WE'RE CHANGING THE DYNAMICS IN WOUND HEALING

PHOENIX™
WOUND MATRIX
Powered by Electrospun
Synthetic Polymer Technology

↑ OUTCOMES. ↓ COSTS.

Clinical Utilization & Observations
Setting expectations to improve outcomes

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PHOENIX™ WOUND MATRIX

Powered by Electrospun Synthetic Polymer Technology

Fulfilling the Promise of Regenerative Medicine

RenovoDerm is a regenerative medicine company focused on the development and manufacture of scientifically engineered 3D electrospun synthetic polymer technology to help advance clinical practice, improve patient outcomes and reduce the overall cost of care.

Our mission is to change the dynamics in wound healing to make a profound impact on the clinical and economic burden of wound care with PHOENIX Wound Matrix – a cost-effective, sophisticated 3D electrospun synthetic matrix for tissue regeneration and repair of acute and chronic wounds, and burns.

PHOENIX™ WOUND MATRIX

Powered by Electrospun Polymer Technology

A multi-dimensional wound healing solution for Acute and Chronic Wounds, and Burns

Phoenix Wound Matrix is a sophisticated 3D electrospun synthetic polymer matrix designed to improve wound healing outcomes by **addressing chronicity and persistent inflammation**.

1. Engineered to **mimic native extracellular matrix (ECM)** morphology, PHOENIX Wound Matrix provides a **multi-dimensional microporous scaffold stimulus to facilitate cellular adhesion, infiltration and proliferation.**

2. Comprised of **polymers which naturally biodegrade to α-hydroxy acids and fatty acid**, PHOENIX Wound Matrix acts as a **protective barrier to quickly inspire a pro-healing wound environment.**

3. **Designed to facilitate a low pH and lactate expression known to address chronicity and persistent inflammation to accelerate the wound healing process** of acute and chronic wounds, and burns[1-3].

PHOENIX Wound Matrix
Cell proliferation

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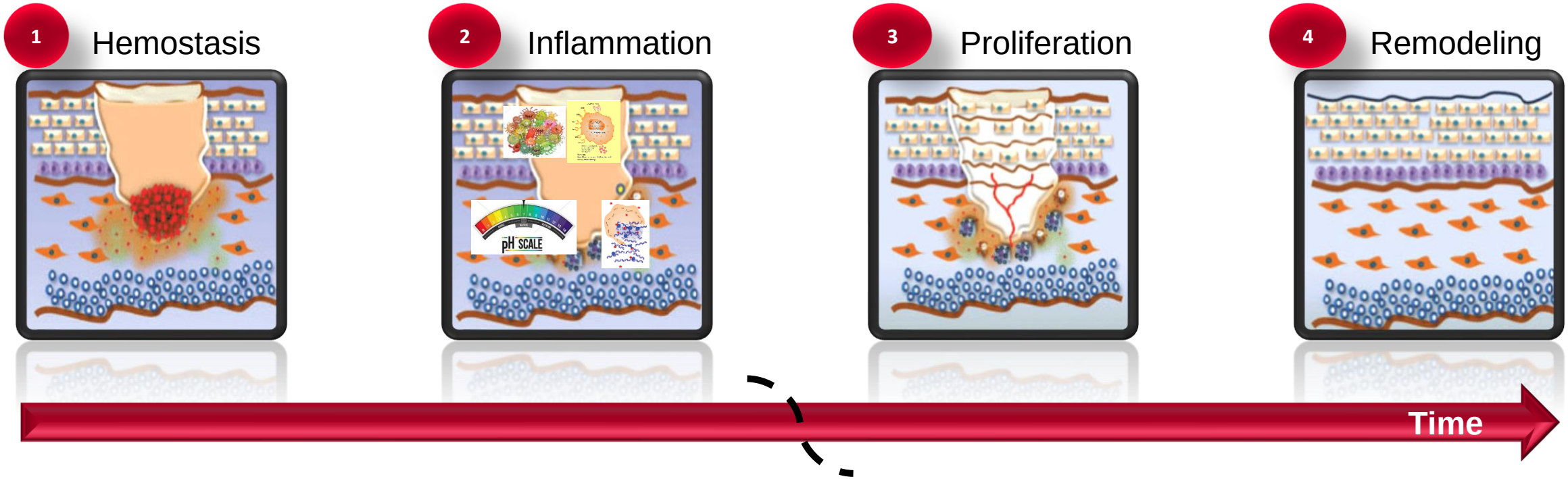
Disrupting the Wound Healing Cascade



An altered environment leads to persistent inflammation (i.e., chronicity) impeding healing.
All wounds have the potential to become chronic.

