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## Healing rate of chronic and subacute lower extremity ulcers treated with contact ultrasound and noncontact ultrasound therapy: The VIP protocol

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**Background:** Contact and noncontact ultrasound are types of low frequency ultrasonic wound therapies.

**Objective:** To see if healing rates are accelerated when both therapies are utilized.

**Materials and Methods:** The viana-pompeo (VIP) ultrasound protocol consists of contact ultrasound followed by noncontact ultrasound. A total of 11 subjects (24 chronic or subacute lower extremity wounds) were enrolled for treatment 3 times weekly for 12 weeks. Of the 11 subjects, 6 finished the protocol (12 wounds). Subjects started with contact ultrasound for debridement at 25 kHz. Once the wound had  $\leq 20\%$  of slough, therapy was switched to noncontact for cellular stimulation at 40 kHz. Wounds were divided into 2 groups: A, wound duration between 4 and 21 weeks; and B, duration  $\geq 47$  weeks.

**Results:** Group A (4 wounds): All wounds improved in area and epithelialization; 75% reached  $> 99\%$  epithelialization in  $\leq 12$  weeks. All wounds had 93% to 100% volume reduction. Granulation was 100%, and by visit 10, all wounds had 0% slough. Group B (8 wounds): 50% of wounds improved with 50% volume reduction; all wounds increased granulation, with 50% achieving 75% to 100%; 62% increased epithelialization, and 75% had 85% to 100% slough reduction. There was a strong positive correlation between wound age and healing time ( $r=0.94$ ).

**Conclusions:** Both groups benefited from the VIP Protocol with wound closure or wound bed preparation for graft. Results seem to favor an earlier start of the protocol and indicate that both therapies are not exclusionary but rather complementary.

### Recent Publications

1. Lisley Viana, Matthew Pompeo. Healing rate of chronic and subacute lower extremity ulcers treated with contact ultrasound followed by noncontact ultrasound therapy: The VIP ultrasound protocol. *Wounds*. 2017 Aug;29(8):231-239.
2. M Baran Pouyan, M Nourani, M Pompeo. Sleep State Classification Using Pressure Sensor Mats. *Annu Int Conf IEEE Eng Med Biol Soc*. 2015 Aug;2015:1207
3. M Baran Pouyan, S Ostadabbas, M Pompeo et al., Classifying bed inclination using pressure images. *Annu Int Conf IEEE Eng Med Biol Soc*. 2014;2014:4663-6.

### Speaker Biography

Lisley Viana has completed her master's degree in physical therapy from Texas Woman's University, USA. She currently works for Texas Health Resources at the Presbyterian Hospital of Dallas Outpatient Wound Clinic, USA. She has over 16 years of experience in wound care and ultrasonic therapy. Her clinical experience led her to envision an original protocol to use ultrasound therapy in a way that had never been reported before in a published study. She was the principal investigator for the VIP protocol study.

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