

19 research papers, plus documented use in professional sports

The evidence supports a promising, protocol-dependent role for photobiomodulation (PBM), especially for muscle endurance and some recovery outcomes. Direct proof for full-body beds improving sporting performance remains limited.

The strongest positive results often involve a small laser or LED cluster placed directly over working muscles before exercise. A commercial full-body bed changes the delivery, dose and exposure geometry; benefits cannot be assumed to transfer unchanged. [1-4, 7]

QUESTION

WHAT THE EVIDENCE SUPPORTS



Muscle endurance / repetitions

Positive pooled findings; usually modest, with low certainty in several reviews. [1-4]



Soreness / strength recovery

Promising but variable; timing, outcome and device matter. [1, 2, 10]



Running / race performance

Pooled running studies do not show a reliable benefit. Cycling time-to-exhaustion is more promising than race performance. [4, 5]



Full-body beds

Sparse, mixed evidence. Some sleep or HRV signals; objective performance benefits are unproven. [7, 15-17]



Injury / return to sport

Pain may improve. Controlled evidence has not established faster return to play. [6, 19]

How this brief was selected

A targeted public-source search prioritized systematic reviews, placebo-controlled human trials, actual athletes, and research matching whole-body devices. Positive and null findings are included. This is a curated evidence brief, not an exhaustive systematic review. Several entries were assessed from published abstracts; accessible full text was checked for key details. No new pooled analysis was performed.

The numbered studies below provide the sources for the evidence map. Review populations overlap; their sample sizes must not be added together. Team announcements and testimonials document use, not treatment efficacy.

The main positive evidence

01 Pre-exercise PBM: muscle endurance and recovery

Li et al. | Lasers in Medical Science, 2024
Meta-analysis: 34 randomized trials

PBM before exercise improved muscle endurance (standardized mean difference 0.31) and strength recovery (0.24), and lowered creatine kinase, a blood marker associated with muscle damage. The functional effects are small by common statistical conventions. Results varied with training status.

Use: A useful broad reference for potential muscle endurance and recovery benefits. Lower blood markers do not establish fewer injuries or a faster race time.

[Read the research](#) ↗

02 Recovery, soreness and competing modalities

Canez et al. | Journal of Bodywork and Movement Therapies, 2025
19 studies, 672 participants across all modalities

The review assessed PBM, pneumatic compression and electrical stimulation. It found low-certainty evidence that PBM before exercise reduced soreness, with improved muscle performance at 24 hours after exercise-induced damage.

Use: Relevant to recovery discussions, particularly pre-exercise treatment. The 672 participants were not all in PBM trials. This does not establish that a bed-plus-compression package reproduces those results.

[Read the research](#) ↗

03 Resistance exercise: number of repetitions

Aguirra et al. | Lasers in Medical Science, 2025
Meta-analysis: 12 studies, 346 participants

The pooled difference favored PBM by 3.87 repetitions versus placebo (95% confidence interval 1.06 to 6.69). Effects were larger in upper-limb than lower-limb exercise. The authors rated evidence certainty as low or very low.

Use: A concrete muscle-endurance result. It is not a prediction that every client gains four repetitions, and it does not prove muscle growth or increased one-repetition maximum.

[Read the research](#) ↗

Performance depends on the test

04 Exercise-specific performance

Dutra et al. | Sports Medicine, 2022

37 studies, 586 participants

This review restricted inclusion to double-blind, placebo-controlled crossover studies. It found benefits for single-joint muscle endurance and cycling time-to-exhaustion, but not cycling all-out sprints, running tests or swimming time trials.

Use: Particularly relevant to cyclists and triathletes. Riding longer to exhaustion in a laboratory does not demonstrate a higher FTP or faster 40 km time trial.

[Read the research ↗](#)

05 Running performance: no pooled benefit

do Nascimento et al. | International Journal of Exercise Science, 2024

Meta-analysis: 12 studies

There was no statistically significant overall improvement in running time-trial or time-to-exhaustion performance (standardized mean difference 0.13; $p = 0.11$). Combining PBM with training did not change the conclusion.

