

Wound digest

This digest summarises some of the key papers published on issues related to wound management

SELECTED PAPERS OF INTEREST

1. Effectiveness of percutaneous tenotomy for diabetic toe ulcers
2. Oral treatment of pressure ulcers with polaprezinc (zinc L-carnosine complex): 8-week open-label trial
3. Repositioning for pressure ulcer prevention in adults
4. Examining factors that influence the adoption of health-promoting behaviours among people with venous disease
5. A prospective, randomised comparative study of weekly versus biweekly application of dehydrated human amnion/chorion membrane allograft in the management of diabetic foot ulcers
6. Comparative effectiveness of advanced wound dressings for patients with chronic venous leg ulcers: a systematic review

1 Effectiveness of percutaneous tenotomy for diabetic toe ulcers

Readability	✓	✓	✓	✓	
Relevance to daily practice	✓	✓	✓		
Novelty factor	✓	✓	✓		

- The authors evaluated the effectiveness of percutaneous flexor and/or extensor tenotomy procedures for the treatment of diabetic, neuropathic toe ulcers.
- The medical files of 83 individuals were reviewed and, in total, percutaneous tenotomy procedures were carried out for 103 tip-of-toe ulcers; 26 cock-up/dorsal ulcers; 21 kissing ulcers; and 10 plantar metatarsal ulcers.
- A successful response to the procedure was a healing response at week 1 and wound closure at week 4 post-procedure.
- Percutaneous tenotomy procedures were successful for the treatment of tip-of-toe ulcers, kissing ulcers, and cock-up ulcers ($P<0.01$). However, they were not successful for the treatment of plantar metatarsal ulcers.

Tamir E, Vigler M, Avisar E, Finestone AS (2014) Percutaneous tenotomy for the treatment of diabetic toe ulcers. *Foot Ankle Int* 35(1): 38–43

2 Oral treatment of pressure ulcers with polaprezinc (zinc L-carnosine complex): 8-week open-label trial

Readability	✓	✓	✓	✓	
Relevance to daily practice	✓	✓	✓		
Novelty factor	✓	✓	✓	✓	✓

- The authors aimed to evaluate the efficacy and safety of polaprezinc (oral zinc L-carnosine complex; an agent commonly prescribed for gastric ulcers in Japan) over 8 weeks' treatment for chronic pressure ulcers.

- Patients ($n=14$; nine men; 68.4 ± 11.8 years of age) with stage II–IV pressure ulcers (II, $n=1$; III, $n=9$; IV, $n=4$) of ≥ 8 weeks' duration were recruited and received 150 mg/day of oral polaprezinc (116 mg L-carnosine; 34 mg zinc) for a maximum of 8 weeks; pressure ulcer severity was measured weekly using the Pressure Ulcer Scale for Healing (PUSH) score and blood biochemistry was monitored.
- Eleven patients healed within 8 weeks; none withdrew.
- From baseline to 8 weeks, the PUSH score improved significantly (8.1 [95% confidence interval (CI): 6.0–10.3] to -1.4 [95% CI: -4.0 – -1.1 ; $P<0.001$]); the difference from baseline became significant after 1 week ($P<0.05$) with a mean weekly improvement in PUSH score of 2.0.
- During the course of treatment, serum zinc levels increased significantly ($P<0.001$), while serum copper levels ($P=0.001$) and copper:zinc ratios ($P<0.001$) decreased significantly.
- Pre-existing copper deficiency deteriorated in one participant.
- Data from this small cohort suggest that 8 weeks of oral polaprezinc may be effective and well-tolerated in the treatment of pressure ulcers.

Sakae K, Yanagisawa H (2014) Oral treatment of pressure ulcers with polaprezinc (zinc L-carnosine complex): 8-week open-label trial. *Biol Trace Elem Res*: 3 Apr [Epub ahead of print]

3 Repositioning for pressure ulcer prevention in adults

Readability	✓	✓	✓		
Relevance to daily practice	✓	✓	✓	✓	
Novelty factor	✓	✓			

- The authors undertook a literature review to assess the effects of repositioning on the prevention of pressure ulcers (PUs) in adults – regardless of risk or inpatient setting – to ascertain the most effective repositioning schedules for adult PU prevention, and also to ascertain the cost associated with implementing different repositioning regimens, compared with alternate schedules or standard practice.
- Randomised controlled trials (RCTs) that assessed the effects of any repositioning schedule or different patient positions and measured PU incidence in adults in any setting were collected from electronic databases and the reference sections of included studies.
- Three RCTs and one economic study were included in the review (representing a collective total of 502 participants).
- Two trials compared the 30° and 90° tilt positions using similar repositioning frequencies, the third RCT compared alternative repositioning frequencies. All three trials were underpowered and at high risk of bias.
- The risk ratio (RR) for PUs (any category) with 2-hourly repositioning compared with 3-hourly repositioning on a standard mattress was 0.90 (95% CI: 0.69–1.16), and was not significantly different for 4- and 6-hourly repositioning on viscoelastic foam mattresses (RR 0.73; 95% CI: 0.53–1.02).
- A cost-effectiveness analysis of nursing time revealed that

3-hourly repositioning using 30° tilt overnight was cost saving (nurse time cost per patient €206.6 vs €253.1).

