

Effect of Electrical Stimulation on Chronic Leg Ulcer Size and Appearance

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Background and Purpose. Electrical current has been recommended for use on chronic pressure ulcers; however, the ability of this modality to improve healing of other types of chronic ulcers is less well established. The purpose of this study was to examine the effect of high-voltage pulsed current (HVPC) on healing of chronic leg ulcers.

Subjects. Twenty-seven people with 42 chronic leg ulcers participated in the study.

Methods. The subjects were separated into subgroups according to primary etiology of the wound (diabetes, arterial insufficiency, venous insufficiency) and then randomly assigned to receive either HVPC (100 microseconds, 150 V, 100 Hz) or a sham treatment for 45 minutes, 3 times weekly, for 4 weeks. Wound surface area and wound appearance assessed during an initial examination, following a 1- to 2-week period during which subjects received only conventional wound therapy, after 4 weeks of sham or HVPC treatment, and at 1 month following treatments.

Results The results indicated that HVPC applied to chronic leg ulcers reduced the wound surface area over the 4-week treatment period to approximately one half the initial wound size (mean decrease=44.3%, SD=8.8%, range=2.8%-100%), which was over 2 times greater than that observed in wounds treated with sham units (mean decrease=16.0%, SD=8.9%, range=-30.3%-83.7%).

Discussion and Conclusion. The results of the study indicate that HVPC administered 3 times a week should be considered to accelerate wound closure of chronic leg ulcers.