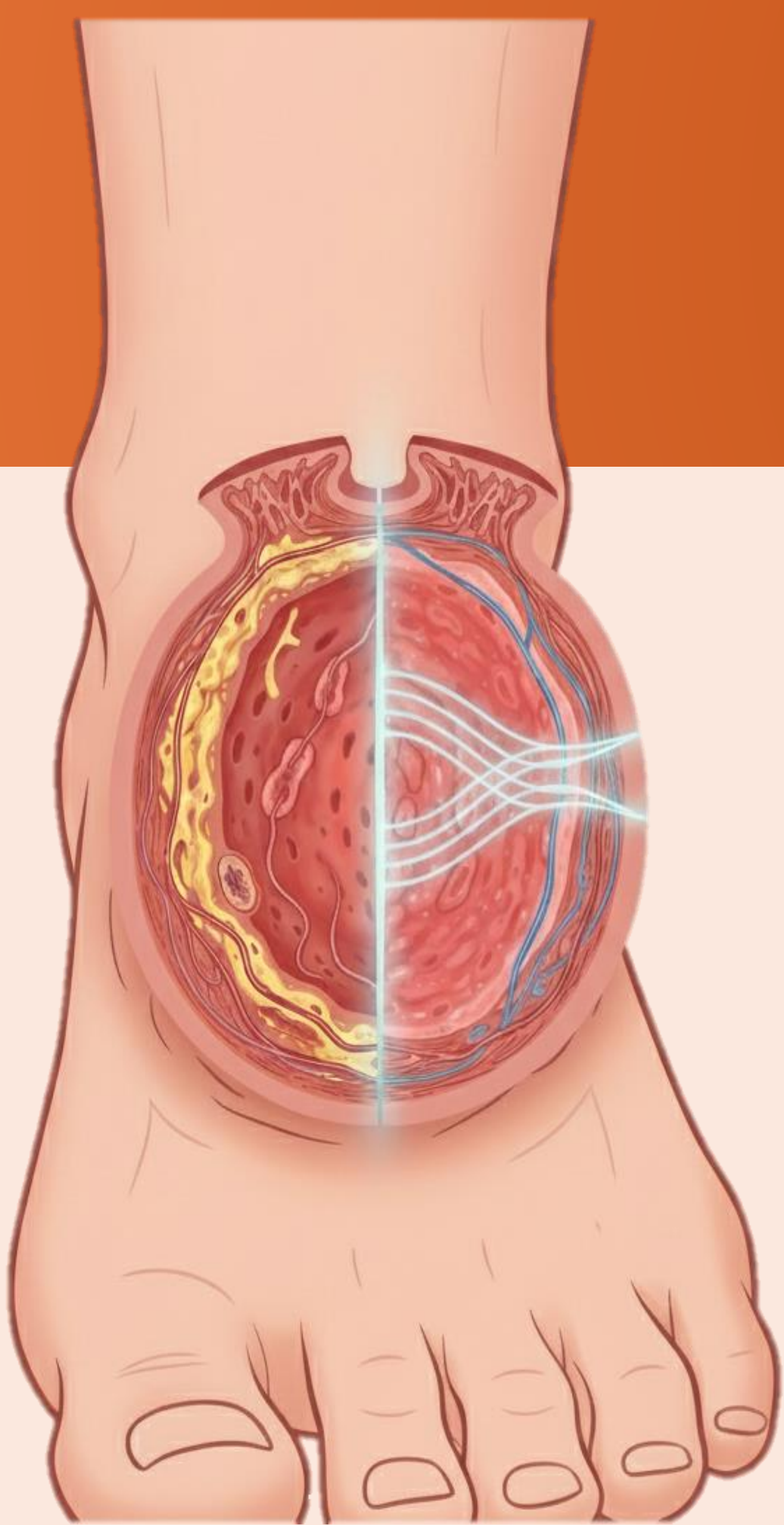


Faster, Painless, and Healthier Wound Recovery: A Pulsed-Current Electrical Stimulation For Venous Leg Ulcers



1 Introduction

- Venous leg ulcers (VLUs) remain high prevalence of **1.5–3%** worldwide.
- Effective treatments are limited:
 - Compression therapy → Substantial **pain** leads to poor adherence and treatment failure.
 - Surgical interventions → limited by **cost, facilities**, and patient suitability.
- Electrical stimulation therapies (EST) emerged as promising approaches for **accelerating wound healing** and **alleviating pain**.
 - Research demonstrated a pooled mean wound area reduction of **8.3 cm²** and a decrease of **1.4 points** in VAS scores.
 - Included in international recommendations: NPUAP, EWMA, WHS, and the Wounds UK Best Practice Guidance.
 - Pulsed-current electrical stimulation (PES) has been increasingly recognised as particularly effective in promoting wound healing.

