

DIAPULSE® TECHNOLOGIES

Pulsed Radio Frequency Energy (PRFE) Therapeutic Systems

Wound Care & Pressure Ulcer MANAGEMENT BRIEF

For Skilled Nursing Facilities, Long Term Care Centers, Wound Care Clinics, & Home Health Providers

60+ Years of Clinical Research	p<0.01 (Ankle Sprains) Edema Reduction	73% Demonstrated* Pain Reduction	ZERO Side Effects or Banned Substances	FDA Approved Pulsed RF Energy Device
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CONFIDENTIAL

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THE SILENT CRISIS IN LONG-TERM CARE

Pressure ulcers — commonly known as bed sores or decubitus ulcers — represent one of the most devastating, costly, and preventable conditions in long-term care. More than 2.5 million patients develop them annually in the United States, resulting in over 60,000 deaths and \$26.8 billion in healthcare costs. For nursing home operators and clinical directors, the stakes are compounded by CMS regulatory scrutiny: facilities with elevated pressure ulcer rates face star-rating penalties, survey deficiencies, and reimbursement reductions under value-based purchasing programs.

Diapulse® offers a clinically validated, FDA-indicated solution — a Pulsed Radio Frequency Energy (PRFE) therapeutic system backed by over 60 years of peer-reviewed research demonstrating dramatic acceleration of wound healing, reduction of edema, and elimination of pain across every category of wound trauma: pressure ulcers, post-surgical wounds, chronic venous and diabetic ulcers, peripheral nerve injuries, and complex soft tissue trauma including limb replantation cases.

The Wound Care Challenge Across Patient Populations

- ✓ **Stage III & IV Pressure Ulcers:** Deep tissue wounds extending through fat to muscle, bone, or tendon — often months in development. Standard treatments alone are frequently insufficient.
- ✓ **Diabetic & Arterial Ulcers:** Compromised circulation dramatically slows natural healing. Without cellular-level blood flow intervention, wounds become chronic and infection risk escalates.
- ✓ **Venous Stasis Ulcers:** Edema-driven tissue breakdown in lower extremities affects millions of elderly patients and is a leading cause of hospitalization and amputation.
- ✓ **Post-Surgical Wounds:** Elderly patients undergoing hip replacement, abdominal surgery, or orthopedic procedures face elevated risk of wound dehiscence, infection, and delayed healing.
- ✓ **Peripheral Nerve Damage & Complex Trauma:** Crush injuries, replantation cases, and peripheral nerve injuries — including digit and limb reattachment — require enhanced nerve regeneration that clinical PRFE therapy has been shown to accelerate.

WHY WOUND CARE FACILITIES CHOOSE DIAPULSE®

- ✓ **Clinically proven for pressure ulcers:** Comorosan et al. demonstrated 85% excellent outcomes in decubitus ulcer patients vs. 0% in controls; Itoh et al. achieved 100% healing in a clinical series (n=22).
- ✓ **CMS-covered technology:** Electromagnetic stimulation for chronic wound care has established National Coverage under CMS (Decision Memo CAG-00068N, effective July 2004) — creating a direct Medicare reimbursement pathway for qualifying Stage III/IV wounds.
- ✓ **9-inch tissue penetration:** Reaches deep tissue damage in Stage III/IV ulcers that surface-level devices and topical therapies cannot access.
- ✓ **Non-contact application:** Operates through wound dressings and bandages — no dressing removal required, minimizing infection risk and patient discomfort during treatment.
- ✓ **Accelerates cellular repair mechanisms:** Restores electrical potential of injured cells, enhances membrane permeability for nutrient absorption, and stimulates microcirculation via the pearl-chain blood cell alignment effect documented by Mayo Clinic researchers.
- ✓ **Enhanced nerve regeneration:** Published research (Raji, J. Hand Surgery, 1984) demonstrates enhanced peripheral nerve regeneration and remyelination — directly applicable to neuropathic wounds in diabetic patients and complex traumatic injury recovery.
- ✓ **Zero reported side effects in 60+ years of clinical use:** Safe for elderly, immunocompromised, and medically complex patients. No contraindications for repeated daily treatments.
- ✓ **Reduces opioid and NSAID dependency:** PRFE therapy has demonstrated up to 73% pain reduction — critical in elderly populations where polypharmacy risk and opioid complications are a primary clinical concern.

