Return to Play in National Football League Players after Operative Jones Fracture Treatment

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Craig R. Lareau, MD: None

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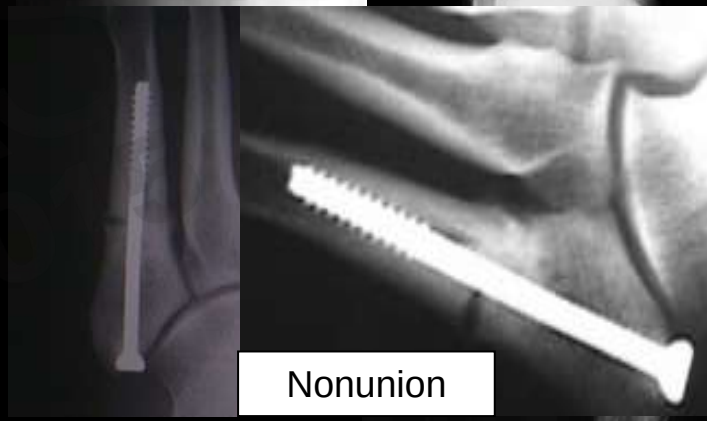
Introduction

- Proximal 5th metatarsal (Jones) fractures are common injuries in professional athletes
- Operative treatment is the standard of care in this population

- Nonunion and refracture occur in ~10% of athletes due to poor blood supply at the metaphyseal-diaphyseal junction and repetitive shear stress
- Ongoing debate exists regarding optimal method of fixation, postoperative rehab protocol, and time until return to play (RTP)

- <u>Purpose</u>: to quantify the rate of RTP, time until RTP, and complication rate in NFL players with Jones fracture treated with an indication-specific screw and an accelerated rehabilitation protocol



Nonunion

Hardware failure

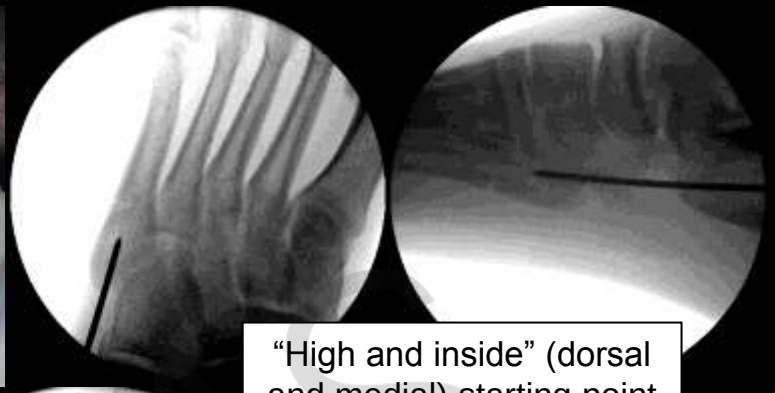
Methods

- Level IV study: 27 active NFL players who underwent intramedullary screw fixation of Jones fractures
- 2007-2014: all active NFL players undergoing this procedure

- <u>Surgical protocol:</u>
  - Limited incision intramedullary solid partially-threaded 5.5 or 6.5-mm indication-specific screw fixation
  - Ipsilateral iliac crest BMA harvested, mixed with mini-Ignite DBM (Wright Medical Technology), injected at fracture site
- Follow-up: serial clinical and radiographic examinations
- Return to play (RTP): ability to play in at least one regular season NFL game

Surgical Technique

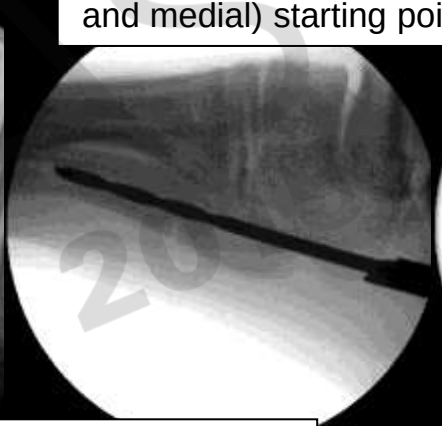
Incision marked 2-3 cm proximal to 5th MT base

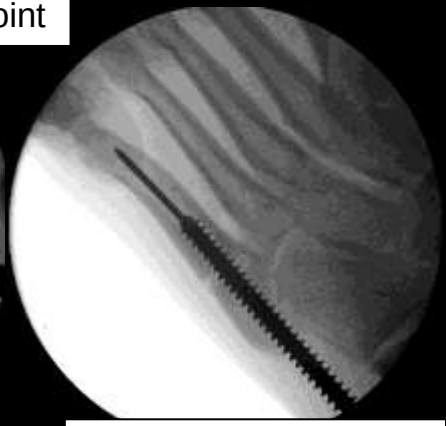


“High and inside” (dorsal and medial) starting point

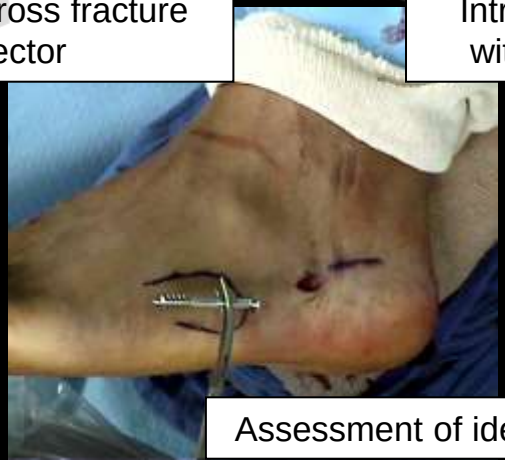
Cannulated drill advanced across fracture using soft-tissue protector

