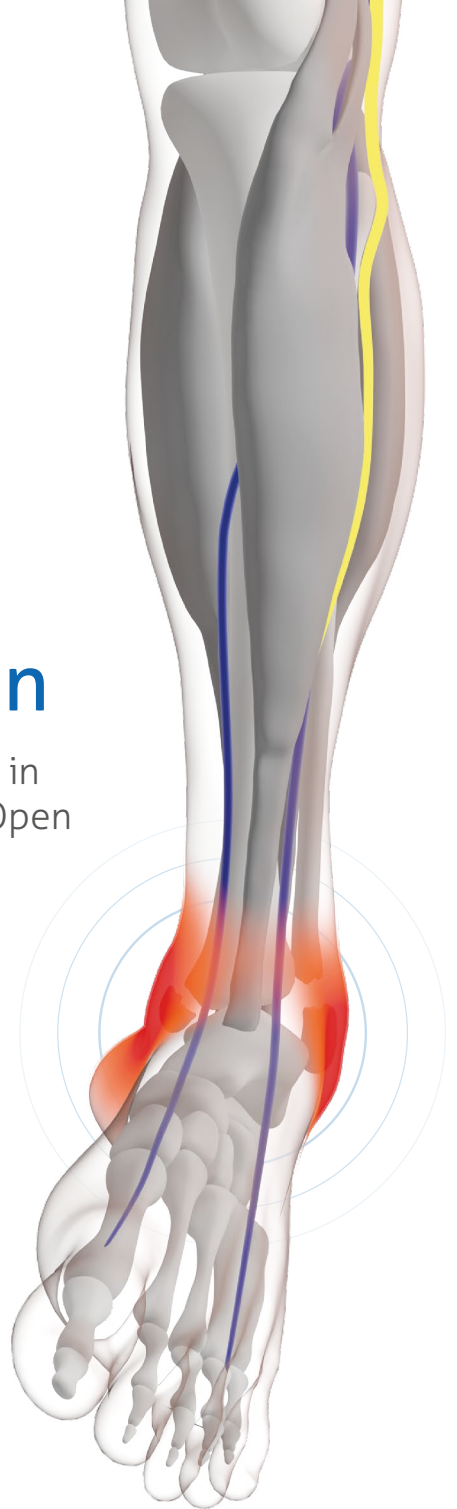


# Pre-operative edema reduction

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



**Accelerating  
readiness to surgery.**

**A new approach using  
OnPulse™  
technology**

# Managing pre-operative edema

**Due to their unstable nature, many ankle fracture patients will require Open Reduction Internal Fixation (ORIF)<sup>1</sup>.**

Ankle swelling can often delay surgical fixation due to risk associated with operating on swollen tissue, including wound dehiscence and subsequent infection<sup>2</sup>.

Accordingly, interventions that reduce swelling and accelerate readiness to surgery and more immediate surgical fixation will provide significant benefits to patients and healthcare providers<sup>2</sup>.

**Current care can be summarised as leg elevation plus:**

- Backslab plaster cast.
- Backslab plaster cast + external fixation.
- Backslab plaster cast + intermittent pneumatic compression (IPC).



# A new approach

## The geko™ device accelerates the reduction of edema.

Easy to use, the geko™ device is a battery powered, disposable neuromuscular electrostimulation device designed to increase blood flow in the deep veins of the leg<sup>3</sup>.

The geko™ device gently stimulates the common peroneal nerve **activating the calf and foot muscle pumps**<sup>4</sup> to prevent and treat edema and to accelerate and maintain readiness for surgery.

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# 60%

The increase in blood flow is equal to 60%<sup>4</sup> of walking without a patient having to move.

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# Zero

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

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# 10g

Weighs just 10g.  
Quick and easy to fit.

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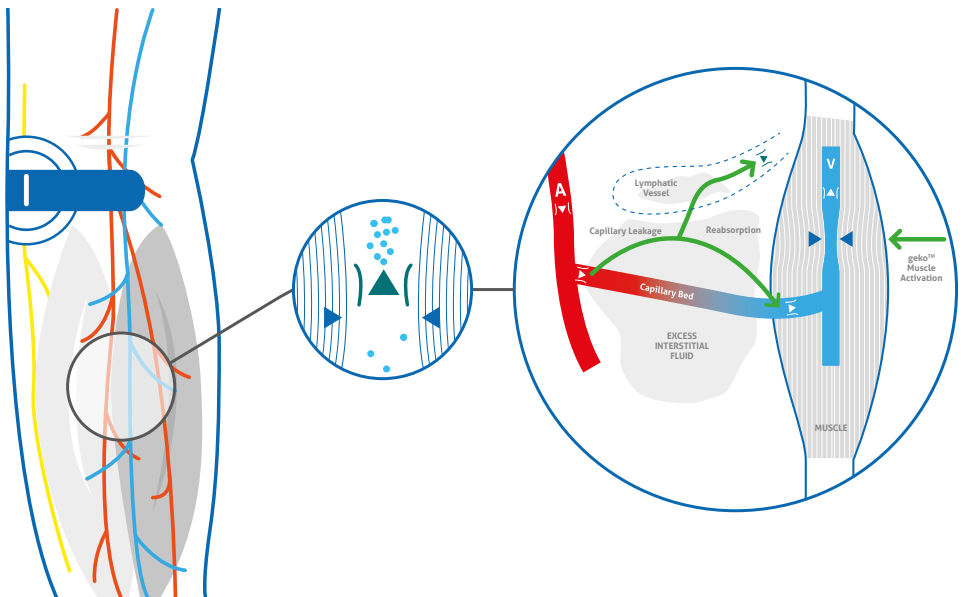


Figure 1 - Image modified for illustrative purposes<sup>11</sup>

# Proven to significantly accelerate readiness for surgery

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 standards of care.

