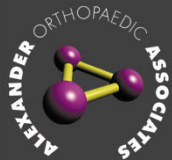


LAPIDUS: ARE WE OVERTHINKING IT?

Adam D. Perler

DPM, FACFAS



Bunion Root Cause

- No unifying thought on cause
- Multifactorial & genetic predisposition
 1. Is it the bone morphology, joints laxity, ligament failure, muscles imbalance or tendon dysfunction?
 2. What is the primary underlying reason for an otherwise anatomically normal foot to become so deformed later in life?



Adam D. Perler

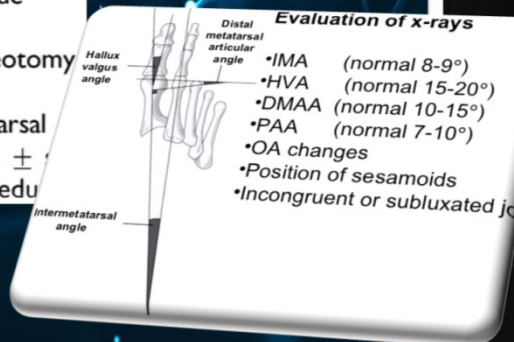
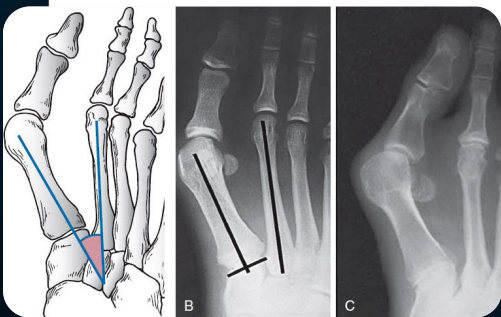
DPM, FACFAS



HAV Parameters

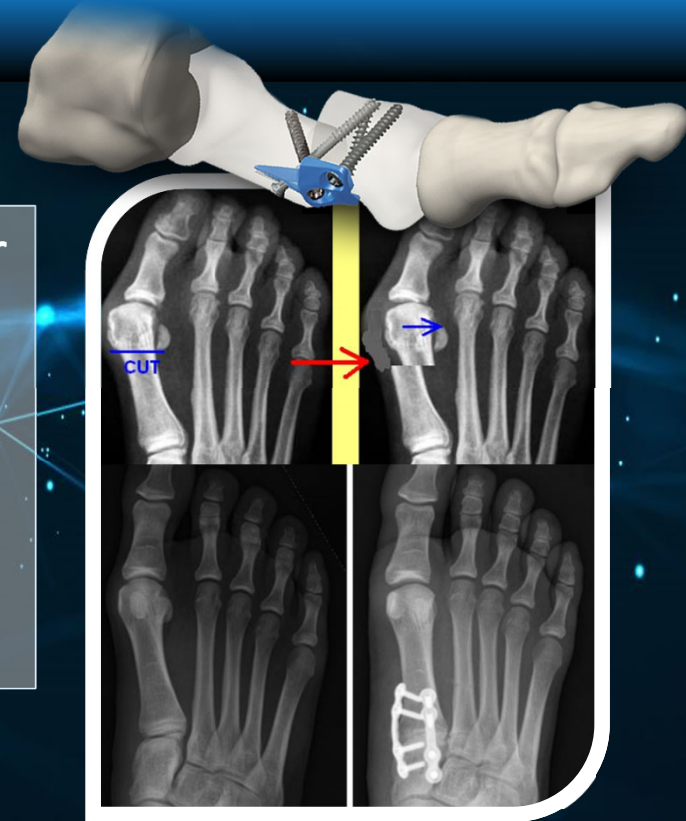
Traditional Radiographic Classification of Hallux Valgus Deformity (Severity Based).

