

Malunion/Nonunion Management: (10/12/2013)
“What I wish someone had told me before I started doing these cases”

Role of Ring Fixation

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- I. **Introduction:** Ring fixation coupled with computer assisted deformity correction is a powerful tool in treating complex post-traumatic non-unions and malunions. These techniques allow simultaneous restoration of axial alignment and bone loss and allow weight bearing. In many cases, ring fixation may be the optimal solution to a complex problem. However, the techniques of circular frame application and management have a long learning curve and are quite demanding on the patient and the physician. The important things I have learned in over 500 of these cases will be presented:

- II. **Patient Selection:** This is critical since the patient and their support systems will be stressed during what is often a prolonged treatment time (6 -18 mo). The patient and families need to be able to perform pin care, make frame adjustments, and show up for the follow-up appointments. If they cannot do this, it will be a very difficult treatment process. Strongly consider amputation in a distal tibial salvage in which the *best end result* is a bad foot.

- III. **Optimize Patient Biology:**
 - A. Discuss smoking cessation – offer Chantix – play hardball –particularly if there is infection and bone transport planned.
 - B. Check Vit D levels (25 OH –total > 32) and aggressively replace – delay surgery if necessary.
 - C. Stop NSAID’s - dial down other RA meds as low as possible
 - D. Discuss Diet – avoid Cola – containing phosphoric acid – Tell the patient that you are going to release their inner Ferrari that needs high test fuel.

- IV. **Perform a complete analysis of the deformity:** Check bilateral hip/knee/ankle standing alignment films and identify all deformities in both the AP as well as the saggital views. Don’t leave the patient with a residual deformity that you didn’t recognize preoperatively

- V. **Make a stable/comfortable frame:** Patient comfort will translate into better weight bearing which translates into better healing of both non-unions and bone loss. A comfortable stable frame is a complex concept and incorporates all elements of frame planning – Ring size/ number and location of pins etc.