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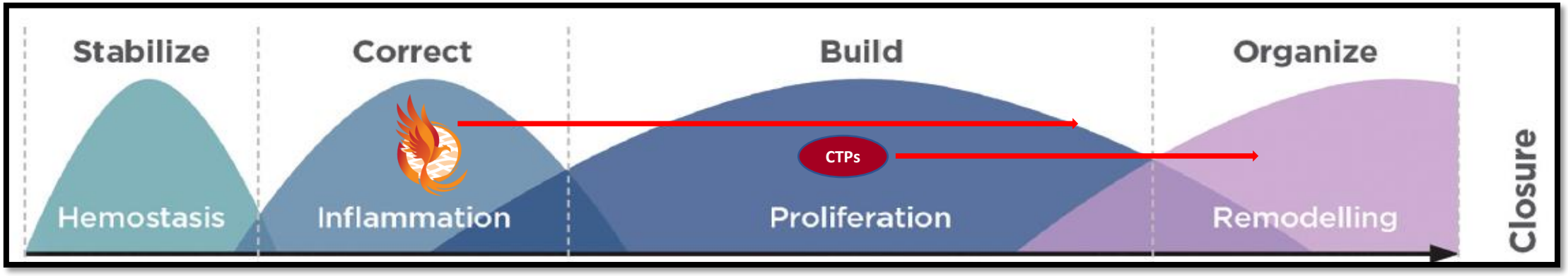
Consider PHOENIX First to Improve Outcomes

Complex Acute Wounds

mitigate the risk of chronic activity to accelerate wound healing

Chronic Wounds

disrupt chronic activity to accelerate wound healing



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Fulfilling the Promise of Regenerative Medicine

PHOENIX™ WOUND MATRIX

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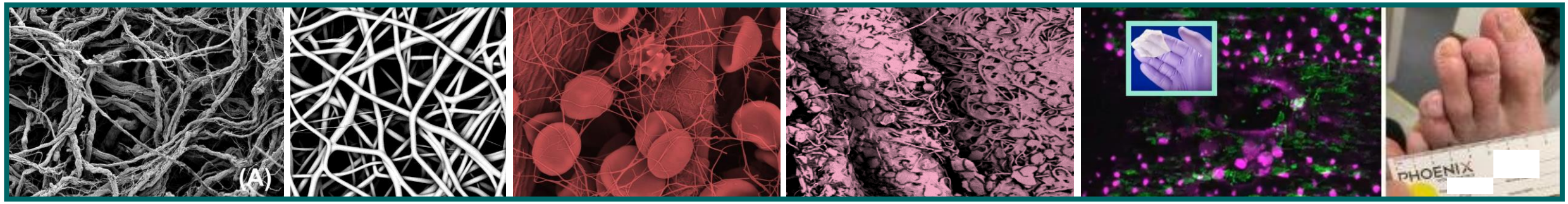

Native ECM | PHOENIX ECM | Cell migration & infiltration | Cell proliferation | Cell viability | Durable wound closure