| Severity of Deformity | Hallux Valgus Angle (HVA) | First-Second Intermetatarsal Angle (IMA) | Treatment |
|-----------------------|---------------------------|--|--|
| Normal | $<15^\circ$ | $<9^\circ$ | None |
| Mild | $<20^\circ$ | $9-11^\circ$ | Distal osteotomy \pm soft tissue procedure |
| Moderate | $20-40^\circ$ | $11-16^\circ$ | Proximal osteotomy \pm soft tissue procedure |
| Severe | $>40^\circ$ | $>16^\circ$ | Proximal osteotomy or first tarsometatarsal arthrodesis \pm tissue procedure |



Bunion Surgery Conundrum

- If we can't agree on a cause, how could we ever agree on a definitive solution
- Over 150 procedures have been reported. On average, we each utilize an average of 4 techniques each to address differing degrees of deformity

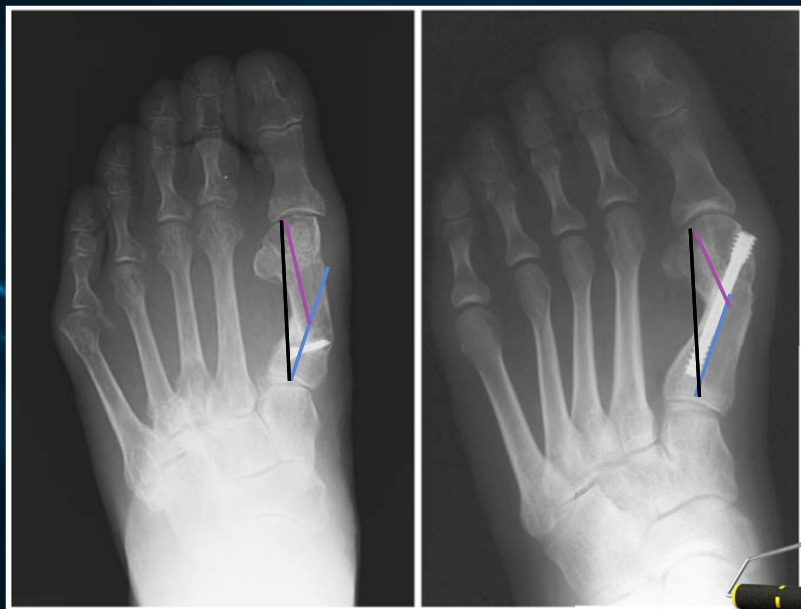


Adam D. Perler

DPM, FACFAS



A Problem of Perspective



“The best way to prove that a stick is crooked is to set a straight one beside it. No words need to be spoken.”

— Aiden Wilson Tozer



Adam D. Perler

DPM, FACFAS

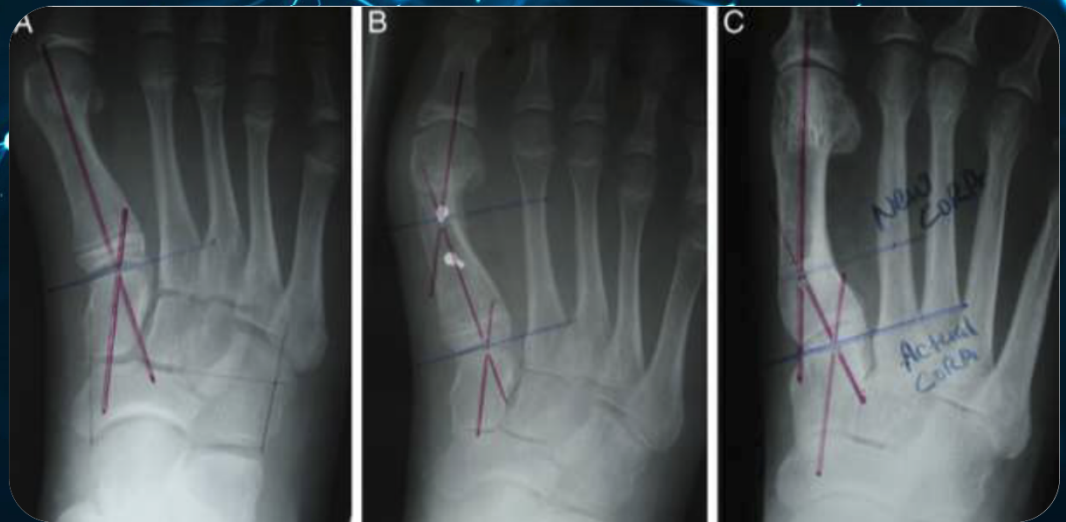


Center of Rotational Angulation (CORA)



“Learn how to see. Realize that everything connects to everything else.”

