

Clinically proven to
reduce oedema⁹

geko™
circulation support



Oedema Reduction

Providing increased blood circulation for
the prevention and treatment of oedema

OnPulse™
TECHNOLOGY

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living science

Increased blood circulation promotes pre-operative and post-operative oedema reduction

Pre-operative and post-operative oedema can present major clinical and economic complications in orthopaedic surgery leading to¹:

- Delay or cancellation of surgery due to inadequate oedema reduction
- Delayed discharge extending the length of patient stay

Elective and fractured hip patients, particularly those with comorbidities and compromised vasculature, are at greater risk of post-operative complications such as oedema which can **impair local tissue perfusion** and **surgical wound healing**².

Foot and ankle pre-operative oedema management is partially being addressed through home therapy programmes (HTP), an emerging standard of care within NHS trusts³, however, challenges to this approach remain:

- Optimal management of ankle fractures is surgical fixation within 8 hours of injury, to achieve low surgical wound complications caused by post-traumatic swelling. However, only 14% of the patients receive fixation within 8 hours due to an increasing trauma work load³
- If the 8-hour window is missed, time to surgery is delayed between 4 to 7 days post injury^{3,7} due to the time required to reduce the oedema, thereby increasing the length of hospital stay for this patient group
- 60-70% of ankle fractures are not suitable for pre-operative oedema HTP, due to clinical and social circumstances³. This patient group will remain in hospital and a more effective way to manage pre-operative oedema, and the associated costs, is likely to be beneficial
- The use of mechanical compression to manage pre and post-operative oedema has been shown to reduce time to surgery, total length of hospital stay and the release of significant cost savings per patient⁷

Why does oedema impair surgical wound healing?

Oedema impairs wound healing through several mechanisms⁴

- Additional extracellular water increases diffusion distances, resulting in lower tissue pO_2 ⁴
- Chronic oedema may result in protein deposition in the extracellular matrix, which can act as a diffusion barrier for growth factors and nutrients, making them less available to cells⁴
- Growth factors and nutrients become relatively diluted in the oedematous fluid⁴
- Excess fluids impede oxygen delivery and wound healing⁴



The benefits of improved surgical wound healing:

- Reduced infection rate
- Reduced outpatient visits

Mechanical compression increases blood flow to reduce oedema

Impaired calf muscle pump function and venous insufficiency can cause expelled blood to return, resulting in an increased ambulatory venous pressure* (AVP). Mechanical compression, which enhances muscle pump function to increase blood flow can reduce AVP by decreasing the pressure difference between capillaries and the surrounding tissue and transferring tissue fluid back into the veins and lymph vessels^{5,6}.

- By increasing blood flow and reducing oedema, mechanical compression can significantly reduce the time to surgery and total hospital stay for patients requiring ankle Open Reduction Internal Fixation (ORIF), and is cost effective⁷
- In patients with swelling after foot, ankle and lower limb fractures, mechanical compression reduces pre and post-operative oedema leading to shortened hospital stay, improved joint mobility, pain relief and decreased incidence of skin complications¹



**Ambulatory venous pressure (AVP) is the "gold standard" test of the efficiency of the calf musculovenous pump. It is performed by placing a small needle into one of the veins on the back of the foot and connecting the needle to a blood pressure measurement machine.*

The geko™ device is clinically proven to reduce oedema

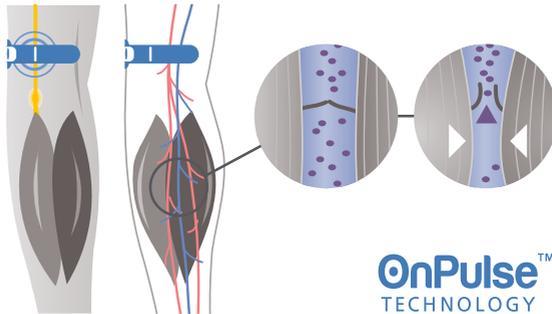


- The geko device™ delivers mechanical compression by activating the calf and foot muscle pumps resulting in increased blood flow¹¹ and the reduction of oedema¹⁰
- The highly portable geko™ device can lower AVP and VTT (venous transit times) transferring tissue fluid back into the veins⁸
- Compared to TED stockings following Total Hip Replacement, the geko™ device is more effective at preventing the build-up of post-operative oedema⁹
- The geko™ device can prevent oedema and promote functional activity following foot surgery¹⁰

