1st MPJ Implant Arthroplasty: A New Paradigm

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Disclosure:

BioPoly Consultant – they are not sponsoring this lecture

HALLUX LIMITUS/RIGIDUS

INTRODUCTION

- DJD of 1ST MPJ
- Dorsal Bunion
- Met Primus Elevatus???

HALLUX LIMITUS/RIGIDUS

INTRODUCTION

- Progressive
- Loss of 1ST MPJ ROM
- Joint Arthrosis

HALLUX LIMITUS/RIGIDUS

ETIOLOGY

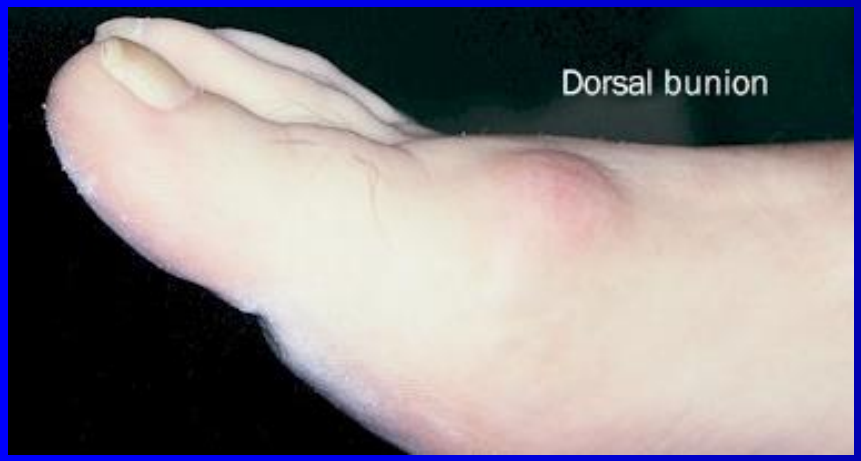
- Traumatic
- Metabolic
- Biomechanical

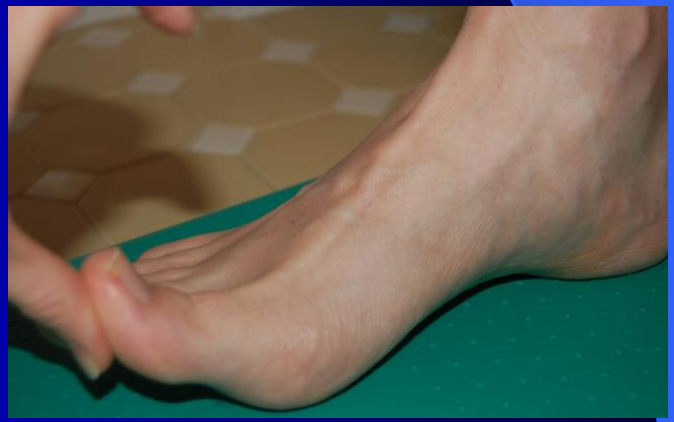
HALLUX LIMITUS/RIGIDUS

DIAGNOSIS

- Clinical/Biomechanical Exam
- Gait Analysis
- Radiographic Exam

HALLUX LIMITUS/RIGIDUS





HALLUX LIMITUS/RIGIDUS

REGNAULD CLASSIFICATION

GRADE I

- Functional
- Met Primus Elevatus????
- No DJD on X-Ray
- Mild Joint Squaring

HALLUX LIMITUS/RIGIDUS

REGNAULD CLASSIFICATION

GRADE II

- Flattening of Met Head
- Pain at end ROM
- Decrease passive ROM
- Dorsal Exostosis
- Joint Lipping

HALLUX LIMITUS/RIGIDUS

REGNAULD CLASSIFICATION

GRADE III

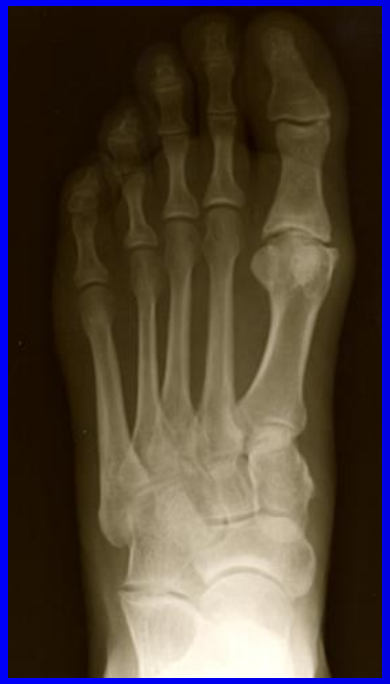
- Severe Flattening Of Met Head
- Joint Space Narrowing
- Increase Osteophytosis
- Pain
- Crepitation