Sophisticated microporous electrospun polymer scaffold mimics native ECM

Acidic degradants address chronicity & persistent inflammation

Accelerated wound healing & cost effective durable tissue repair

Goal

↑ **Graft Success Rates** ↓ **pH** ↓ **M1** ↑ **M2** ↑ **OUTCOMES** ↓ **COSTS**

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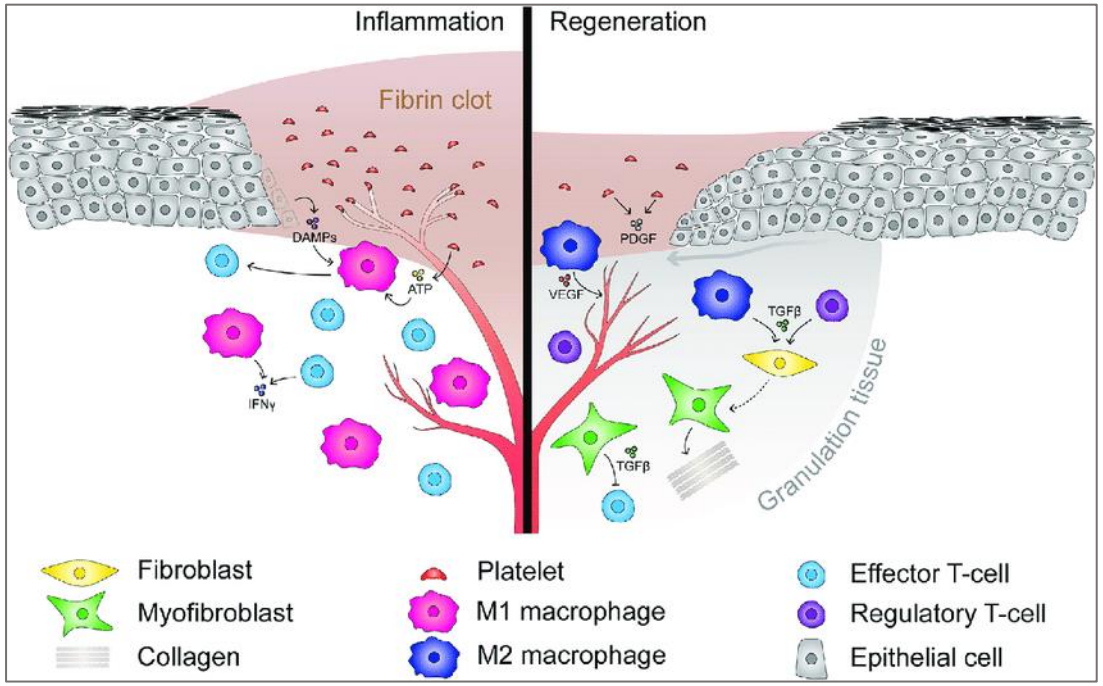
Scaffold Degradants Facilitate Wound Healing



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Changing the dynamics in Wound Healing

PHOENIX™ WOUND MATRIX

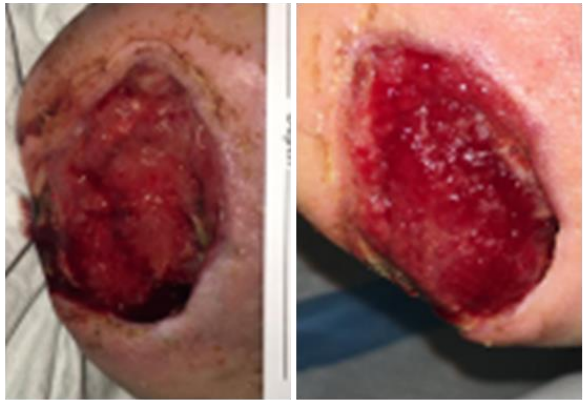
Addressing chronicity and persistent inflammation.

