



MedWave™

OPTIMUM-100S · RED LIGHT THERAPY

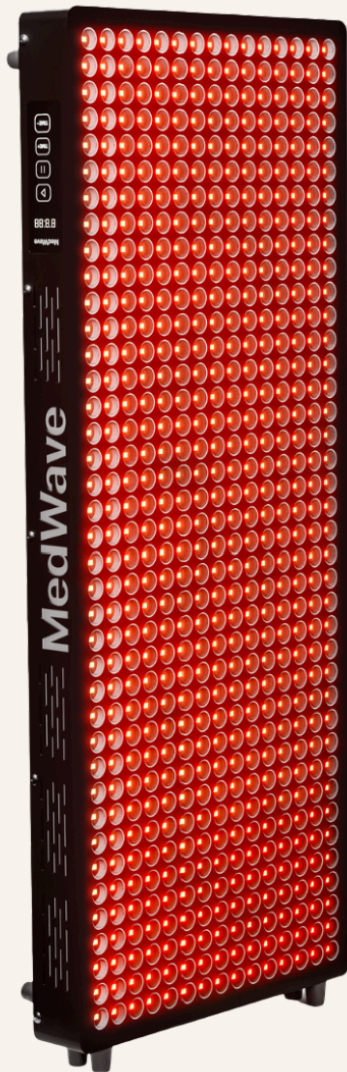
Wound Healing & Recovery

Precision **635nm photobiomodulation** to accelerate wound healing, reduce inflammation and support tissue regeneration.

● SAHRA REGISTERED MEDICAL DEVICE ESTABLISHMENT

www.medwavegroup.com

Advanced Wound *Healing*



The Optimum-100S is a clinical-grade red light therapy system that delivers precise 635nm red light to accelerate wound healing, reduce inflammation and stimulate tissue regeneration — without needles, medication or downtime.

CLINICAL USES:

- Chronic diabetic ulcers
- Venous leg ulcers
- Post-surgical wound recovery
- Pressure injuries
- Soft-tissue trauma
- Slow-healing wounds

Non-thermal photonic energy triggers cellular repair at the mitochondrial level — supporting wound closure even in metabolically impaired patients.

• MECHANISM OF ACTION

How PBM *Works*

At 635nm, red light is absorbed by cytochrome c oxidase in the mitochondria and latent tissue growth factors throughout the skin — triggering a cascade of cellular repair.

Boosts cellular energy

Stimulates ATP production in the mitochondria, powering cell metabolism and repair.

Enhances tissue repair

Promotes fibroblast proliferation and collagen synthesis for stronger tissue regeneration.

Improves circulation & oxygenation

Increases local circulation and tissue oxygenation to support healthy wound closure.

Modulates inflammation

Reduces oxidative stress and modulates key inflammatory markers.

The result: accelerated epithelialisation, reduced necrosis and supported wound closure — even in metabolically impaired patients.



• THE SYSTEM

The *Optimum-100S*

A precision red light therapy system engineered to deliver clinical-grade photobiomodulation for advanced wound care and inflammation modulation.

Wide therapeutic range

Customisable intensity and duration support protocols for diverse wound types and tissue sensitivities.

Simple clinical interface

One-button operation for clinical environments — fast, consistent and easy to train across staff.

Protocol-guided therapy

Clinical strategies for a range of wound and tissue types.



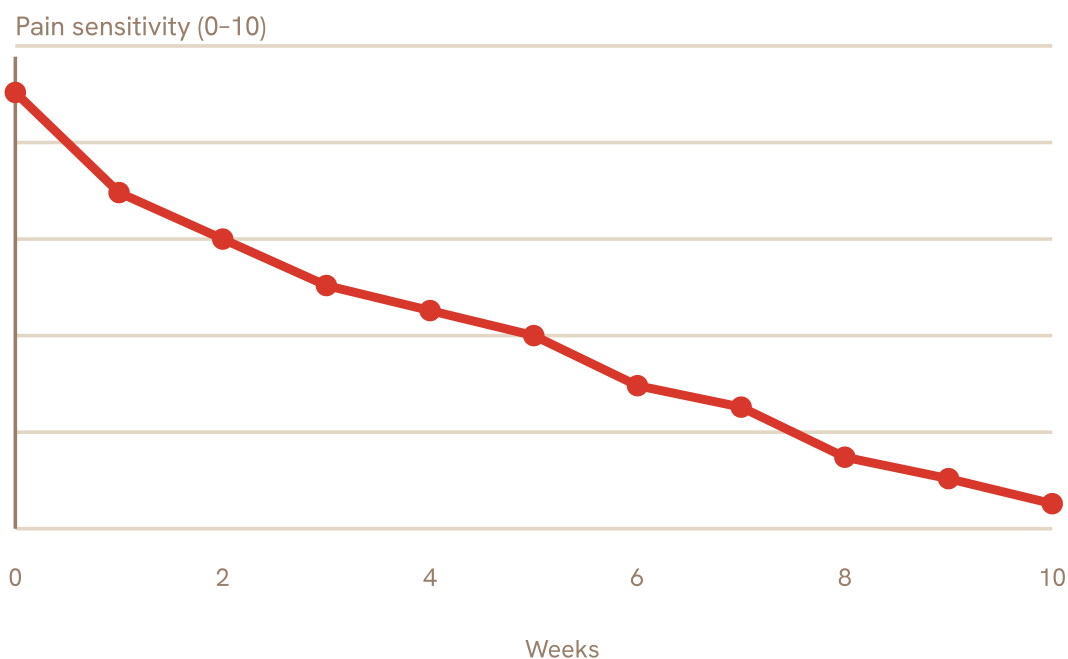
- Faster wound healing & reduced ulcer duration
- Reduction of pain & inflammation
- Improved granulation-tissue formation
- Non-contact & drug-free application
- Lower dressing use & staffing burden
- Greater patient comfort & compliance

