Annotated Orthopedic Evidence: Wrist / hand / finger injury / pain / instability

Dias JJ, Wildin CJ, Bhowal B, Thompson JR. Should acute scaphoid fractures be fixed? A randomized controlled trial. *J Bone Joint Surg Am.* 2005;87:2160-8.

The purpose of this study was to compare the outcomes of patients with acute scaphoid fractures after internal fixation with those that had nonoperative treatment with cast immobilization. This study also looked to see which treatment showed the most benefits to the patient with a scaphoid fracture.

This was a randomized control trial that included eight-eight that sustained clear bicortical fractures of the waist of the scaphoid. Forty-four patients were randomized to receive internal fixations and the remaining forty-four were treated with immobilization in a below the elbow cast with the thumb left free. The limitations in this study included the potential for bias by clinicians in their assessments, because they could not be blinded to the treatment regimen. They were both followed –up at intervals of 2 weeks, 8 weeks, 12 weeks, 26 weeks and 52 weeks. During each visit, each patient was assessed for symptoms of pain, swelling, tenderness, range of motion and grip strength.

Range of motion was shown to be significant ($p=0.001$) by visit interaction, because the group managed with open reduction and internal fixation had a better performance at eight weeks that was no longer present at twelve weeks. Another significant difference between groups was shown in their grip strength. Grip strength in treatment effect ($p=0.006$) and by visit interaction ($p=0.025$) were both significant. Grip strength was shown to be consistently higher in the group that had open reduction and internal fixation, with most of the difference between the weeks of 8 and 12. In the end, this study showed that immobilization is a reliable, safe, and reasonably effective method of treating scaphoid fractures. Open reduction and internal fixation provide the patients with early return of grip strength and range of motion, but with associated complications that may be of concern to an athletic patient.

Level of evidence was determined with the *AAOS Levels of Evidence for Primary Research Question.* This study is a controlled randomized trial with no statistically significant difference but narrow confidence intervals. Levels of evidence are as follows:

- AAOS: Level 1

I think this was a relevant study to the profession of athletic training because when an athlete does sustain any type of fracture, their main goal is to return to play as soon as possible. So looking at different treatment and immobilization options, athletic trainers might suggest or support one method over another because of the values and preferences of the athlete.

The patients that I see on a daily basis are college student athletes. They are more active then the patients in this study and are also about 10 years younger. I think the results of this study would indicate to me that there is not much of a difference between treatments of a scaphoid fracture. There are more complications and costs associated with surgery, so that is a definite downfall for a college student. Also with the active population that I am dealing with, the less time they are out of practice, the better. With the results suggesting only a week difference for return to work, either treatment would be ok. I think athletes would benefit more from cast immobilization in the long run.