

Wounds digest

In this section, we present brief synopses of a range of recently published articles that may be of interest to healthcare professionals working in the wound care setting. The aim of this round-up is to provide an overview, rather than a detailed summary and critique, of the research papers selected. Full references are provided should you wish to look at any of the papers in more detail.

1 Improved wound healing by direct cold atmospheric plasma once or twice a week: a randomized controlled trial on chronic venous leg ulcers

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

- This study compared the effect of direct cold atmospheric plasma (direct-CAP) treatment with standard of care (SOC) alone on healing of venous leg ulcers (VLUs) in the Netherlands.
- The 46 subjects were split into two treatment groups and a control, and they all received SOC for 12 weeks or until healing. The two treatment groups received direct-CAP once or twice a week, at wound care facilities and the patients' residences. Primary outcome was percentage of wounds healed. Secondary outcomes included wound area reduction and adverse events.
- The treatment groups had a higher percentage of wounds healed within 12 weeks, at 53.3% (1x direct-CAP) and 61.5% (2x direct-CAP) versus 25.0% (control). The largest wound area reduction was obtained with 2x direct-CAP (95.2%), followed by 1x direct-CAP (63.9%), versus control (52.8%). Absolute wound area reduced significantly compared with baseline in both treatment groups ($P \leq 0.001$). No device-related serious adverse events occurred.
- The authors concluded that direct-CAP could substantially improve wound healing of VLUs in primary care. They consider that their results support the integration of direct-CAP as a valuable therapy for complex wounds.

Bakker O, Smits P, van Weersch C et al (2025) Improved wound healing by direct cold atmospheric plasma once or twice a week: a randomized controlled trial on chronic venous leg ulcers. *Adv Wound Care (New Rochelle)* 14(1): 1–13

2 Efficacy of intensified hygiene measures with or without the addition of doxycycline in the management of filarial lymphedema: a randomized double-blind, placebo-controlled clinical trial in Tanzania

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

- Lymphoedema, hydrocele, and acute adenolymphangitis (ADL) are chronically disabling consequences in patients with lymphatic filariasis.
- This study assessed the impact of strict hygiene

protocols with or without doxycycline on the progression of filarial lymphoedema. A randomised, placebo-controlled, double-blind trial was conducted in two regions in Tanzania.

- The authors enrolled 362 participants with lymphoedema and split them into three treatment groups of doxycycline 200 mg or 100 mg once daily or placebo for 42 days, in addition to hygiene measures. The participants were followed up every 2 months for 2 years.
- The number of ADL attacks was significantly lower in the doxycycline groups than in the placebo group. At the 2-year mark, 316 participants were analysed, and 56 (17.7%) participants had improved limbs, including 15/104 (14.4%) in the doxycycline 200 mg group, 16/105 (15.2%) in the doxycycline 100 mg group, and 25/107 (23.4%) in the placebo group. Hygiene was associated with preventing the occurrence of acute attacks.
- The authors note that these findings emphasise the importance of hygiene in reducing the occurrence of ADL attacks and the effect of doxycycline for acute attacks and halting progression.

Ngenya A, Klarmann-Schulz U, John W et al (2024) Efficacy of intensified hygiene measures with or without the addition of doxycycline in the management of filarial lymphedema: a randomized double-blind, placebo-controlled clinical trial in Tanzania. *Am J Trop Med Hyg* 111(4_Suppl): 33–51

3 Virtual reality as a promising method of pain relief in patients with venous leg ulcers

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

- Pain in patients with hard-to-heal wounds is a serious problem that hinders healing and affects their quality of life. Virtual reality is increasingly being used for pain relief.
- The aim of this study was to assess whether the use of virtual reality during mechanical debridement of venous leg ulcers would result in a reduction in patients' pain.
- The authors recruited 60 patients who were randomly divided into two groups. In the experimental group, the patients used virtual reality Oculus Quest goggles during debridement. The patients rated their pain during cleaning on a numerical pain rating scale.
- There was a statistically significant difference in pain scores between patients from the experimental and control groups ($P < 0.001$); 1.13 ± 0.68 points and 4.73 ± 1.2 points, respectively.
- The authors concluded that the use of virtual reality

in patients with venous leg ulcers reduces pain during debridement.