Use: An essential counterweight to individual positive running studies. Avoid promising faster marathon, 5 km or Ironman run times from this evidence.

[Read the research ↗](#)

06 Injured athletes: pain and return to play

Morgan et al. | Journal of Strength and Conditioning Research, 2024

6 randomized trials, 205 athletes

The pooled analysis favored PBM for pain reduction. However, the two randomized trials that assessed return-to-play time did not support a benefit.

Use: Distinguish symptom relief from injury healing and clearance to compete. This review is stronger evidence for evaluating return-to-play claims than uncontrolled before-and-after case series. The published abstract was available through the PEDro research record.

[Read the research ↗](#)

[Morgan review: accessible abstract and research record ↗](#)

Whole-body evidence and other major reviews

07 Whole-body PBM: direct relevance to beds

Alvarez-Martinez & Borden / Lasers in Medical Science, 2025
5 studies, 105 participants

The review found no consistent exercise-performance or fatigue-biomarker benefits from whole-body PBM. Some studies reported sleep-related improvements.

Use: This is the key review for judging how much the broader PBM literature supports a bed. Individual recovery signals exist, including the next-morning HRV finding in study 16, but a reliable overall athletic benefit is not established.

[Read the research ↗](#)

08 Foundational performance and fatigue review

Vanin et al. / Lasers in Medical Science, 2018
39 trials, 861 participants; 28 trials pooled

Some pooled outcomes favored PBM, with evidence ranging from very low to moderate quality. Small samples and substantial variation in exercise and light-delivery protocols limited confidence.

Use: A broad starting reference showing why wavelengths, treatment location and dose must accompany any claim about results.

[Read the research ↗](#)

09 Functional performance: mixed findings

Bezerra et al. / Lasers in Medical Science, 2024; online December 2023
16 studies, 340 participants

The review reported improved fatigue recovery but no demonstrated improvement in strength or short- or long-term functional capacity.

Use: Recovery, maximum strength and practical athletic performance are separate outcomes. Evidence for one should not be presented as proof of the others.

[Read the research ↗](#)

10 Newest soreness and strength-recovery review

Zhao et al. / Science & Sports, online August 2026, article in press
13 randomized trials

Reported benefits varied by measurement: soreness ratings improved immediately and at 24 hours; pressure-pain and torque outcomes favored PBM at additional time points. The abstract describes GRADE assessment but does not state its final certainty ratings.

Use: A recent positive reference, interpreted cautiously. Do not promise a fixed 72-hour soreness benefit or equate pooled torque differences with a percentage performance gain.

[Read the research ↗](#)

Controlled trials in athletes

11 High-level rugby: repeated sprint test

Pinto et al. | *Journal of Strength and Conditioning Research*, 2016
12 male athletes; blinded crossover trial

Treatment before exercise improved average sprint time and fatigue index, with lower perceived fatigue and changes in blood lactate. Researchers treated 17 sites on each leg using a localized laser/LED cluster (640, 875 and 905 nm; 30 Jper site).

Limit: Small field-test study, not full-season injury or match-outcome evidence. A manufacturer-affiliated author participated.

[Read the research ↗](#)

12 High-level soccer: maximal treadmill test

Tomazoni et al. | *Oxidative Medicine and Cellular Longevity*, 2019
22 male players from one team; triple-blind crossover trial

Pre-exercise infrared laser treatment improved time-to-exhaustion and measured oxygen-uptake outcomes, with favorable changes in several muscle-damage and oxidative-stress markers.

Limit: Acute laboratory testing with localized treatment. It does not establish a lasting VO2 max increase, better match performance or equivalent results from a full-body bed.

[Read the research ↗](#)

13 Professional futsal: actual competitive matches

De Marchi et al. | *Lasers in Medical Science*, 2019; online 2018
6 professionals; triple-blind crossover trial

A localized laser/LED cluster was applied to 17 sites on each leg, 40 minutes before matches. Players spent more time on the court and had favorable biochemical recovery measures, but distance covered did not significantly increase.

Limit: Especially relevant as a real-match example, but only six players. Court time also depends on substitutions and coaching decisions.

