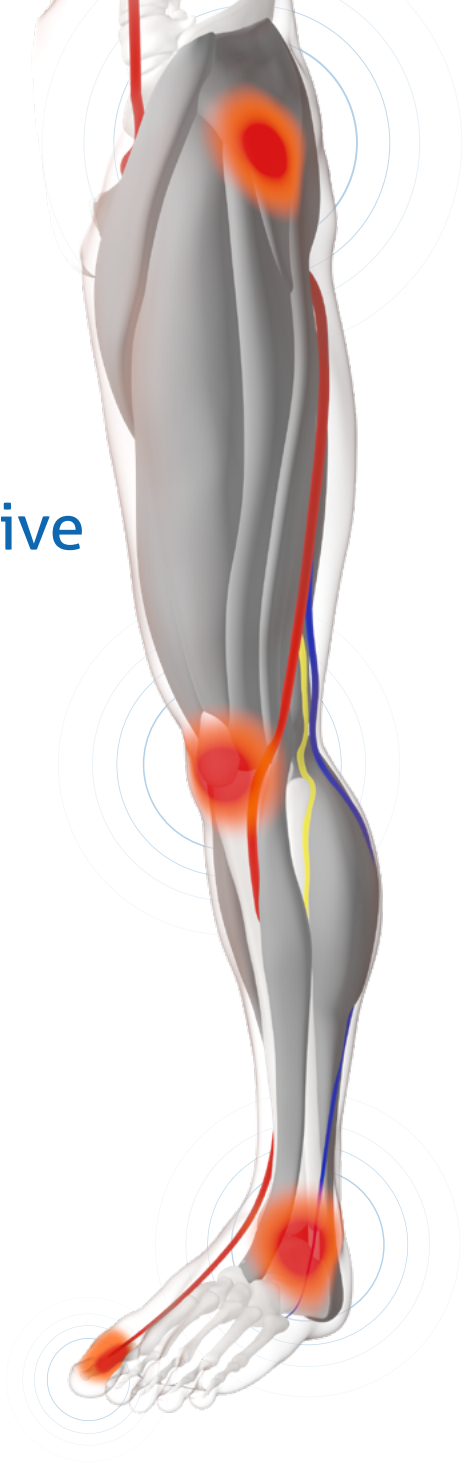


Pre & post-operative edema reduction

Enhancing patient recovery
after orthopaedic surgery



Pre-operative edema reduction – ORIF

Accelerating readiness for surgery in ankle fracture patients requiring Open Reduction Internal Fixation (ORIF).

Ankle swelling can delay surgical fixation due to risks associated with operating on swollen tissue, including wound dehiscence and subsequent infection.¹

A prospective and retrospective study investigated the use of geko™ to reduce pre-operative edema in ankle fracture patients and compared the results to the current standard of care.²

The geko™ device was fitted above the backslab plaster cast and patient tolerance and readiness to surgery was measured and matched to a historical cohort.

The study data was statistically significant in accelerating readiness for surgery: $p=0.001$.

Results show:

- Readiness for surgery was 2 days earlier per patient (average)
- Current treatment = 3.66 days for surgery (average)
- The geko™ + plaster cast = 1.66 days readiness for surgery (average)
- The geko™ was well tolerated and easy to use
- Worn for 24 hours a day on the affected leg



2

2 days improvement in readiness for surgery on average per patient.

Cost Savings

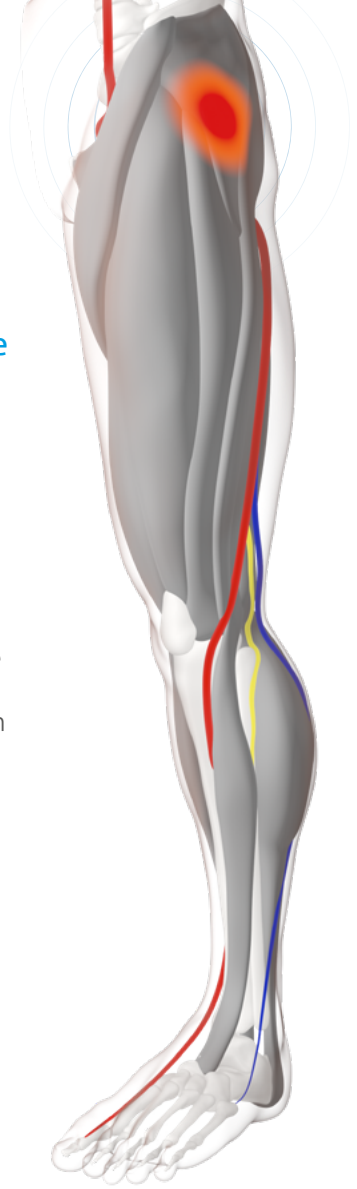
Generated by reducing hospital stay by 2 days.

Post-operative edema prevention – THA

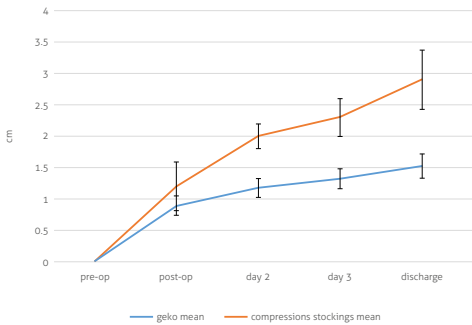
Preventing the build-up of post-operative edema following total or partial hip replacement Arthroplasty (THA).