The study recruited ankle fracture patients requiring surgical fixation. The device was fitted above their backslab plaster casts. Patient compliance and readiness to surgery was recorded and matched to a historical cohort for comparison.

The study data was statistically significant:  $p=0.001^6$ .

The geko™ device was well tolerated and easy to use.

## Results showed:

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2

2 days improvement in readiness for surgery per patient (average).

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2

With geko™ use, 60% of patients ready for surgery in 2 days, compared to 27% in control arm, a 122% improvement.

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3.66

Current treatment = 3.66 days readiness to surgery (average).

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1.66

The geko™ + plaster cast = 1.66 days readiness to surgery (average).

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# The geko™ device is cost saving

Independent health economic analysis<sup>6</sup> shows pre-operative edema reduction and accelerated readiness for surgery would release the following benefits:

- 2 pre-operative bed days saved per patient.
- Compared to the current standards of care, routine use of a backslab plaster cast + geko™ saves an average of £569<sup>6</sup> per patient.

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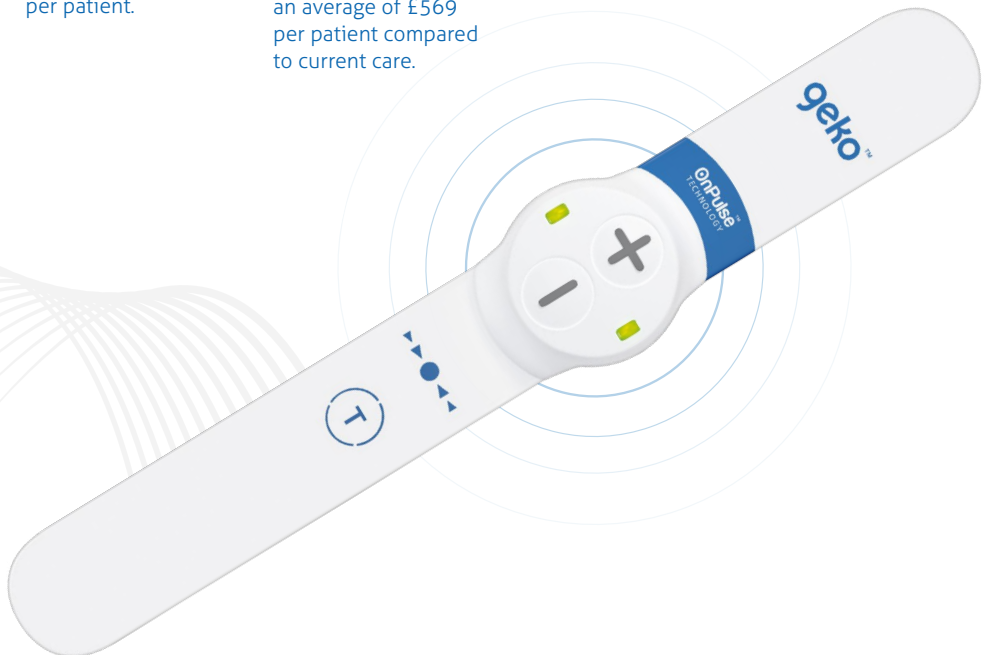
2

Pre-operative bed days saved on average per patient.

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£569

Backslab plaster cast + geko™ saves an average of £569 per patient compared to current care.



# Associated benefits

## Successful edema management promotes:

- Post-operative wound closure and surgical site infection reduction<sup>2,7</sup>.
- Accelerated recovery - rehabilitation can begin sooner<sup>7</sup>.
- Improved theatre time scheduling<sup>8</sup>.

## UK NICE guidance (MTG19)\* recommends use of geko™ for:

- Reducing the risk of DVT in patients who may be contraindicated to drugs or mechanical prophylaxis<sup>9</sup>.

## Clinically proven to increase blood flow velocity in the deep veins:

- Griffin and Nicolaides report that the geko™ significantly increases blood flow velocity in the deep veins of the calf ( $p=0.001-0.05$ ), where early thrombi form<sup>9</sup>.
- Warwick et al report that geko™ significantly increases blood flow velocity in patients with plaster casts ( $p=0.001-0.003$ ), where calf muscle activation is reduced<sup>10</sup>.





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#### \* NICE Guidance

NICE Guidance (MTG19) supports use of geko™ device for people who have a high risk of VTE.

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#### USA

In the USA geko™ devices are sold for increased blood circulation and the post-surgical stimulation of the calf muscles to prevent venous thrombosis and edema reduction.

Caution: Federal law restricts this device to sale by or on the order of a licensed healthcare practitioner.

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