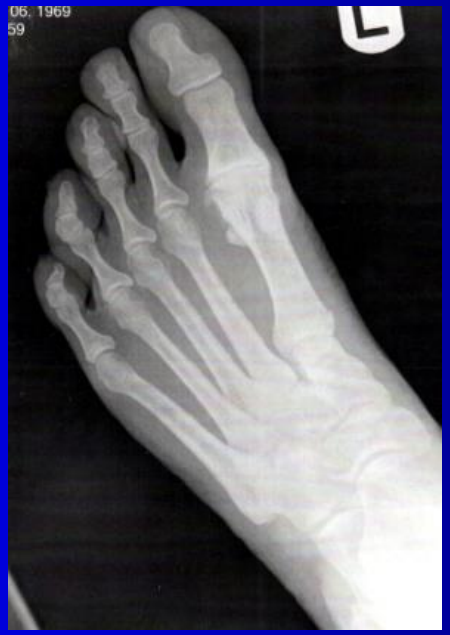
HALLUX LIMITUS/RIGIDUS

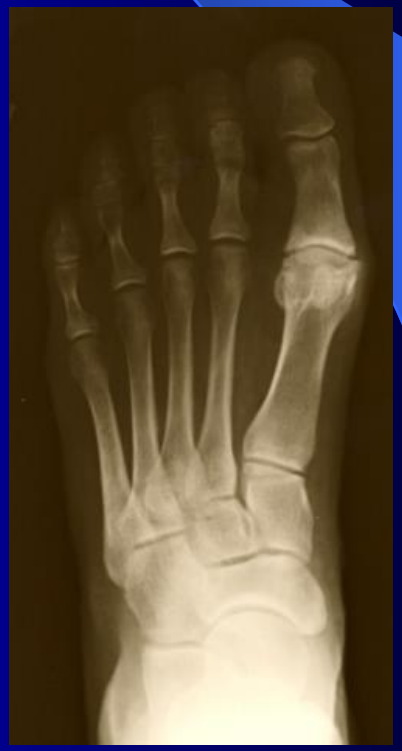
Table 3. Radiographic Classification System for Hallux Limitus/Hallux Rigidus by Hanft et al[25]

Grade I
Metatarsus primus elevatus
Mild spurring with dorsal hypertrophy of the first metatarsal head and phalangeal base
Junctional sclerosis surrounding the first metatarsophalangeal joint
Grade II — Elements of Grade I plus:
Broadening or flattening of the first metatarsal head and base of proximal phalanx
Decrease in joint space
Sesamoid hypertrophy
Lateral spur formation on first metatarsal head
Grade IIB — Elements of Grade II plus:
Evidence of osteochondral defects
Subchondral cyst formation
Fracture of subchondral bone plate
Loose bodies
Grade III — Elements of Grade II plus:
More severe flattening of the first metatarsal head and phalanx
Minimal first metatarsophalangeal joint space
Severe dorsal and lateral spurring and osteophyte formation
Extensive sesamoid hypertrophy
Grade IIIB — Elements of Grade III plus:
Large osteochondral defects
Loose bodies
Subchondral cyst formation

Radiographs







HALLUX LIMITUS/RIGIDUS

CONSERVATIVE TRATMENT

GOALS

- RELIEF OF SYMPTOMS
- NORMAL ACTIVITY LEVEL

HALLUX LIMITUS/RIGIDUS

CONSERVATIVE TREATMENT

- Injection
- Shoe alteration
- Biomechanical Control: Orthotics/Strapping
- NSAIDS

HALLUX LIMITUS/RIGIDUS

SURGICAL TREATMENT

GOALS

- Relief of symptoms
- Restore function
- Correct at level of deformity

HALLUX LIMITUS/RIGIDUS

SURGICAL TREATMENT

JOINT PRESERVATION PROCEDURES

- Cheilectomy
- Soft tissue release

Cheilectomy?

- Recent studies suggest it is the best surgical alternative

Is it True???

Evidence-based analysis of the efficacy for operative treatment of hallux rigidus. McNeil DS, Baumhauer JF, Glazebrook MA: Foot Ankle Int. 2013 Jan;34(1):15-32. doi: 10.1177/1071100712460220.