– Leonardo da Vinci –



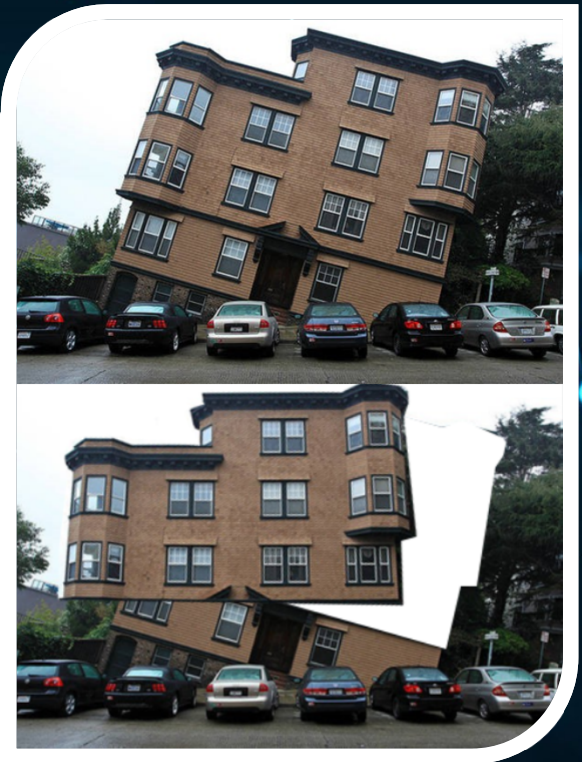
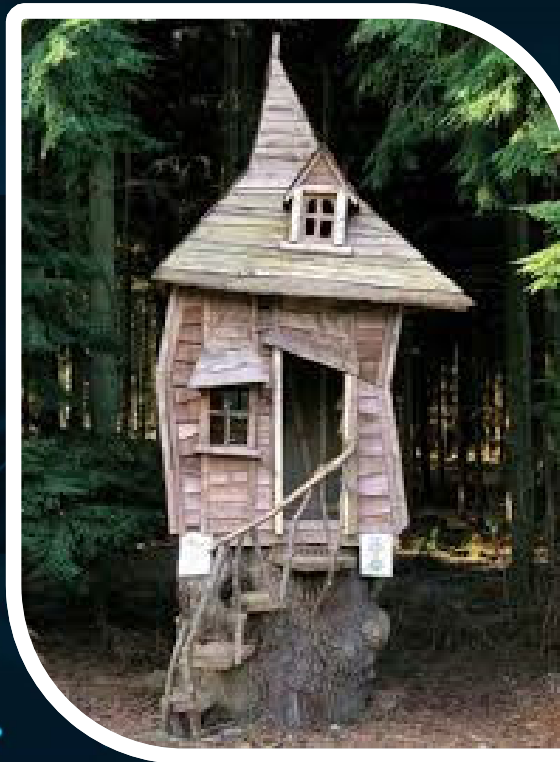
Adam D. Perler

DPM, FACFAS



If we built houses like we correct bunions...

“Since when is it the best solution to fix one problem through the creation of another?”



