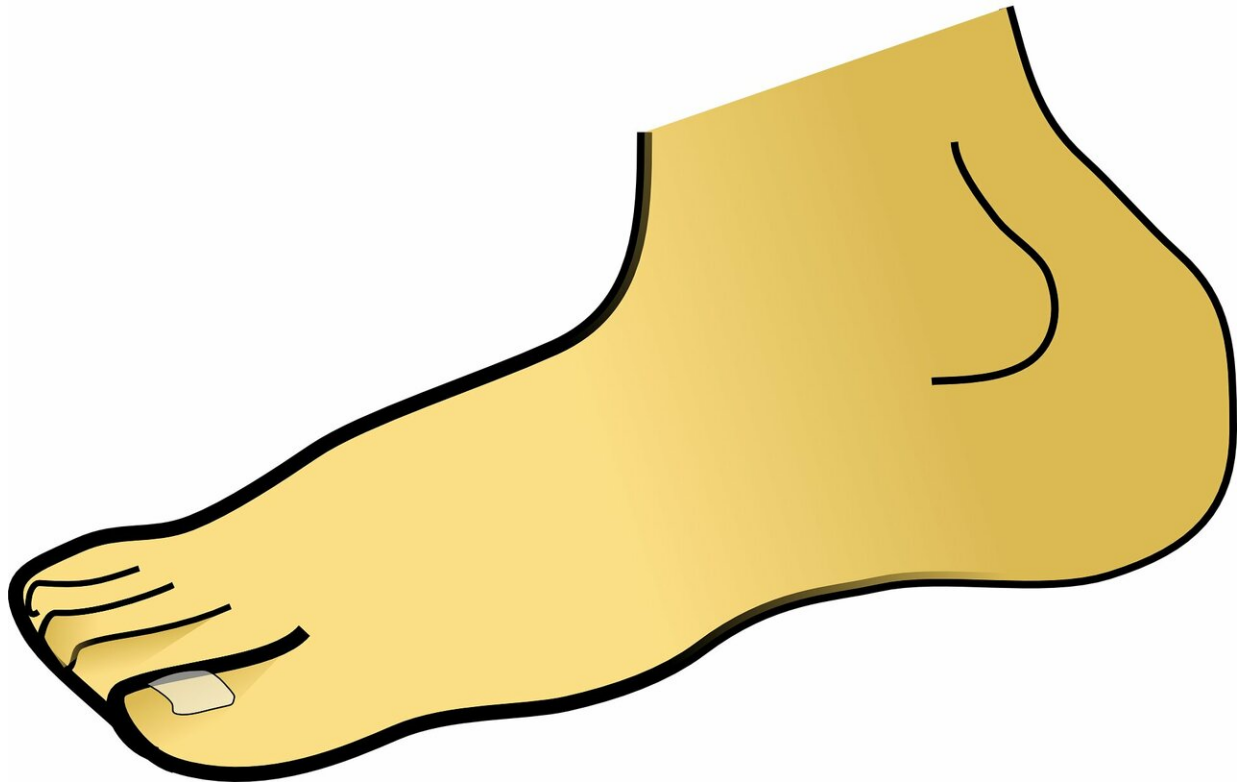


# Cast no better than brace for broken ankles

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Using a cast is not more effective than a brace for treating broken ankles, according to University of Warwick researchers—a conclusion that could hasten the decline of the tradition of signing a cast.

With little difference in the clinical effectiveness of either method, the

researchers conclude that the choice of which to use should be down to cost and patient preference, with some evidence suggesting that the flexibility of the removable brace could prove more appealing to patients.

The research reports the results of the Ankle Injury Rehabilitation (AIR) Trial at Warwick Clinical Trials Unit at the University of Warwick, and is published today (6 July) in the *BMJ*. This four-year trial funded by the National Institute for Health Research (NIHR) aimed to compare cast to functional brace in the treatment of individuals with an [ankle](#) fracture.

Ankle fractures are very common and tend to occur when you land on your foot and twist it. They are most commonly related to sports, traffic accidents or falls in older people, though it is an injury that everyone is susceptible to. Not all ankle fractures will require surgery, but in all cases patients will need to keep their foot immobilised typically for a period of around six weeks to allow the bones to heal.

As part of the AIR trial, 669 patients were randomly given either a cast (334 patients) or removable brace (335 patients) to immobilise their foot following an ankle fracture. Those with the brace were given information advising them to take the boot off around three times a day and perform repetitions of ankle movement exercises. The cast group were not given specific ankle movement exercises from the trial as they were unable to remove their cast, nor move their ankle.

They were then followed up four months afterwards with a questionnaire that asked them if they had any pain or functional problems. Specifically, patients were asked about problems with pain when walking, stiffness, swelling, climbing stairs, running, jumping, squatting, use of supports and activities. Their answers were combined into a score called the Olerud Molander Ankle Score (OMAS), and these scores combined for each group and compared.

The research showed no statistically significant difference in the scores of those using a cast and those using a boot after four months. The results were also the same when comparing those who received surgery and those who didn't.

Lead author Professor Rebecca Kearney of Warwick Medical School at the University of Warwick said: "With cast not being better, it comes down to a decision on the cost of the interventions, patient preferences and if there's a difference in complications, which we did not find evidence of. Patients should discuss their preference with their clinician, who should take into account these factors.

"When people think of ankle fractures they think of the pain, swelling, and not being able to do things. But it has more far-reaching consequences than just the immediate physical limitations of a broken bone, which we're only just starting to appreciate."

Like many types of broken bone, ankle fractures have traditionally been treated by using the familiar cast that generations have signed their names on in sympathy. In more recent years, it has become just as common to use a removable brace—at one time referred to as the 'Beckham boot', after being popularised by former professional footballer David Beckham.

The brace is a plastic boot that comes in two halves with Velcro to wrap round and secure it. They're designed to be walked on and being removable allows patients to perform leg exercises and keep their leg clean.

Professor Kearney, who was supported by an NIHR Fellowship for this research, adds: "If you keep the ankle really still it allows the bones to heal up, but that's not great if all the joints around it stiffen up and all the muscles weaken. The idea behind the boot is that you can do

movement exercises with the ankle and walk on it to encourage weight-bearing. In theory, that could result in decreased muscle wastage and joint stiffness. In practice though, it didn't result in better functional outcomes.

"It was also clear in the quantitative data that when patients swapped treatments, they swapped in predominantly one direction—from the cast to the [brace](#)."

**More information:** Rebecca Kearney et al, Use of cast immobilisation versus removable brace in adults with an ankle fracture: multicentre randomised controlled trial, *BMJ* (2021). [DOI: 10.1136/bmj.n1506](https://doi.org/10.1136/bmj.n1506)

Provided by University of Warwick

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