• CASE STUDY

Post-Trauma *Nerve Pain*

Patient	53-year-old male
Injury	MVA polytrauma — ruptured brachial plexus, bilateral hip fractures
Symptoms	Chronic hypersensitivity on the left arm — even light clothing caused pain
Protocol	10 sessions of 635nm PBM, once weekly · 4-5 minutes per application zone
Outcome	Guarded, inflamed arm → relaxed posture and visibly calmer skin tone

Pain sensitivity over 10 weeks



Illustrative chart from composite clinical insights; not taken from a single source study.

“By the tenth session, I honestly forgot I even had any sensitivity there.”

— Patient, 10-session PBM programme

This case exemplifies how 635nm PBM modulates the inflammatory response and improves neuropathic pain — particularly in post-surgical or trauma-related injuries where nerve hypersensitivity limits mobility and daily function.

Use at own risk. Always consult your practitioner.

Documented *Results*

123 days

faster healing of a chronic venous leg ulcer in an elderly patient

35%

lower public-healthcare cost in tibial soft-tissue trauma

10 days

shorter hospital stay in the same trauma programme

Venous leg ulcer — elderly patient

An 84-year-old woman with a non-healing venous ulcer of over 9 years healed after PBM — 123 days faster than average. (Degerman et al., 2022)

Tibial trauma wound — Brazil

PBM reduced hospital stay from 23 to 13 days and cut public-healthcare cost by 35%. (Neto et al., 2023)

Diabetic cell-culture study

Red light improved fibroblast behaviour and cell signalling under diabetic conditions. (Chotikasemsri, 2017)

“PBM significantly shortens healing time — even in wounds unresponsive to conventional care.”

— Degerman et al., 2022 (PLOS ONE)

Clinical Research

The use of 635nm red light is supported by a growing body of peer-reviewed research showing significant benefits in wound healing, inflammation and post-trauma recovery.

STUDY	CONDITION	TREATMENT	RESULTS
Degerman et al., 2022	Venous leg ulcers (elderly)	635nm PBM 2x/week	Healed significantly faster than controls
Chotikasemsri, 2017	Diabetic cell culture	635nm LED	↑ cell signalling & gene expression
Neto et al., 2023	Tibial soft-tissue trauma	635nm + standard care	35% cost reduction, 10-day shorter stay
PMC2935798	Superficial wounds	635nm LED	Faster epithelial closure, less inflammation
J Biophotonics, 2023	Neuropathic post-injury pain	635nm PBM	↓ pain sensitivity, ↑ mobility & function

All studies referenced are available in PubMed or open-access journals — see References.

Why medical providers trust PBM: improved healing rates, shorter recovery, reduced dressing frequency, safer for elderly & high-risk patients, and cost-effective across public and private care.

• SUGGESTED PROTOCOLS

PBM *Protocols*

Common applications of 635nm PBM with the Optimum-100S.

CONDITION	FREQUENCY	DURATION & PANEL HEIGHT
Diabetic foot ulcers	2-3× per week	5-10 min · 10-20 cm
Post-surgical incisions	2× per week	5-10 min · 10-20 cm
Venous leg ulcers	2× per week	5-10 min · 10-20 cm
Pressure injuries (Stage 1-2)	3× per week	5-10 min · 10-20 cm
Neuropathic / post-trauma pain	1× per week (×10 sessions)	10 min · 10-20 cm

Application tip: Always clean and dry the treatment site beforehand, and follow current clinical guidelines in your region.

Scientific *References*

Accelerated Wound Healing with 635nm Light

Demonstrates the effectiveness of 635nm light in enhancing wound healing.

Molecular Mechanisms Behind PBM-Induced Wound Healing

How 635nm red light enhances tissue regeneration at the cellular level — activating ATP production, collagen synthesis and anti-inflammatory signalling.

Photobiomodulation for Venous Leg Ulcers in the Elderly

How 635nm light accelerates healing of chronic venous ulcers in frail elderly patients, reducing recovery time by up to 123 days.