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Many more studies need to be done. There is no clear "best"

HALLUX LIMITUS/RIGIDUS

SURGICAL TREATMENT

JOINT PRESERVATION OSTEOTOMIES

- PROXIMAL PHALANX

Kessel - Bonney

- 1ST MET HEAD

Green/Waterman

Modified Youngswick

HALLUX LIMITUS/RIGIDUS

SURGICAL TREATMENT

JOINT DESTRUCTIVE PROCEDURES

- RESECTION ARTHROPLASTY
  - Keller
- IMPLANT ARTHROPLASTY
- ARTHRODESIS

HALLUX LIMITUS/RIGIDUS

- Keller

- Only for elderly who don't ambulate much

- Arthrodesis

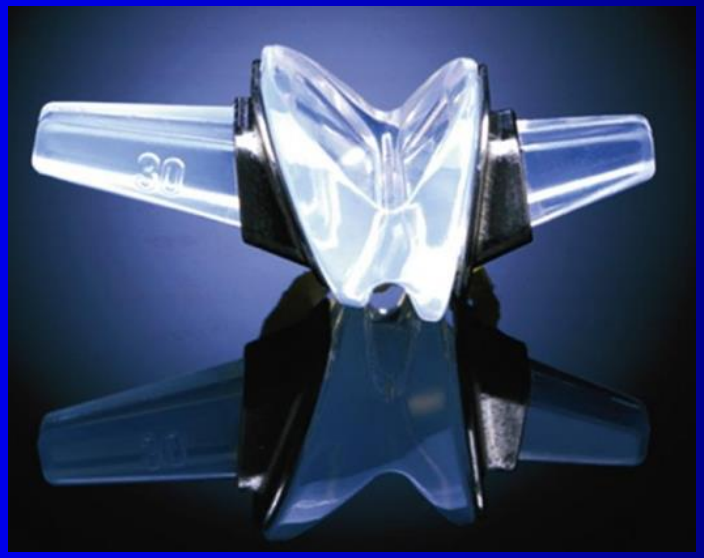
- Age/Activity

- Not as first line operative choice

Implants

- Swanson

- w/ or w/o Grommets



Swanson Issues

- Poor long term results
- Detritic Synovitis
- Subject to shear and failure
- Large defect in case of revision or fusion

Implants

- Titanium Hemi (Phalangeal Side)

Titanium Hemi (Ph)

- Used these for years
- Phalangeal Bone not the best
- Stress Risers/Fracture
- They move over time if patient too active

Titanium Hemi (Ph)

- Do you sew them in?
- FHL involved in suture?
- Offset?
- Can be awkward to put in (Learning Curve)

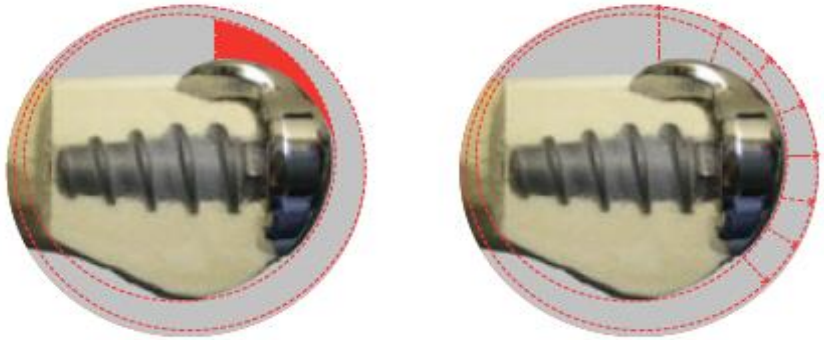
Titanium Total

- Biomechanics?