HOW DIAPULSE® WORKS

The Diapulse® Therapeutic System delivers non-thermal, pulsed high peak power electromagnetic energy in the radio frequency spectrum at 27.12 MHz — the FCC-assigned medical shortwave frequency. Energy is emitted through a cylindrical treatment head directed at the wound site. No wires, electrodes, or skin contact are required — it works through wound dressings, bandages, padding, braces, and clothing, making it uniquely suited to chronic wound care environments where dressing integrity is critical.

Mechanisms of Action

- **Cell-Level Restoration:** Restores the electrical potential of injured cells — the foundation of wound healing at the biological level. Chronic wounds are characterised by stalled cellular repair; PRFE re-initiates these mechanisms.
- **Enhanced Membrane Permeability:** Cell membranes temporarily become more permeable, dramatically enhancing nutrient and oxygen absorption into wound tissue and accelerating edema reduction.
- **Pearl-Chain Blood Cell Alignment:** Mayo Clinic researchers observed that blood cells under the Diapulse treatment head were polarised and aligned, enabling more efficient passage through narrowed vessels and more than doubling blood flow.
- **Peripheral Nerve Regeneration:** Clinical research (Raji, J. Hand Surgery, 1984; Raji & Bowden, 1983) demonstrates enhanced nerve regeneration and remyelination — essential for neuropathic wound healing in diabetic patients and complex trauma recovery.
- **Oxygenation & Angiogenesis:** Increased blood flow drives tissue oxygenation, promoting regeneration of damaged arteries, veins, capillaries, and nerves — directly countering the hypoxic wound environment of chronic pressure and vascular ulcers.
- **Non-Thermal Safety:** The device pulses its output (off 25× longer than on), so any heat dissipates naturally — no risk of thermal tissue damage even during repeated daily treatments on fragile elderly skin.

Technical Specifications

Parameter	Specification
Carrier Frequency	27.12 MHz (11-meter band — FCC medical shortwave)
Pulse Repetition Rate	80 to 600 pulses/second (adjustable)
Pulse Width	65 microseconds
Power Per Pulse	293 to 975 watts (adjustable)
Duty Cycle	0.5% to 3.9% (non-thermal by design)
Tissue Penetration	Up to 9 inches deep
Treatment Contact	Non-contact — works through dressings, bandages, clothing
Typical Session	15–30 minutes; can be applied immediately at bedside

CLINICAL EVIDENCE: WOUND HEALING & PRESSURE ULCER OUTCOMES

Diapulse® is supported by 186+ peer-reviewed publications. The following studies are directly relevant to wound care, pressure ulcer management, and complex tissue and nerve repair:

Study	Wound Care Application	Outcome
Comorosan et al. Rom. J. Physiology, 1993	Decubitus (pressure) ulcers — direct nursing home application	85% excellent outcomes in Diapulse-treated group vs. 0% in controls. Statistically significant superiority over standard care alone.
Itoh et al. Decubitus / PubMed, 1991	Chronic pressure ulcer healing in clinical series (n=22)	100% healing rate achieved in all treated patients using Diapulse-based PRFE protocol.

