Management of the skin and soft tissue in the geriatric surgical patient

**Citation:** Surgical Clinics of North America, February 2015, vol./is. 95/1(103-114), 0039-6109;1558-3171 (01 Feb 2015)

**Author(s):** Greenhalgh D.G.

**Abstract:** Aging has significant effects on the healing ability of the geriatric population. When the elderly suffer injuries, they have a decreased metabolic reserve to handle the stress required to recover. Diseases of the elderly, such as malnutrition, diabetes mellitus, treatment of malignancies, and vascular disease, all impair tissue repair. The geriatric population is more prone to pressure ulcers, venous stasis ulcers, and other chronic wounds. This review discusses how changes in the elderly lead to impaired healing or chronic wounds. Prevention of these problems and their treatment are also discussed.

Sildenafil in the treatment of pressure ulcer: A randomised clinical trial

**Citation:** International Wound Journal, February 2015, vol./is. 12/1(111-117), 1742-4801;1742-481X (01 Feb 2015)

**Author(s):** Farsaei S., Khalili H., Farboud E.S., Khazaeipour Z.

**Abstract:** Pressure ulcer (PrU)-related hospitalisation and mortality are critical issues in medical and surgical patients. Although animal studies have suggested the beneficial effects of sildenafil on wound healing, related clinical data are lacking. This is the first clinical study that has evaluated the effects of topical sildenafil on PrU healing in human subjects. Enrolled patients were randomly allocated to receive topical sildenafil (10%) ointment or placebo daily. Wound healing was assessed visually and photographically by the change in wound score according to two-digit Stirling scale. Decreases in grades of the PrUs were significantly higher in sildenafil group compared with placebo group (P < 0001). In addition, surface areas of ulcers in sildenafil group were significantly reduced compared to the control group at day 14 of intervention (P = 0007). It appears that these effects may be mediated by improvement of microvascular reperfusion in the skin and soft tissue. Further study to emphasise the role of topical sildenafil in the prevention or treatment of PrUs in hospitalised patients is required.

A nutritional formula enriched with arginine, zinc, and antioxidants for the healing of pressure ulcers: A randomized trial

**Citation:** Annals of Internal Medicine, February 2015, vol./is. 162/3(167-174), 0003-4819;1539-3704 (03 Feb 2015)

**Author(s):** Cereda E., Klersy C., Seroli M., Crespi A., D’Andrea F.

**Abstract:** Background: Trials on specific nutritional supplements for the treatment of pressure ulcers (PUs) have been small, inconsistent in their formulations, or unsuccessful in controlling for total supplement calorie or protein content. Objective: To evaluate whether supplementation with arginine, zinc, and antioxidants within a high-calorie, high-protein formula improves PU healing. Design: Multicenter, randomized, controlled, blinded trial. (ClinicalTrials.gov: NCT01107197) Setting: Long-term care and home care services. Patients: 200 adult malnourished patients with stage II, III, and IV PUs. Interventions: An energy-dense, protein-rich oral formula enriched with arginine, zinc, and antioxidants (400 mL/d) or an equal volume of isocaloric, isonitrogenous formula for 8 weeks. Measurements: The primary end point was the percentage of change in PU area at 8 weeks. Secondary end points included complete healing, reduction in the PU area of 40% or greater, incidence of wound infections, the total number of dressings at 8 weeks, and the percentage of change in area at 4 weeks. Results: Supplementation with the enriched formula (n = 101) resulted in a greater reduction in PU area (mean reduction, 60.9% [95% CI, 54.3% to 67.5%]) than with the control formula (n = 99) (45.2% [CI, 38.4% to 52.0%]) (adjusted mean difference, 18.7% [CI, 5.7% to 31.8%]; P = 0.017). A more frequent reduction in area of 40% or greater at 8 weeks was also seen (odds ratio, 1.98 [CI, 1.12 to 3.48]; P = 0.018). No difference was found in terms of the other secondary end points. Limitation: Participation was restricted to patients who were malnourished, were able to drink oral supplements, and were living in long-term care institutions or receiving home care services. Conclusion: Among malnourished patients with PU, 8 weeks of supplementation with an oral nutritional formula enriched with arginine, zinc, and antioxidants improved PU healing.