Post-operative edema can decrease muscle function leading to a reduction in venous return and the movement of fluid from the tissues back into the blood vessels.³

An RCT comparing the effectiveness of the geko™ device to compression stockings in preventing the formation of edema following total hip replacement surgery demonstrates the prevention of edema build-up in the operated leg.⁴



Change in thigh circumference, operated leg

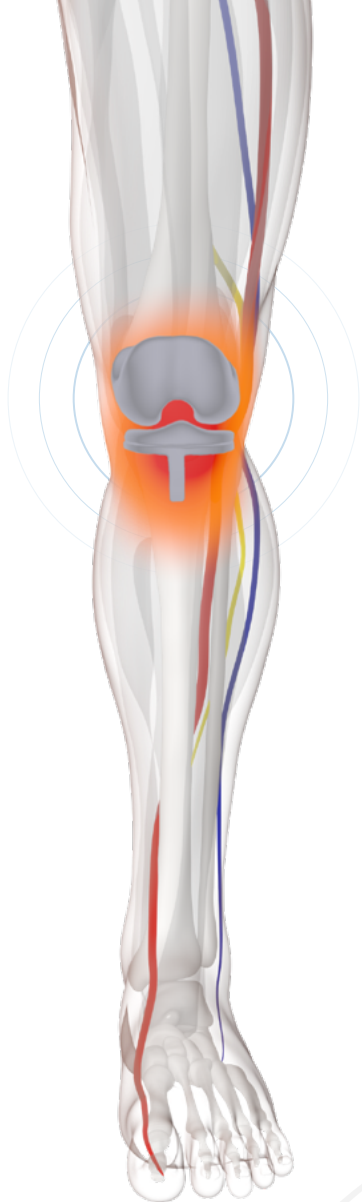


Post-operative edema prevention – TKA

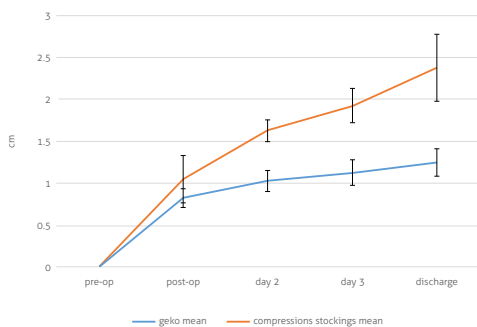
Providing lower limb muscle pump activation for the prevention and treatment of edema.

Swelling in the knee, in the acute recovery period following Total Knee Arthroplasty (TKA), can impair quadriceps muscle strength and rehabilitation.⁵

An RCT evaluating geko™ device effectiveness in preventing edema formation following total hip replacement surgery shows a reduction to knee circumference on the operated leg.⁵



Change in knee circumference, operated leg



Post-operative edema reduction – Foot & Ankle

Enhancing patient recovery following foot & ankle surgery.

Case study: 40-year-old female right scarf lateral release akin osteotomy.⁶

The geko™ device was applied immediately post-surgery on day 2 for 22 hours, on day 3 for 24 hours and days 4-10 for 4 hours.

The patient reported the geko™ device as well tolerated and the surgical wound healed with a lower level of bruising than expected.



Day 1 Post-operative (1 hour after surgery).



Day 4 The patient was partial weight bearing with a heel wedge shoe and walked with elbow crutches.



A new approach

Providing lower limb muscle pump activation for the prevention and treatment of edema.

Easy-to-use, the geko™ is a battery powered, disposable muscle pump activator device designed to increase blood flow in the deep veins of the calf.

The geko™ device gently stimulates the common peroneal nerve contracting the calf and foot muscle pumps to prevent and treat edema.



60%

The increase in blood flow is equal to 60%⁷ of walking without a patient having to move.

Zero

No wires or leads.
Small, light and comfortable to wear.
Silent in operation.

10g

Weights just 10g.
Quick and easy to fit.

References

1. Keehan R, Guo S, Ahmad R, Bould M. Impact of intermittent pneumatic foot pumps on delay to surgery following ankle fracture. *Foot Ankle Surg* 2013 Sep;19(3):173-176.
2. P Baker et al. Abstract 2017. Data on file Firstkind Limited: The geko™ Neuromuscular Electrostimulation Device Reduces Pre-Operative Oedema and Accelerates Readiness to Theatre in Patients Requiring Open Reduction Internal Fixation for Ankle Fracture.
3. K. Kerchner et al. Lower extremity lymphedema: update: pathophysiology, diagnosis, and treatment guidelines. *J. Am. Acad. Dermatol.*, 59 (2) (2008), pp. 324-331.
4. Wainwright TW et al. A Feasibility Randomised Controlled Trial to Evaluate the Effectiveness of a Novel Neuromuscular Electro-stimulation Device in Preventing the Formation of Oedema Following Total Hip Replacement Surgery. *Heliyon* 18 Jul 2018- Volume 4, Issue 7.
5. Stevens-Lapsley E et al. Early Neuromuscular Electrical Stimulation to Improve Quadriceps Muscle Strength After Total Knee Arthroplasty: A Randomized Controlled Trial. *Phys Ther* 2012 Feb; 92(2): 210-226. Published online 2011 Nov 17. doi: [10.2522/ptj.20110124].
6. Pillai, Case study: Using the geko™ device to prevent oedema and promote functional activity following foot surgery, case study 1, data on file, published online, 2019.
7. Tucker A et al. Augmentation of Venous, Arterial and Microvascular Blood Supply in the Leg by Isometric Neuromuscular Stimulation via the Peroneal Nerve. *Int J Angiol*. 2010 Spring; 19(1): e31-e37.

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