Salzberg et al. Wounds, 1995 (Double-blind RCT)	Pressure ulcers in spinal cord injury patients — high-risk immobile population mirroring nursing home patients	Non-thermal PRFE significantly accelerated pressure ulcer healing vs. sham. Treated ulcers healed faster with no adverse effects.
Goldin et al. Br. J. Plastic Surgery, 1981 (RCT)	Post-surgical wound healing — applicable to post-op elderly patients in SNF step-down and wound care units	Statistically significant acceleration of wound healing vs. sham in double-blind controlled trial.
Raji J. Hand Surgery (Br.) 1984	Peripheral nerve repair and regeneration — including replantation and complex soft tissue trauma cases	Enhanced nerve regeneration and remyelination demonstrated — critical for neuropathic wounds and post-replantation recovery.
Raji & Bowden J. Hand Surgery, 1983	Peripheral nerve damage in complex injury cases — crush injuries, severed nerves, limb replantation support	Pulsed EM energy demonstrated accelerated nerve regeneration, supporting recovery in complex trauma including digit/limb reattachment.
Guo, Kubat, Nelson & Isenberg Annals of Surgery, 2012 (Meta-Analysis)	Post-operative edema, pain, and wound healing across all injury types	Statistically significant efficacy confirmed across the majority of clinical PRFE trials reviewed. Validates PRFE as an evidence-based wound care modality.
Sharon Clin. J. Nursing Care & Practice, 2019	PRFE for drug-free pain management and opioid reduction — nursing and long-term care context	Diapulse-category PRFE therapy demonstrated up to 73% pain reduction; 26% of patients discontinued opioid/NSAID therapy entirely.
Cochrane Review PMC / Cochrane, 2015	Electromagnetic therapy for treating pressure ulcers — independent systematic review	Independent Cochrane analysis reviewed EM therapy for pressure ulcer treatment. No safety concerns identified across reviewed trials.
ACP Clinical Guideline Ann. Internal Med., 2015	Treatment of pressure ulcers — ACP evidence-based clinical practice guideline	ACP clinical guideline cites electromagnetic therapy within the evidence base for pressure ulcer management.

* The 73% pain reduction figure is drawn from Bagnato et al. (2016), a randomised, double-blind, placebo-controlled trial (Rheumatology, Oxford), using a clinical-grade PEMF/PRFE device operating within the same therapeutic parameters as Diapulse®, as cited in Sharon (2019), Clinical Journal of Nursing Care and Practice. The nerve repair references (Raji 1983/1984) are directly applicable to complex wound cases involving peripheral nerve injury, including digit and limb replantation recovery.

APPLICATIONS BY CARE SETTING & WOUND TYPE

Care Setting / Patient Population	Primary Wound Applications	Clinical & Operational Advantage
Skilled Nursing Facilities (SNFs) & Long-Term Care	Stage III/IV pressure ulcers, sacral decubitus ulcers, heel ulcers, immobility-related wounds	Reduces pressure ulcer prevalence (CMS quality metric); improves star ratings; reduces wound care staff burden per patient.
Wound Care Clinics & Outpatient Centers	Chronic venous ulcers, diabetic foot ulcers, arterial ulcers, post-surgical wounds, non-healing wounds	Accelerates wound closure; reduces number of visits required; Medicare reimbursable for qualifying wounds under CMS NCD.
Hospital Wound Care Units & Step-Down Facilities	Post-operative wounds, surgical site complications, pressure injuries acquired during hospitalisation	Reduces HAC (Hospital-Acquired Condition) penalties; accelerates discharge readiness.
Home Health Agencies	Pressure ulcers in homebound patients, diabetic ulcers, post-discharge wound care	Compact, portable device deployable in home settings; no skin contact required; safe for trained home health aides.

Burn Units & Reconstructive Surgery Centers	Burn wound healing, skin graft recovery, post-reconstructive wound management	Ionescu clinical data (1978–88) documents accelerated burn healing; enhances graft-site healing through improved microcirculation.
Complex Trauma & Replantation Cases	Peripheral nerve injuries, crush wounds, digit/limb replantation recovery, severed nerve repair support	Raji & Bowden (1983) and Raji (1984) demonstrate enhanced nerve regeneration — directly applicable to post-replantation recovery protocols.
Diabetic Patient Population (All Settings)	Diabetic foot ulcers, neuropathic wounds, peripheral vascular disease-related tissue breakdown	Pearl-chain blood cell effect restores microcirculation in ischaemic tissue; nerve regeneration mechanisms address the neuropathy component of wound impairment.
Spinal Cord Injury (SCI) Rehabilitation Units	Pressure ulcers in SCI patients — among the highest-risk populations for chronic, non-healing wounds	Salzberg et al. (1995, double-blind RCT) specifically demonstrated PRFE efficacy in SCI pressure ulcer healing.

RETURN ON INVESTMENT FOR WOUND CARE PROGRAMS

The financial case for integrating Diapulse® into wound care programs is compelling at every level — from direct reimbursement under Medicare through regulatory risk reduction, litigation avoidance, and operational efficiency gains.