[Read the research ↗](#)

14 CrossFit: recovery after a demanding workout

Martins et al. | *PLOS One*, May 2026
12 athletes; randomized crossover trial

PBM combined with a static magnetic field was compared with passive recovery, compression and shockwave therapy. The primary outcome, jump height at one hour, did not differ. Secondary jump and biochemical outcomes favored the combination at 24-48 hours versus passive recovery.

Limit: No sham-light arm; small sample; combined intervention; disclosed manufacturer research support. This cannot establish the effect of light alone.

[Read the research ↗](#)

What full-body treatment has actually shown

15 Whole-body light bed: muscle-damage markers

Ghigiarelli et al. | Frontiers in Sports and Active Living, 2020
12 trained men; randomized crossover study

Whole-body treatment was applied before and after a high-intensity resistance-training session. It did not significantly reduce overall creatine kinase or salivary interleukin-6 responses compared with control.

Use: A direct bed study that prevents overextending the favorable localized-treatment literature. It assessed selected biomarkers, not every possible benefit.

[Read the research ↗](#)

16 Whole-body PBM: cycling and next-day HRV

Forsey et al. | Lasers in Medical Science, 2023
48 active adults; single-blind randomized crossover study

Twenty minutes before repeated Wingate cycling tests did not improve power output, lactate or perceived recovery. Next-morning HRV (rMSSD) was higher following PBM than placebo.

Use: A potentially useful recovery signal in a comparatively larger whole-body study. Higher HRV on one morning is not proof of improved muscle repair, race results or sustained readiness.

[Read the research ↗](#)

17 Elite female basketball: sleep quality

Zhao et al. | Journal of Athletic Training, 2012
20 Chinese army-team players; light and placebo groups

Thirty minutes of whole-body red light nightly for 14 days improved subjective sleep scores and morning serum melatonin. The full-text running analysis reported no significant group-by-time interaction ($p = 0.22$), despite stronger wording in the abstract.

Use: A small preliminary sleep study. Do not cite it as clear proof of improved endurance, or assume its nightly 30-minute protocol applies to another device.

[Read the research ↗](#)

[Basketball study: full paper with the endurance analysis ↗](#)

Practical implication for Awaken

The whole-body findings justify continued study and a measured discussion of recovery support. They do not yet justify treating full-body beds as a proven way to increase speed, power or endurance. Similar wavelengths alone do not establish equivalent muscle exposure. [7, 15-17]

Injury-related examples and evidence quality

18 Soccer hamstrings: less immediate fatigue

Dornelles et al. | Lasers in Medical Science, 2019
12 amateur male players; placebo-controlled crossover trial

Localized PBM (300 J per thigh) before a simulated match was associated with smaller declines in hamstring eccentric torque and jump height. Hamstring torque declined 4.85% with PBM versus 8.72% with placebo.

Limit: The study measured fatigue, not actual injury incidence. Its magnitude-based inference analysis warrants caution. The title suggests prevention, but it does not prove prevention of hamstring tears.

[Read the research](#) ↗

19 Lehigh University: injury return-to-play pilot

Foley et al. | Laser Therapy, 2016
Uncontrolled university-athlete case series

Across 395 treated injuries, complete treatment and follow-up data were available for 65 participants. Their average return-to-play time was 9.6 days versus an anticipated historical estimate of 19.23 days.

Limit: No concurrent control group and substantial incomplete follow-up. This is a real-world case series, not proof that PBM halves recovery time. The later controlled-trial review in study 6 did not establish a return-to-play benefit.

[Read the research](#) ↗

How to interpret the collection

Device and timing: Many positive protocols use direct treatment over selected muscles before exercise. A study of pre-exercise treatment cannot automatically support a post-exercise service. [1-4, 11-14]

Endpoints: Lower creatine kinase, improved HRV, reduced soreness and a faster race time measure different things. Favorable biomarkers are supportive signals, not interchangeable proof of athletic improvement. [1, 5, 15, 16]

Independence: Several positive trials share investigators, and some disclose manufacturer relationships. This does not invalidate a result, but independent replication is valuable. Study 14 expressly discloses manufacturer research support; study 11 lists a manufacturer affiliation.

