


Format: Abstract Send to  Email sent to [alfredo.ruggeri@unipd.it](mailto:alfredo.ruggeri@unipd.it)[Int Wound J.](#) 2017 Dec;14(6):1313-1322. doi: 10.1111/iwj.12805. Epub 2017 Aug 30.

## Quantum molecular resonance technology in hard-to-heal extremity wounds: histological and clinical results.

[Fraccalvieri M<sup>1</sup>](#), [Salomone M<sup>1</sup>](#), [Di Santo C<sup>1</sup>](#), [Ruka E<sup>1</sup>](#), [Morozzo U<sup>1</sup>](#), [Bruschi S<sup>1</sup>](#).

### Author information

#### Abstract

Chronic wounds are commonly associated with high morbidity rates due to the patient's need of frequent dressing changes and repeated visits to the outpatient wound clinic. Furthermore, chronic wounds are often characterised by severe pain, which can cause significant disability to the patient. New technologies aim to develop an optimal device to reduce discomfort of the patient and to heal wounds. The device Rexion-age<sup>®</sup> is introduced for the first time in wound healing, and preliminary data on clinical and histological results are shown. From April 2014 to April 2015, 11 patients - 7 females and 4 males - were enrolled in the present study. The study was conducted at the Plastic and Reconstructive Institute of the Università degli Studi di Torino, Città della Salute e della Scienza of Torino, Italy. For histological characterisation, pre- and post-treatment biopsies on the wound bed were performed. Data regarding age, gender, weight, height, comorbidity, drug therapy and topical pre-treatment and dressings of the wound were collected as well. Moreover, local factors regarding the wound data were as follows: aetiology, time of the wound formation until first Rexion-age treatment, wound dimensions, wound bed, moisture, margins and anatomical region of the wound. A visual analogue scale (VAS) was used to monitor the pain before and after each treatment. Rexion-age treatment resulted in improvement in granulation tissue and wound contraction. Moreover, a significant reduction of pain was observed with the reduction of painkillers drug usage. Among these Rexion-age-treated patients, three patients displayed 60-80% reduction in pain intensity, and two patients showed complete pain relief. In outpatient follow-up appointments, we registered long-term durability of pain relief. As assessed by histological analyses, post-treatment biopsies of all nine patients revealed a decreased amount of inflammatory cells and lower expression levels of metalloproteinases (e.g. MMP9). We observed increased capillary thrombosis as well as up-regulation of vascular endothelial growth factor (VEGF) expression. The current study presents the first evidence that Rexion-age-based therapy can significantly ameliorate and accelerate the healing process of chronic wounds. Although this study analysed only a small number of patients, we could consistently observe positive effects on both the clinical aspect of the lesions, which underwent size reduction and wound reactivation, and the quality of life of our patients due to long-term pain relief.

**KEYWORDS:** Electrical stimulation; Histology; Quantum molecular resonance; Rexion-age; Wound healingPMID: 28857452 DOI: [10.1111/iwj.12805](https://doi.org/10.1111/iwj.12805)

[Indexed for MEDLINE]

Publication type, MeSH terms LinkOut - more resources 