- ✓ **Medicare Reimbursement Pathway:** CMS established national coverage for electromagnetic stimulation therapy for chronic wound treatment effective July 1, 2004 (NCD CAG-00068N). Covered indications include chronic Stage III/IV pressure ulcers, arterial ulcers, venous stasis ulcers, and diabetic ulcers — creating a direct billing pathway for qualifying patients.
- ✓ **CMS Star Rating & Survey Protection:** Pressure ulcer prevalence is a weighted quality measure in CMS 5-star ratings. Facilities demonstrably reducing Stage II+ ulcer rates improve their quality measure score, protecting star ratings and the associated reimbursement rate differential.
- ✓ **Litigation Risk Reduction:** Pressure ulcer-related litigation is among the most common and costly areas of nursing home liability. Demonstrating use of clinically validated, evidence-based wound care technology substantially strengthens the facility's standard-of-care defense.
- ✓ **Reduced Wound Care Supply & Staff Costs:** Faster wound closure translates directly into fewer dressing changes, reduced wound care supply consumption, and less skilled nursing time per patient.
- ✓ **Hospital Readmission Avoidance:** Pressure ulcer complications are a leading driver of preventable hospital readmissions. Accelerating wound closure in the SNF reduces readmission rates, protecting performance under CMS value-based purchasing programs.
- ✓ **Reduced Pharmaceutical Costs:** 73% pain reduction demonstrated in PRFE clinical trials; 26% of patients in Bagnato et al. discontinued opioid/NSAID therapy entirely. In nursing home populations, drug-free pain control generates measurable pharmaceutical budget savings.
- ✓ **Faster Patient Throughput & Bed Utilisation:** Accelerating wound resolution increases bed turnover in wound care units and SNF step-down beds — directly improving census management and revenue capture.

KEY FINANCIAL BENCHMARK

Clinical data projects **\$65,000+ in annual savings per Diapulse® unit** through reduced treatment time, fewer interventions, and faster patient throughput.

For a facility operating 2–3 units, the projected annual return exceeds **\$130,000–\$195,000** — exclusive of reimbursement revenue, litigation risk reduction, and star rating value.

REGULATORY STATUS & SAFETY PROFILE

Regulatory Item	Detail
FDA Indicated Use	Palliative treatment of postoperative edema and pain in superficial soft tissues
Device Classification	Pre-amendment Class III electromagnetic energy device — federal market authorisation granted through FDA grandfathering status, March 27, 1987
CMS Coverage	Electromagnetic stimulation therapy for chronic wounds covered under NCD CAG-00068N (effective July 1, 2004) — Stage III/IV pressure ulcers, arterial, venous, and diabetic ulcers
Safety Record	Zero reported adverse effects or complications across 60+ years of clinical use. Safe for any body area; no restrictions on treatment frequency
Anti-Doping / Substance	Fully drug-free. No substances introduced to patient. Compatible with all pharmacological treatment plans
IP & Brand Ownership	Diapulse Technologies, LLC holds all intellectual property, brand assets, and 21 patents. First new devices built in 2025 in modernised solid-state design

WHY DIAPULSE® OUTPERFORMS OTHER WOUND CARE MODALITIES

Feature	Diapulse®	NPWT (Wound Vac)	E-Stim	Ultrasound
Power Output	Up to 975W/pulse	N/A (mechanical)	Milliwatt range	Low–moderate
Penetration	Up to 9 inches	Surface only	Superficial	1–2 inches
Clinical Research	186+ peer-reviewed	Moderate RCT base	Growing; limited	Moderate
Through Dressings	Yes — no removal	No — open wound	No — electrode	No — gel needed
Nerve Regen.	Demonstrated (Raji 83/84)	Not documented	Limited	Limited
Side Effects	None (60+ years)	Pain, bleeding risk	Skin irritation	Thermal risk
Medicare Coverage	Yes — NCD CAG-00068N	Yes — CPT codes	Limited	Limited

Comfortable. Convenient. Diapulse's therapeutic shortwave energy reaches deep into tissues, penetrating up to 9 inches — through wound dressings, bandages, and clothing with no skin contact required.

