



Spotlight

Treatments for severe ankle sprain



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Methods of ankle support assessed

The most clinically and cost-effective treatment for pain relief and recovery from severe ankle sprain, where patients cannot put any weight through that leg, is a below the knee cast, suggests recently published HTA research.

There are a number of different treatments for severe ankle sprains, including rest, immobilisation, a range of different types of supports and physiotherapy. However, there is a lack of good quality evidence to help aid clinical decision-making as to which is the best treatment.

Up to 1.5m people a year in the UK go to A&E with a sprained ankle with attendances varying from minor stretching of the ligament to a complete tear.

New research published by the National Institute for Health Research Health Technology Assessment (NIHR HTA) programme examined a number of different treatments for severe ankle injuries.

The clinical trial, led by Professor Matthew W Cooke of the Warwick Medical School & Heart of England NHS Foundation Trust, and Professor Sallie Lamb of Warwick Medical School, assessed the clinical and cost-effectiveness of the following methods of ankle support:

- ▶ Below-knee cast - either plaster of Paris or synthetic material
- ▶ An ankle brace - designed to allow movement of the ankle but prevents it turning inwards
- ▶ A foam padded ski boot style - a type of brace which is designed to restrict movement of the ankle but allow users to walk.

These support methods were compared with a double layer tubular compression bandage which is the most common treatment for severe ankle sprains. The ankle supports were assessed in terms of recovery of function, recovery of normal occupation and prevention of residual problems.

Eight emergency departments across the UK participated in the trial. Researchers recruited around 600 patients aged 16 or over with acute severe ankle sprain, who were unable to weight bear and had no fracture. They were randomised into one of the four treatment arms where one of the supports was applied two to three days after presentation to allow any swelling to resolve. Patients could still have other treatments as usual, such as painkillers and topical anti-inflammatory creams to ease pain. They were followed up with questionnaires over a nine-month period to assess mobility following treatment.

Adding to the evidence base

The 10-day below-knee cast was associated with a speedier recovery in terms of ankle function, pain, symptoms, activity and quality of life (QoL) after three months.

The second best treatment was an ankle brace. This was associated with clinically and statistically significant changes in ankle-related QoL but not in other domains i.e. pain, ankle function and long-term outcome. Patients preferred the ankle brace to the cast because they were able to remove it and adjust it.

The foam padded boot was no more effective than a tubular bandage - neither improved the outcome. Neither the foam padded boot nor the tubular bandage can be recommended based on their limited treatment benefits and, for the foam padded boot only, poor cost-effectiveness.



Clinical background

Severe ankle sprain is commonly treated with immobilisation, often in conjunction with ice, elevation, tubular compression bandage and advice to exercise. Although the acute symptoms tend to resolve soon after the injury, residual symptoms may remain for months or years afterwards. Key clinical aspects of treatment are therefore the recovery of ankle function, recovery of normal occupation and also the minimisation of ongoing symptoms.

Treatment

The optimal treatment for a severe ankle sprain has been unclear and the CAST trial has provided important findings to add to the evidence base in this area

After nine months there was little difference between patients regardless of the intervention they received suggesting that choice of treatment may affect speed of recovery, but not long-term outcome.

Professor Sallie Lamb, an expert in rehabilitation at the University of Warwick, said that “contrary to current practice and popular clinical opinion, the results found that the most clinically and cost-effective treatment option for short-term recovery of severe ankle sprain is immobilisation with a below the knee plaster cast”.

Economic evaluation

Researchers found that while the tubular bandage was the cheapest option, the below-knee cast was much better at relieving pain at four and 12 weeks and that it was the most cost-effective intervention. A below-knee cast costs £16.46, compared with £39.23 for an ankle brace, £215 for a foam padded boot and £1.44 for a tubular bandage.

“Our aim was to measure which treatment was the most beneficial ankle support for patients, enabling them to continue their daily routine with minimum discomfort and to aid a faster healing process, as well as being cost-effective,” says Professor Cooke. “All treatments are available through the NHS and the findings of the trial will help inform clinicians’ decisions on the most effective method to use for severe ankle sprains. Our research suggests that after allowing swelling to subside, a below-knee cast or ankle brace should be used to treat these injuries.”

Professor Cooke went on to advise, “There were no differences in the patients’ well-being in the long term following all four treatments, so it would be beneficial to select an ankle support that is preferred by the patient as this could affect the speed of recovery.”

‘Treatment of severe ankle sprain: a pragmatic randomised controlled trial comparing the clinical effectiveness and cost-effectiveness of three types of mechanical ankle support with tubular bandage. The CAST trial’ is published in *Health Technol Assess* 2009; Vol. 13:13. The full text is available for download free of charge from www.hta.ac.uk/1309

The findings of the trial have also been published in *The Lancet* vol 373; 9663 pages 575 - 581
[www.thelancet.com/journals/lancet/article/PIIS0140-6736\(09\)60206-3/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(09)60206-3/fulltext)



Related HTA research

Topical or oral ibuprofen for chronic knee pain in older people. The TOIB study (Underwood). *Health Technol Assess* 2008; Vol.12:22

The aim of this study was to determine whether GPs should advise their older patients with chronic knee pain to use topical or oral non-steroidal anti-inflammatory drugs (NSAIDs).

Other titles include:

- ▶ Randomised controlled trial of the cost-effectiveness of water-based therapy for lower limb osteoarthritis. *Health Technol Assess* 2005; Vol.9:31
- ▶ Does early magnetic resonance imaging influence management or improve outcome in patients referred to secondary care with low back pain? A pragmatic randomised controlled trial (Gilbert). *Health Technol Assess*, 2004; Vol.8:17

For a full listing of related projects funded by the HTA programme, visit the advanced search pages of the website

www.hta.ac.uk/ProjectData/projectsearch.asp

Useful organisations and guidance

NHS Evidence

Provides comprehensive access to information in health and social care via a web-based portal.

<http://www.evidence.nhs.uk/Search.aspx?t=ankle+sprain+>

The National Institute for Health and Clinical Excellence (NICE)

The latest guidance NICE has published or is developing on a specific health topic.

www.nice.org.uk/guidance/Topic

Arthritis Care

Exists to support people with arthritis. They are the UK's largest organisation working with and for people with arthritis.

www.arthritiscare.org.uk

The NIHR Health Technology Assessment programme does not offer endorsement for any of the organisations or practices listed in this publication, nor is this list intended to be exhaustive.



About the NIHR HTA programme

The HTA programme is a programme of the National Institute for Health Research (NIHR) and is funded by the Department of Health. It produces high quality research information about the effectiveness, costs, and broader impact of health technologies for those who use, manage and provide care in the NHS.

It is the largest of the NIHR programmes, with over 480 projects published since its inception in 1993. About 50 are published each year, all available for download free of charge from the website. It is coordinated by NETSCC, HTA based at the University of Southampton. Visit www.hta.ac.uk for more information.

The NIHR HTA programme is managed by NETSCC, HTA, part of the NIHR Evaluation, Trials and Studies Coordinating Centre based at the University of Southampton.

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