

Weekly Monitoring of Hemodynamic Changes in Diabetic Foot Ulcers

by *Cristianne*

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Diabetic foot ulcers (DFUs) affect approximately 25% of the estimated 29.1 million people diagnosed with diabetes. Patients with diabetic foot ulcers report an overall lower quality of life and a 5-year mortality rate of 40%. For doctors treating patients with these ulcers, it is important to evaluate the blood oxygenation in the wound and peri-wound regions, as oxygen is vital for wound healing. DFUs were imaged using a Near Infrared Optical Scanner (NIROS) that utilizes near infrared light at different wavelengths to obtain hemodynamic maps of the wound and peri-wound tissue. DFU patients from Podiatry Care Partners and the University of Miami Wound Care Center were imaged over several weeks. Hemodynamic maps of their wounds were obtained. The hemodynamic maps contain the changes in oxygenated (?HbO) and deoxygenated (?HbR) hemoglobin concentration of the wound and surrounding tissue. Results show that as the wound was healing, wound size became smaller and regions of reduced ?HbO contrast between wound and peri-wound decreased. Increased oxygenation assisted in wound healing, as observed from the non-contact hemodynamic imaging studies of DFUs.