



What's new in foot and ankle surgery for workers' compensation?

By Michael H. Weier ■ October 6, 2015

Workers' compensation administrators and claims professionals encounter numerous and various questions related to foot and ankle claims. Should a request for total ankle replacement or fusion be approved or denied? Are successful surgical outcomes dependent upon patient weight? Is ankle magnetic resonance imaging (MRI) an effective diagnostic tool to identify ligament damage in ankle fractures? What are the national trends in foot and ankle surgery?

Though not as prevalent as spine and hand problems, foot and ankle conditions are among the most common traumatic injuries and degenerative disorders alleged in workers' compensation claims. Rather than highlighting a single research investigation, this blog briefly summarizes several recent foot and ankle studies relevant to workers' compensation claims. The summaries are drawn from numerous articles published in the *Journal of Bone and Joint Surgery*, *Journal of Orthopaedic Trauma*, and *Journal of Foot & Ankle Surgery*.

Total ankle replacement is more cost-effective than fusion or non-operative treatment

Total ankle replacement (TAR) and ankle arthrodesis (fusion) are two effective, but costly, surgical treatments for significant ankle arthritis. Medical researchers performed a comparative cost-effective assessment of direct (healthcare system) and indirect (societal, including missed workdays/loss of productivity) costs of the surgical and non-operative treatments for end-stage ankle arthritis.¹ The study revealed TAR was superior to fusion or non-operative treatments in both total costs and symptomatic improvements.

Ankle arthritis is a degenerative condition in which the joint that connects the foot to the leg has worn or damaged cartilage. The ankle joint, also known as the tibiotalar joint, is comprised of three bones – the tibia, fibula and talus. Any one or all of the bones and articular surfaces of the ankle joint may be subject to degenerative arthritic changes.²

Comparative direct cost was greatest for TAR. The total cost when indirect costs were considered was significantly less for TAR than fusion or non-operative treatment. Moreover, a QALY³ assessment revealed superior quality-of-life scores for TAR as compared to fusion or non-operative treatments. Notably, the research was directed to fifty-five-year-old patients. Further

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What's new in foot and ankle surgery (continued)

research is needed to evaluate relative cost-effectiveness of treatments for significantly younger patients.

Surgery is superior to conservative treatment for calcaneal (heel bone) fractures

Fractures of the calcaneus or heel bone can occur as the result of acute trauma to the hindfoot such as may result from a fall off a ladder or jump onto a hard surface. An eight-to-twelve year study of a randomized trial of 56 patients compared the results of operative versus non-operative treatment of displaced calcaneal fractures.⁴ Acknowledging treatment decisions regarding heel fractures are complex and unclear, the researchers identified better long-term outcomes among patients who received surgical intervention as compared to patients who received conservative medical treatment.

In a separate study, researchers followed 108 patients with displaced intra-articular calcaneal fractures for a minimum of ten years.⁵ The data revealed good or excellent results in a majority of patients who received subtalar fusion. Accordingly, the two, independent studies indicate surgical intervention is efficacious and superior to non-operative treatment for traumatic heel fractures.

Obesity has limited effects upon results of total ankle replacement

A retrospective cohort study followed thirty-nine obese patients and forty-eight non-obese patients for approximately four years after total ankle replacement surgery.⁶ Preoperatively, the obese and morbidly obese patients had greater levels of disability and worse functional abilities than non-obese patients. Subsequent to surgery, however, both groups reported essentially equal improvements in pain, demonstrated comparable reductions in functional limitations, scored similarly in mental and emotional status examinations and presented no significant difference in complications following TAR. Though additional research should be performed to confirm the results, the study surprisingly suggests obesity has little or no adverse effect upon the results of TAR. Based upon the study results, total ankle replacement is as efficacious for obese patients as non-obese patients.

