Innovative Technology

The geko™ wound therapy device
A paradigm shift in the management of wounds

Breaking the cycle of chronic wounds

www.gekowound.ca
What is geko™ wound therapy?

Self-contained and wearable, the geko™ device:

- Stimulates the common peroneal nerve, activating the extensor muscles and stretches the antagonistic flexor muscles, acting as a calf muscle pump\(^1\)
- Increases superficial femoral venous volume flow by 100%, femoral arterial volume flow by 75%\(^2\) and microcirculatory flux to the skin on the dorsum of the foot\(^3\) and thigh\(^4\) by 400%
- Increases blood flow equal to 60% of that achieved when walking\(^5\); wearing it for 6 hours per day may give a blood flow benefit comparable to over 3 hours of walking
- Benefits patients with chronic venous insufficiency over time\(^6,7\)
- Is simple, easy to use, small and lightweight (just 10g) battery operated (no leads or wires), enabling the patient to be as mobile and independent as possible
- Is worn for 6 hours per day, 6 days per week
- Through gentle muscle contractions, provides feedback so that patients feel engaged in their care, and may have better adherence to treatment protocols
- Preliminary evidence in an Ontario Home Care setting evaluation suggests this may be a first line treatment in conjunction with traditional therapy\(^8\)

Research evidence:
The geko™ device has been the subject of scientific rigor to demonstrate its ability to increase blood circulation. The body of evidence continues to grow, targeting clinical issues such as CVI, in the management of lower leg wounds. See www.gekowound.ca
Clinical evidence – evaluation of the geko™ device in the management of venous leg ulcers

Painful leg ulcer

41-year-old female, BMI >33kg/m², spontaneous leg ulcers, 6 weeks prior; required IV and later oral antibiotics; still on oral x 5 days at baseline. ABPI: L 1.0, R 1.2; Pain 10/10 initially. As wounds closed, she graduated from low to high compression as pain decreased to 0/10. She was fitted with compression stockings.

Non-healing venous leg ulcer

80-year-old female, 6.5-month history of VLU to the Rand L medial malleolus and a pressure ulcer on L heel. Unable to tolerate compression due to pain, received wound care 3 x/ week. One wound closed in 18 days, the remaining in 2 ½ months. When pain was reduced, she was fitted with compression. Her nurse commented on a change in her overall appearance and well-being.

Non-healing surgical amputation

77-year-old male, CVI, diabetes, non-healing R toe amputation site for 4.5 months, previous R leg bypass 7 years prior. Angioplasty was performed 1 month before the toe amputation. Also had a venous ulcer on the R shin, which doubled in size over 3 months. Wearing an inelastic Unna’s paste boot dressing. Nursing visits went from every 2 days to every 3 days by week 3. Both wounds closed at 5 weeks.
Diabetic foot wound

Female with type 2 diabetes, a non-healing second toe amputation; wedge resection and multiple non-healing plantar DFU following 1 year of wound care. She had 3+ peripheral edema below the knee. Edema reduced after 2 weeks and all plantar surface wounds were closed following 4 weeks of geko™ treatment. Three other wounds were stable dry eschar with no infection.

Pressure injury

92-year-old female, Atrial fib, type 2 diabetes, benign hypertension, arthritis, glaucoma, and dementia. Wound etiology: pressure-related; offloading and repositioning schedule in place. ABPI not available; suspected some arterial compromise. R heel 0.9 x 0.6cm covered with scab. L heel 2.1 x 1.7 cm, covered in eschar and dry scab, surrounded by hyperkeratotic skin. Wound duration of 4 months healed in 3 months with the geko™ device in combination with conservative sharp wound debridement.

Woody Fibrosis

67-year-old male, type 1 diabetes, a long history of bilateral VLU and recurrent blisters. Three hospitalizations for leg cellulitis and sepsis IV antibiotics in the year prior to using the geko™ device. Within 2 weeks his legs were getting softer and he had increased ankle mobility. The recurrent blisters decreased in frequency and duration. During the evaluation he experienced only 1 course of oral antibiotics and no hospitalization.
Speckle spectroscopy\(^9\) – evaluation of a venous leg ulcer

In this example, when activated, the geko™ device caused a 225% increase in flux (p<0.001) in the wound bed and a 67% increase in flux (p<0.001) surrounding the peri-wound area\(^10\). Increases in flux corresponds to an increase in microcirculatory blood flow, which is clearly seen in the comparison below. This increase in blood flow results in an increase in red blood cells carrying oxygen and nutrients necessary for healing.

Further evidence can be reviewed at: www.gekowound.ca

Benefits of the geko™ device

The geko™ device increases venous, arterial and microcirculatory blood flow while reducing pain\(^10\) in individuals with lower leg ulcers.

In addition, consider the geko™ device\(^11\):

- In the management of lower leg edema that is contributing to reported pain
- In the management of stalled, chronic lower leg wounds that are not progressing along the expected healing trajectory
- In wounds that can be predicted to be slow in healing from the onset
- In conjunction with compression or when compression cannot be tolerated
- For patients with fixed ankle joints, those who are bedridden or those with limited mobility
References:


2. Williams KJ, Moore HM, M Ellis and Davies AH. Haemodynamic changes with the use of a neuromuscular stimulation device compared to intermittent pneumatic compression. Phlebology. Online 10 April 2014. http://phil.sagepub.com/content/early/2014/04/10/0268355514531255


Case Study References:


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