Masterclass GUIDES

Electrical Stimulation Wound Therapy: Accel-Heal Solo

Introduction

This Masterclass guide is a concise overview aimed at exploring the modality of electrical stimulation therapy and how to incorporate this into your practice.

What Is Electrical Stimulation and Accel-Heal Solo?

- **Human physiology is electrochemical in nature**. Within the skin, a stream of Na+, K+ and Cl- ions moving in opposite directions create a difference in voltage between the surface of the epidermis and the deeper layers, establishing a stored electrical potential or 'skin battery"
- **After wounding, microcurrents flow into the wound site, establishing a 'current of injury'**[1] (figure 1), **which stimulates cellular activity** such as migration and activation of gene expression in macrophages, endothelial cells, fibroblasts and keratinocytes[2], as part of normal wound healing
- The current of injury extends up to a radius of 2-3mm around the wound[3]. **As the wound closes, the current of injury progressively reduces**
- In chronic non-healing wounds, microcurrents are thought to dissipate and become dysfunctional or completely absent[4]. **Application of exogenous electrical stimulation therapy is effectively restoring a normal process in wound healing to mimic the current of injury, which has become "exhausted" due to the chronicity of the wound**
- Electrical Stimulation therapy has been **recognised for use internationally**[5]. Evidence has **demonstrated a reduction in pain and accelerated healing** using electrical stimulation therapy

- A scientific explanation is provided: **https://tinyurl.com/67m6kh7w**

- **Accel-Heal Solo is a unique device which is very easy to use, enabling frontline use of electrical stimulation** in everyday clinical practice (figure 2)
- Accel-Heal Solo is a **single-use wearable device that delivers a fixed 12-day programme of subsensory electrical stimulation therapy to hard-to-heal wounds to relieve pain and accelerate healing**
- Accel-Heal Solo is a class IIa medical device which **delivers low voltage biphasic monophasic pulsed current (LVBMPC) electrical stimulation therapy to the wound - mimicking levels seen in the body's natural systems.** The device delivers repeated treatment sessions, each lasting 28 minutes and 40 seconds with a resting period repeated several times daily throughout the 12-day treatment period. Meta-analyses[6,7] have shown that **EST devices, like Accel-Heal Solo, that deliver a "pulsed current" stimulation are more efficacious than other types of devices**
- Accel-Heal Solo is **small and discreet**, about the size of a car key fob, and **can be worn unobtrusively by the patient in all settings, without the need to attend specialist clinics.** Accel-Heal Solo is worn continuously over the therapy period and is used alongside standard therapy to ensure wound bed preparation strategies are continued according to best practice[8,9,10], and compression therapy if indicated for leg ulcers
- **The majority of patients only require one Accel-Heal Solo therapy to expedite healing of the wound**. However, those patients who had a positive response to the initial treatment, which then become stalled or exacerbated, might benefit from a second application of the Accel-Heal Solo therapy

Keywords

- **Hard-to-heal wounds**
- **Electrical stimulation therapy (EST)**
- **Pain management**
- **Wound healing**
- **Accel-Heal Solo**
- **Wearable**

Accel-Heal Solo Is Easy to Use

1. The Accel-Heal Solo treatment **can be applied by either clinician, carer or patient**
2. **Clean the skin surrounding the wound** with the alcohol wipes included
3. **Attach two electrode pads** to the patient's skin, either side of the wound or dressing
4. **Attach the Accel-Heal Solo device cables to the electrode pad leads** by pushing the Accel-Heal cable connectors into the electrode pad cable receptors
5. **Press and hold the button for 2 seconds to activate the Accel-Heal device**. When the button is released the device will commence operation
6. Accel-Heal Solo delivers a **pre-set programme of sub-sensory electrical therapy** and is worn continuously for the 12-day treatment, alongside standard care such as compression therapy, as indicated. Dressings, including the electrode pad, can be changed according to clinical need
7. **The therapy can be paused and the device and electrodes removed** to enable, for instance, bathing. To pause the Accel-Heal Solo device mid-use, press and hold the button for 2 seconds
8. Do not allow the device to become wet
9. **Refer to the instructions for use before application**

Figure 2:

Electrical Stimulation Wound Therapy: Accel-Heal Solo

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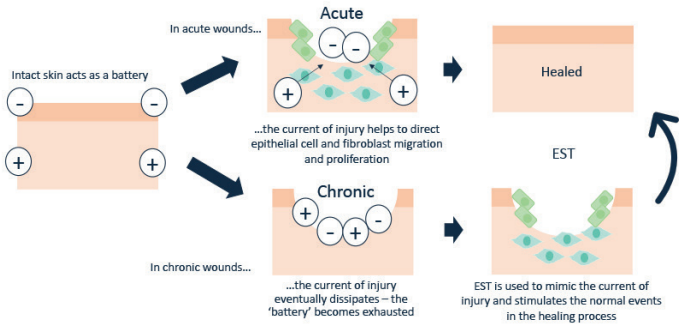
What Types of Wounds Are Suitable?

- **Non-healing wounds, including leg ulcers, diabetic foot ulcers (DFUs), post-operative wounds, pressure ulcers and burns**
- **Painful wounds**
- **Patients intolerant to compression therapy**
- **Patients who are unable to tolerate treatment regimes such as debridement**

Figure 1: Wound Healing relies on "a current of injury".