Necrotizing Fasciitis

Visible change in tissue within 11 days

within 11 days

DFU Pressure Injury - 4 months in duration



Healthy granulation tissue within 7 days

within 7 days

2-year Complex Ulceration of the Left Foot

Healthy granulation tissue within 14 days -Neovascularization within 28 days

within 28 days

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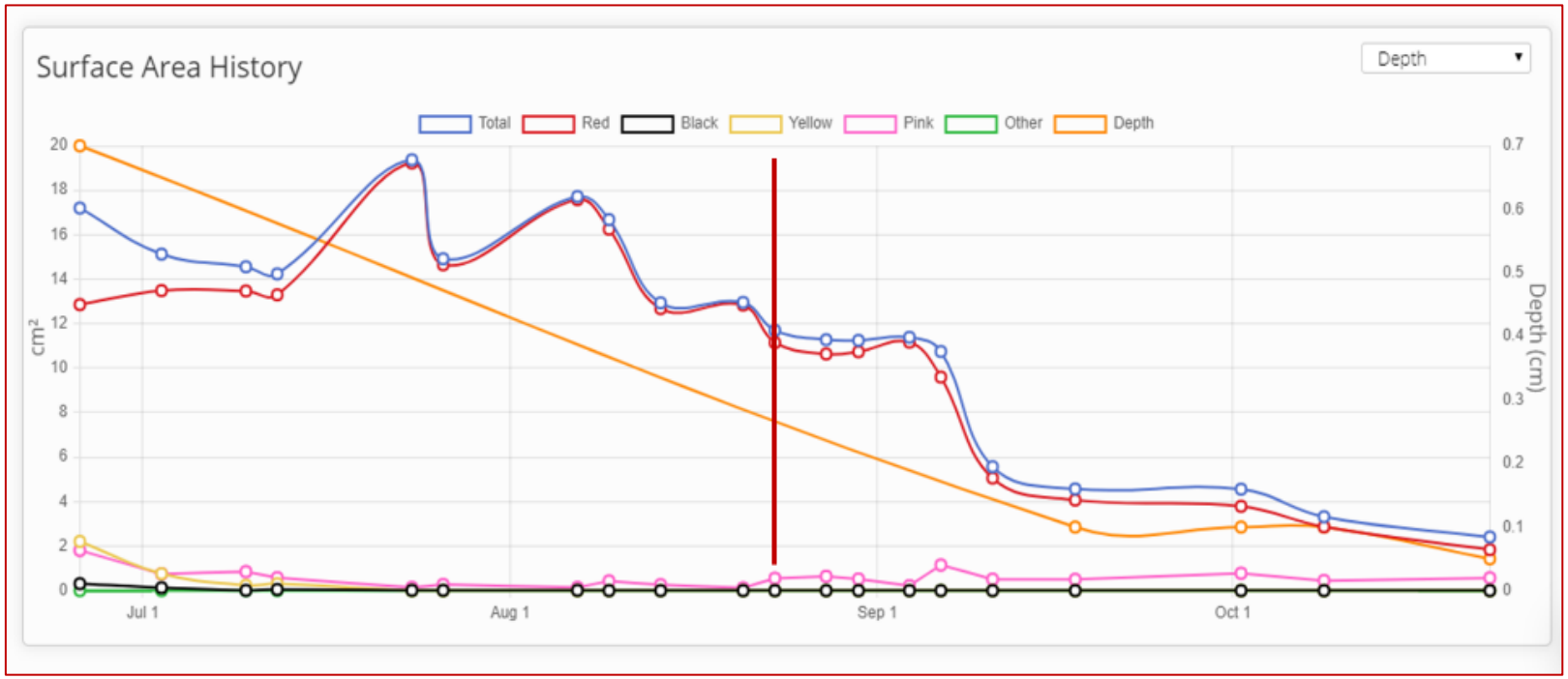
Please see full case data at www.renovoderm.tech

Changing the Healing Trajectory

Wound healing trajectory prior to application of PHOENIX

Wound healing trajectory post application of PHOENIX



52%
reduction in wound area **in 18 days**

Treatment Period	Day	Wound Area Reduction (%)
Prior to Phoenix	45	3%
Prior to Phoenix	59	32%
PHOENIX	18	52%
PHOENIX	46	72%
PHOENIX	59	79%

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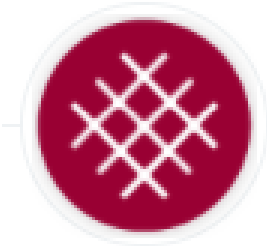
Application Made Easy

PHOENIX™ WOUND MATRIX

1. Assess & Prepare

Perform appropriate assessment and debridement to ensure the wound bed is free of debris or contaminants and remove any non-viable tissue.

