

# Five Studies in Fracture Management

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**W**e are most fortunate to have in the September issue of *The American Journal of Orthopedics* articles focused on trauma that either support present practice or provide new insight into better understanding how to manage fractures or their sequelae.

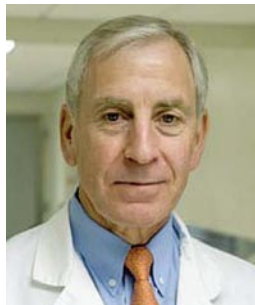
Many studies and much confusion exists as to the ideal prophylaxis for venous thromboembolic disease following hip fractures and their surgery. Comp and colleagues reviewed a large retrospective database of 500 hospitals over a 2-year period and included almost 50,000 patients (of >18 years of age) that fulfill their criteria, ie, that underwent prophylaxis following hip fracture surgery with either dalteparin, enoxaparin, fondaparinux, or unfractionated heparin. They were able to review not just the hospital records, but they followed these patients for at least 2 months. A 3.2% incidence of clinical VTE was documented. More importantly, and their conclusion states it succinctly, “fondaparinux is associated with the lowest rate of clinically diagnosed VTE in hip fracture surgery patients both for the index hospitalization for the surgery and for 2 months after hospital discharge.” This was statistically significant and should be sufficient evidence, combined with a previous randomized control clinical trial, to support this treatment regimen.

We know stress fractures are common, especially among military recruits and athletes. Much has been written concerning tibial stress fractures. Very little information is available on stress fractures of the femur. A

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review by Koenig and colleagues of 25 cases over a 7 year period at a Division I University demonstrates that, although not common, these injuries are significant. Eighty-five percent of the injured were women, mainly track and field athletes, but also lacrosse players. What was significant in this article was that the “fulcrum test” was 96% positive for the diagnosis and an MRI 100%. In addition, of the injured women, 35% had menstrual irregularities and 24% eating disorders, well-known risk factors in that population. All were treated conservatively, all went on to heal uneventfully with a strict protocol, which is outlined in the article. Also of significance was that the authors felt that the concrete athletic track may have contributed to the incidence of the stress fractures, and the results of their study prompted the university to change the track’s surface.

How long do self-tapping cortical screws have to be in the far cortex to obtain sufficient hold? Previously published work by Berkowitz and colleagues had shown that these screws inserted 1 mm past the far cortex had greater pullout strength. However, they didn’t compare multiple screw types nor did they have a standardized block for fixation. Schoenfeld and colleagues have corroborated this work and have clearly shown that 1-mm penetration past the far cortex was ideal, that flush with the far cortex or less was insufficient, and that 2 or 3 mm past the far cortex had no benefit and this in a standardized fashion and across multiple manufacturers and screw types, ie, stainless steel and titanium.

What is the ideal configuration for a wrist external fixator? The authors Katolik and colleagues evaluated 10 different configurations of the small AO external fixator and found all were basically good for torsion and bending, but axial loading was negatively affected primarily by the number of bar-

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to-bar clamps. These findings suggest that the more user-friendly the frame, the less the axial stiffness. What is unknown as a result of this biomechanical study is whether the differences have any clinical significance. However, the authors do recommend 2 configurations, which appear to be the ideal compromise between ease of application and axial stiffness.

Has computer technology replaced plain radiographs? Borrelli and colleagues have made a convincing argument that computer-reconstructed

radiographs (CRR) that mimic plain radiographs can replace standard anteroposterior and oblique radiographs in a trauma patient with an acetabular fracture. The quality of these computer-generated radiographs appears to be at least equivalent to plain radiographs and may even be better in some patients, especially obese patients, those with distended abdomen and bowel gas, etc. In addition, the procedure to obtain CRRs is less painful, as the patient does not have to be rolled as for 45° obliques, and expose the patient to

less radiation since the patient has a computed tomography (CT) scan anyway. However, until and unless such CT reconstructions are routine and immediately available, most of us will still probably use routine plain and oblique radiographs emergently for the evaluation of trauma patients with acetabular fractures.

I must thank all the authors for their work and for allowing *The American Journal of Orthopedics* the privilege of reviewing and publishing. Keep them coming!

## 2008 Resident Writer's Award

The 2008 Resident Writer's Award competition is sponsored through a restricted grant provided by DePuy, a Johnson & Johnson company. Orthopedic residents are invited to submit original studies, reviews, or case studies for publication. Papers published in 2008 will be judged by *The American Journal of Orthopedics* Editorial Board. Honoraria will be presented to the winners at the 2009 AAOS annual meeting.

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To qualify for consideration, papers must have the resident as the first-listed author and must be accepted through the journal's standard blinded-review process.

Papers submitted in 2008 but not published until 2009 will automatically qualify for the 2009 competition.

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