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A step forward for ankle fracture management

Casting is non-inferior to surgery for stress test unstable lateral malleolus fractures

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Fractures of the ankle that remain anatomically aligned are usually managed non-surgically in a cast or walking boot. However, fractures considered unstable (ie, at risk of falling out of alignment) are often treated with surgery. About 20 000 people are admitted to hospitals in England each year because of an ankle fracture.[1] In some patients, ankle instability is clear—for example, those with a fracture dislocation of the ankle. In other patients, instability is less obvious, such as those with an isolated fracture of the fibula at the level of the syndesmosis (Weber B fractures). For this common type of ankle fracture, stability depends on the extent of ligamentous injury, which cannot be easily determined clinically.

Several approaches are used to test the stability of the ankle joint after such a fracture. Many clinicians still rely on clinical assessment. Others use weightbearing radiography. Another approach to assessing stability is to undertake external rotation stress testing.[2] This test involves stressing the ankle to see if misalignment of the ankle is evident on radiographs while forces are applied by an assessor. If the test indicates misalignment, clinicians may consider this as an indication for internal fixation surgery. High quality data about whether surgery or non-surgical management should be offered in this specific situation is, however, limited. The linked study, the SUPER-FIN trial (doi:10.1136/bmj-2025-085295), addresses this uncertainty.[3]

In the SUPER-FIN trial, Kortekangas and colleagues compared cast immobilisation with open reduction and internal fixation surgery in adults with ankle fractures with isolated lateral malleolar (Weber B) injuries that were aligned in standard radiographs but determined to be unstable from external rotation stress testing.[3] In this randomised, pragmatic, non-inferiority trial, 126 participants were allocated 1:1 to cast immobilsation or surgery and then followed-up at two years post-randomisation. The primary outcome was the Olerud-Molander Ankle Score (OMAS, 0-100, higher scores better), which assesses patient reported symptoms and function.[4] The study achieved 96% follow-up at two years. The mean OMAS score was 89 in the cast immobilisation group and 87 in the surgery group, with a between group mean difference of 1.3 points (95% confidence interval −4.8 to 7.3). As the 95% confidence interval was within the prespecified non-inferiority margin of 8 points, the authors concluded cast immobilisation was non-inferior to surgery. Furthermore, the surgery group experienced more complications than the cast immobilisation group.

The SUPER-FIN team are to be commended for conducting a robust study that addresses an important clinical question. The investigators acknowledge that their trial was from a single university hospital, which may limit generalisability. Also, partial weight bearing (ie, patients to only put some weight on the ankle) was allowed for the first four weeks in both arms of the trial. This conservative approach to rehabilitation may reflect the fact that SUPER-FIN recruited participants over several years. More recent evidence suggests that unrestricted weight bearing after surgical management has functional advantages,[5] and guidelines now recommend against the use of the term partial weight bearing.[6]

One other potential limitation is that the trial had no outcome assessments before two years. Therefore, some uncertainty exists about potential differences between cast immobilisation and surgery in earlier recovery, which is important in circumstances where speed of recovery is a critical factor for patients.

The investigators noted that clinicians in different settings and in different healthcare systems have different approaches to assessing potential instability in ankle fractures. These trial results will clearly have most impact in settings where external rotation stress testing is currently used routinely. Some authors have, however, noted these stress tests are not easy to standardise in terms of the technique and force used and, in the period immediately after the injury, can be limited by the patient's pain.[7] In the Netherlands, only 8% of the 178 surgeons from 68 hospitals responding to a nationwide survey reported using this procedure in the assessment of isolated Weber B injuries.[8] External rotation stress imaging was not included in the ankle fracture management guidelines of the British Orthopaedic Association Standards for Trauma.[9] This guidance recommends patients are reviewed within two weeks with radiography, with the patient weight bearing when possible, to check if ankle alignment is acceptable.