2 Objective

- To assess the clinical efficacy of a single-use, portable **PES device** for **VLU patients** in a real-world setting.
- Compare Percentage Wound Area Reduction (PWAR), Numerical Rating Scale (NRS) scores, and Wound bed tissue composition pre- and post-intervention.

3 Methods

- A self-controlled service evaluation was conducted in Eastbourne, UK.



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4 Results

Figure 1

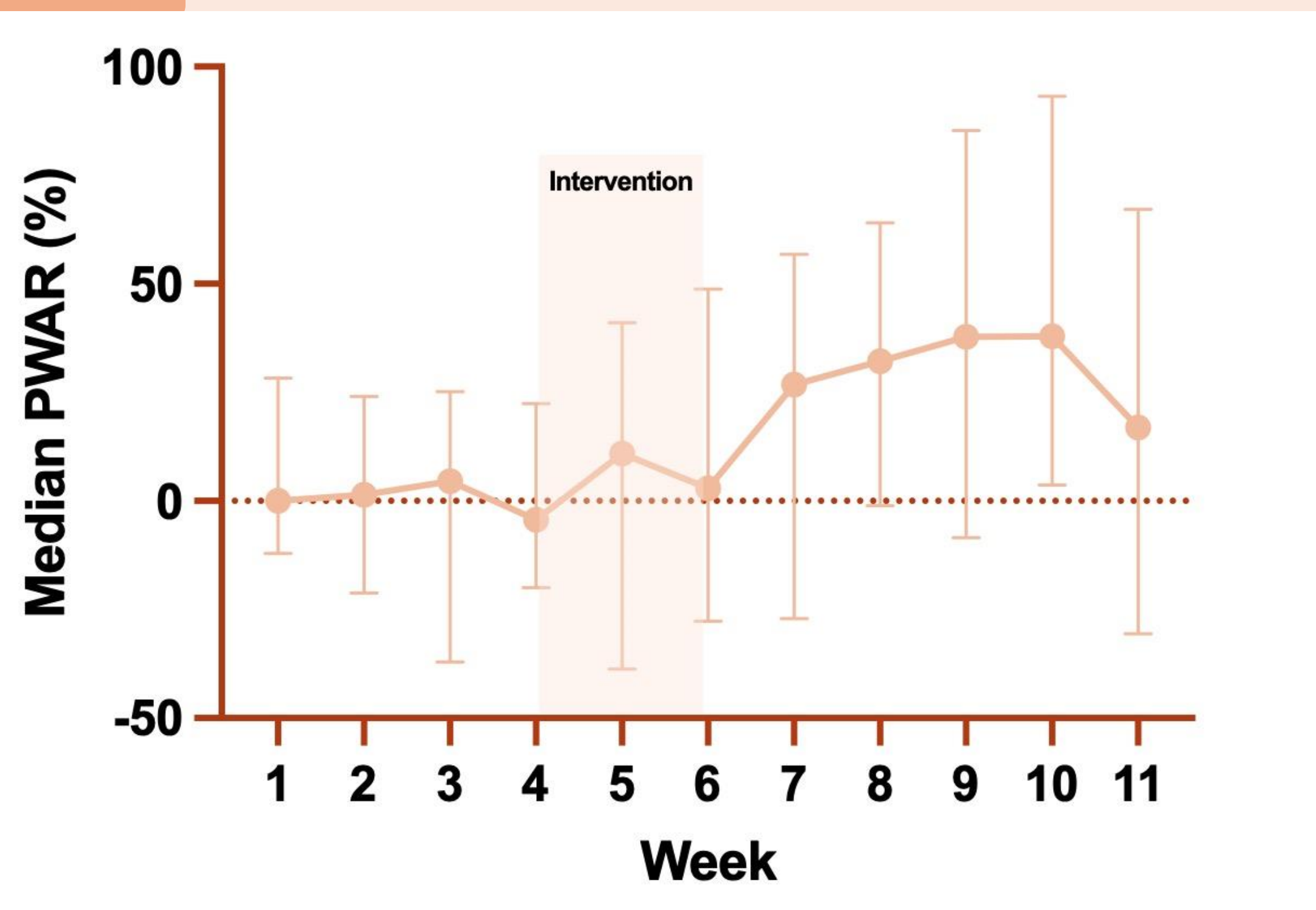


Figure 1. Median percentage wound area reduction (PWAR) changes across all weeks.