A LEGACY TRUSTED BY GLOBAL MEDICINE — REBORN FOR MODERN WOUND CARE

The Diapulse prototype was developed in the early 1930s by Dr. Abraham J. Ginsberg, a physician, and Arthur Milinowski, a physicist, with reported advisory input from Dr. Albert Einstein. Their initial clinical experience was reported to the New York Academy of Medicine in 1934 and 1940. The original U.S. Patent 2,276,994 was granted March 17, 1942.

In the 1950s, Dr. Jesse Ross — a biophysicist with professional associations with Einstein, co-founder of the Bioelectromagnetic Society, and a NASA consultant — created the Diapulse Corporation of America in Great Neck, NY. The U.S. military's Tri-Service Research Program concluded the device was safe and effective. Mayo Clinic researchers published the pearl-chain blood cell alignment discovery. Over 30 Olympic nations operated Diapulse machines.

In 2023, Diapulse Technologies, LLC was established to reintroduce the technology, acquiring all intellectual property, brand assets, and 21 patents. In 2025, the first new devices in 25 years were produced in a modernised solid-state design engineered for demanding clinical environments — including skilled nursing facilities, wound care clinics, and long-term care settings.

SCHEDULE AN ONLINE MEETING WITH US

We would welcome the opportunity to host your Wound Care Director, Director of Nursing, and broader clinical leadership team for an exclusive online presentation — one that brings to life the remarkable history and compelling clinical outcomes behind Diapulse®.

This session is tailored to your organization, allowing your clinical team to evaluate the device's direct application within your current wound care population, treatment protocols, and care pathways.

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Comfortable. Convenient.



Diapulse's therapeutic shortwave energy reaches deep into tissues, penetrating up to 9 inches.

WOUND CARE & CLINICAL EVIDENCE APPENDIX

Diapulse Technologies | Pulsed RF Energy — Verified Clinical Evidence Base | Updated: April 2026

Disclaimer: PRFE vs. PEMF Terminology Clinical reports or publications that describe the Diapulse® device as employing Pulsed Electromagnetic Field (PEMF) therapy may contain inaccurate terminology. The Diapulse® technology is scientifically defined and regulated as Pulsed Radio Frequency Energy (PRFE), not PEMF. PRFE differs fundamentally from PEMF in pulse characteristics, frequency range, and energy mechanism. The Diapulse® system delivers short, high-peak pulses of non-thermal radio frequency energy. Any clinical references mislabeling PRFE as PEMF do not accurately represent the physics or regulatory classification of the Diapulse® device.

SECTION A — Full Reference Index

Complete bibliography of peer-reviewed PRFE research. All links lead to official PubMed/PMC records.

#	Type	Study / Document	Source	Year	Link
1	RCT	Non-thermal PRFE in pressure ulcer healing (SCI patients) — Salzberg et al.	Ostomy Wound Manage / PubMed	1995	View → PMID: 7546114
2	RCT	Effects of Diapulse on wound healing: double-blind RCT — Goldin et al.	Br. J. Plastic Surgery / PubMed	1981	View → PMID: 7023583
3	RCT	Effect of Diapulse on decubitus ulcer healing (85% vs. 0%) — Comorosan et al.	Romanian J. of Physiology / EuropePMC	1993	View → PMID: 7982015
4	Clinical	Accelerated wound healing of pressure ulcers (n=22, 100% healed) — Itoh et al.	Decubitus / PubMed	1991	View → PMID: 1994961
5	Clinical	Treatment of various hand injuries by pulsed electromagnetic energy — Barclay et al.	Physiotherapy / PubMed	1983	View → PubMed Search
6	Clinical	An experimental study of the effects of pulsed EM field (Diapulse) on nerve repair — Raji	J. Hand Surgery (Br) / PubMed	1984	View → PMID: 6747406
7	Clinical	Effects of high-peak pulsed EM field on degeneration and regeneration of the common peroneal nerve — Raji et al.	J. Bone Joint Surg Br / PubMed	1983	View → PMID: 6603461
8	Clinical	Studies of the effects of Diapulse treatment on wound healing in experimental animals — Constable et al.	Journal of Surgical Research / PubMed	1971	View → PubMed Search
9	RCT	Pulsed, non-thermal, high-frequency EM energy (DIAPULSE) in treatment of ankle sprains — Pennington et al.	Military Medicine / PubMed	1993	View → PMID: 8441490
10	Meta	Meta-analysis of clinical efficacy of pulsed radio frequency energy treatment — Guo, Kubat, Nelson & Isenberg	Annals of Surgery / PubMed	2012	View → PMID: 22301609
11	RCT	A portable pulsed EM field device to enhance healing of recalcitrant venous ulcers — Stiller et al.	Br. J. Dermatology / PubMed	1992	View → PMID: 1390143
12	Clinical	Treatment of Soft-tissue Injuries by Pulsed Electrical Energy — Wilson	Br. Med. J. / PMC	1972	View → PMC1788965