In the past decade, a growing number of randomised controlled trials have assessed the effectiveness of interventions for ankle fracture management, including but not limited to early versus late weight bearing after surgery for unstable fractures,[5] cast versus walking boot,[10] and surgery versus casting for unstable ankle fractures in adults aged 60 years or older.[11 12] Collectively these randomised controlled trials are supporting much needed advances in the evidence base for ankle fracture management and are a testament to the collaborative network of trauma and orthopaedic health professionals, researchers, and, most importantly, patient participants. The SUPER-FIN trial provides additional robust evidence for ankle fracture management and will support treatment decisions and updates to clinical guidelines.

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1 Scott LJ, Jones T, Whitehouse MR, Robinson PW, Hollingworth W. Exploring trends in admissions and treatment for ankle fractures: a longitudinal cohort study of routinely collected hospital data in England. *BMC Health Serv Res* 2020;20:. doi: 10.1186/s12913-020-05682-9. pmid: 32867779

2 McConnell T, Creevy W, Tornetta P3rd. Stress examination of supination external rotation-type fibular fractures. *J Bone Joint Surg Am* 2004;86:-8. doi: 10.2106/00004623-200410000-00007. pmid: 15466725

3 Kortekangas T, Lehtola R, Leskelä H-V, etal. Cast immobilisation versus surgery for unstable lateral malleolus fractures (SUPER-FIN): randomised non-inferiority clinical trial. *BMJ* 2026;392:e085295.

4 Olerud C, Molander H.A scoring scale for symptom evaluation after ankle fracture. *Arch Orthop Trauma Surg (1978)* 1984;103:-4. doi: 10.1007/BF00435553

5 Bretherton CP, Achten J, Jogarah V, etalWAX Investigators. Early versus delayed weight-bearing following operatively treated ankle fracture (WAX): a non-inferiority, multicentre, randomised controlled trial. *Lancet* 2024;403:-97. doi: 10.1016/S0140-6736(24)00710-4. pmid: 38848738

6 BOAST. Mobilisation and weightbearing after orthopaedic surgery / musculoskeletal injury 2024. https://www.boa.ac.uk/resource/mobilisation-and-weightbearing-after-orthopaedic-surgery-musculoskeletal-injury-boast.html.

7 Lampridis V, Gougoulias N, Sakellariou A. Stability in ankle fractures: Diagnosis and treatment. *EFORT Open Rev* 2018;3:-303. doi: 10.1302/2058-5241.3.170057. pmid: 29951269

8 van Leeuwen CAT, Hoffman RPC, Donken CCMA, van der Plaat LW, Schepers T, Hoogendoorn JM. The diagnosis and treatment of isolated type B fibular fractures: Results of a nationwide survey. *Injury* 2019;50:-89. doi: 10.1016/j.injury.2018.12.038. pmid: 30630597

9 BOAST. The Management of Ankle Fractures. 2016. https://www.boa.ac.uk/resource/boast-12-pdf.html.

10 Kearney R, McKeown R, Parsons H, etalAIR trial collaborators. Use of cast immobilisation versus removable brace in adults with an ankle fracture: multicentre randomised controlled trial. *BMJ* 2021;374:. doi: 10.1136/bmj.n1506. pmid: 34226192

11 Keene DJ, Lamb SE, Mistry D, etalAnkle Injury Management (AIM) Trial Collaborators. Three-Year Follow-up of a Trial of Close Contact Casting vs Surgery for Initial Treatment of Unstable Ankle Fractures in Older Adults. *JAMA* 2018;319:-6. doi: 10.1001/jama.2018.0811. pmid: 29584832

12 Willett K, Keene DJ, Mistry D, etalAnkle Injury Management (AIM) Trial Collaborators. Close Contact Casting vs Surgery for Initial Treatment of Unstable Ankle Fractures in Older Adults: A Randomized Clinical Trial. *JAMA* 2016;316:-63. doi: 10.1001/jama.2016.14719. pmid: 27727383