

# FANTASIES OF CORRECTION OF THE AUSTIN BUNIONECTOMY

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## INTRODUCTION

The Austin bunionectomy is the workhorse for correction of hallux valgus deformities in podiatry. It provides predictable results in correction of the moderate hallux valgus deformity while allowing weightbearing during recovery in most cases. Historically this osteotomy was performed initially without fixation, however today this is typically stabilized with any number of a variety of different types of screws and pins.

To accommodate screw fixation, many surgeons have altered the orientation of the dorsal cut, making the angle more acute and the length of the cut much greater thus allowing for placement of two screws from dorsal to plantar.

The proponents of the long wing technique often claim greater correction, faster recoveries, and decreased swelling due to the stability with screw fixation. Although the long wing technique is an accepted method of performing the procedure, critical analysis will show the claims of the proponents to be without merit.

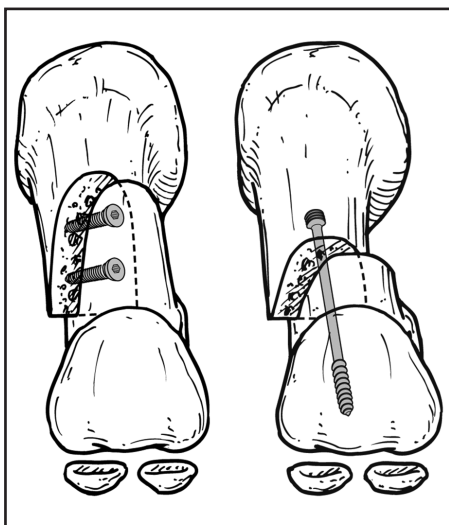


Figure 1. Comparison of correction between standard and long arm cuts.

## MYTH 1: GREATER DEGREE OF CORRECTION

The popular dogma espoused by proponents of the long wing cut is headlined by the claim that they get more correction with this version of the procedure as opposed to the standard Austin cut. The degree of correction possible with the Austin is dictated by the width of the metatarsal head. The head can generally be displaced by approximately 50% of its width before becoming unstable. The reality is that the length of the dorsal cut does not magically alter the width of the metatarsal, therefore the amount of correction available will be exactly the same for both the standard and long wing versions of the procedure (Figure 1). Although visually there may appear to be a greater shift, this is only an optical illusion created by the larger area of exposed cancellous bone due to the longer cut. It may be easier to shift the capital fragment, but this is due to the greater degree of periosteal stripping required for the longer cut, not due to the cut itself. The longer cut can also lead to inadvertent swiveling of the osteotomy due to the soft tissue attachments proximally.

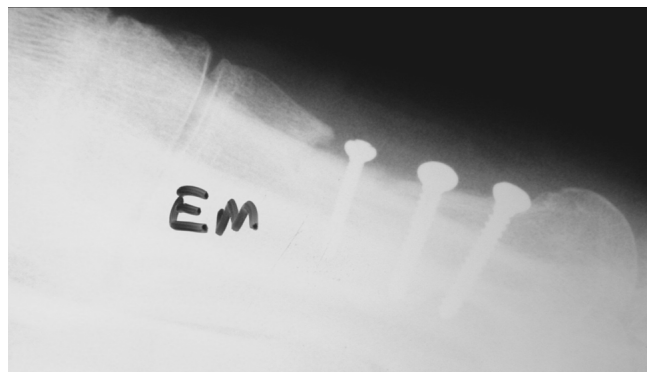


Figure 2. Lateral radiograph following long wing Austin. Notice the soft tissue swelling over the midshaft level of the osteotomy as a result of the tissue trauma necessary for the cut and fixation.

## MYTH 2: I GET LESS SWELLING WITH LONG WING CUT AND TWO SCREW FIXATION

Swelling is the result of tissue injury, in this case the surgical trauma of soft tissue dissection and bone cuts. If gross instability is present and there is motion of the osteotomy postoperatively, this would cause additional and persistent swelling. A standard Austin even with simple Kirschner-wire fixation is stable, and unless disrupted postoperatively will swell no more and likely less than the long wing procedure. This is due to the fact that the long dorsal osteotomy cut requires additional dissection and instrumentation.

## MYTH 3: MY CORRECTION IS MORE STABLE WITH THE LONG WING CUT AND 2 SCREW FIXATION

Fans of the long wing 2 screw version of the Austin are often heard professing the great stability that they achieve with the bicortical purchase of their screw fixation. Analysis of failures of the Austin shows that this is not only

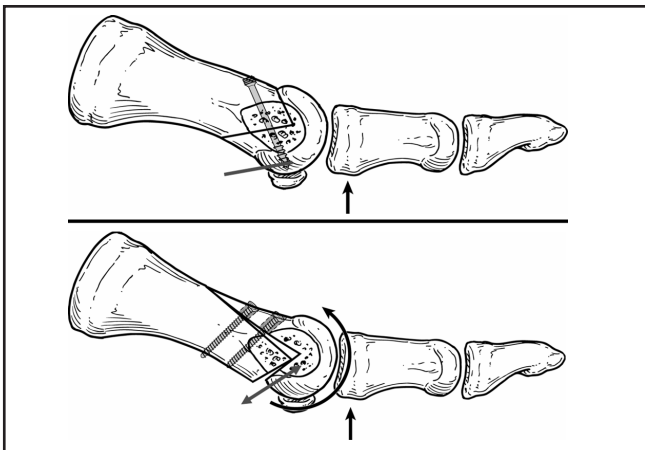


Figure 3. Neutralization of shear at the plantar arm of the osteotomy.

inaccurate, but in actuality the stress riser of the screw heads dorsally actually weaken the overall construct.

To understand this completely, one must appreciate the method in which the Austin fails. Loading of the osteotomy by ground reactive forces generates potential slippage of the plantar cut. In the case of a traditional Austin where the fixation crosses the plantar arm of the osteotomy, this shear slippage is neutralized. Alternatively, the long wing screw fixated version has nothing crossing the plantar cut interface, therefore the rotational slippage is allowed to progress (Figures, 3, 4).

In summary, one should critically evaluate procedures and claims made. In the case of the Austin and its many modifications, it is key to understand the true mechanics of gaining correction and also of failure of the osteotomy. The degree of correction and solid stability of the same are achieved through the plantar arm of the osteotomy. It is the bone to bone contact of the plantar arm that gives the intrinsic stability to this procedure in weightbearing and also fixation across the plantar cut that can neutralize shear which may lead to failure of the osteotomy.

It is the author's view that although the long wing Austin with screw fixation is a commonly performed procedure, it is more prone to complications and failure.



Figure 4. Loading of bone model illustrating slippage of the plantar arm of the osteotomy.