Fenestrate PHOENIX Wound Matrix to allow for drainage to come through the matrix.



2. Apply & Affix

Gently apply PWM within the confines of the wound environment. You can trim to fit. Smooth the PWM to remove any air pockets and ensure there is intimate contact with the wound. PHOENIX can be tiled to accommodate wound size.

Anchor PWM with physicians/ QHP's preferred method of fixation. (ie, steri-strips, surgical glue)

3. Rinse & Protect

Gently rinse the matrix and wound with sterile saline. To protect the PWM and wound environment, apply an appropriate non-adherent dressing over the PWM to firmly ensure complete contact with the wound bed.

Apply an appropriate secondary dressing to maintain adherence and properly manage the drainage for appropriate moisture management.

4. Monitor & Manage

PHOENIX Wound Matrix has demonstrated 7 to 14 days for full integration.

Frequency of PWM and secondary dressing changes will depend on the wound progression. Monitor the level of drainage to determine the frequency of secondary dressing changes.

DO NOT remove the PWM during dressing changes. Reapply PWM as deemed necessary for wound progression and closure.

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CHRONIC WOUNDS

PHOENIX™ WOUND MATRIX

Prepare tissue

PHOENIX Wound Matrix Application

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OR – Tissue Repair

Prepare tissue & Apply PHOENIX

PHOENIX Wound Matrix under STSG

Application Techniques

PHOENIX™ WOUND MATRIX

			
DEBRIDEMENT Establish a clean wound bed with blood flow if possible. Place appropriate size of PWM or cut and tile product within the confines of the wound environment.	**DEPTH** Fold and pack PHOENIX Wound Matrix within the depth of the wound to ensure intimate contact with deep tissue loss.	**PROTECT & COVER** PWM with a non-adherent dressing. Cover with an appropriate absorptive dressing to manage drainage.	If PHOENIX Wound Matrix not fully resorbed. **DO NOT debride the matrix out of the wound bed**. If necessary, apply another PWM on top of existing matrix.

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Leg Ulcer

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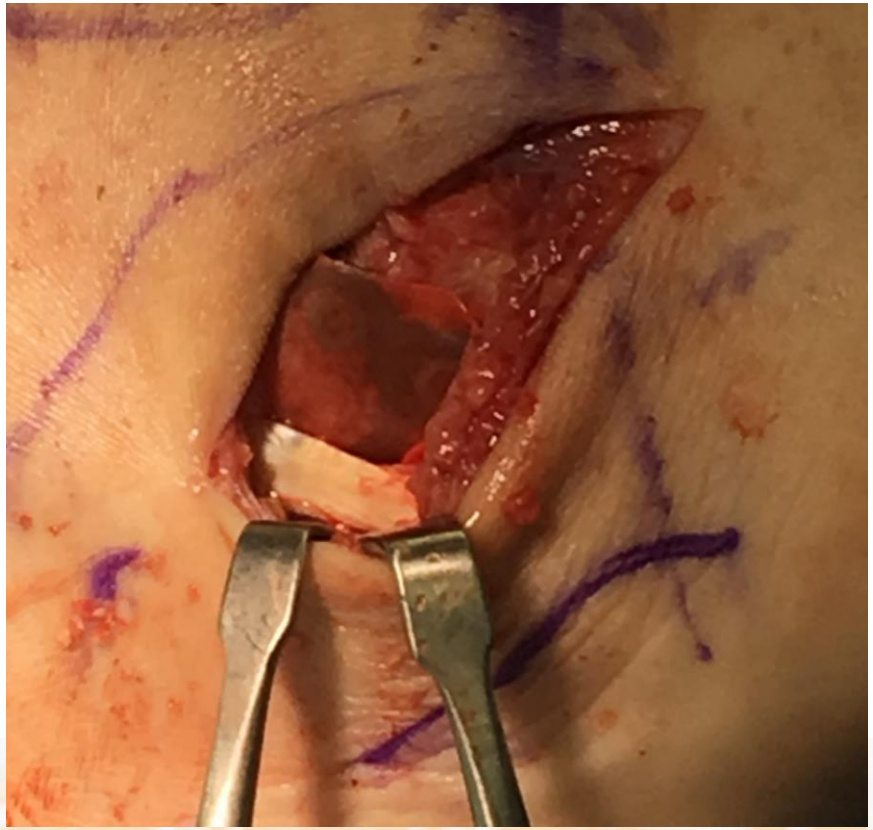
Calcaneus Fracture Plate Tissue Barrier