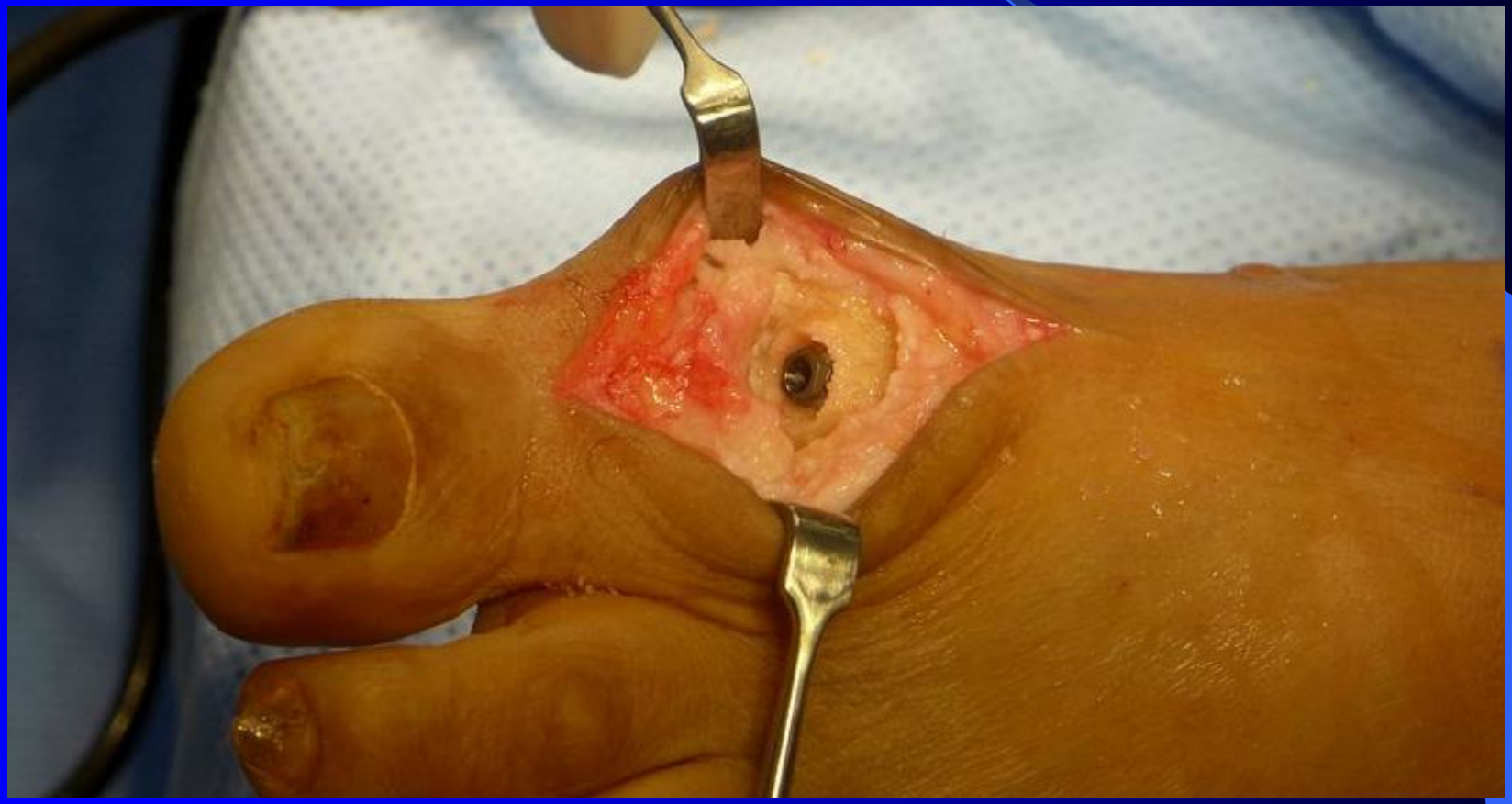
Arthrosurface HemiCap DF

Arthrosurface HemiCAP® DF Toe Resurfacing System:

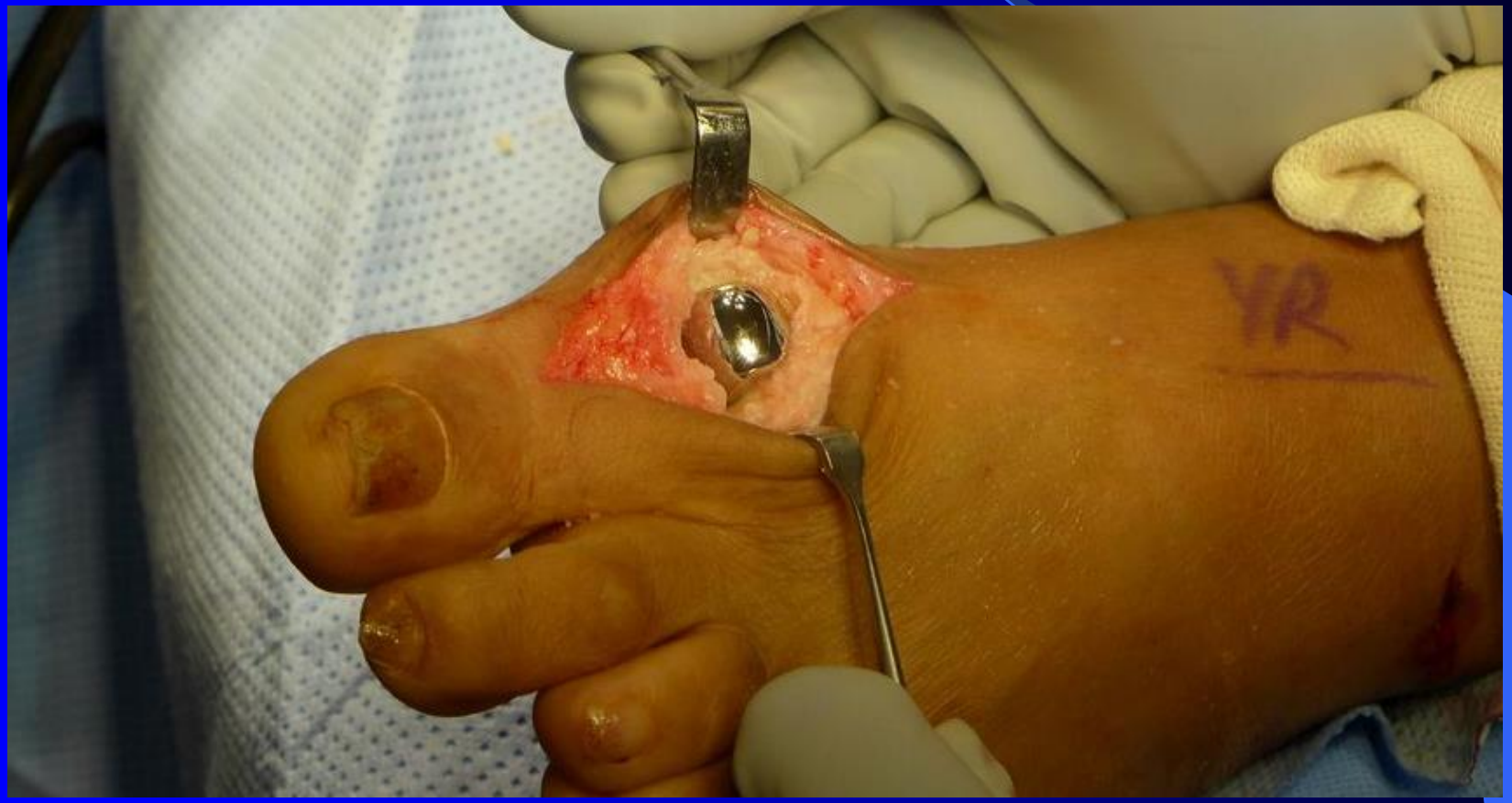
Joint Decompression and improved DorsiFlexion through anatomic non-spherical implant design and re-establishment of multiple anatomic centers of rotation over the full arc of motion.



