



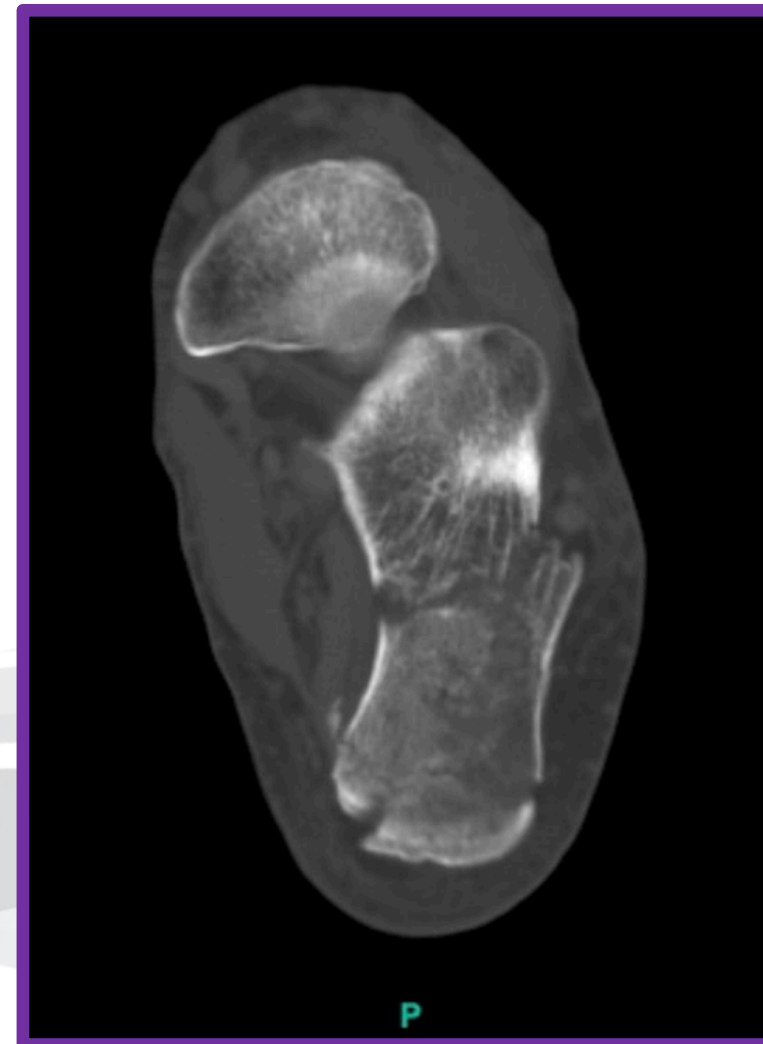
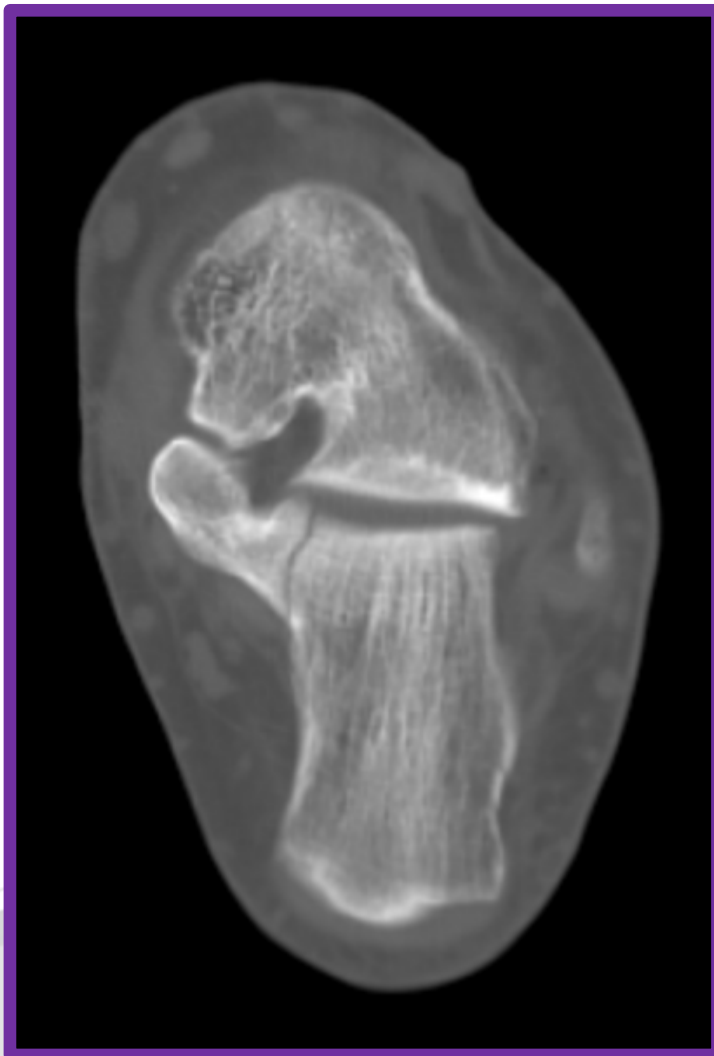
REVOLUTION EXTERNAL PLATING SYSTEM

