

Muscle Pump Activator Device: A Case Study in treating a Diabetic Foot Ulcer (DFU)

Authors: Parsons, A., RN, BN, IIWCC

Aim

To evaluate the impact of the geko™ wound therapy device in treating a non-healing DFU.

Procedure/Method

- A 91-year-old lady, living in a Long-Term Care setting with NIDDM and many co-morbidities.
- She developed a DFU secondary to wearing ill-fitting shoes resulting in a blister, then cellulitis/osteomyelitis and was treated with antibiotics.
- The resident was followed for 9 months in a wound care clinic.
- She was placed in an off-loading boot and the wound was managed with evidence-based treatment modalities such as iodine based products, silver dressings, and foam dressings, but the wound remained open. Due to positive healing outcomes in an LTC evaluation by Harris et al, it was decided to initiate the geko™ wound therapy device.¹ Vascular studies indicated vascular disease (ABPI Rt =0.61, Lt =0.46).
- Consent was obtained for photos and reproduction prior to starting the geko™ device.
- The device was used for 6 hours/day for 6 days/week, as per manufacturers instructions.²

- The geko™ device was placed over the fibular head to stimulate the common peroneal nerve which activated the calf and foot muscle pumps.
- The device was used to increase venous return, reduce edema, and increase microcirculation to the wound and peri-wound.

Findings/Results

- Within 5 days of starting the geko™ wound therapy device the wound developed hypergranulation tissue and callous to the periwound area.
- This was debrided by the Nurse Practitioner. The wound was closed in 53 days. The final photo was not obtained due to COVID restrictions.

Implications/Applications

- The application of the geko™ wound therapy device as an adjunctive therapy improves wound healing outcomes in DFU's by increasing blood flow to the wound and periwound area, reducing edema, and significantly decreasing the healing time.³
- The nursing staff reported "the geko™ wound therapy device was easy to use and they were very impressed with the results."

- Family members expressed that they were pleased with the outcome of using the geko™ wound therapy device.

References

1. Harris C, Ramage D, Boloorch A, Vaughan L, Kuilder G, Rakas S. Using a muscle pump activator device to stimulate healing for non-healing lower leg wounds in long-term care residents. Int Wound J. 2019 Feb;16(1):266-274. doi: 10.1111/iwj.13027. Epub 2018 Nov 20. PMID: 30460740; PMCID: PMC7379663. Online available: <https://pubmed.ncbi.nlm.nih.gov/30460740/>
2. Manufacturers Information for Use. Firstkind Ltd. Online available: [geko User Information](https://www.geko.com.au/geko-user-information)
3. Williams K. Section 7.3 NMES in the management of diabetic foot ulcers (ULCERS). Neuromuscular Stimulation of the Leg. PhD Thesis, Imperial College London for the degree of Doctor of Philosophy. April 2017. Pages 289-302. Available at: <https://spiral.imperial.ac.uk/bitstream/10044/1/49202/1/Williams-K-PhD-Thesis.pdf>



September 27, 2019



Started geko™ December 5, 2019



December 16, 2019



January 6, 2020