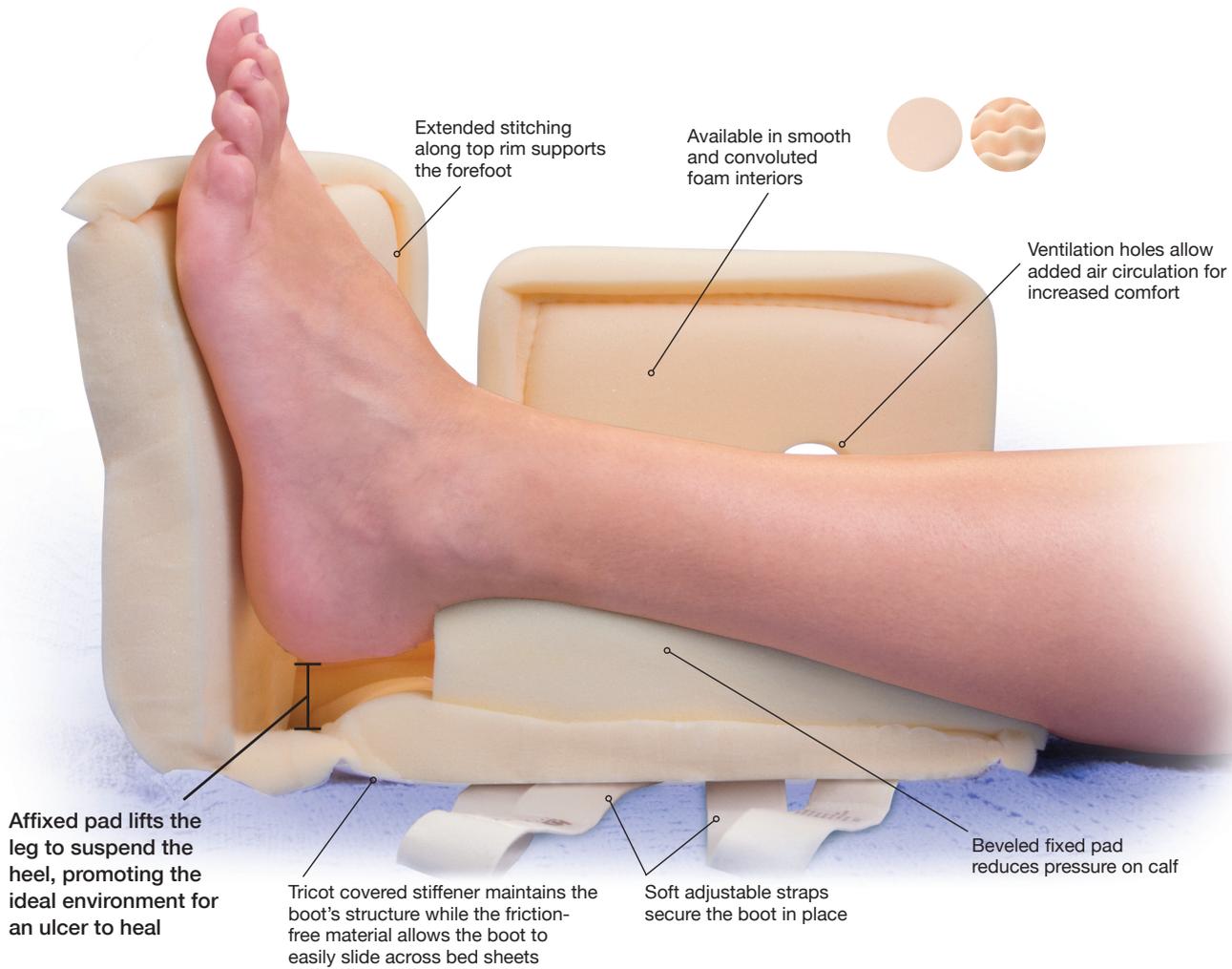


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An RCT to determine the effect of a heel elevation device in pressure ulcer prevention post-hip fracture

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Introduction

The heel is a common site for pressure ulceration in patients with a fractured hip. Patients with fractured hips exemplify those at high risk of pressure ulceration. Practitioners use a range of measures, including dressings, splints and pressure-redistributing mattresses, to prevent heel ulceration.

No dressing studies have been able to substantiate claims that they prevent pressure ulceration. Trials demonstrating that heels subjected to complete offloading did not develop pressure damage, and mattress trials showing that heel ulcers developed on a wide range of support surfaces, led us to conclude that devices that remove pressure from the heel may be more effective in reducing the incidence of heel PUs than devices that partially redistribute pressure, such as static and dynamic mattresses. However, existing literature could not support this theory.

A randomized controlled trial set out to determine whether there are differences between complete offloading and standard care in terms of the number of new pressure ulcers (PUs) developing on the heels of older patients with fractured hips and the number or severity of new PUs on other areas of their bodies.

Methodology

All patients were nursed on pressure redistributing support surfaces. Mattress type was determined by ward nurses according to perceived need. Patients aged over 65 years in a fracture trauma unit with fractured hips were randomly allocated

to receive heel elevation (Heelift Suspension Boot, DM Systems) plus pressure-redistributing support surface (intervention group) or standard care (pressure-redistributing support surface alone) (control group). Exclusion criteria included existing heel damage. Patients were assessed on pre- and postoperative days for the occurrence of new pressure damage. Patients completed a satisfaction questionnaire at discharge.

Pressure points were inspected daily for signs of tissue discolouration /ulceration. Complications and treatment details were also recorded. An experienced tissue viability nurse who was blinded to history, skin assessments, and patient group, viewed photographs of suspected pressure damage and was asked to categorize images using the NPUAP scale.

Results

119 patients were recruited into the control group and 120 into the intervention group. Independent t-tests and chi-squared analysis showed both groups were comparable at baseline. Thirty-one subjects (26%) in the control group developed PUs compared with eight in the intervention group (7%, $p < 0.001$). No subjects in the intervention group developed a PU on their

ankles, feet or heels, whereas 29 subjects in the control group did ($p < 0.001$). Kaplan-Meier survival curves indicated that subjects in the control group were more likely than those in the intervention group to suffer pressure damage at all time points ($p = 0.001$).

Conclusion

The findings suggest that offloading reduces the incidence of heel ulcers.

Transfer to Practice

Older, acutely ill, immobile patients should have their heels elevated off support surfaces from the moment of hospital admission until they are independently and effectively able to reposition their lower limbs in response to pressure related discomfort. Heel pressure relief must be viewed as part of a wider strategy, which aims to prevent all PUs. This strategy must include pressure-redistributing support surfaces, as patients who were nursed in this way consistently developed less pressure damage than those who were not.

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