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Compelling Clinical Outcomes – Median Data

100%
Demonstrated rapid improvement in tissue appearance and reduced inflammation

88%
Median wound area reduction within
4 weeks

2*
Median number of product applications

~5 weeks
Median time to wound closure

PHOENIX™ WOUND MATRIX

PHOENIX WOUND MATRIX Post Market Surveillance Median Case Data Summary									
	All Cases	Pressure Injury	DFU	Chronic Lower Extremity	Complex Chronic	Surgical Wound	Trauma Wound	Complex Acute	Burn
Patients	47	5	18	16	2	1	3	1	1
Wounds	65	5	20	32	2	1	3	1	1
Significantly improved tissue appearance after 1st application	100%	100%	100%	100%	100%	100%	100%	100%	100%
% area reduction within 4 weeks	88%	95%	89%	90%	87%	61%	63%	97%	100%
% area reduction within 8 weeks	**97%**	100%	98%	86%	92%	80%	97%	100%	

*National average for CTP applications: 5-8

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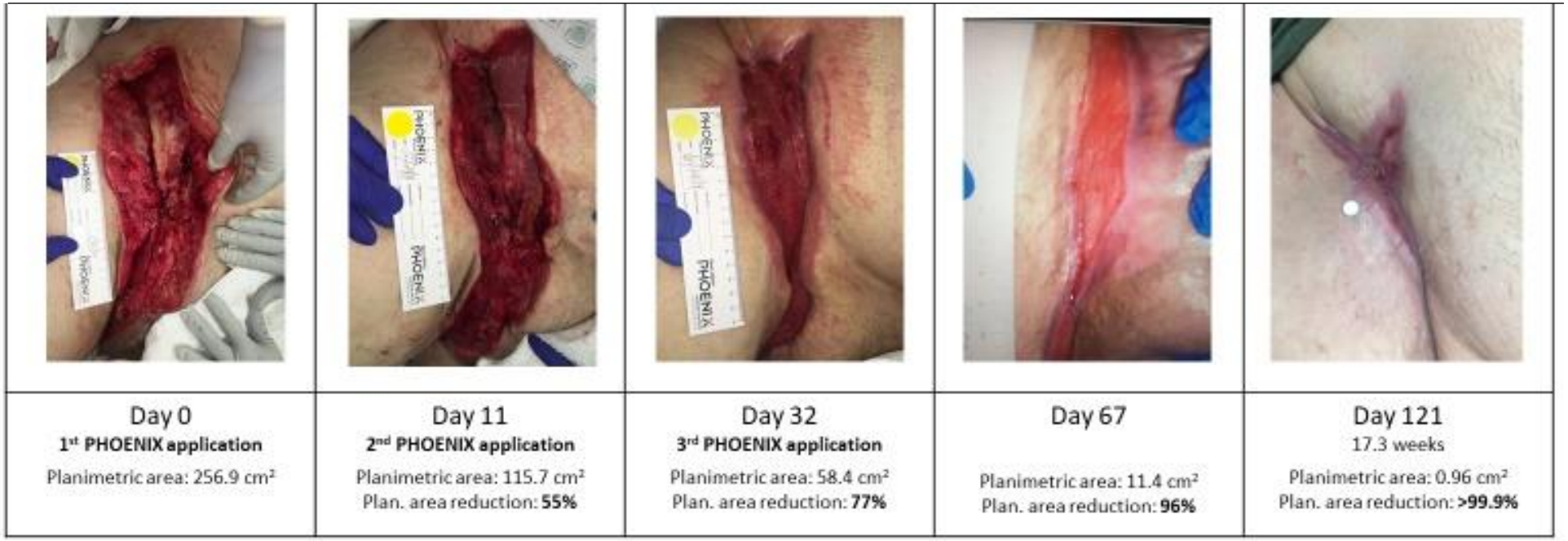
Necrotizing Fasciitis