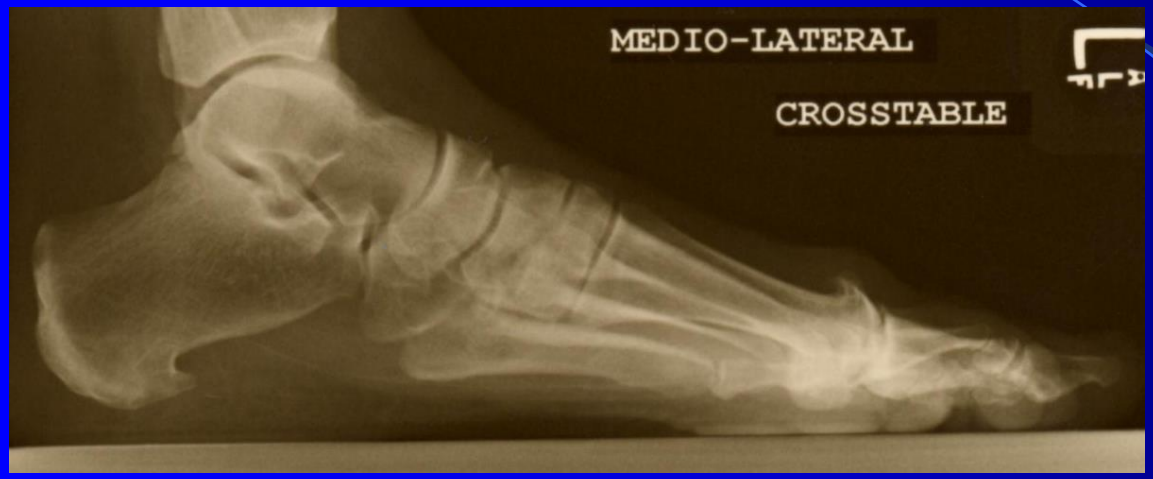
Clean Up

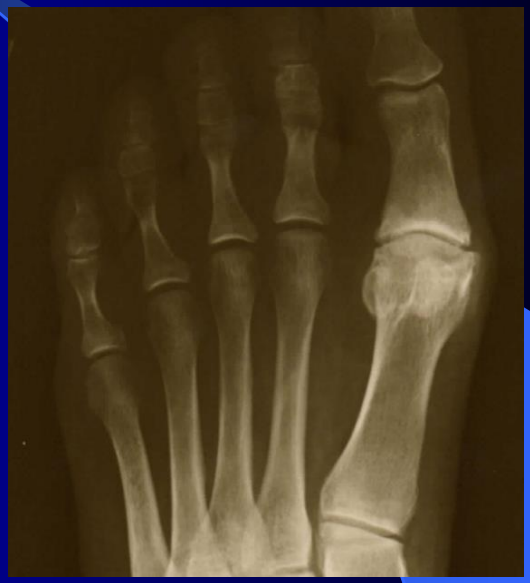


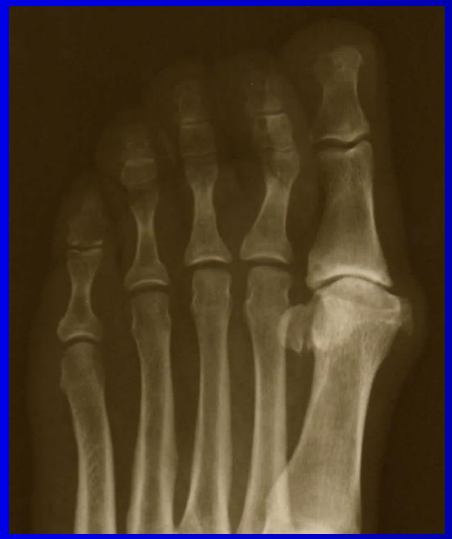
Done!