Spyrka K, Rojczyk E, Brela J et al (2024) Virtual reality as a promising method of pain relief in patients with venous leg ulcers. *Int Wound J* 21(10): e70082

4 The effect of *Plantago major* hydroalcoholic extract on the healing of diabetic foot and pressure ulcers: a randomized open-label controlled clinical trial.

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

- The leaves of *Plantago major* leaves have been shown to have a wound healing effect in animal studies.
- This study aimed to evaluate the clinical efficacy of *P. major* hydroalcoholic extract on diabetic foot ulcer (DFU) and pressure ulcer (PU) healing.
- Patients with DFU or PU were randomly assigned to drug (*P. major*) or control groups. For patients in the drug group, *Plantago* extract 10% topical gel was applied on the wound once daily with dressing and routine wound care for 2 weeks, while the control group received an appropriate dressing and routine wound care. The percentage of wound size reduction at days 7 and 14 was recorded.
- There were 50 patients in the drug group and 44 in the control group, who completed the interventions. *Plantago* extract gel significantly resulted in more reduction in the wound size compared to control at the end of the first and second weeks. The number of patients with complete wound healing in the drug group was significantly more in the drug than the control group, 32 versus 9, respectively ($P < 0.001$).
- The authors concluded that 10% topical gel of *P. major* leaf extract accelerates DFU and PU healing.

Ghanadian M, Soltani R, Homayouni A et al (2024) The effect of *Plantago major* hydroalcoholic extract on the healing of diabetic foot and pressure ulcers: a randomized open-label controlled clinical trial. *Int J Low Extrem Wounds* 23(3): 475–81

5 Recurrence rates after healing in patients with neuroischemic diabetic foot ulcers healed with and without sucrose octasulfate-impregnated dressings

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

- The aim of this study was ulcer to compare recurrence rates in a 1-year follow-up of healed neuroischemic diabetic foot ulcers (DFUs) after treatment with or without sucrose octasulfate impregnated dressings.
- A 1-year prospective study with two arms was conducted on 92 patients with healed neuroischemic DFUs. They were divided into two groups – treatment group (patients healed with a sucrose octasulfate-impregnated dressing) and control group (patients treated with other local therapies). The main outcome as ulcer recurrence after wound healing within 1 year follow-up.
- Fourteen (28%) patients in the treatment group had a

reulceration event compared to 28 (66.7%) in the control group.

- The authors concluded that sucrose octasulfate-impregnated dressings can decrease recurrence rates of neuroischemic DFUs more effectively than neutral dressings.

Lázaro-Martínez JL, García-Madrid M, Bohbot S et al (2024) Recurrence rates after healing in patients with neuroischemic diabetic foot ulcers healed with and without sucrose octasulfate-impregnated dressings: A 1-year comparative prospective study. *Int Wound J* 21(10): e70028

6 Dehydrated Amnion Chorion Membrane versus standard of care for diabetic foot ulcers: a randomised controlled trial

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

- This prospective, multicentre, randomised controlled trial evaluated the effectiveness of a dehydrated Amnion Chorion Membrane (dACM; Organogenesis) versus standard of care (SoC) alone in complex diabetic foot ulcers (DFUs).
- Subjects ($n=218$) with a DFU extending into dermis, subcutaneous tissue, tendon, capsule, bone or joint were allocated equally to two treatment groups: dACM (plus SoC); or SoC alone. The primary endpoint was frequency of wound closure determined by a Cox analysis that adjusted for duration and wound area. Kaplan-Meier analysis was used to determine median time to complete wound closure (CWC).
- Wound closure for the dACM plus SoC group was statistically superior to the SoC alone group.
- The authors concluded that dACM increased the frequency, decreased the median time, and improved the probability of CWC when compared with SoC alone.

Cazzell SM, Caporusso J, Vayser D et al (2024) Dehydrated Amnion Chorion Membrane versus standard of care for diabetic foot ulcers: a randomised controlled trial. *J Wound Care* 33(Suppl 7): S4–14