Day 0	Day 11	Day 32	Day 67	Day 121
1st PHOENIX application	2nd PHOENIX application	3rd PHOENIX application		17.3 weeks
Planimetric area: 256.9 cm²	Planimetric area: 115.7 cm² Plan. area reduction: **55%**	Planimetric area: 58.4 cm² Plan. area reduction: **77%**	Planimetric area: 11.4 cm² Plan. area reduction: **96%**	Planimetric area: 0.96 cm² Plan. area reduction: **>99.9%**

77% **reduction** in wound area **at 4.5 weeks**

Images courtesy of Frank Aviles, Jr., PT CWS FACCWS CLT AWCC

Case Brief:
57-year-old male with **type 2 diabetes** and **hypertension**, presented 3-weeks after sustaining a fall to the sacral area. Patient was diagnosed with **necrotizing fasciitis**, requiring **extensive surgical debridement**, antibiotics, and hyperbaric oxygen therapy (HBOT). The resulting wound extended from upper right inguinal region, through perineum, to perianal area. Patient reported significant wound pain requiring pain medication for dressing changes. PHOENIX Wound Matrix was applied to anterior aspect of wound, and negative pressure wound therapy (NPWT) was also applied in combination with PHOENIX. **By Day 7, patient reported considerable decrease in pain, no longer required pain medication**, and healthy granulation tissue was observed. By Day 32, planimetric area of anterior wound decreased 77%. By Day 67, 96% reduction in planimetric area was achieved. **Wound closure was achieved on Day 125.**

Summary:
57-year-old male with **diabetes** and **large open wound**, resulting from extensive surgical debridement of necrotizing fasciitis tissue, **closed in 18 weeks with 3 PHOENIX applications**, combined with wound care best practices, including HBO and NPWT.

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Stalled Diabetic Foot Ulcer

				
Day 0 Wound Size: 4.9cmx1.3cmx2.1cm	Day 7 Wound Size: 5.3x0.9x2.0 **29% wound closure**	Day 7 **2nd Phoenix Application**	Day 14 Wound Size: 2.5x1.0x1.0 **83 % wound closure** **3rd Phoenix Application**	Day 21 Continued closure. Transitioned to an amniotic.

83% Wound Area Reduction in 14 Days

Case Brief:
Patient is a 61y/o male with DM, lumbar radiculopathy, HTN, MRSA, Neuropathy, Osteomyelitis. Just removed from pic line, currently on Doxycycline. Positive drainage, negative probe to bone. Pulses 2/4 bilateral. **Would has been open for 2 months**.

Case Summary – Initiation of Phoenix Wound Matrix jump started wound healing of this stalled ulcer. After three applications of PWM transitioned to an amniotic to complete closure.

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Pressure Injury

Images courtesy of Frank Aviles, Jr., PT CWS FACCWS CLT AWCC

70%
reduction in wound size within
42 days

Continued wound closure at Day 91

Case Report:
90-year old male with **paraplegia** presented with right heel **pressure ulcer of over 4 months duration**. Additionally, at presentation, a **2.2 cm tunnel** was observed superomedially. Despite receiving best practice standard of care plus other advanced modalities, patient developed osteomyelitis and required surgical debridement. Following surgical debridement, the 1st PHOENIX Wound Matrix was applied on Day 0. Robust granulation tissue was noted within days; second PHOENIX was applied on Day 7, and accelerated progress continued. On Day 42, 70% decrease in planimetric area was observed. **Full wound closure was achieved on Day 77.**

Summary:
90-year-old male with **paraplegia** and **heel pressure ulcer** achieved **wound closure** in **11 weeks** with **2 PHOENIX applications**, combined with wound care best practices, including NPWT and offloading.