Certainty: Small studies and heterogeneous protocols are common. A review can pool randomized trials and still produce low-certainty evidence. The ratings in studies 2, 3 and 8 make that explicit.

A guided full-body light experience

Awaken's bed brings red and near-infrared LEDs into a surrounding full-body chamber, with integrated cooling and guided session controls.

RED LIGHT

633 nm | 660 nm

NEAR-INFRARED LIGHT

810 nm | 850 nm | 940 nm

43,200

LED LIGHT SOURCES

360°

CHAMBER COVERAGE

32 + 1

COOLING FANS

A connection to the red-light research

The bed includes 633 nm and 660 nm, wavelengths used in selected positive studies in this guide. Those studies delivered light directly to specific treatment areas. [2, 4, 12]

Comfort and control during your visit

Integrated cooling, a dedicated body fan and Bluetooth audio support a comfortable experience. Staff can manage sessions through tablet controls, and the bed includes a built-in emergency stop.

Connecting the technology to the studies: These papers used targeted LEDs or low-level lasers at specific doses; several used 830 nm, which differs from the bed's listed wavelengths. Shared red wavelengths provide a research connection, but the exact Awaken bed and its presets were not tested in these studies.

Manufacturer-reported details: 129 mW/cm² irradiance at zero distance and 6,000 W rated machine power. Equipment ratings alone do not establish a clinical treatment dose or healing result.

[Manufacturer specifications](#) ↗

Additional leads and application to Awaken

Additional professional teams named by a supplier

NovoTHOR publicly lists these organizations among its users. These are **manufacturer-reported examples**; this brief does not independently verify current equipment inventories, usage frequency or team outcomes.

NFL Buffalo Bills; Arizona Cardinals; Carolina Panthers; Detroit Lions; Washington Commanders

NBA Indiana Pacers; LA Clippers; Phoenix Suns; Toronto Raptors; Utah Jazz

NovoTHOR team listing [↗](#)

Athlete video material

NovoTHOR's performance page includes a video featuring coach Dennis Mitchell and athletes Justin Gatlin, Murielle Ahoure and Kaylin Whitney discussing their experiences. This is useful first-person testimonial material, hosted by a manufacturer. It does not demonstrate efficacy or endorsement of Awaken.

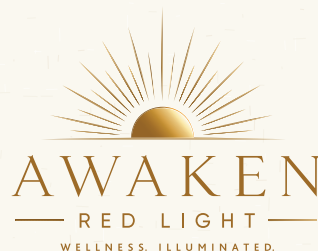
NovoTHOR athlete video and performance page [↗](#)

Best starting set

For research: studies 1, 2, 3, 4 and 7. For real athletes: studies 11, 12 and 13. For injury claims: study 6. For public examples: the official 49ers and Falcons pages and the Aces video.

What I would emphasize for Awaken

- ★ **Lead with the research question.** Explain that red and near-infrared light are being studied for muscle fatigue, soreness and recovery. Present promising results alongside the uncertainty for full-body delivery. [1-4, 7, 10]
- ★ **Attribute professional use precisely.** The 49ers and Falcons provide team-authored documentation; the Aces provide a relevant bed example. Identify the actual source and device when available. Use of another device by a team does not validate Awaken's equipment or program.
- ★ **Match claims to the actual bed.** Before choosing a study as product substantiation, compare wavelengths, irradiance at the body, energy density, distance/contact, treatment duration and timing. None of the studies in this brief establishes the outcome of Awaken's exact bed and session protocol. [7, 8, 15-17]
- ★ **Keep outcome tracking practical.** For an optional internal pilot, track session timing, training load, next-day soreness and perceived readiness consistently. Such observations can improve service design but should remain labeled as uncontrolled client experience.