FOR TRAINING PURPOSES

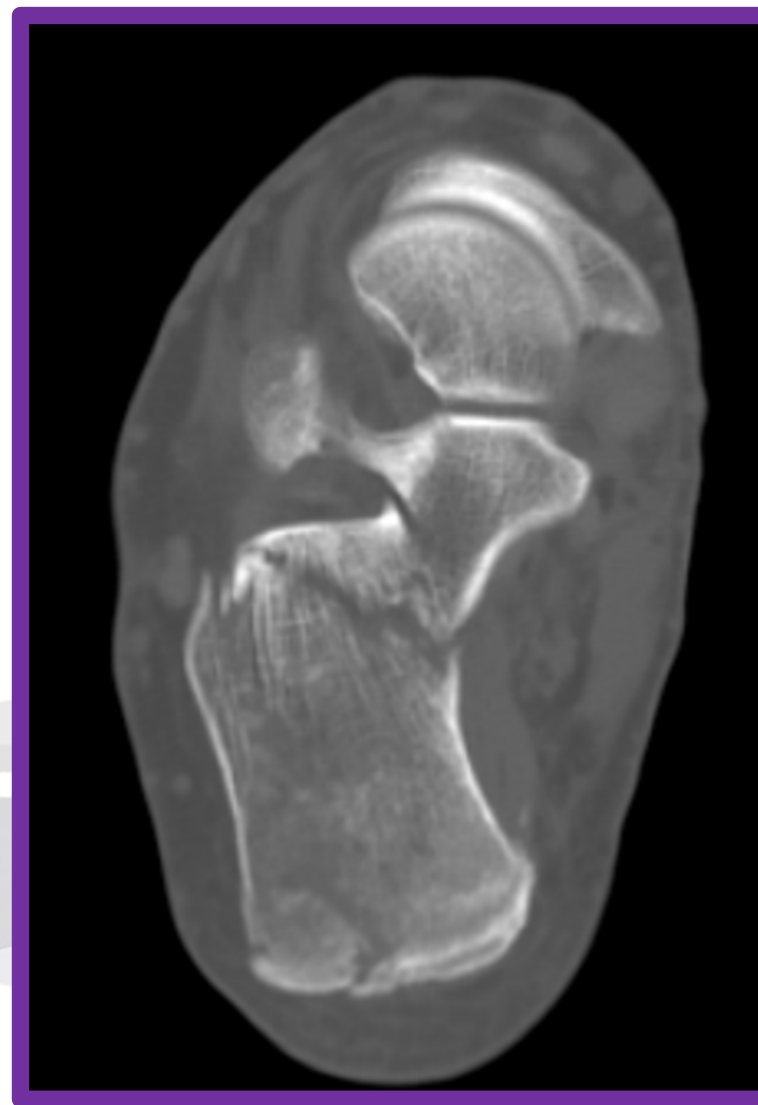
TREATING BILATERAL CALCANEAL FRACTURES USING Z-POST DR. BRIAN BENSON

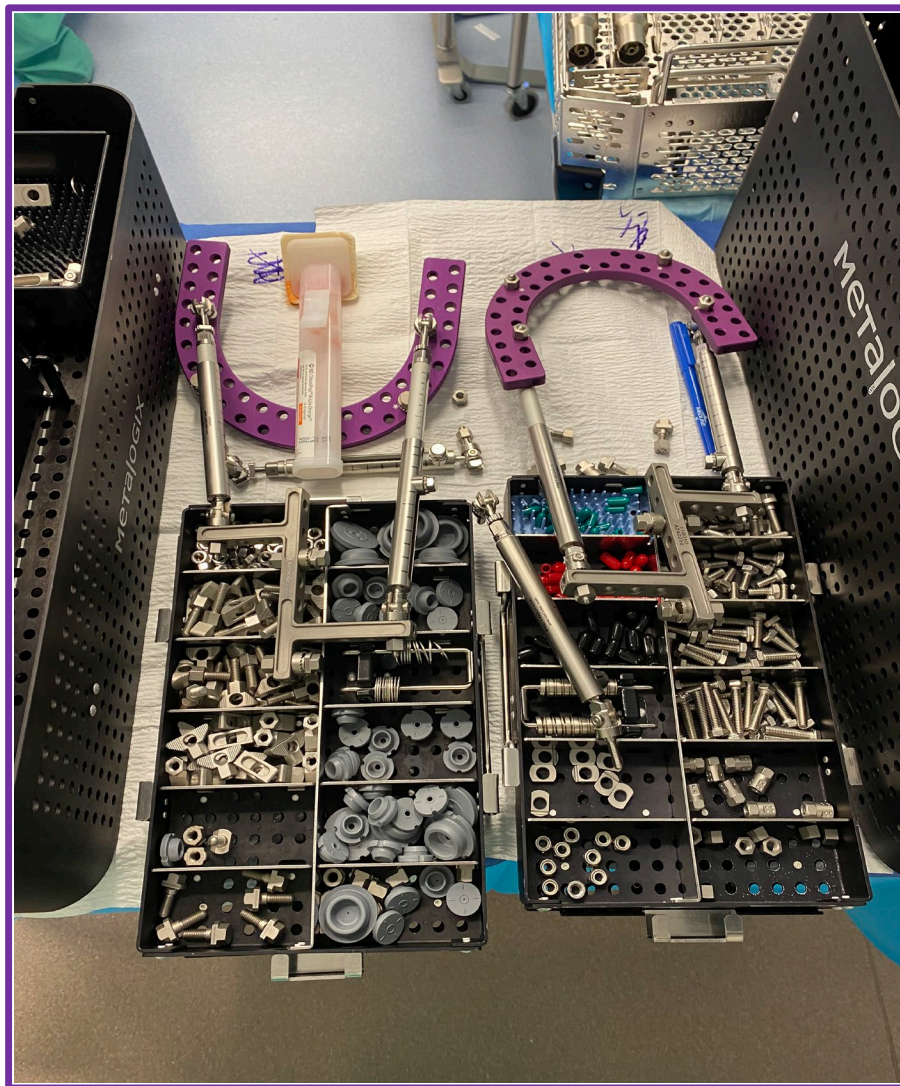




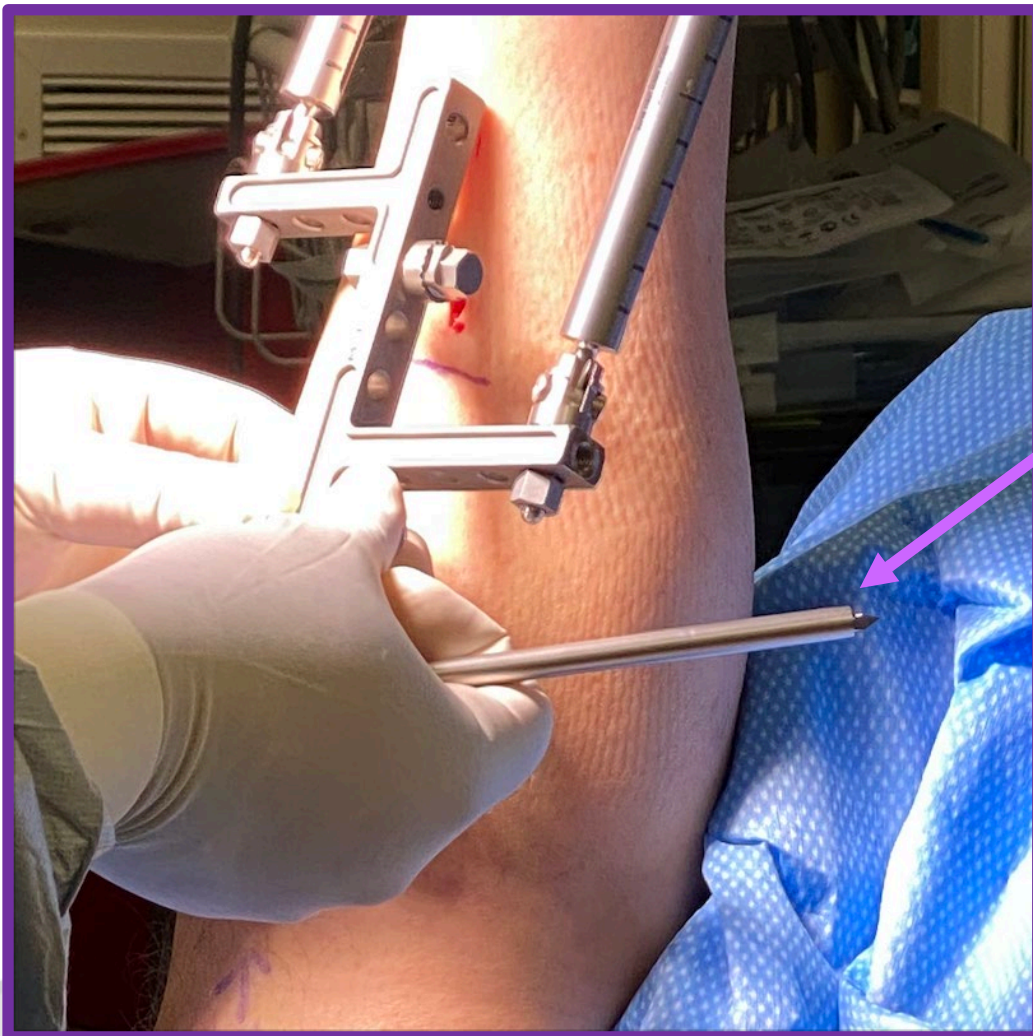








- ✓ Z-Post
- ✓ n-Plate
- ✓ 5mm or 6mm Half-Pins (tibia)
- ✓ 5mm calcaneal Pin (Steinmann Pin)
- ✓ Half-Pin Bolts and nuts
- ✓ Super Struts
- ✓ Speed Nuts for Struts
- ✓ Tensioners
- ✓ Spherical Nuts for Wire Fixation Bolts
- ✓ Bolt Cutters