The median PWAR fluctuated around 0 in the pre-intervention phase, but consistently increased post-intervention, reaching up to 38% at Week 10.

Table 1

Linear Mixed-Effects Model	How much PWAR changes per week?	p value
Pre-Intervention	−5.62%	0.182
Post-Intervention	3.2%	0.006

Table 1. Linear Mixed-Effects Model analysis for PWAR.

The PWAR **increased** significantly by **3.2%** per week post-intervention, compared with a **decrease** of 5.62% per week pre-intervention.

Figure 2

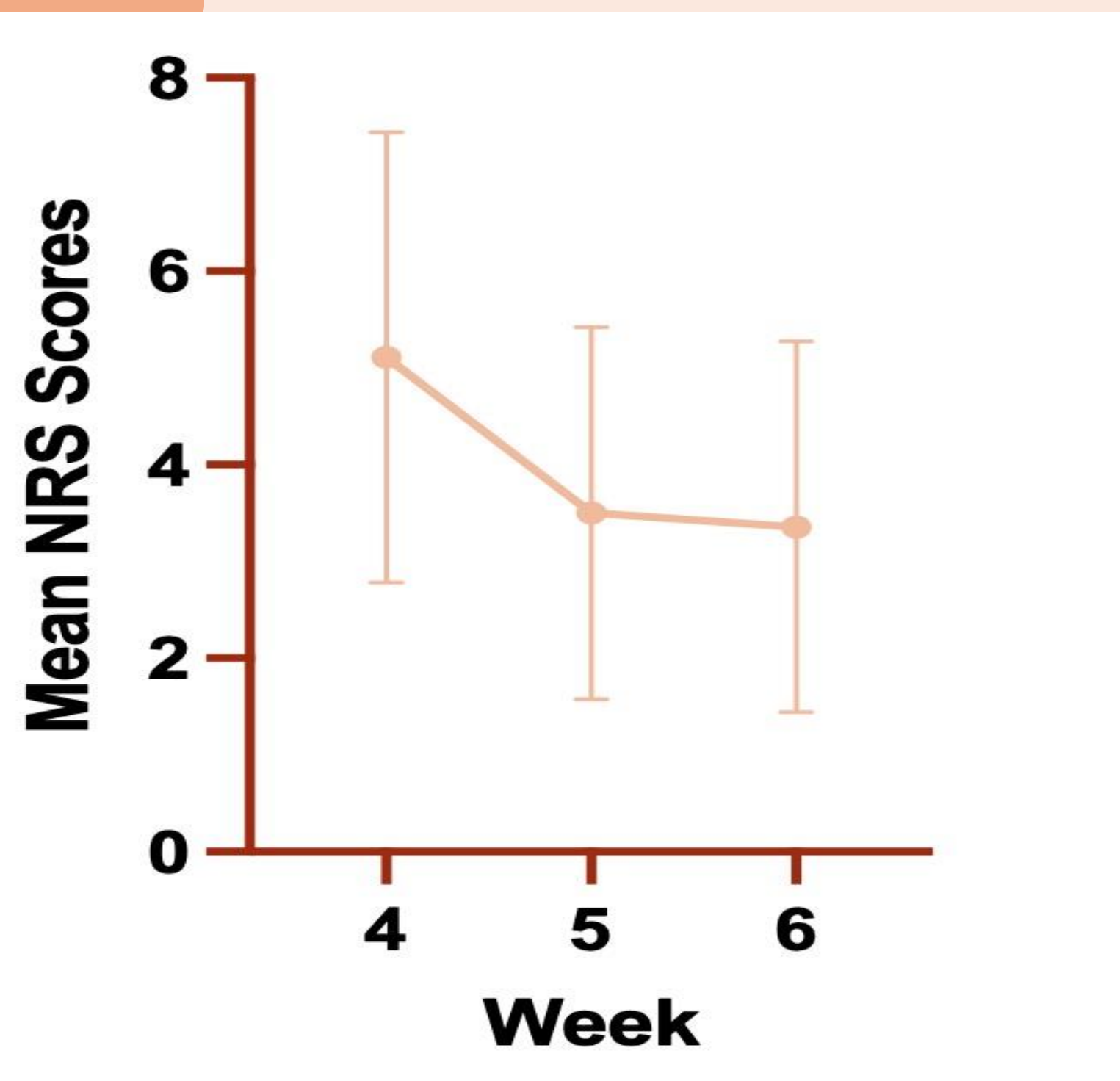


Figure 2. Mean NRS scores changes following intervention initiation.

