

Venous Leg Ulcers



This guidelines summary has been developed for health professionals caring for persons with venous leg ulcers. Assessment, management and prevention of venous leg ulcers should be undertaken by a health professional with expertise in the area.

For this summary, all recommendations have had their levels of evidence classified as follows:

Level I	Evidence from a systematic review or meta-analysis of at least two level II studies
Level II	Evidence from a well-designed randomised controlled trial (for interventions), or a prospective cohort study (for prognostic studies)
Level III	Evidence from non-randomised studies with some control or comparison group
Level IV	Evidence from studies with no control or comparison group
EO	Consensus statements provided by a national or international panel of experts in the area.

This is a summary of evidence from the following sources, which may be accessed as required:

1. Kelechi TJ et al. 2019 Guideline for Management of Wounds in Patients With Lower-Extremity Venous Disease: An Executive Summary. *J Wound Ost Cont Nurs* 2020;47:97-110.
2. Wounds Canada. Best practice recommendations for the prevention and management of venous leg ulcers. 2019. <https://www.woundscanada.ca/health-care-professional/>
3. Wounds UK. Addressing complexities in the management of venous leg ulcers. 2019. <https://wounds-uk.com/>
4. Haesler E, Carville K. Australian Standards for Wound Prevention and Management. 2023. AHRA, Wounds Australia, WAHTN. <https://woundsaustralia.org/ocd.aspx>
5. Brouwers JJ et al. Reliability of bedside tests for diagnosing peripheral arterial disease. *EClinicalMedicine* 2022;50.
6. IWGDF. IWGDF Guidelines on the prevention and management of diabetes-related foot disease. IWGDF 2023. <https://iwgdfguidelines.org/>
7. Chuter V et al. Australian guideline on diagnosis and management of peripheral artery disease. *J Foot Ankle Res* 2022;15:51.
8. Lizarondo L. Evidence Summary. Venous Leg Ulcer: Debridement. JBI EBP Database. 2021;JBI-ES-3812-2.
9. Sivapuram M. Venous Leg Ulcers: Effectiveness of Wound Dressing Treatment. JBI Database 2021;JBI-ES-3788-2.
10. Norman G et al. Dressings and topical agents for treating venous leg ulcers. *Cochrane Syst Rev* 2018;6:CD012583.
11. Minyan Z et al. Silver dressings for the healing of venous leg ulcer: systematic review. *Medicine* 2020;99:1-9.
12. Lizarondo L, Bellman, S. Venous Leg Ulcer: Compression Therapy. The JBI EBP Database. 2023;JBI-ES-4169-7.
13. Cai PL et al. Endovenous ablation for venous leg ulcers. *Cochrane Syst Rev* 2023; 7:CD009494.
14. Joyce DP et al. Ultrasound-guided foam sclerotherapy in venous ulceration. *Surgeon* 2022;20:e206-e213.
15. Cullum N, Liu Z. Therapeutic ultrasound for venous leg ulcers. *Cochrane Syst Rev* 2017;5:CD001180.
16. Moola S. Venous Leg Ulcers: Electromagnetic Therapy. The JBI EBP Database. 2022;JBI-ES-1452-2.
17. Keohane C et al. Hyperbaric Oxygen as an Adjunct in the Treatment of Venous Ulcers: Systematic Review. *Vasc Endovasc Surg* 2023;57:607-616.
18. Carvalho M et al. Treatment of venous ulcers with growth factors: systematic review. *Rev Brasil Enf* 2019;72:200-210.
19. Bomfim TL et al. Effectiveness of Ozone Therapy as an Adjunct Treatment for Lower-Limb Ulcers: Systematic Review. *Adv Skin Wound Care* 2021;34:1-9.
20. Lin Z et al. Subfascial endoscopic perforator surgery for treating venous leg ulcers. *Cochrane Rev* 2019; CD012164.
21. IWII. Wound Infection in Clinical Practice. 2022, Wounds International. <https://woundinfection-institute.com/>
22. Sun S et al. Efficacy and safety of pentoxifylline for venous leg ulcers. *Int J Lower Ext Wounds* 2021;15347346211050769.
23. Magtoto L. Venous Leg Ulcers: Electric Stimulation Therapy. JBI EBP Database. 2022;JBI-ES-1771-2.
24. Valdez FC. Venous Leg Ulcers: Exercise. JBI EBP Database 2022;JBI-ES-1557-2.
25. Swe K. Venous Leg Ulcers: Surgical Interventions. JBI EBP Database. 2022;JBI-ES-1524-2.