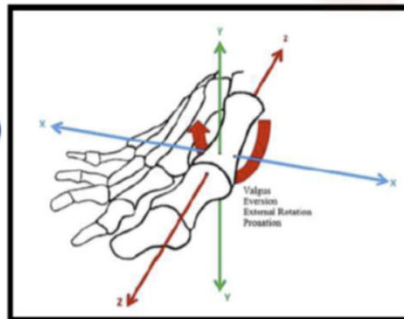
Adam D. Perler
DPM, FACFAS



A Problem of Peeking Sesamoids



- First ray axis (Hicks)
 - Dorsiflexion w/ inversion
 - Plantarflexion w/ eversion
- Debate:
 - Varus position of 1st metatarsal (Hicks)
 - Valgus position of 1st metatarsal (Roukis & Landsman)
- Current research:
 - 1st metatarsal in valgus position
 - Primary deformity at 1st TMTJ



Clarification of the Anatomic Deformation of the Bunion Deformity: Dayton et al. JFAS (2014)

- Primary deformity at 1st TMTJ
- 1st metatarsal in valgus position



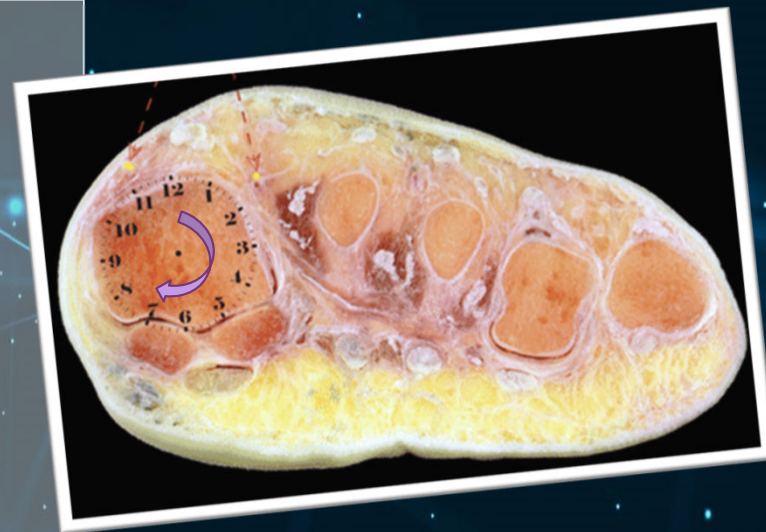
Adam D. Perler

DPM, FACFAS



Should frontal plane play a “roll”

- Frontal plane often overlooked
- Frontal plane rotation is a significant factor
- Procedure:
 1. Modified Lapidus arthrodesis using 3 planes of correction w/ emphasis on frontal plane.
 2. No violation of 1st MTPJ



DiDomenico & Luckino, Podiatry Today (April 2015)

Most of us fail to see what we
are actually looking at!



Full Frontal Assault

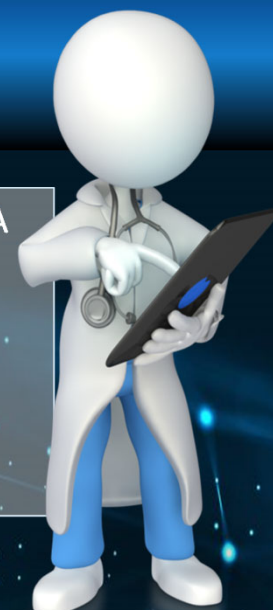


Correction of Frontal Plane Rotation of Sesamoid Apparatus during the Lapidus Procedure: A Novel Approach (DiDomenico et al, JFAS - 2014)

- Modified Lapidus
- Utilization of soft tissues to reduce sesamoids
- All rotated into neutral position as 1 unit
- Fixated with 3.5 mm cortical screw and 6-hole plate medially

Relationship of Frontal Plane Rotation of First Metatarsal to Proximal Articular Set Angle and Hallux Alignment in Patients Undergoing Tarsometatarsal Arthrodesis for Hallux Abducto Valgus: A Case Series and Critical Review of the Literature (Dayton et al, JFAS - 2013)

