

## A Comparative Study of the Effects of Vibration and Electrical Stimulation Therapies on the Acceleration of Wound Healing in Diabetic Ulcers

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<b>Abstract</b>	<p>Introduction: Diabetic ulcers accompanied by ischemia is difficult to treat. Such ulcers require therapy that can improve the blood flow. Previous studies have revealed that two therapies could improve blood flow and accelerate the healing of diabetic ulcers; vibration and electrical stimulation (ES). However, it is unknown which of these two therapies is best at accelerating wound healing in diabetic ulcers. The purpose of this study was to compare both therapies in relation to accelerating the wound healing of diabetic ulcers. Methods: This study was an experimental study involving diabetic rats. The rats were divided into two groups: vibration and ES. Vibration and ES were applied for 10 minutes per day for 7 days. Wound size, inflammation, intensity of fibroblast infiltration, area of necrosis and degree of re-epithelialisation were compared. The difference in wound size was analysed using an independent t-test, while the histological data were analysed using a Mann-Whitney U-test. Results: On day 5 onwards, there was a thin slough in the ES group which was not present in the vibration group. Day 4 onwards and the wound size was significantly smaller in the vibration group than in the ES group. The intensity of inflammation was significantly less, and the degree of fibroblast infiltration was significantly higher in the vibration group compared with the ES group. Re-epithelialisation was more advanced in the vibration group than the ES group. Conclusion: Our study revealed that wound healing in diabetic ulcers following vibration was better than after ES. We suggest that nurses should use vibration rather than ES in clinical settings.</p>
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