



# Adjunctive application of the geko™ device to improve blood flow in patients with lower limb ulcerations

Author: Angie Gordon Davies, Registered Nurse, Sandton Wound & Stoma Clinic.  
Certificates in Wound Care - University of the Free State, 2015: Treatment of Complicated Wounds, Diabetic Foot Ulcers, Holistic Wound Management, Lower Leg Ulcers and Prevention of Pressure Ulcers.

## Introduction

**This case study describes the wound management of a 76-year-old female who developed a venous leg ulcer 5 years ago.** The patient was hypertensive and had a history of previous deep vein thrombosis (DVT) and depression. The chronic medication the patient was using at the time of treatment was Hexazide 25 mg, Lexamil 10 mg, Pharmapress, and Ecotrin 81 g.

The patient was recently assessed by a vascular surgeon who confirmed that her arterial blood flow was good. She had also seen multiple wound nurses, but unfortunately, her wounds kept opening. For this reason, she was referred by her general practitioner to Sandton Wound & Stoma Clinic.

## Method Assesment

**The wound assessment confirmed two large open wounds on the medial aspect of the gaiter region.** The wound bed was beefy red and the exudate was high in volume and very offensive. The surrounding tissue was red and inflamed with haemosiderin staining present. It was also noted that the leg was slightly oedematous with a woody, hard texture, and the leg’s skin was dry and scaly.

## Treatment

The wounds were initially treated with acetic acid (3%) and rinsed with Granudacyn (HOCL) three times per week. Bioscrub was used to wash the leg after which emollient cream was applied.

The wounds were debrided with Iruxol ointment, Bactigras and Zetuvit Plus, followed by a 3-layer compression system consisting of Coban, crepe and ortho wool bandages. The compression therapy was later switched to a 2-layer long-stretch compression system (PütterPro 2).

Seeing as the wounds were showing hardly any notable healing, the decision was made to use Neuromuscular Electrostimulation Device (NMES) wound therapy in addition to the wound regimen to aid healing by augmenting blood flow to the patient’s limb and wound beds. Thus, the geko™ device was used in conjunction with compression therapy.

**Antimicrobials used:** UrgoTul Ag, Inadine, Bactigras.  
**Debriding agents:** Melcura Plus, Iruxol.  
**Biofilm treatment:** Microdacyn gel, Prontosan gel.

## Application of the geko™ device

This self-adhesive, wearable device was applied over the head of the fibula to the surface of the skin on the lateral aspect of the leg just below the knee. It delivered a charge-balanced electrical pulse once per second to the common peroneal nerve. This pulse stimulated the calf & foot muscle to contract which increase venous, arterial & micro-vascular flow.

The patient was shown how to apply and remove the geko™ device. A regular twitch of the foot indicated that the muscles were being stimulated. The usage was 12 hours on and at least 6 hours off before the next application. After a week the application was only done during the night.

## Results/Discussion

The patient expressed a strong desire to incorporate the geko™ device into her wound care routine. She was hopeful that it might facilitate the healing of her ulcers which had been present for a prolonged time. She found the application and removal of the NMES device straightforward.

Following the application of the geko™ device, both wounds began to diminish in size. The patient noted a decrease in pain which enabled her to decrease her reliance on analgesics. Witnessing the improvement in her wounds elevated her mood. She also appreciated the opportunity to participate in her own care, noting that it gave her a sense of increased independence.

## Conclusion

Healthcare professionals are progressively embracing innovative methods of care that allow patients to be more actively involved in their own treatment. In wound care, this translates into granting capable patients a more hands-on role in managing their own recovery.

Empowering patients in this manner can enhance adherence and cooperation, offering them renewed hope throughout their treatment – a pivotal aspect for individuals profoundly affected by their wounds. This case study exemplifies the benefits associated with engaging patients actively in their care.

## Ulcer healing progression with the application of compression therapy and the geko™ device



References: Viva, A., Lev-Tov, H., Kirsner, R.S. Venous leg ulcers. Annals of Internal Medicine. 2016. 165(3): ITC17-ITC32. doi: 10. 7326/AITC201608020. Parker CN. Finlayser al. Risk factors for delayed healing in venous leg ulcers: a review of the literature. Int J C Clin Pract. 2015 Sep;69(9):967-77.