In this issue, we examine a study published in 2002 in the Journal of Bone and Joint Surgery, which compares nonoperative and operative treatment for displaced intra-articular calcaneal fractures.1

SUMMARY
This prospective, randomized, controlled study comprised 309 patients (371 fractures) who were randomized into nonoperative or operative groups for treatment of a displaced intra-articular calcaneal fracture. The purpose of the study was to determine whether open reduction and internal fixation of displaced intra-articular calcaneal fractures results in better outcomes 2 years post-injury compared with those after nonoperative treatment.

The patients enrolled in the study were treated between April 1991 and December 1997. Mean patient age at the time of injury was 40 ± 11 years (range, 15-68 years). One hundred fifty-seven patients (37%) had a work-related injury and were receiving Workers’ Compensation.

The patients who were treated nonoperatively were treated with ice, elevation, and rest. Operative treatment consisted of an extended lateral approach with open reduction and application of a plate, screw, or wired fixation. Following 6 weeks of non-weight bearing, all patients began a standardized physiotherapy regimen that included full weight bearing.

Patients completed a self-administered general health-outcome form (SF-36) and rated the outcome using a visual analog scale at 1- and 2-year follow-up. Follow-up data collected included time from injury to patients’ return to work, the capability to perform normal work, complications, and the need for additional surgery. Preoperative, postoperative, and 2-year postoperative computed tomography scans were performed.

In patients who had nonoperative treatment, the satisfaction scores did not differ with regard to age, sex, workload, or bilaterality of the injury. However, the satisfaction scores were significantly higher for patients between 50 and 65 years who were not receiving Workers’ Compensation.

In the patients who received operative treatment, a significantly higher SF-36 score was noted in those who were female, had a Böhler angle of 15° to 36°, had a light workload, were not receiving Workers’ Compensation, or had an initial anatomic reduction, and who had a single calcaneal fracture. Overall, it was demonstrated that operative treatment provides no improvement over nonoperative treatment of displaced intra-articular fractures. Stratification of the patient population distinguished certain features that support surgical treatment for these fractures. Statistical analysis demonstrated that women, patients who were not receiving Worker’s Compensation, younger male patients, patients with a higher Böhler angle, patients with a lighter workload, and those with a displaced intra-articular calcaneal fracture have better results after operative treatment than after nonoperative treatment.

The authors determined that the best patients to treat nonoperatively are those patients 50 years and older, men, and those receiving Worker’s Compensation.

REFERENCE
At first glance, this landmark article published in 2002 seemingly demonstrates no significant benefit when operative calcaneal fracture management is compared to nonoperative care. However, with more scrutiny, the study demonstrates that outcomes are dramatically influenced by select patient and injury characteristics. Therefore, it guides treatment selection by providing specific criteria strongly associated with positive (or negative) outcomes.

Eight years later, calcaneal fracture care remains controversial. This Level I study continues to serve as a foundation of knowledge guiding future treatment advances for these difficult fractures.

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