- Retrospective review of radiographs pre-op and postop: IMA, HAA, PASA, and tibial sesamoid position
- Purpose: Determine if measurements accurately describe the HAV deformity and question the necessity of the 1st MTPJ release & ST balancing

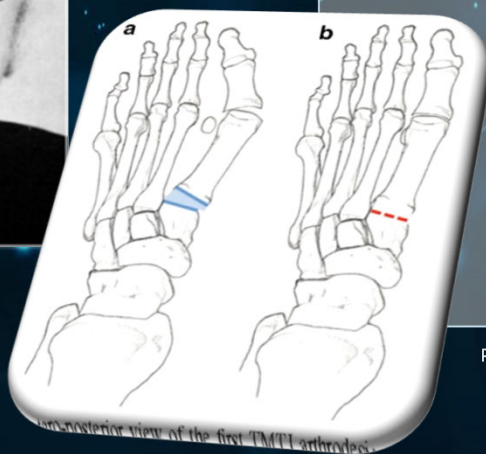
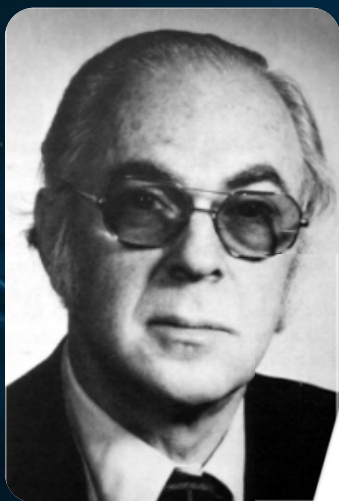


Adam D. Perler

DPM, FACFAS



Historical Perspectives



- Originally described by Albrecht in 1911
- Published by Paul Lapidus (1934)
 - First metatarsal–cuneiform arthrodesis + arthrodesis of the 2nd metatarsal + resection of the 1st metatarsal dorsomedial eminence and distal soft tissue repositioning. Conservatism and individualization is indicated for operative correction of a bunion. No operative procedure is satisfactory, unless correction of metatarsus varus primus is accomplished.

Paul Lapidus: Lapidus: Operative Correction fo the Metatarsus Varus Primus: In: Surgery, Gynecology and Obstetrics. (1934)

Adam D. Perler

DPM, FACFAS



Advantage Lapidus

- Addresses problem at apex (CORA) thus creating a longer lever arm compared to distal procedures
- Allows for triplanar correction of the 1st ray including the restoration of normal tracking of the sesamoid apparatus
- Ability to restore 1st mpj congruency without sacrificing mobility
- Stabilizes the medial column by increasing the advantage of the peroneus longus.
- Literature shows a significantly reduced rate of recurrence compared to traditional head procedures

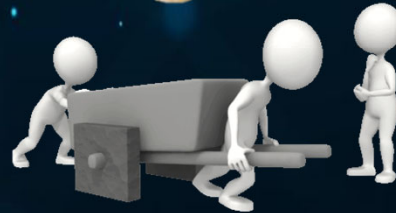
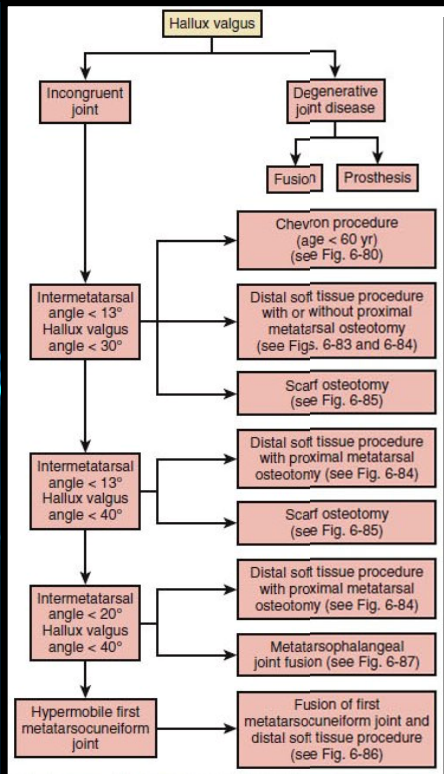