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Traumatic Crush Injury Treated with Phoenix

TRAUMA – CRUSH INJURY

			
Day 0 **PHOENIX application** Planimetric area: 39.0 cm²	Day 35 Planimetric area: 14.9 cm² Plan. area reduction: **62%**	Day 62 Planimetric area: < 1 cm² Plan. area reduction: **99%**	Day 77 **Wound closed** 11 weeks

Images courtesy of Frank Aviles, Jr., PT CWS FACCWS CLT AWCC

62%
reduction in wound area **at 4.5 weeks**

Case Report:
10-year-old female sustained a **traumatic injury** to her left anteromedial leg following a fall from a horse 1-month prior. Patient's injury included **tissue damage consistent with a crush injury** that occurred when the horse landed on her, as well as a **large laceration** that resulted when the horse moved. Patient required **extensive surgical debridement of a failed flap repair** and received **HBOT** and **NPWT** for 14 days prior to application of PHOENIX Wound Matrix on Day 0. Patient **continued** to receive **HBOT** and **NPWT**. This type of injury is known to be challenging to heal, yet this patient made steady, remarkable progress achieving **wound closure** on **Day 77** with **1 PHOENIX application.**

Summary:
10-year-old active female, with **significant traumatic injury** to her leg, achieved **wound closure in 11 weeks** with **1 PHOENIX application**, combined with **HBOT, NPWT**, and wound care best practices**.**

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PHOENIX Wound Matrix Clinical Observations

- **Debridement**
  - Thorough debridement is critical prior to first application to establish a clean wound environment free of non-viable tissue, foreign matter and bacteria
  - DO NOT debride or remove Phoenix Wound Matrix from the wound bed
- **"Phoenix drainage"**
  - Brownish, slightly malodorous (normal, likely secondary to positive effects of degradants, particularly caproic acid, and pH decrease)
  - Drainage amount may be higher than expected as a result of promoting a pro-healing wound environment
  - Drainage may continue through proliferative phase even after Phoenix has been absorbed
- **Moisture management** important to prevent/minimize maceration of peri-wound area, bacterial colonization of secondary dressings, hyper-granulation
  - Use of highly absorbent secondary dressings
  - More frequent secondary dressing changes
  - Compression, NPWT, HBO
- **Reduce sheer friction**
  - Offload and reduce sheer friction and pressure to support an appropriate macro and micro-wound environment

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Saving Limbs and Saving Lives

"PHOENIX Wound Matrix will challenge our status quo of Cellular Tissue Products as a critical tool in our tool box for wound healing." "I am seeing rapid wound closure rates on very complex wounds. "PHOENIX should be considered a first-line treatment option in our fight to preserve limbs and save lives." – Dan Davis, Podiatric Surgeon

"With PHOENIX Wound Matrix I am seeing an immediate change in the tissue and wound environment after the first application." "Wounds that were stuck in an inflammatory chronic state rapidly become healthy granular tissue and begin healing." "Very impressive healing rates and outcomes." – Frank Aviles, PT, CWS, FACCWS, CLT - Wound Care Service Line Director

"There is a clear physiological change in the health of the tissue after first application." "My patients are so pleased with the outcomes." "PHOENIX is remarkable." - Denisa Riera, Podiatric Surgeon

"I feel that the tissue we are repairing and regenerating with PHOENIX Wound Matrix is as strong if not stronger than before. I have seen no wound reoccurrence in my patients' wounds." – Richard Schilling, DPM

"As time is critically important, PHOENIX Wound Matrix should be considered as a first-line treatment option for rapid and effective wound closure." "I have been able to minimize or eliminate the use of more expensive CTPs when utilizing PHOENIX Wound Matrix." *– Matthew Garoufalis, DPM, FASPS, FACFAOM, CWS, FFPM RCPS (Glasg)*

"In the OR, PHOENIX Wound Matrix, combined with PRP, provides an excellent scaffold for cellular migration, infiltration and proliferation. I have noticed a decreased inflammatory response. My patients' wounds have remained granular and I have observed faster healing times with PHOENIX." *– Dr. Eric Storts, DPM*

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