Full Text: Available from EBSCOhost in Annals of Internal Medicine

A multicenter randomized controlled trial comparing treatment of venous leg ulcers using mechanically versus electrically powered negative pressure wound therapy

**Citation:** Advances in Wound Care, February 2015, vol./is. 4/2(75-82), 2162-1918;2162-1934 (01 Feb 2015)

**Author(s):** Marston W.A., Armstrong D.G., Reyzelman A.M., Kirshner R.S.

**Abstract:** Objective: This study compares two different negative pressure wound therapy (NPWT) modalities in the treatment of venous leg ulcers (VLUs), the ultraportable mechanically powered (MP) Smart Negative Pressure (SNAP<sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>sup>-<sub>su
The physiological response of soft tissue to periodic repositioning as a strategy for pressure ulcer prevention

**Citation:** Clinical Biomechanics, 01 February 2015, vol./is. 30(2), 166-174, 02680033

**Author(s):** Woodhouse, Marjolein, Worsley, Peter R., Voegeli, David, Schoenhoven, Lisette, Bader, Dan L.

**Abstract:** Background Individuals who have reduced mobility are at risk of developing pressure ulcers if they are subjected to static postures. To reduce this risk, clinical guidelines advocate healthcare professionals reposition patients regularly. Automated tilting mechanisms have recently been introduced to provide periodic repositioning. This study compared the performance of such a prototype mattress to conventional manual repositioning. Methods Ten healthy participants (7 male and 3 female, aged 23–66 years) were recruited to compare the effects of an automated tilting mattress to standard manual repositioning, using the 30° tilt. Measures during the tilting protocols (supine, right and left tilt) included comfort and safety scores, interface pressures, inclinometer angles and transcutaneous gas tensions (sacrum and shoulder). Data from these outcomes were compared between each protocol. Findings Results indicated no significant differences for either interface pressures or transcutaneous gas responses between the two protocols (P > 0.05 in both cases). Indeed a small proportion of participants (~ 30%) exhibited changes in transcutaneous oxygen and carbon dioxide values in the shoulder during a right tilt for both protocols. The tilt angles at the sternum and the pelvis were significantly less in the automated tilt compared to the manual tilt (mean difference = 9.4–11.5°, P < 0.001). Participants reported similar comfort scores for both protocols, although perceived safety was reduced on the prototype mattress. Interpretation Although further studies are required to assess its performance in maintaining tissue viability, an automated tilting mattress offers the ability to periodically reposition vulnerable individuals, with potential economic savings to health services.

An overview of polyurethane foams in higher specification foam mattresses

**Citation:** Ostomy - Wound Management, Feb 2015, vol. 61, no. 2, p. 38-46, 0889-5899 (February 2015)

**Author(s):** Soppi, Sa, Lehtio, Juha, Saarinen, Hannu

**Abstract:** Soft-polyurethane foams exist in thousands of grades and constitute essential components of hospital mattresses. For pressure ulcer prevention, the ability of foams to control the immersion and envelopment of patients is essential. Higher specification foam mattresses (ie, foam mattresses that relieve pressure via optimum patient immersion and envelopment while enabling patient position changes) are claimed to be more effective for preventing pressure ulcers than standard mattresses. Foam grade evaluations should include resiliency, density, hardness, indentation force/load deflection, progressive hardness, tensile strength, and elongation along with essential criteria for higher specification foam mattresses. Patient-specific requirements may include optimal control of patient immersion and envelopment. Mattress cover characteristics should include breathability, impermeability to fluids, and fire safety and not affect mattress function. Additional determinations such as hardness are assessed according to the guidelines of the American Society for Testing and Materials and the International Organization for Standardization. At this time, no single foam grade provides an optimal combination of the above key requirements, but the literature suggests a combination of at least 2 foams may create an optimal higher specification foam mattress for pressure ulcer prevention. Future research and the development of product specification accuracy standards are needed to help clinicians make evidence-based decisions about mattress use. [Publication] 50 references

Relative contributions of interface pressure, shear stress, and temperature on ischemic-induced, skin-reactive hyperemia in healthy volunteers: a repeated measures laboratory study

**Citation:** Ostomy - Wound Management, Feb 2015, vol. 61, no. 2, p. 16-25, 0889-5899 (February 2015)

**Author(s):** Lachenbruch, Charlie, Tzen, Yi-Ting, Brienza, David, Karg, Patricia E, Lachenbruch, Peter A

**Abstract:** Although the primary risk factors for pressure ulcer development are shear and pressure, research has identified for decades, the relative contribution of each to this risk remains unclear. To confirm the results of and expand upon earlier research into the relative contributions of interface pressures, shear stress, and skin temperature among 4 healthy volunteers, a study involving 6 additional healthy 40- to 75-year-old volunteers was conducted and results of the 2 studies were pooled. All 3 variables (interface pressures, shear stress, and skin temperature) were systematically and randomly varied. In the prone position, volunteers each underwent 18 test conditions representing different combinations of temperature (28°C, 32°C, 36°C), pressure (8.0 and 13.3 kPa), and shear (0, 6.7, and 14.0 kPa) using a computer-controlled indenter applied to the sacrum for 20 minutes exerting weights of 100 g and 200 g to induce 0.98 N and 1.96 N of shear force, respectively. Each condition was tested twice, resulting in a total of 360 trials. Magnitude of postload reactive hyperemia as an index of ischemia was measured by laser Doppler flowmetry. Fixed effects regression models were used to predict 3 different indices of reactive hyperemic magnitude. Friedman tests were performed to compare the reactive hyperemia among 3 different skin temperatures or shear stresses under the same amount of localized pressure. In all regression models, pressure and temperature were highly significant predictors of the extent of reactive hyperemia (P<0.001).