Stress ankle MRI is inadequate to assess ligament damage in ankle fractures

Surgeons routinely obtain stress ankle radiographs to evaluate the integrity of deep deltoid ligaments in supination external rotation (SER) ankle fractures. Due to variability and inconsistency in diagnostic review, researchers conducted a study to assess the accuracy of pre-operative ankle MRI to identify ligament damage in SER ankle fracture patients.⁷ The data revealed inadequate discriminative ability for diagnosing SER ankle fractures with or without a deep deltoid ligament tear. The study results suggest MRI is a poor diagnostic tool to identify ligament damage in an ankle fracture.

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What's new in foot and ankle surgery (continued)

National trends in foot and ankle arthrodesis (fusion)

Foot and ankle arthrodesis (fusion) is a common procedure performed by orthopedic surgeons and podiatric physicians and surgeons to treat painful and disabling arthritis and deformity. Investigators have reported a 17-year review of the most recent available data from the Centers for Disease Control and Prevention, the *National Hospital Discharge Survey* and the *National Survey of Ambulatory Surgery* to assess national trends in foot and ankle fusions.⁸

The research revealed some interesting statistics during the period 1990 to 2007:

- The rates of foot and ankle fusion increased by 146 percent;
- Outpatient arthroscopic foot and ankle fusions increased by 858 percent;
- Outpatient fusions without arthroscopic assistance increased by 415 percent;
- Inpatient fusions increased by 17 percent;
- Male foot and ankle fusions increased by 59 percent;
- Female foot and ankle fusions increased by 209 percent;
- Peripheral nerve blocks during ambulatory procedures increased from 3.3 percent to 10.1 percent; and
- Private insurance, including industrial insurance (workers' compensation), was the overwhelming largest payer for the increased prevalence of foot and ankle fusions.

The above studies are not dispositive of the issues addressed in the evaluations. They are, however, important medical evidence to be considered by workers' compensation claims professionals when setting reserves, developing action plans, and rendering claim decisions. ■

¹ Nwarchukwa, BU, et al. [Management of End-Stage Ankle Arthritis: Cost-Utility Analysis Using Direct and Indirect Costs](#). *Journal of Bone and Joint Surgery*, 2015; 97:1159 (July 15, 2015).

² Sangerzan, BJ, Hansen, S. [Ankle Arthritis](#). *UW Medicine: Orthopedics and Sports Medicine*.

³ Quality-adjusted life year (QALY) is a measure of disease burden that includes both patient subjective quality and the quantity or length of life.

⁴ Ricci, WM, et al. [What's New in Orthopaedic Trauma](#). *Journal of Bone and Joint Surgery*. 2015; 97:1200 (July 15, 2015); Agren, P. H., et al. [Factors affecting long-term treatment results of displaced intraarticular calcaneal fractures: a post hoc analysis of a prospective, randomized, controlled multicenter trial](#). *Journal of Orthopaedic Trauma*, October 2014; 28(10):564-8.

⁵ Ricci, WM Id; Sanders, R, et al. [The operative treatment of displaced intra-articular calcaneal fractures \(DA-ICFs\): long term \(10-20 years\) results in 108 fractures using a prognostic CT classification](#). *Journal of Orthopaedic Trauma*, Epub June 30, 2014.

⁶ Bouchard, M, et al. [The Impact on the Outcome of Total Ankle Replacement](#). *Journal of Bone and Joint Surgery*, 2015; 97:904 (June 3, 2015)

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What's new in foot and ankle surgery (continued)

- ⁷ Schottel, PC, et al. [Manual Stress Ankle Radiography Has Poor Ability to Predict Deep Deltoid Ligament Integrity in a Supination External Rotation Fracture Cohort](#). *Journal of Foot and Ankle Surgery*, Vol. 54, Issue 4, 531-535, July-August 2015.
- ⁸ Best, MJ, et al. [National Trends in Foot and Ankle Arthrodesis: 17-Year Analysis of the National Survey of Ambulatory Surgery and National Hospital Discharge Survey](#), *The Journal of Foot & Ankle Surgery* (Article In Press), Published Online: July 24, 2015.

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