



PRESSURE MAPPING



Comparison of unprotected heels on a hospital bed vs. heels positioned in the Prevalon® Pressure Relieving Heel Protector.

Testing conducted by:

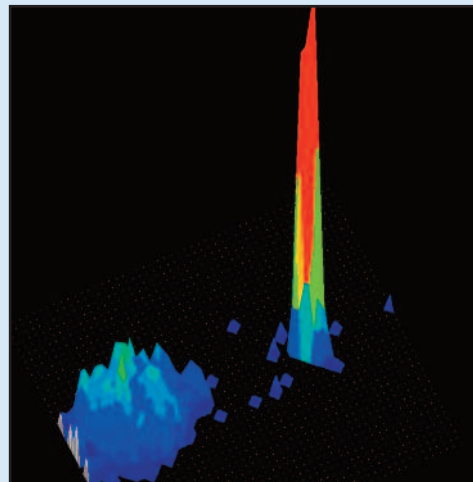
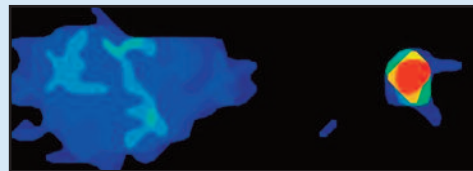
Michigan State University Biomechanical Design and Research Laboratory
 Lead Researcher: Tamara Reid Bush, Ph.D.
 September 2009

- 20 subjects; 11 females, 9 males
- Conditions (bed, pillow, Prevalon) were randomized; three tests were collected for each condition
- Subjects were supine on a hospital bed; bed was positioned flat
- Equipment: Tekscan pressure mat #5315, 2016 sensels
- Heel and Achilles tendon were located on the pressure map
- Testing was approved through Michigan State University Institutional Review Board; consent was granted

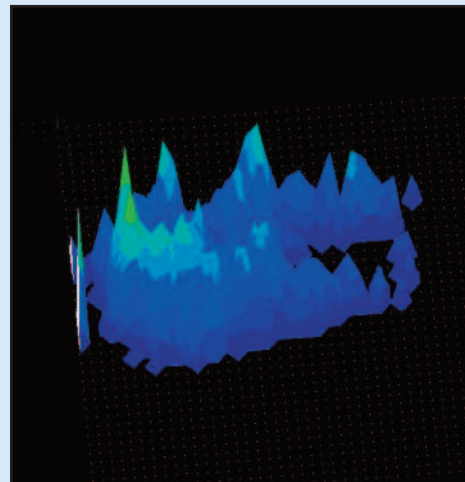
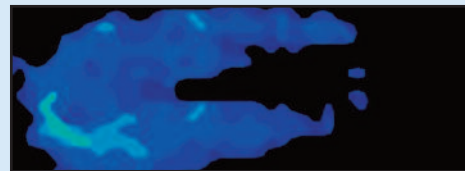
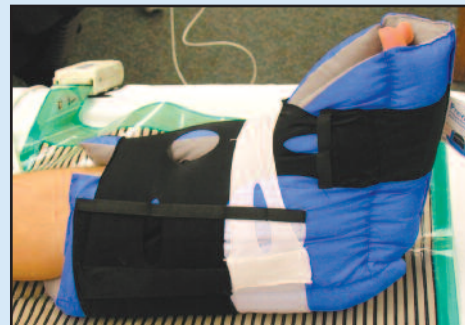
Conclusion:

The heel placed directly on the bed demonstrated the highest heel pressures, followed by the heel in the center of the pillow. The Prevalon boot showed nearly zero pressure in the area of the heel, proving the heel is off-loaded.

BED



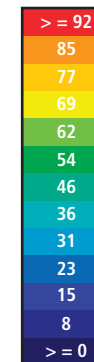
PREVALON®



Peak Pressure in Heel		
Condition	g/cm ²	Stdev
Bed	175.2	46.4
Pillow (heel in direct contact)	87.4	30.7
Prevalon	0.1	0.5

1 g/cm²=0.014 psi
 10 g/cm² = 0.1422 psi
 50 g/cm²=0.711 psi
 100 g/cm²=1.42 psi
 175 g/cm² = 2.49 psi

PSI=pound per square inch.



The Pillow: Pressured to maintain positioning

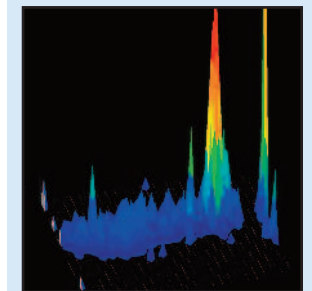
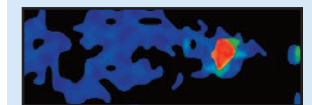
Pillows may be effective in off-loading the heel, when positioned properly and when positioning is maintained. Often, multiple pillows are needed to position the foot and leg and to "float" the heel.

For the purposes of this study, the researcher was asked to measure peak heel pressure when the heel is placed directly

on a pillow to simulate improper positioning due to positioning errors or patient movement. A hospital pillow with an 18 oz. fill weight was used, as recommended in a published study conducted by Fowler, Scott-Williams and McGuire¹.

1. Fowler E, Scott-Williams S, McGuire J, Practice Recommendations for Preventing Heel Pressure Ulcers. Ostomy Wound Management 2008;54(10): 42-57.

PILLOW



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