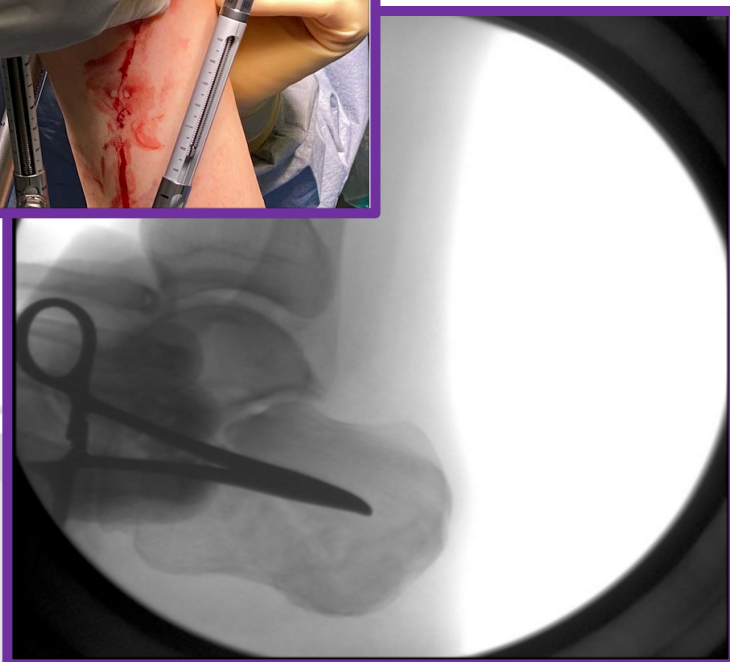
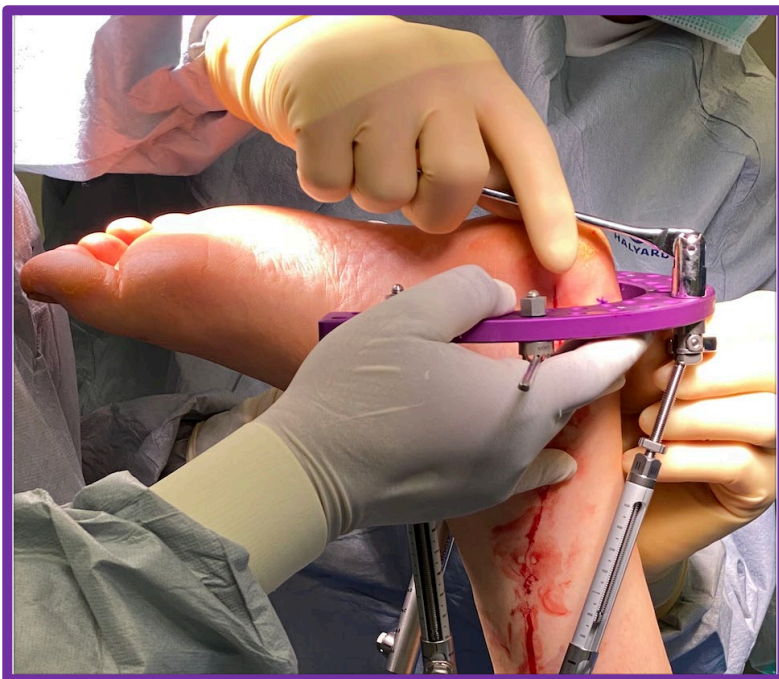
- ✓ Incision medial tibial face (mid-tibia)
- ✓ Drill (bi-cortical)
- ✓ Second incision
 - ✓ Trochar and Sheath are attached to Z-Post by Half-Pin Bolt
- ✓ Drill (bi-cortical)