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*Make wellness a ritual.
Make time for yourself.*



RESTORE



RECHARGE



RENEW

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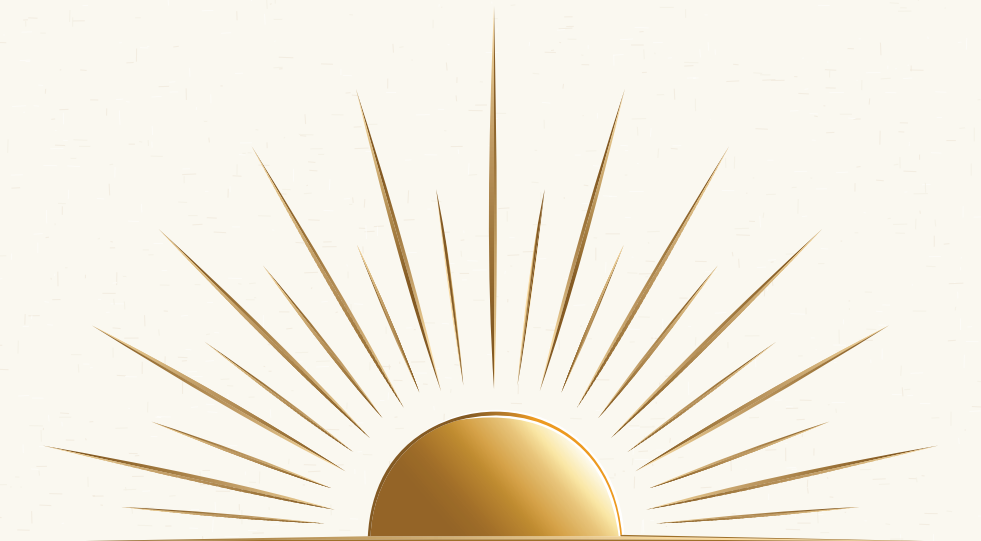
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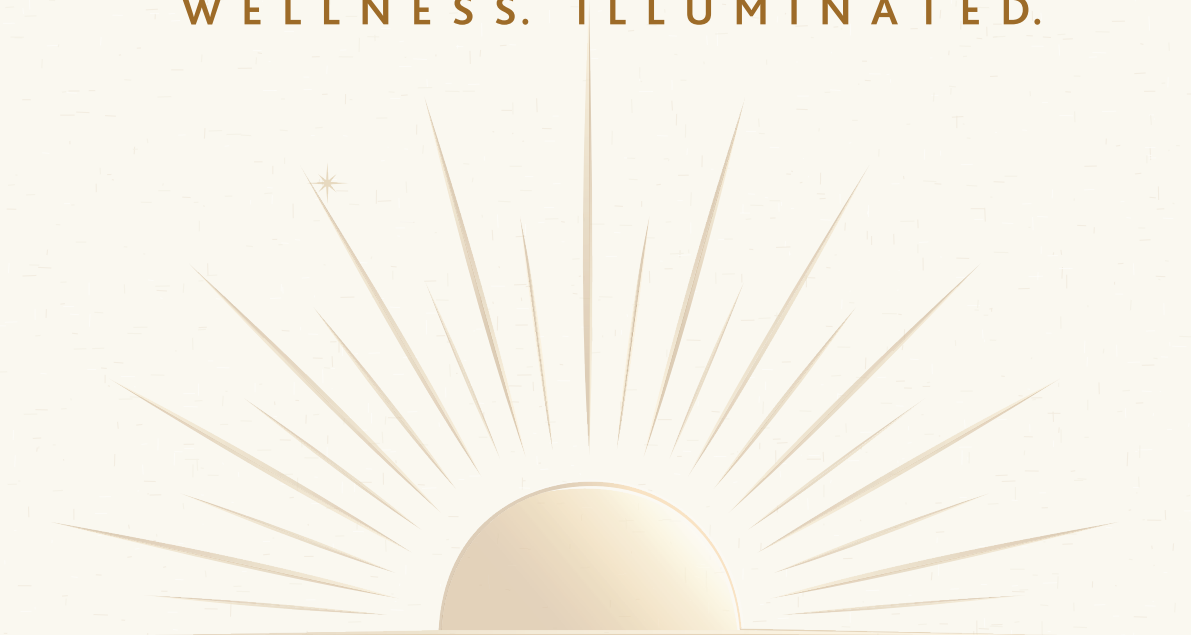
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