Adam D. Perler

DPM, FACFAS



My Progression of Thought



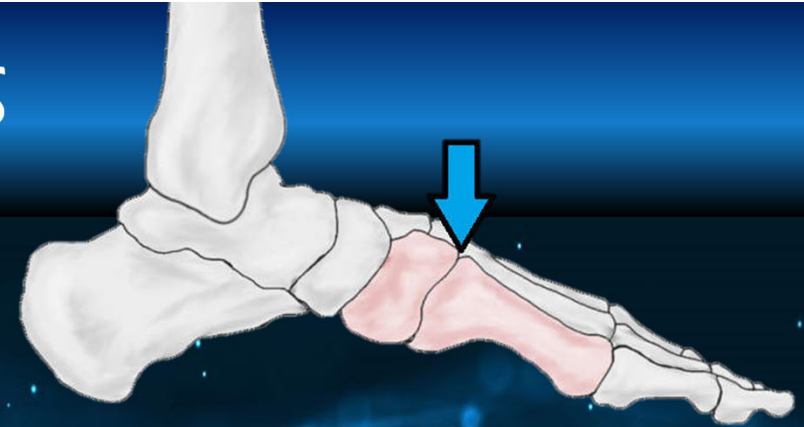
Adam D. Perler

DPM, FACFAS



My Lapidus Indications

- Hallux Valgus
- Metatarsal Cuneiform Arthritis
- Metatarsal Cuneiform Hypermobility
- Frontal Plane Deformity (abnormal sesamoid position)



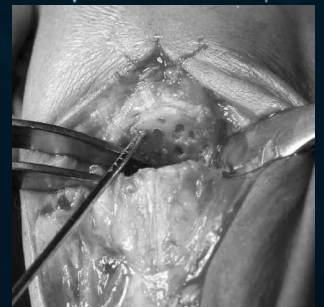
Adam D. Perler

DPM, FACFAS



The Lapidus Approach

- Typically dorsal medial approach or straight medial approach
- Circumferential soft tissue release necessary at base of 1st met
- Distal lateral release may improve frontal plane reduction/mobility
- Resection of articular surface via curettage or saw cuts
 - Curettage advantage is less shortening, but does not allow for as much frontal plane de-rotation due to curvature of the joint
 - Saw cut allows for greater reduction, especially in the frontal plane but risks shortening
- Perforation of the subchondral bone is recommended
- Correction of the deformity in all three planes
- Adequate compression across fusion site is a must
- Look distal for soft tissue rebalancing as necessary
- Choose stable fixation constructs to allow for early weight bearing