How it works

The geko™ device gently **stimulates** the common peroneal nerve **activating** the calf and foot muscle pumps, increasing venous, arterial and microcirculatory blood flow¹¹.

The increase in blood flow is similar to that achieved by walking, up to 60%¹¹, without a patient having to move.



Small, light and comfortable to wear, the self-contained, battery powered geko™ device:

- Has no wires or leads – no tripping hazard
- Weighs just 10g
- Is easy and quick to fit
- Silent operation

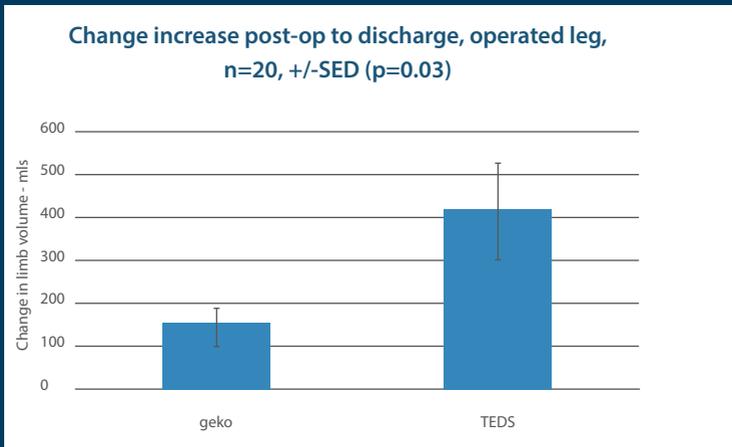
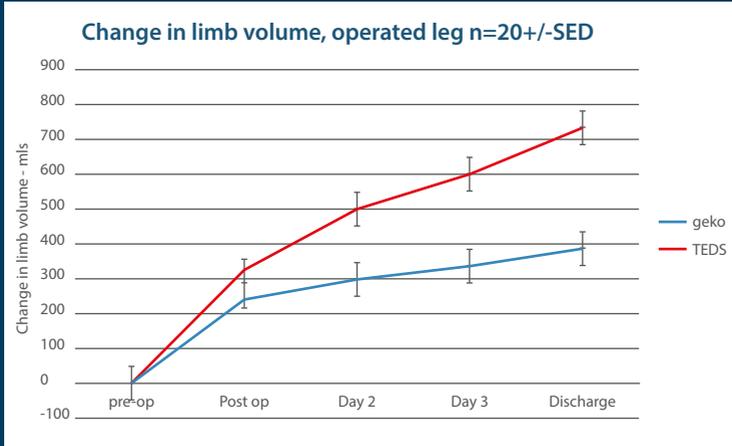
External fixation¹²



The small size of the geko™ made it ideal for the reduction of oedema in this Ilizarov limb reconstruction

Evidence

An RCT comparing the effect of the geko™ device and TED stockings on post-operative oedema in Total Hip Replacement patients⁹.



The geko™ device was worn post-operatively to discharge for 24 hours per day.

Results indicate that the geko™ device is more effective than TED stockings at preventing the build-up of post-operative oedema.

Providing increased blood circulation for the prevention and treatment of oedema

Self-contained and wearable, the geko™ device is:

- Simple and easy to use
- Small and light (weighing just 10g) with no leads or wires, enables the patient to be as mobile as possible

Further information available at:

www.gekodevices.com

Ordering information	
Product order code	MT2RW25
Product description	geko™ T-2 carton (25 pairs)
Order placement	0845 2222 920
Enquiries	0845 2222 921
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