- The authors concluded that the lack of robust evaluations of repositioning frequency and position for PU prevention, while a source of uncertainty, do not mean that these interventions are ineffective because all comparisons are grossly underpowered.

Gillespie BM, Chaboyer WP, McInnes E et al (2014) Repositioning for pressure ulcer prevention in adults. *Cochrane Database Syst Rev*: CD009958

4 Examining factors that influence the adoption of health-promoting behaviours among people with venous disease

Readability	✓	✓	✓		
Relevance to daily practice	✓	✓	✓	✓	
Novelty factor	✓	✓	✓		

- The authors investigated a multi-component educational programme, and conducted a secondary analysis of data, to examine relationships between health behaviours among people with a venous leg ulcer who participated in an e-learning programme.
- Relationships between various health behaviours following completion of an education programme were assessed; participants were receiving community nursing services, had a medically confirmed venous leg ulcer, and spoke English.
- The education package comprised six sessions that covered leg ulcer treatment and the role of compression therapy, being active and the conduct of leg exercises and leg elevation, healthy eating and hydration, skin care, and compression stocking and hosiery application aids.
- No significant differences were identified by participant gender, age or need for a carer. Participants performing few of the recommended health-promoting behaviours prior to the education achieved more behaviour change than those already engaged in the sought after activities ($P=0.000$).
- The authors concluded that, while people living with venous disease are encouraged to make multiple behaviour changes, there is limited association between the health behaviours recommended and those subsequently pursued.

Miller C, Kapp S, Donohue L (2014) Examining factors that influence the adoption of health-promoting behaviours among people with venous disease. *Int Wound J* 11(2): 138–46

5 A prospective, randomised comparative study of weekly versus biweekly application of dehydrated human amnion/chorion membrane allograft in the management of diabetic foot ulcers

Readability	✓	✓	✓		
Relevance to daily practice	✓	✓	✓		
Novelty factor	✓	✓	✓		

- In this prospective, randomised, comparative, non-blinded, single-centre clinical trial, the authors aimed to determine

whether weekly application of dehydrated human amnion/chorion membrane allograft for the treatment of diabetic foot ulcers reduced time to healing more effectively than biweekly application.

- Patients with non-infected ulcers ($n=40$) of ≥ 4 weeks' duration were recruited and randomised to receive weekly or biweekly allograft application plus a non-adherent, moist dressing with compressive wrapping and offloading for the duration of the 12-week study period.
- Complete healing was achieved in 92.5% of ulcers during the study period; mean time to complete healing was 4.1 ± 2.9 versus 2.4 ± 1.8 weeks ($P=0.039$) in the biweekly versus weekly groups, respectively. By week 4, complete healing occurred in 50% of the biweekly group, and 90% of the weekly group ($P=0.014$). The total number of grafts applied was similar between the groups (2.4 ± 1.5 vs 2.3 ± 1.8 for biweekly vs weekly groups, respectively; $P=0.841$).
- The authors concluded that allograft is an effective treatment for diabetic ulcers and that weekly application heals wounds more rapidly than biweekly.

Zelen CM, Serena TE, Snyder RJ (2014) A prospective, randomised comparative study of weekly versus biweekly application of dehydrated human amnion/chorion membrane allograft in the management of diabetic foot ulcers. *Int Wound J* 11(2): 122–8

6 Comparative effectiveness of advanced wound dressings for patients with chronic venous leg ulcers: a systematic review

Readability	✓	✓	✓	✓	
Relevance to daily practice	✓	✓	✓		
Novelty factor	✓				

- The authors undertook a systematic review of the literature on the benefits and harms of advanced wound dressings on wound healing, mortality, quality of life, pain, condition of the wound bed, and adverse events among patients with chronic venous leg ulcers, as compared with treatment with compression alone.
- Primary studies from January 1980 through July 2012 listed in online databases were collected and evaluated by two independent reviewers.
- Thirty-seven studies met the search criteria and were included.
- Though most evidence was of low or insufficient quality, some suggested that cellular dressings, collagen, and some antimicrobial dressings may improve chronic venous leg ulcers healing rates when compared with compression alone or other dressing types.
- The authors highlighted the limited data available and concluded that, given the poor quality of the literature, well-conducted studies to evaluate the effectiveness of advanced wound dressings on chronic venous ulcer healing are needed in the future.

Valle MF, Maruthur NM, Wilson LM et al (2014) Comparative effectiveness of advanced wound dressings for patients with chronic venous leg ulcers: a systematic review. *Wound Repair Regen* 22(2): 193–204

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