

**ABSTRACT: Presented at Innovations of Wound Healing Conference,
Key Largo, FL, December 2016**

Elastic Compression Therapy Appears to Enhance Regenerative Healing

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This case study asks, *Does elastic compression therapy enhance regenerative healing in chronic wounds?* Edema is a treatable wound comorbidity and indications for elastic compression therapy (EC) are expanding. EC therapy for venous leg ulcers was pioneered by Moffatt, who feared an arterial tourniquet effect and advocated vascular testing. Limiting EC to limbs with ankle brachial index of >0.8 became a de novo standard however, little prospective data justifies withholding EC in wounds with arterial disease.¹ In 2016, Brogan demonstrated that 1 hour of EC significantly increases skin perfusion.²

Jacobs, in 2010, observed that pneumatic compression appears to enhance regenerative, i.e. stem cells precursors involved, healing.³

As we began to use EC liberally to heal ischemic wounds,⁴ we began to notice the findings Jacobs described. Tamia, using bioengineered mouse bone marrow transplantation model, demonstrated that five months after a split thickness skin graft, 85% of the epithelial cells in grafted skin are derived from bone marrow precursors.⁵

Photos document 5 full thickness mixed etiology wounds treated with EC therapy that demonstrate one of the three clinical signs of Regeneration. Full thickness wound healing: (1) without scar, (2) with fingerprints on palm and soles, and (3) with non-pigmented scar in dark skin.

Photos of healed wounds with clinical signs of regenerative healing in 5 patients treated with EC for refractory leg ulcers are presented.

Anecdotal observations suggest that elastic compression therapy, long required to heal venous leg ulcers, appears to have a regenerative mechanism.

1. Moffatt, C J. (2003) Randomized trial of four-layer and two-layer bandage systems in the management of chronic venous ulceration. *Wound Repair and Regeneration*, May 2003.

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3. Jacobs, Laura F. MD PhD, (2010) Pneumatic Medicine: A Transformative Approach to Chronic Wound. *Today's Wound Clinic*, Volume 4, Issue 12, December 2010.
4. Winkler, M., et al. (2016) Four Layer Compression Dressing Appears Safe in Profound Arterial Ischemia: moving water out of subcutaneous fat is salutary for perfusion. Symposium of Advanced Wound Care April 2013. Link accessed 10-28-2016 <http://compressiondynamics.com/wp-content/uploads/2015/06/PosterFour-Layer-VLU-Compression-Dressing-Appears-Safe-for-Profound-Arterial-Ischemia.pdf>
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