Adam D. Perler

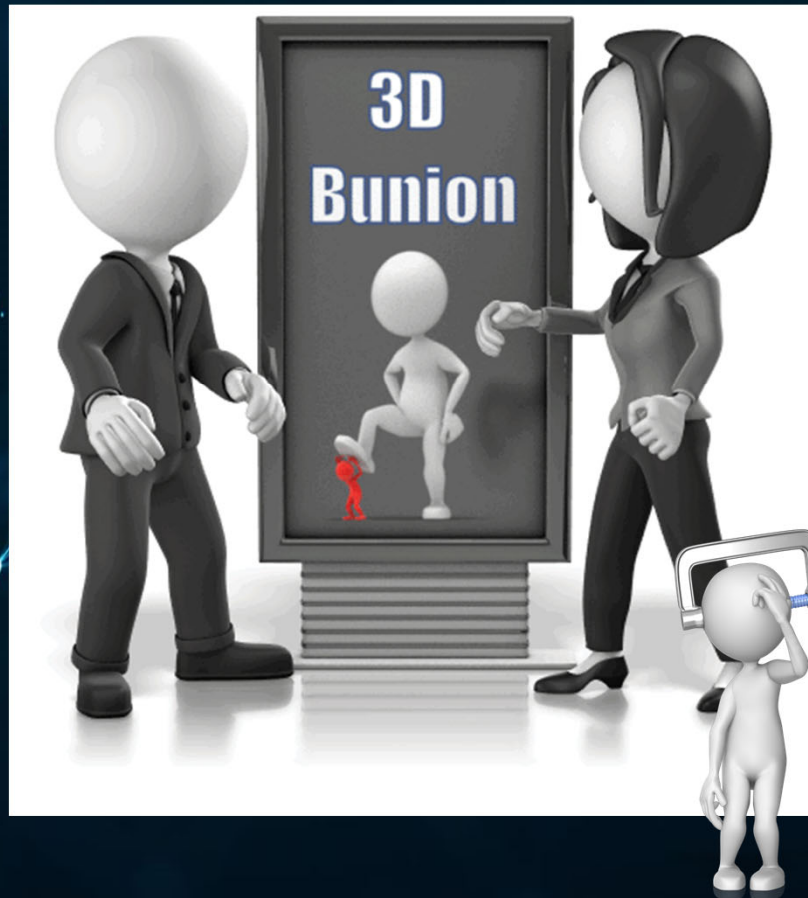
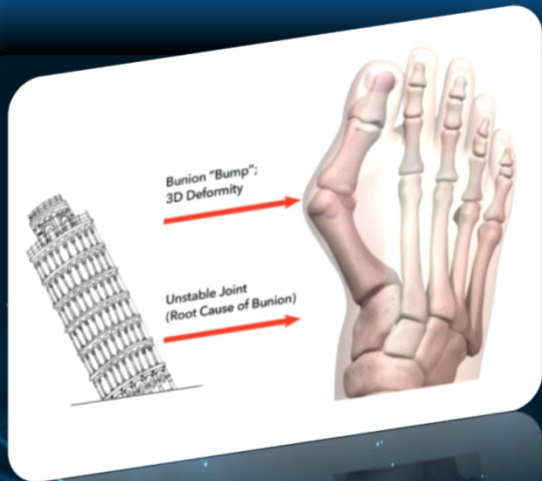
DPM, FACFAS



Evolution of the Fixation



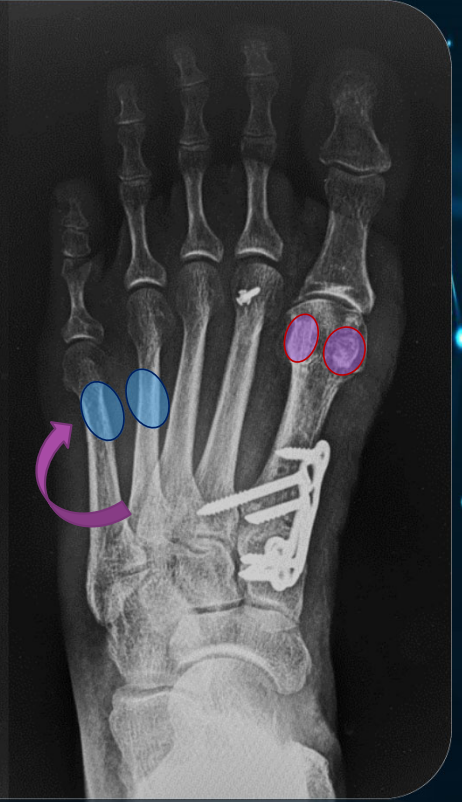
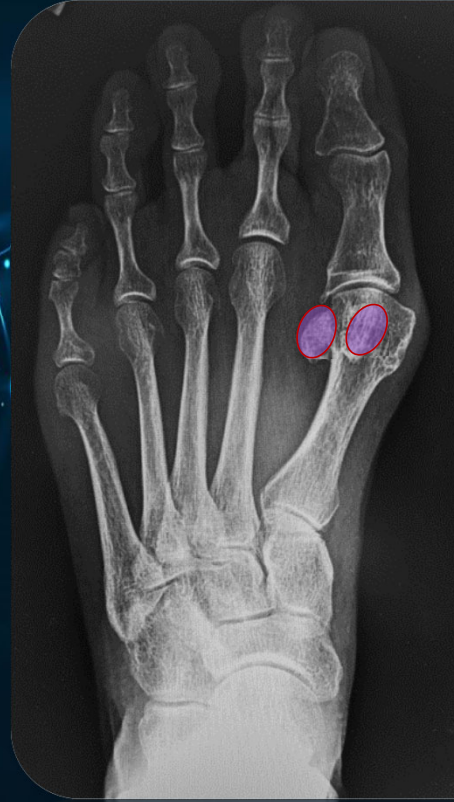
Evolution of Technique (and marketing)