The mean NRS scores decreased substantially one week after the initiation of the intervention, reaching 3.5 points by Week 5.

Table 2

Linear Mixed-Effects Model	How much NRS Scores change per week?	p value
Female Participants	−2.04 points	0.022
Male Participants	−0.11 points	0.857

Table 2. Linear Mixed-Effects Model analysis for NRS scores.

The NRS scores **decreased** significantly by **2.04 points** per week for female participants, whereas no remarkable change was observed for males.

Figure 3

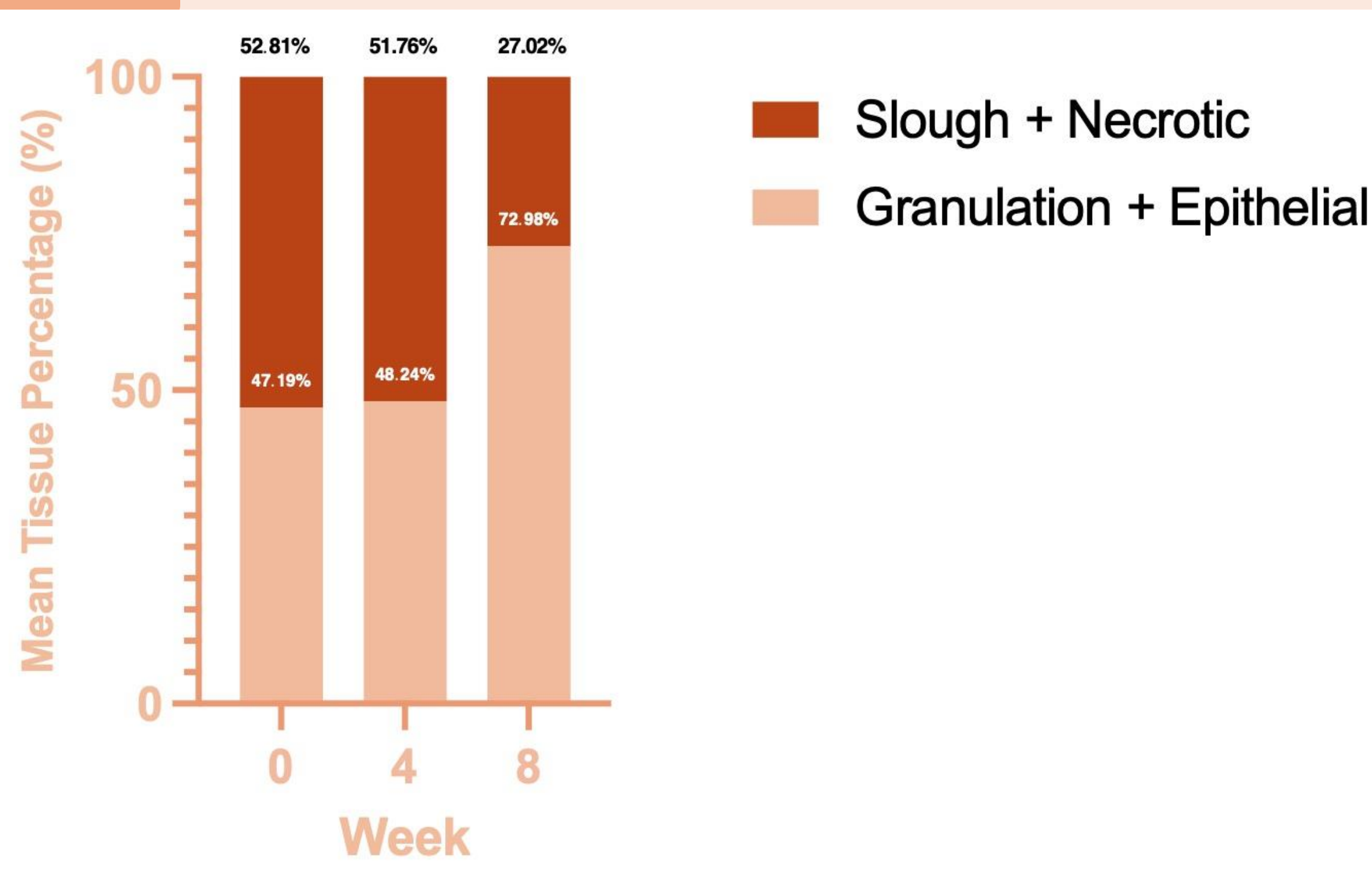