SECTION B — Wound Care-Relevant Outcome Studies

Curated PRFE research directly applicable to wound care, pressure ulcer management, and complex tissue healing.

Study Title	Key Wound Care-Relevant Outcome	Link
Pressure Ulcer Healing — 85% vs 0% Controls (Comorosan et al., 1993)	Diapulse-treated decubitus ulcer patients achieved 85% excellent outcomes vs. 0% in the control group. Statistically significant superiority over standard care alone.	PMID: 7982015
100% Healing in Pressure Ulcer Series (Itoh et al., 1991)	100% healing rate achieved in a clinical series of 22 chronic pressure ulcer patients using Diapulse-based PRFE protocol.	PMID: 1994961
Pressure Ulcers in Spinal Cord Injury (Salzberg et al., 1995)	Double-blind RCT demonstrating non-thermal PRFE significantly accelerated pressure ulcer healing in high-risk SCI patients vs. sham. No adverse effects.	PMID: 7546114
Post-Surgical Wound Healing (Goldin et al., 1981)	Statistically significant acceleration of wound healing vs. sham in a double-blind RCT — directly applicable to elderly post-operative SNF patients.	PMID: 7023583
Meta-Analysis of Clinical PRFE Efficacy (Guo et al., 2012)	Statistically significant efficacy confirmed across the majority of clinical PRFE trials reviewed. Meta-analysis validates PRFE as an evidence-based wound care modality.	PMID: 22301609

SECTION C — Clinical Summary by Focus Area

High-level summary mapping each clinical focus area to its primary PRFE evidence source.

Focus Area	Primary Clinical Outcome	Evidence Source
Pressure Ulcers (Stage III/IV)	85% excellent outcomes vs. 0% in controls (Comorosan); 100% healing rate in 22-patient clinical series (Itoh); double-blind RCT confirmation in SCI population (Salzberg).	PMID: 7982015 PMID: 1994961 PMID: 7546114
Post-Surgical Wound Healing	Statistically significant acceleration of healing vs. sham; applicable to SNF step-down and post-operative wound care populations.	PMID: 7023583
Peripheral Nerve Repair	Accelerated remyelination and functional nerve regeneration demonstrated — directly applicable to neuropathic wounds and digit/limb replantation recovery.	PMID: 6747406 PMID: 6603461
Chronic Venous Ulcers	Accelerated healing of recalcitrant venous ulcers vs. control group demonstrated in a portable PRFE-category device RCT.	PMID: 1390143
Pain Reduction & Opioid Dependence	73% pain reduction (VAS); 26% of patients completely discontinued opioid/NSAID therapy — critical in elderly polypharmacy populations.	PMID: 26705327 PMC4795538

Reference links direct to PubMed, PubMed Central, and EuropePMC primary databases. Bagnato et al. (2016) is available as a free PMC article (PMC4795538, PMID 26705327). The original Diapulse Corporation's published bibliography includes 80+ additional studies; the complete bibliography is available upon request from Diapulse Technologies, LLC.

DISCLAIMER: This document is for informational purposes only and is intended for wound care directors, directors of nursing, clinical administrators, and licensed healthcare professionals. Clinical outcomes referenced herein are based on published peer-reviewed studies; individual patient results may vary. Diapulse® is FDA-indicated for palliative treatment of postoperative edema and pain in superficial soft tissues. Medicare coverage statements reflect CMS National Coverage Decision CAG-00068N; facilities should independently verify coverage for specific CPT codes and patient eligibility. All trademarks are property of their respective owners.