

# Post-operative edema prevention

Preventing the build-up of post-operative edema following orthopaedic surgery.



# Swelling in the knee, in the acute recovery period following TKR\*, can impair quadriceps muscle strength and rehabilitation<sup>1,2,3</sup>

## Knee swelling after TKR can influence the post-operative results.<sup>2</sup>

- One month after TKR, quadriceps muscle strength drops 50% to 60% of pre-operative levels, despite the initiation of rehabilitation within 48 hours after surgery.<sup>4,5</sup>
- Muscle weakness, particularly in the quadriceps muscle, has profound functional consequences, especially in older individuals and can be associated with decreased gait speed, balance, stair-climbing ability, and ability to rise from a seated position, as well as an increased risk for falls.<sup>6,7</sup>
- Impaired functional performance can also be associated with length of stay and patient-reported outcomes<sup>8</sup> - and the associated knee swelling is known to increase rates of wound dehiscence and infection<sup>9</sup> and can delay rehabilitation.

## Causality:

Impairments in quadriceps muscle strength are caused by edema.<sup>10</sup>

Spinal reflex activity from swelling can diminish quadriceps muscle strength. Over time, the fibres of the muscles can atrophy due to the lack of use.<sup>1</sup>

Strategies to address **early** quadriceps muscle weakness should address the underlying edema.<sup>10</sup>

\*TKR = Total Knee Replacement.



# The geko™ device is clinically proven to prevent the build-up of post-operative edema<sup>11</sup>

- The geko™ device delivers mechanical compression by activating the calf and foot muscle pumps resulting in increased blood flow and the reduction of edema.<sup>11</sup>
- The highly portable geko™ device can lower Ambulatory Venous Pressure (AVP) and Venous Transit Times (VTT) transferring tissue fluid back into the veins.<sup>12</sup>
- The geko™ device can prevent edema and promote functional activity following foot surgery.<sup>13</sup>
- The geko™ device is well tolerated.<sup>14</sup>

## Associated geko™ benefits

The geko™ device also provides venous thrombosis prevention (VTE). NICE guidance (MTG19) supports use of the geko™ device for people who have a high risk of VTE and for whom pharmacological or other methods of VTE prevention are impractical or contraindicated.<sup>15,16</sup>

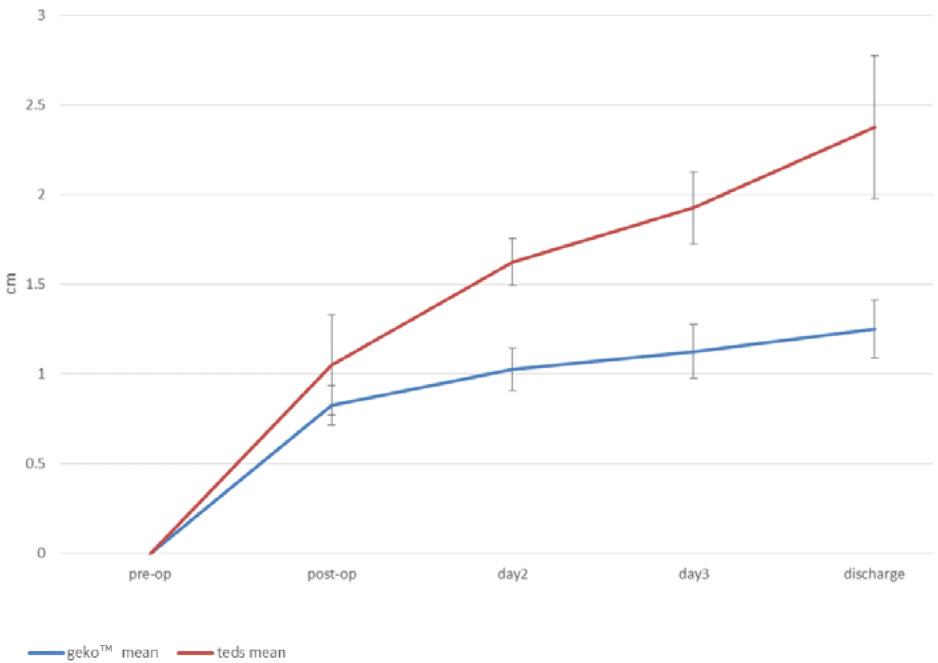


# Related geko™ evidence

An RCT comparing the effect of the geko™ device on post-operative edema in Total Hip Replacement patients, demonstrates geko™ efficacy in preventing the build-up of post-operative edema.<sup>13</sup>

The graph shows the change in knee circumference on the hip patient's operated leg.

## Change in knee circumference, operated leg



# A new approach

## Providing lower limb muscle contraction 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 leg.<sup>17</sup>

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

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# 60%

The increase in blood flow is equal to 60%<sup>18</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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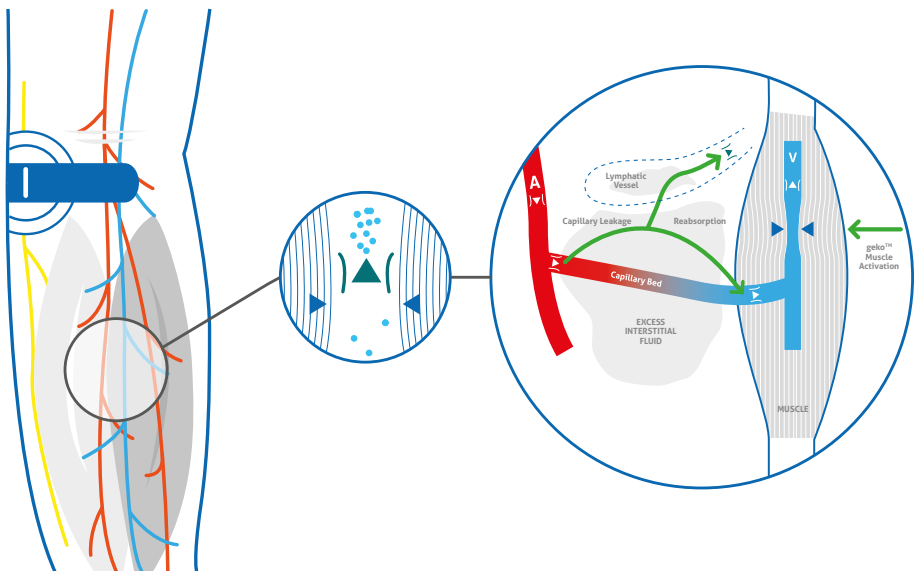


Image modified for illustrative purposes<sup>19</sup>

# Providing lower limb muscle contraction for the prevention and treatment of edema

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

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

### References

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