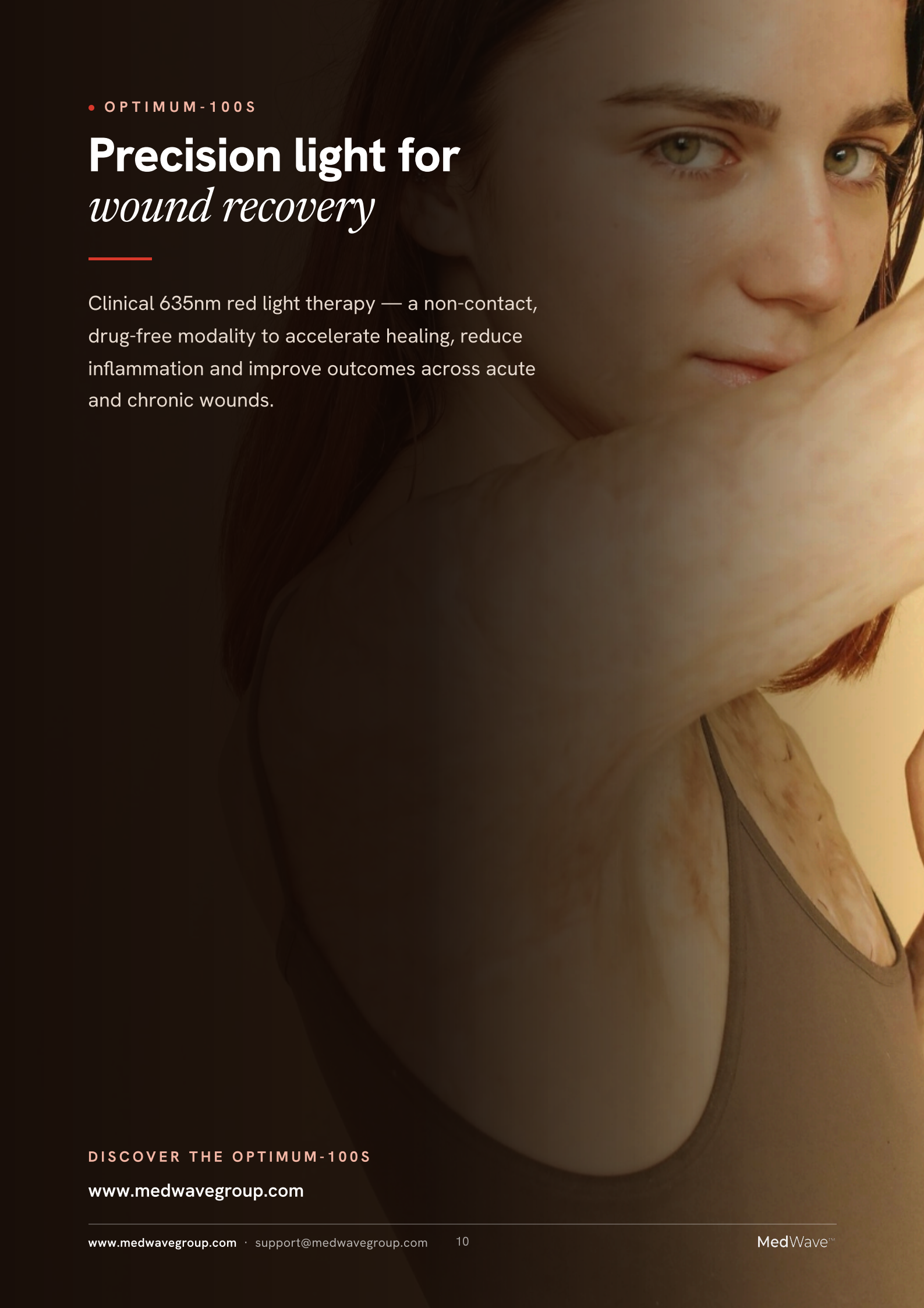
Low-Level Laser Therapy for Chronic Diabetic Wounds

Clinical evidence for red and near-infrared light (including 635nm) in diabetic wound healing — improved granulation, reduced inflammation and faster closure.

Cost-Effectiveness of PBM for Soft-Tissue Injuries

A Brazilian study showing 635nm PBM added to conventional tibial-trauma care reduced hospital stay by 10 days and lowered total costs by 35%.

Note: all studies referenced are available in PubMed or open-access journals. Always follow updated clinical guidelines in your region.

A close-up photograph of a woman's face and shoulder. She has a visible, open wound on her left shoulder, which appears to be a surgical incision or a deep laceration. She is looking directly at the camera with a neutral expression. The lighting is soft and warm, highlighting the texture of her skin and the details of the wound.

• OPTIMUM-100S

Precision light for *wound recovery*

Clinical 635nm red light therapy — a non-contact, drug-free modality to accelerate healing, reduce inflammation and improve outcomes across acute and chronic wounds.

DISCOVER THE OPTIMUM-100S

www.medwavegroup.com

MedWave™

More Life.

"We exist to see a world where everyone is healthy."

WWW.MEDWAVEGROUP.COM

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