Day 0 prior to Accel-Heal treatment

Wound healed within 12 weeks of commencing Accel-Heal

Day 0 - Extensive DFU to lateral aspect right foot prior to Accel-Heal therapy.

Day 9 - DFU to lateral aspect right foot following Accel-Heal therapy.

14 weeks following Accel-Heal therapy - DFU to lateral aspect right foot.

Accel Heal Solo
ELECTRICAL STIMULATION WOUND THERAPY

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What Is the Evidence?

Electrical stimulation therapy (EST) is one of the most widely evidence-based therapy areas in wound management. The extensive evidence base includes nine meta-analyses, eight systematic reviews and over 35 Randomized Controlled Trials (RCTs), that describe the efficacy of EST in wound management. Accel-Heal EST has 25 published articles, including 2 double blind placebo controlled RCTs, demonstrating effectiveness in pain reduction and wound healing in hard-to-heal wounds.

Pain Reduction

- **Pain reduction has had a significant impact on many patient's lives**, with many reducing their analgesia, reporting improvements in their mobility and social lives and sleeping
- **The evidence demonstrating the positive clinical outcomes regarding pain reduction using Accel-Heal therapy is significant**
- Information has been extracted from previous studies, to include any patients/wounds who had their pain score recorded (visual analogue score (VAS) range 0-10), prior to Accel-Heal therapy, at the end of the 12 day treatment and at the end of the study period. 71 patients from 11 studies[11-12,13,14,15,16,17,18,19,20] were included in the analysis, and had been evaluated for a period of between 4.3 to 21 weeks. Many patients had pain scores >5, and were taking several types of analgesia, and suffering sleeplessness and social isolation. The data demonstrated a mean pain score of 6.81 (VAS) prior to therapy, reducing to a mean of 2.62 (61.5% reduction) after the 12-day therapy and reducing to a mean of 0.4 (94.2% reduction) by the end of the evaluation
- A randomised gene expression analysis[21] demonstrated that after 48 hours of stimulation, Accel-Heal was found to affect gene expression in human skin. In particular, **Accel-Heal down-regulated 25 pro-inflammatory genes that are implicated in painful, chronic ulcers and in inflammation**, supporting a mechanism behind the pain reduction that is seen in clinical practice

Wound Healing Acceleration

- Accel-Heal has a **positive impact on wound size reduction and healing, in hard-to-heal wounds**. In three observational studies[11,14] involving 37 non-healing wounds, **healing was achieved in 84-90% within 20 weeks**. 27% (n=10) of wounds had been present for over one year prior to Accel-Heal therapy
- To validate the healing potential even further, information has been extrapolated from several previous studies, to include any patients/ wounds who had their wound dimensions recorded prior to Accel-Heal therapy, following the treatment and at the end of the study period
- 120 patients/ wounds from 14 studies[11-20,22,24] were analysed, including complex non-healing wounds; venous leg ulcers (failed to heal despite compression therapy), DFUs, post-operative wounds and arterial ulcers. Some wounds were extensive and had been present for many years. Patients had been seen for the evaluation process for a period of between 12 days to 182 days. **The analysis demonstrated a mean wound size of 17.25 cms square (range 0.04 - 133), prior to Accel-Heal therapy. Following the therapy (assessed between 12 days to 8 weeks), the mean wound size was reduced to 12.8 (reduction of 25.8%). At the end of the evaluations, the mean size was 4.97 (reduction of 71.2%)**

Cost-effectiveness

- **Several economic studies have demonstrated the cost effectiveness of using Accel-Heal**[22,25-26]
- One study[27] demonstrated a decrease of 74% in district nursing time over the 20 week study period, resulting in **cost-efficiencies in nursing time and cost savings in dressings and bandages**
- Analysis of a previously reported RCT[25] determined that wounds being treated with Accel-Heal, healed on average 3.6 weeks faster vs standard care, resulting in **cost savings of £936 per patient on average**

Patient Stories

"If I hadn't had the device put on I think I would have been struggling." Patient in UK

"I would really and truly recommend (the treatment) to anybody who had an ulcer... the benefits... and the way you feel when you're free of it you can't explain to anybody." Patient in UK

"I would recommend it to anybody... If I had to have the treatment again I would have it willingly because I couldn't stand to have that pain again." Patient in UK

"For a long time we were getting nowhere, I feel like because of that I lost a few years as it was a real struggle, so now I'm delighted to start improving... I have a great family around me who are all so pleased with the progress, just ask my daughter in law, she's thrilled."[16] *Patient in UK*

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Key Points

- Accel-Heal Solo is a pre-programmed subsensory EST device
- Accel-Heal Solo is easy to use in all clinical settings by patients/carers and clinicians
- Accel-Heal Solo is a small and discreet, wearable device
- Accel-Heal Solo delivers a 12-day treatment course using a single device
- Accel-Heal has growing evidence to support efficacy in pain reduc tion and wound healing

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Useful Links

Use your device to scan this QR code for more information on Accel-Heal Solo

More information on Accel-Heal Solo: https://tinyurl.com/mrxv482s

Case Studies: https://tinyurl.com/syssz69t

A solo case study demonstrating the real-life affect Accel-Heal had on healing the patient's wound and improving quality of life: https://tinyurl.com/mr2n4rbp

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