

**UK Wound Management of Open Lower Limb Fractures (UK WOLLF):
A Randomized Controlled Trial of Standard Wound Management Versus
Negative Pressure Wound Therapy in the Treatment of Adult Patients with an
Open Wound Fracture of the Lower Limb**

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Purpose: Open fractures of the lower limb occur when a broken bone penetrates the skin and is exposed to the outside environment; these are life-changing injuries. The risk of deep infection may be as high as 27%. The type of dressing applied after surgical debridement could potentially reduce the risk of infection in the open fracture wound. We compared standard wound dressings with a new treatment, negative pressure wound therapy (NPWT), for adults with open lower limb fractures.

Methods: Patients were recruited from 22 trauma centers in the UK. 460 consented patients presenting with a severe, open lower limb fracture were randomly assigned to receive either a standard wound dressing or NPWT after the first surgical debridement of the open fracture. The primary outcome was the Disability Rating Index (DRI) at 12 months after surgery. Secondary outcomes were health-related quality of life, deep surgical site infection, other complications, and resource use.

Results: There was no evidence of a difference in the patients' DRI at 12 months. The mean DRI in the NPWT was 45.5 (28.0) versus 42.4 (24.2) in the standard dressing group, giving a difference of 3.9 (95% confidence interval, -8.9 to 1.2) in favor of standard dressings ($P = 0.132$). There was no difference in health-related quality of life, the number of surgical site infections, or other complications at any point in the 12 months after surgery. NPWT did not reduce the cost of treatment.

Conclusion: Contrary to the existing literature and current clinical guidelines, NPWT dressings do not provide a clinical or cost benefit for patients with an open fracture of the lower limb.