Assessment

1. Undertake a comprehensive assessment of the person, their history, leg ulcer and the healing environment¹ (EO), using validated tools.² (I)
2. Persons with a leg ulcer should be screened for peripheral arterial disease, which may include history and clinical assessment as above, and:
 - Examining pedal pulses¹ (EO)
 - Doppler examination to assess Ankle-Brachial Pressure Index (ABPI), and/or Toe Brachial Index (TBI)^{1,3,4} (EO)
 - Doppler ABPI/TBI assessments should be undertaken by health professionals with expertise in this area¹ (EO)
 - Refer for specialist vascular assessment if there is uncertainty, or the ABPI is less than 0.9, or TBI less than 0.7⁵⁻⁷ (I)
3. Undertake ABPI reassessment regularly, e.g., every 3–12 months according to the individual's condition³ (EO)
4. Measure and document ulcer area and characteristics regularly to monitor progress in healing^{1,4} (IV)
5. Complex needs requiring referral to a specialist include:
 - uncertainty in diagnosis¹
 - an ABPI less than 0.9 or higher than 1.3, TBI less than 0.7⁵⁻⁷, ankle systolic pressure less than 70mmHg or absolute systolic toe pressure (ASTP) less than 50mmHg¹
 - complex ulcers (e.g. multiple aetiology)¹
 - signs of spreading and/or systemic infection^{1,4}
 - deterioration of ulcer¹
 - failure to improve after 3 months, or recurring ulceration¹
 - uncontrolled pain¹

Management

6. Cleanse the ulcer with a neutral, non-irritating solution, e.g. warm tap water or saline.¹ (IV)
7. If present, necrotic and devitalised tissue should be removed through mechanical, sharp, autolytic or biological debridement.^{1,8} (IV)

Sharp debridement should only be undertaken by trained, proficient, health professionals.¹ (EO)
8. Base choice of dressing type on assessment of the ulcer and clinical judgement. Dressings should be simple, low adherent, cost effective, and acceptable to the person.⁹ (I)
9. Dressings should maintain a moist wound-healing environment, manage wound exudate and bacterial burden, be non-adherent, and protect the peri-ulcer skin.^{1,4} (II)
10. There is little evidence that any one dressing type is more effective than another.^{2,10} (I)

However in an infected wound silver dressings may be effective at improving healing.¹¹ (II)
11. Compression therapy is recommended, if there are no contraindications.^{1,12} (I)
 - High-pressure compression utilising multilayer bandaging systems may be more effective than low pressure compression using single layer bandage systems² (II)
 - Compression garments should be replaced regularly¹² (EO)

* Contraindications for compression may include ulcers of other or mixed aetiology, peripheral arterial disease, heart disease, peripheral neuropathy, an ABPI <0.5, ankle systolic pressure



less than 70mmHg, or ASTP less than 50mmHg.¹ (III)

- Further investigation is needed if ABPI is less than 0.9, or >1.2^{5,7,12} (I)

- A reduced level of compression may be considered under direction of a specialist if ABPI is >0.5 and <0.8¹ (EO)

- 12.** Compression should be applied based on the person's tolerance and preference, by a trained practitioner.¹² (IV)

- 13.** Refer persons with venous leg ulcers for vascular assessment for venous intervention³ (II)
- Combined endovenous ablation and compression therapy may improve time to healing¹³ (III)
- Foam sclerotherapy may improve ulcer healing rates compared to compression therapy alone¹⁴ (II)

- 14.** There is insufficient evidence that therapeutic ultrasound¹⁵ (I), electromagnetic therapy¹⁶ (II), hyperbaric oxygen therapy¹⁷ (II), growth factors¹⁸ (II), ozone¹⁹ (I), or subfascial endoscopic perforator surgery²⁰ (I) speeds healing of venous leg ulcers.

- 15.** Systemic antibiotics should not be used for ulcers with no clinical signs of infection.²¹ (II)

- 16.** If there are no contraindications, pentoxifylline may promote healing.²² (II)

- 17.** Electric stimulation therapy may improve healing when used as an adjunct to compression.²³ (III)

- 18.** Appropriate consumer education (written and/or verbal) may lead to improved knowledge of their condition and concordance with its management.¹ (EO)

- 19.** Recommend leg elevation and progressive leg exercises as part of the management plan.^{1,2,24} (EO-II)

Prevention

- 20.** After healing, a lifelong commitment to use of compression therapy reduces ulcer recurrence rates.^{1,3} (II)

- 21.** Consider practicality and application methods when choosing compression type.³ (EO)

- 22.** Other recommended strategies to prevent recurrence include:
- venous investigation and surgery²⁵ (I)
 - regular follow-up and education depending on need and risk of recurrence³ (EO)
 - skin care, lower limb exercise and elevation of the affected limb^{1,3} (EO)