SoleSense

Background

Diabetic foot ulcers (DFUs) are slow-healing open wounds that usually form on the bottom of the feet or toes. These ulcers are **highly susceptible to infection** due to poor circulation, nerve damage, and pressure from walking. Without proper care, DFUs can worsen, leading to serious complications such as **infections or amputation.**

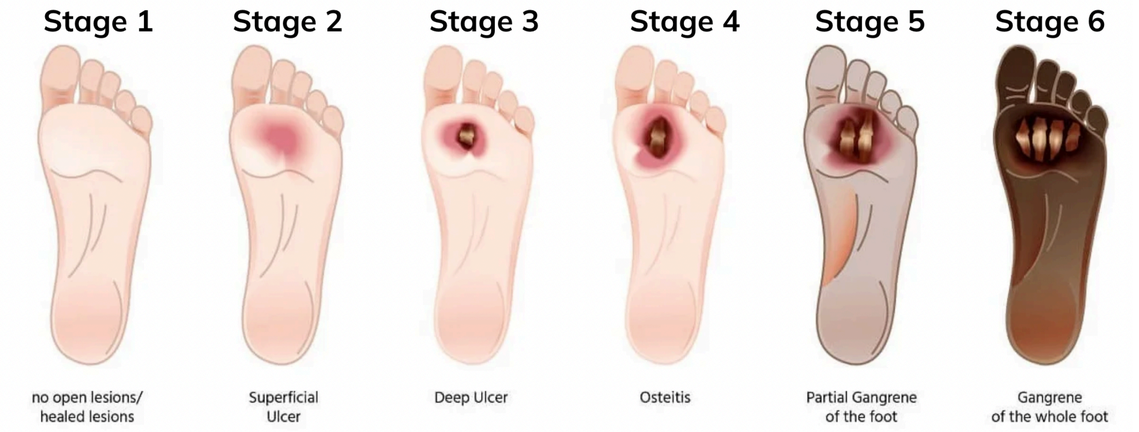
38.4 million Americans with diabetes

3.84 million develop a DFU

130,000 DFU-related amputations annually

$1.38 Billion in DFU costs annually.

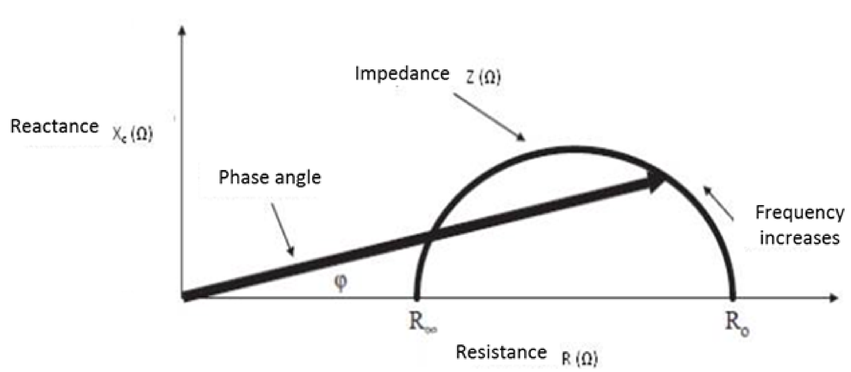
Problem



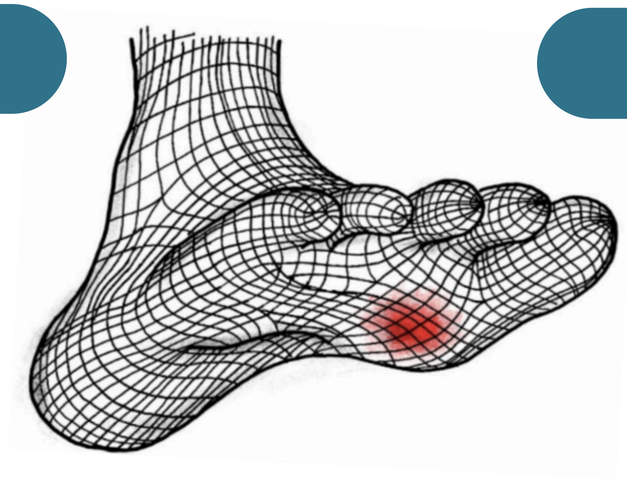
(2025). Pristyncare.com. https://www.pristyncare.com/blog/wp-content/uploads/2020/05/stages-of-diabetic-foot-ulcer.jpg

Patients with diabetes need a method to **frequently monitor lower limb abnormalities** in order to **prevent serious complications** from ulcerations and gangrene.

Localized Bioimpedance Analysis



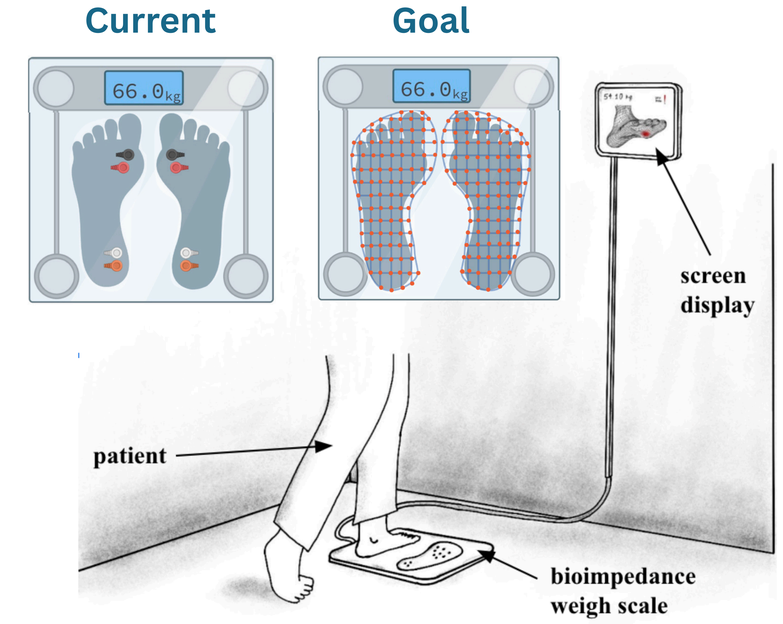
Mirele Savegnago Mialich, Juliana Maria, and Junior. 2014. "Analysis of Body Composition: A Critical Review of the Use of Bioelectrical Impedance Analysis" 2 (1): 1–10. https://doi.org/10.12691/ijcn-2-1-1.



Due to **inflammation and fluid buildup in DFUs**, tissue conductivity increases, lowering resistance, reactance, and phase angle. These electrical property **changes are captured through bioimpedance**, making it a sensitive **tool for early detection**.

What does SoleSense Do?

Our approach integrates **localized bioimpedance analysis** into a **weigh scale** that maps plantar tissue health, providing **visual risk indicators for ulcer development** before skin breakdown occurs, in both **clinical and home settings**.



Benefits:

- Prevents patients from having **painful ulcers**.
- Provides clinicians with **valuable data**.
- **Saves time and money** spent on preventable surgeries.

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