The effect of a transforming care initiative on patient outcomes in acute surgical units: a time series study

**Citation:** Journal of Advanced Nursing, Feb 2015, vol. 71, no. 2, p. 417-429, 0309-2402 (February 2015)

**Author(s):** Burston, Sarah, Chaboyer, Wendy, Gillespie, Bridie, Carroll, Roxanne

**Abstract:** Aim. To examine the relationship between the implementation of a transforming care initiative and two patient outcomes, inpatient falls and hospital acquired pressure ulcers. Background. Patients continue to experience harm in hospitals from adverse events such as inpatient falls and hospital acquired pressure ulcers. These and other patient safety concerns led to transforming care initiatives. Design. This cohort study used historical controls and a time series design. The setting was two surgical units of an acute care hospital; 7125 patients discharged from these units between July 2008-December 2010 were included. Those patients discharged during the initial 3 months of implementation were excluded. Several interventions were adopted as part of the transforming care initiative such as bedside handover and bedside whiteboards. Coded administrative data were accessed to identify patients who had experienced a fall or acquired a pressure ulcer during their hospital stay. Statistical process control was used to identify changes in outcomes over time. Results. The findings demonstrated variation in the proportion of patients experiencing a fall in both units and for the proportion of patients acquiring a pressure ulcer in one unit, following implementation. Conclusion. These results demonstrate that implementing a transforming care initiative may have some influence on the quality and safety of patient care as measured by patient falls and pressure ulcers but findings varied. Further research is required to gain an understanding of the inconsistency of the impact of these initiatives across all clinical contexts. [PUBLICATION] 48 references
Factors predicting the development of pressure ulcers in an at-risk population who receive standardized preventive care: secondary analyses of a multicentre randomised controlled trial

Citation: Journal of Advanced Nursing, Feb 2015, vol. 71, no. 2, p. 391-403, 0309-2402 (February 2015)
Author(s): Demarre, Liesbet, Verhaeghe, Sofie, Van Hecke, Ann, Clays, Els, Grypdonck, Maria, Beeckman, Dimitri
Abstract: Aims. To identify predictive factors associated with the development of pressure ulcers in patients at risk who receive standardized preventive care. Background. Numerous studies have examined factors that predict risk for pressure ulcer development. Only a few studies identified risk factors associated with pressure ulcer development in hospitalized patients receiving standardized preventive care. Design. Secondary analyses of data collected in a multicentre randomized controlled trial. Methods. The sample consisted of 610 consecutive patients at risk for pressure ulcer development (Braden Score)

Reducing avoidable pressure ulcers in the community

Citation: Nursing Standard, Feb 2015, vol. 29, no. 26, p. 62-70, 0029-6570 (February 25, 2015)
Author(s): Parnham, Alison, Pankhurst, Sarah, Dabell, Wendy
Abstract: The elimination of avoidable pressure ulcers remains a challenge in healthcare provision, represents an increasing financial burden on resources and continues to affect patients' quality of life. Many pressure ulcers are deemed to be avoidable and there are several factors that can influence this, including the development of a care delivery system and a service delivery strategy that incorporate a comprehensive structure, a meticulous process and measurable outcomes. Nottingham CityCare developed a strategy to reduce avoidable pressure ulcers. The implementation of the strategy in an inner city community setting is discussed. The importance of eliminating pressure ulcers is explored, and the barriers to care delivery are reviewed, demonstrating how a new culture in clinical practice can ensure the elimination of avoidable pressure ulcers. The challenges within the implementation process are reflected on and the implementation of the SSKIN (Surface, Skin inspection, Keep your patient moving, Incontinence and moisture, Nutrition and hydration) phenomenon is reviewed in relation to care delivery, record-keeping and evaluation.

Preventing pressure ulcers in patients in intensive care

Citation: Nursing Standard, Feb 2015, vol. 29, no. 26, p. 53-61, 0029-6570 (February 25, 2015)
Author(s): Gage, William
Abstract: This article discusses the prevention and management of pressure ulcers in intensive care. It outlines a service improvement project conducted in the intensive care units at Imperial College Healthcare NHS Trust with the aim of reducing the incidence of hospital-acquired pressure ulcers. The project introduced a set of ‘essential standards’ and an audit tool to monitor compliance. Implementation of the essential standards resulted in a reduction in the total number of pressure ulcers acquired in the four intensive care units, with an absence of any category 3 or 4 pressure ulcers (the most severe categories of pressure ulcer). The article describes the measures taken to ensure the sustainability and spread of the initiative within the NHS trust. [PUBLICATION] 23 references

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