

# Below-knee cast speeds up recovery for severe ankle sprain

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(PhysOrg.com) -- Research led by the University of Warwick shows immobilising a severely sprained ankle in a below-knee cast for a short period of time promotes rapid recovery.

In an article published in this week's edition of *The Lancet*, Professor Sallie Lamb from Warwick Medical School, and colleagues, concluded use of the below-knee cast or Aircast brace was more effective than other treatments that allowed a degree of mobility in the ankle.

Severe ankle sprains account for around 1.5 million UK emergency department attendances each year. These injuries are graded in severity from grade I (stretching of the ligament) to grade III (tear/complete rupture of the ligament complex). They are typified by inability to bear weight on the leg, and substantial swelling. Current treatment includes elevating the ankle and controlled mobilisation of the joint. Complete immobilisation is discouraged.

Professor Lamb and her colleagues assessed the effectiveness of three different mechanical supports (specialist boot, 10-day below-knee cast and the Aircast brace) compared with a double-layer tubular compression bandage in promoting recovery after severe ankle sprains. Including fitting, the specialist boot costs around £200, tubular compression bandage £1.44, the Aircast brace £39.23, and the below-knee cast £16.46 (2005 reference prices).

This randomised, controlled trial assessed 584 patients with severe ankle

sprain from eight emergency departments across the UK. Patients were provided with a mechanical support within the first 3 days of attendance by a trained health-care professional, and given advice on reducing swelling and pain. Functional outcome was measured over 9 months. The primary outcome was quality of ankle function at 3 months.

The researchers found that patients who received the below-knee cast had a more rapid recovery than those given the tubular compression bandage. They noted clinically important benefits at 3 months in quality of ankle function with the below-knee cast compared with the bandage (mean difference 9%) as well as in pain, symptoms and activity.

The Aircast brace showed an 8% improvement in quality of ankle function at 3 months compared with the bandage; however there was little difference in pain, symptoms, and activity for those given the Aircast brace compared with the bandage. The specialist boot offered no advantage over the compression bandage. The differences between the treatments appear to be time sensitive, since at 9 months there was no significant difference between the bandage and the other treatments.

Professor Lamb said: "Contrary to popular clinical opinion, a period of immobilisation was the most effective strategy for promoting rapid recovery. This was achieved best by the application of a below-knee cast. The Aircast brace was a suitable alternative to below-knee casts.

"Results for the specialist boot were disappointing, especially in view of the substantial additional cost of this device. Tubular compression bandage, which is currently the most commonly used of all the supports investigated, was, consistently, the worst treatment."

In an accompanying comment in *The Lancet*, Dr Jay Hertel, University of Virginia, Charlottesville, VA, USA, says: "Lamb and colleagues have presented provocative results that show the benefits of 10 days below-

knee casting in patients with acute ankle sprains. Since short-term benefits were identified at 3 months, but intermediate-term benefits at 9-months follow-up were not found, the results of this study call into question the current standard of aggressive functional treatment of patients recovering from acute ankle sprains.”

Provided by University of Warwick

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