

The Fibular Nail Experience: Clinical and Patient-Reported Outcomes in 445 Patients*Samuel Peter Mackenzie, MBBS¹; Tom Henry Carter, MBBS¹; Kate Ella Bugler, MBBS¹;**Katrina Roxanne Bell, MBBS¹; Andrew David Duckworth, MD, PhD¹;**Deborah MacDonal, BSc¹; Timothy O. White, MD**¹Royal Infirmary of Edinburgh, Edinburgh, Lothian, UNITED KINGDOM*

Purpose: Level-I evidence in small studies has demonstrated the superiority of the fibular nail in successfully fixing ankle fractures while avoiding soft-tissue complications in the elderly and other patients with compromised tissues. There is potential for the fibular nail to benefit the wider population. Our aim was to review a large cohort of patients treated with this device in order to establish the level of success in the general population.

Methods: The clinical and patient-related outcomes of 445 patients who had treatment of unstable ankle fractures with a fibular nail between 2002-2016 were reviewed. Patient records were scrutinized and patient-related outcomes were assessed by postal questionnaires and telephone review to calculate EQ-5D, Olerud and Molander, and Manchester/Oxford Foot and Ankle (MOXFQ) scores. A custom questionnaire was used to identify complications treated elsewhere, return to work, and return to sport.

Results: Of the 445 patients who had undergone fibular nail insertion, 91 were deceased, leaving 354 for review. Mean age at the time of injury was 65 years (range, 14-96) with mean follow-up of 64 months (range, 6-177). Revision surgery due to nail failure was required in 25 patients (5.6%). Metalwork removal was performed in a further 34/29 patients (7.6%, 6.5%): 6 nails and locking screws, 6 proximal locking screws, 2 distal locking screws. Of the 6 nails removed, only 1 was due to infection. Patient-reported outcomes revealed a satisfactory final clinical result with a mean EQ-5D of 0.72 (SD 0.32), a mean Olerud and Molander score of 67 (range, 0-100), and mean MOXFQ score 25 (range, 0-94). All but one of the patients who were working at the time of injury returned to work.

Conclusion: This is the largest series of fibular nails reported to date, demonstrating that low complication rates and favorable outcomes are possible with intramedullary ankle fracture fixation, and can be sustained for up to 14 years postoperatively. These data have driven further implant development and the next generation of the fibular nail will incorporate headless locking screws, with the aim of minimizing soft-tissue irritation and reducing the rate of metalwork removal. The fibular nail should be considered in the management of unstable ankle fractures.