- ✓ Half-Pin insertion (T-Handle)
- ✓ Check under fluoroscopy (lateral view ensures you are bi-cortical)



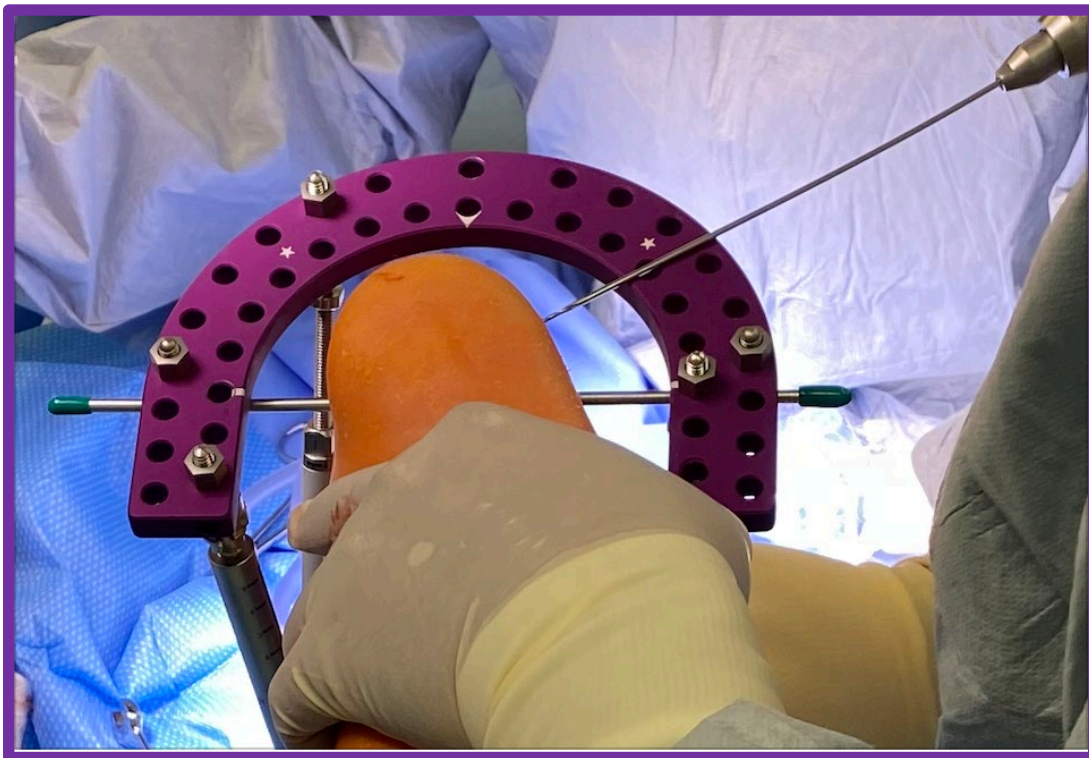
- ✓ Attach 3 struts to Z-Post
 - ✓ 2 struts to medial side
 - ✓ 1 strut to lateral side

