

ReHeal Glove: Smart Glove for Regenerative Healing of Extremity Trauma

The ReHeal glove is a system for applying negative pressure wound therapy to the complex contours and anatomies of hands, feet, or digits. Its design improves on the various flaws of existing foam dressings, leading to better recovery from injuries to extremities.

What is the Problem?

Injuries to the hands, feet, or their individual digits are particularly difficult to treat due to their complex anatomy and their large range of motion. While negative pressure wound therapy (NPWT) has proven effective in healing complex soft tissue injuries to these parts of the body, the systems for applying NPWT foam dressings pose many challenges. Such dressings require immobilization to achieve a vacuum seal. Under vacuum the foam compresses and stiffens, holding the treated hand in a fixed position throughout therapy and preventing the hand from moving throughout its normal range of motion. This can lead to irreversible stiffness of the hand despite wound healing. In addition, foam adhering to the injured tissue causes tissue ingrowth into the foam, resulting in reinjury upon removal for dressing changes and leading to scarring and pain. While NPWT is an effective method for treating this kind of injury, there is a need for systems better adapted for applying it to hand injuries.

What is the Solution?

The ReHeal glove is a system to promote regenerative healing of hand injuries in a permissive, protective environment. It is constructed from medical-grade silicone with an internal 'micropillar' texture to apply uniform negative pressure, release freely, and directly reduce the risk of tissue damage during dressing removal. The transparent silicone material allows clinicians to visually assess the wound without interrupting therapy. The modular design allows the glove to be fitted according to a patient's particular proportions or injury, localizing care to the regions that need it, and sealing off selective locations if medically required. Built for interoperability, this free-form modular design philosophy gives it the breadth of application for various therapies as needed.

What is the Competitive Advantage?

The ReHeal Glove offers several advantages over conventional negative pressure wound therapy systems, particularly for treating injuries to the hands, feet, and digits. Its flexible, anatomically adaptive design allows it to conform to complex extremity shapes while still

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permitting movement, which helps preserve joint mobility during healing. Unlike traditional foam dressings, the glove does not adhere to the wound bed, minimizing pain and tissue damage during dressing changes. Its transparent silicone material enables continuous visual monitoring of the wound without interrupting therapy, reducing the need for frequent dressing removal. Compatible with industry standards, the glove's modular construction also allows for tailored treatment, accommodating a wide range of injury types and potentially enabling the integration of custom 3D-printed components, use of fluidics, and/or other tissue replacements for specialized therapeutic needs. These features collectively make the ReHeal Glove a more adaptable, patient-friendly, and clinically effective solution for extremity wound care.

Patent Information:

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