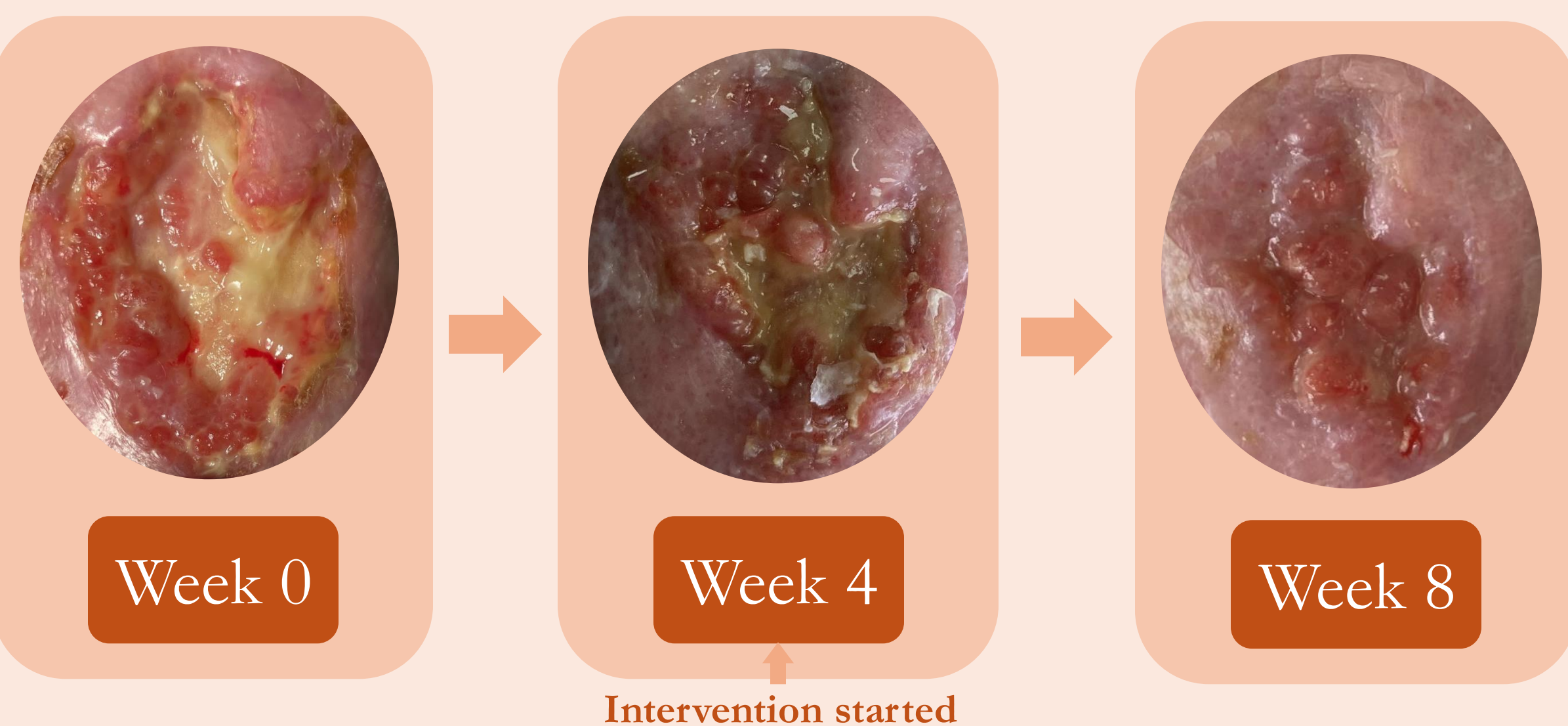


Figure 3. Mean wound tissue composition changes over 8 weeks.

The mean percentage of granulation & epithelial tissue significantly increased ($p=0.0024$) from **48%** to **72%** in 4 weeks post-intervention.



Intervention started

5 Conclusion

Pulsed-current electrical stimulation significantly accelerates wound healing, relieves pain, and promotes the formation of healthy wound bed tissue in patients with VLUs, allowing faster, less painful, and healthier recovery.

6 Acknowledgement

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