NOTE: Placement of struts as shown allows for medial-most strut to be placed at posterior aspect of n-Plate

- ✓ Attach all 3 struts to n-Plate
- ✓ Secure struts to Z-Post and n-Plate using Speed Nuts, but make sure the struts are loose



- ✓ Incise medial aspect of calcaneus (taking into account location of posterior tuber and neurovascular bundle)
- ✓ Insert calcaneal trans-fixation pin (medial to lateral) on power through posterior calcaneal tuber
- ✓ Secure calcaneal pin (Steinmann Pin) to superior side of n-Plate using Half-Pin Bolts
- ✓ Grab n-Plate with both hands to manipulate tuber out of varus
- ✓ Once desired position is achieved, lock all struts and secure struts to n-Plate using 10mm wrench



- ✓ Insert wire through calcaneus and secure on underside of the n-Plate
- ✓ Use wire to “grab” second fragment and generate compression across fracture line
- ✓ Tensioning of wire generates compression across fracture (wire is intentionally placed more plantar than necessary so that once tensioner is used, this will “straighten” the wire, thus generate compressive forces)
- ✓ Insertion of wire should be at least 45° to calcaneal pin to prevent translation
- ✓ If this is not possible, use 2 Truss Wires/olive wires to supplement calcaneal pin



- ✓ Place Wire Fixation Bolts as shown with wire laying inside groove of bolt
- ✓ Tensioners should be placed on **BOTH ENDS OF THE WIRE** and tightened to 90mmHg
- ✓ Tighten Wire Fixation Bolts using Spherical Nuts
- ✓ Bend wire in plane with frame to break off
- ✓ Double-check all struts, nuts and bolts to ensure tightness and integrity



- ✓ Use bolt cutters to resect Half-Pins
- ✓ Apply Pin Caps
- ✓ Dressings used per surgeon preference
- ✓ This construct is non-weight bearing (NWB), but can be altered to accommodate partial WB



- ✓ Temporary stabilization
 - ✓ 10-14 days
- ✓ Definitive fixation
 - ✓ 8-10 weeks
 - ✓ 2-4 weeks of NWB in fiberglass cast
 - ✓ WBAT in CAM + PT

MIX CAST REMOVAL | EIGHT WEEKS EXTERNAL FIXATION + TWO WEEKS CASTING



MIX CAST REMOVAL | EIGHT WEEKS EXTERNAL FIXATION + TWO WEEKS CASTING



MIX THREE MONTHS POST-OP RESULTS



- ✓ Calcaneal tuber with rectus position
- ✓ Parallelity of medial and lateral facets maintained
- ✓ Calcaneal Shantz pin insertion site (Steinmann Pin) filled in
- ✓ No loss of Calcaneal height

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