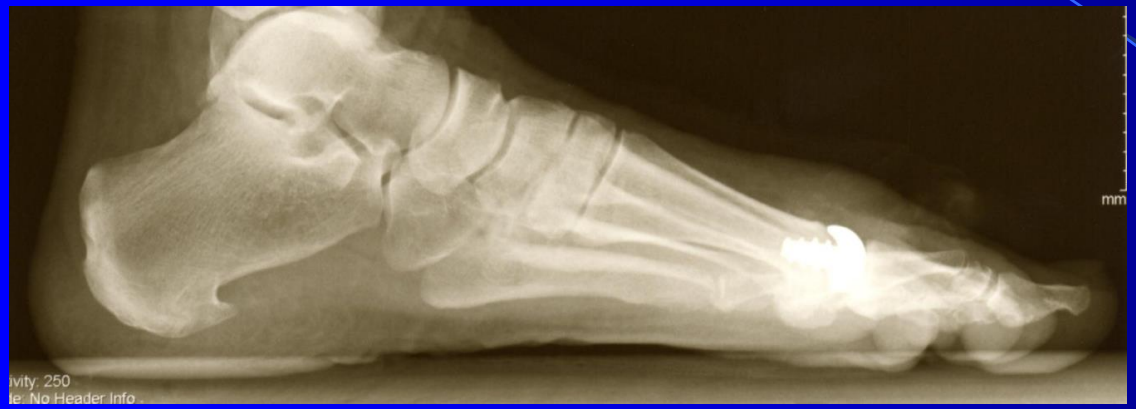
Pre Op Films

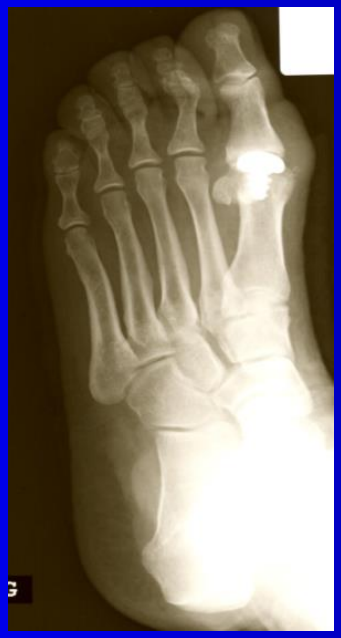


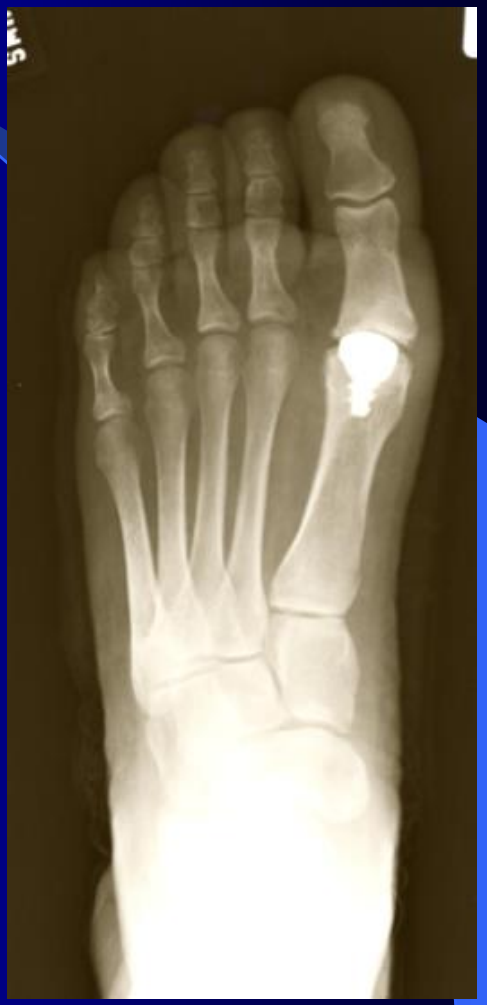




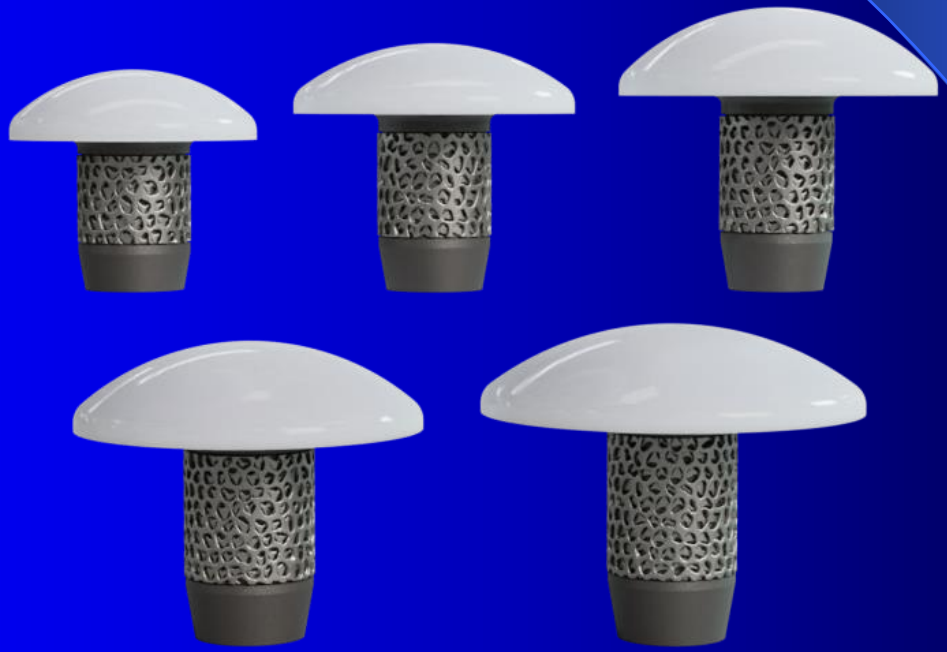
Post Op Films







Biopoly

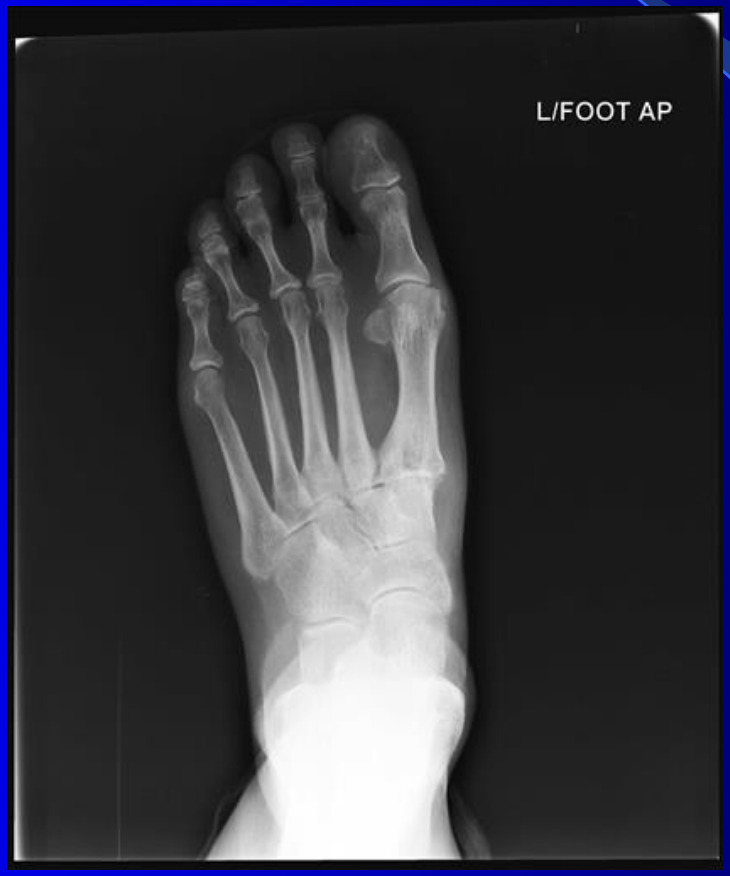


BioPoly

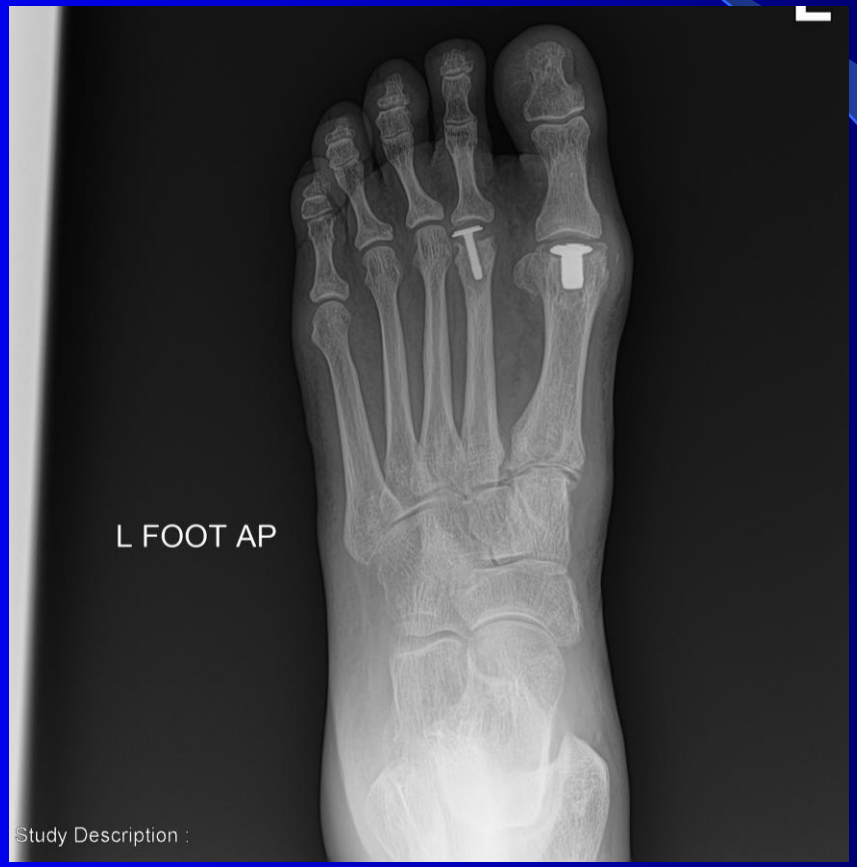
Bioploy

Biopoly

Pre - Op



Post - Op



HALLUX LIMITUS/RIGIDUS

POST OP CARE

- Full WB Immediately
- ROM Exercises after 1st week
- Back in Shoe in 2 weeks
- PT??

HALLUX LIMITUS/RIGIDUS

COMPLICATIONS

- PROGRESSION OF DEFORMITY
- PAIN
- INFECTION
- FOREIGN BODY REACTION
- METATARSALGIA
- BIOMATERIAL FAILURE

Thank You!!

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