Revolution of the Base



Evolution of the Technique



Is Fusion the Solution (MPJ or TMT)?

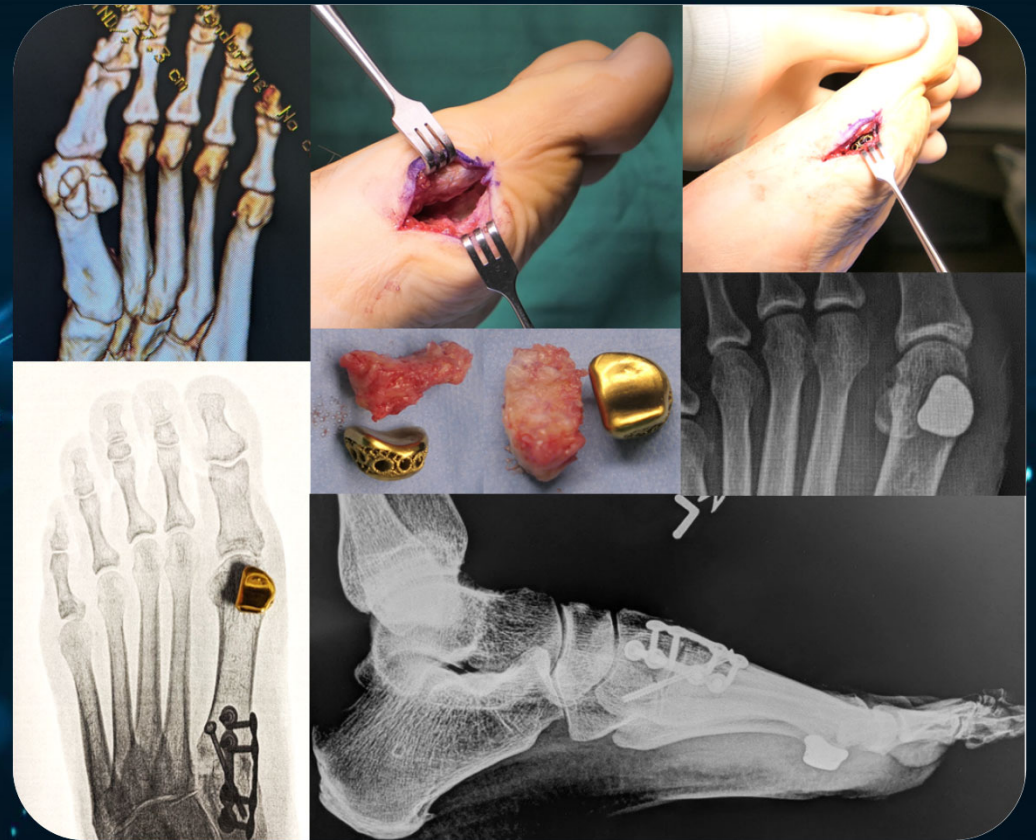
A severe
and painful
bunion!

1st MPJ

1st MCJ



Adjunct to Lapidus



We Mock What We Don't Understand



So, are we overthinking the Lapidus?



Adam D. Perler
DPM, FACFAS