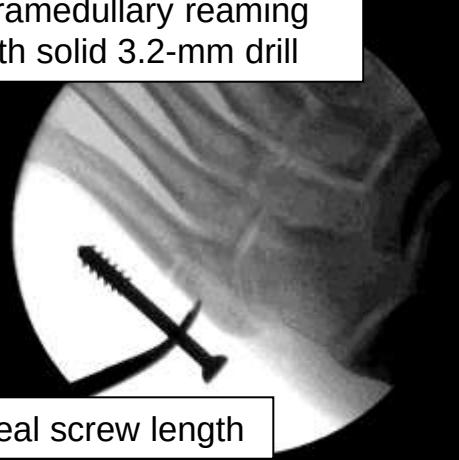
Intramedullary reaming with solid 3.2-mm drill





Sequential tapping until adequate torque

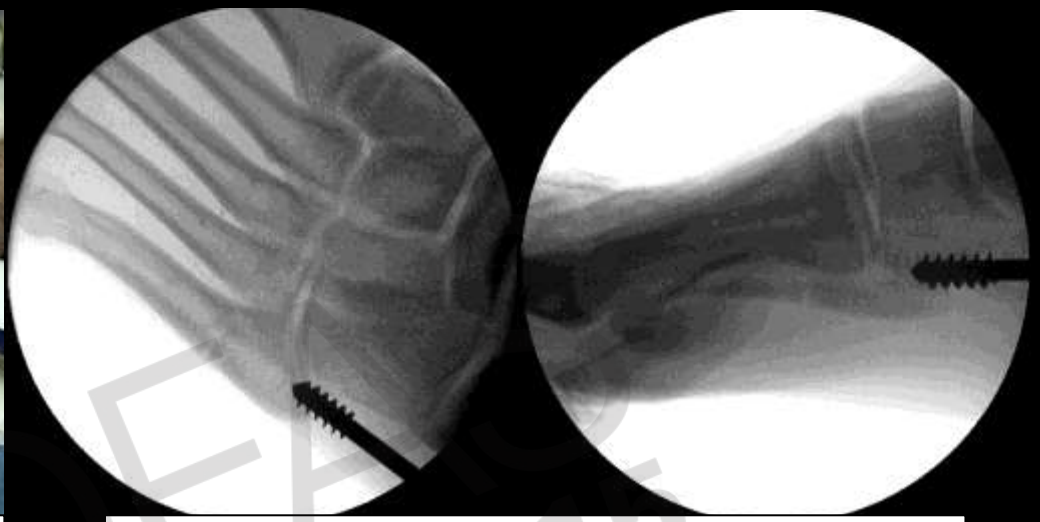




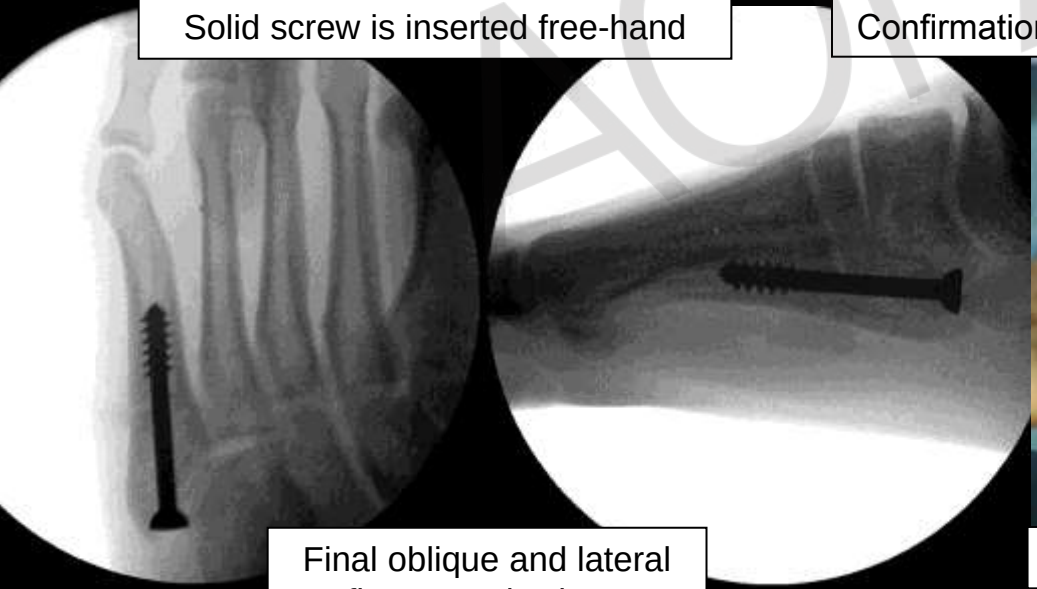
Assessment of ideal screw length

Surgical Technique

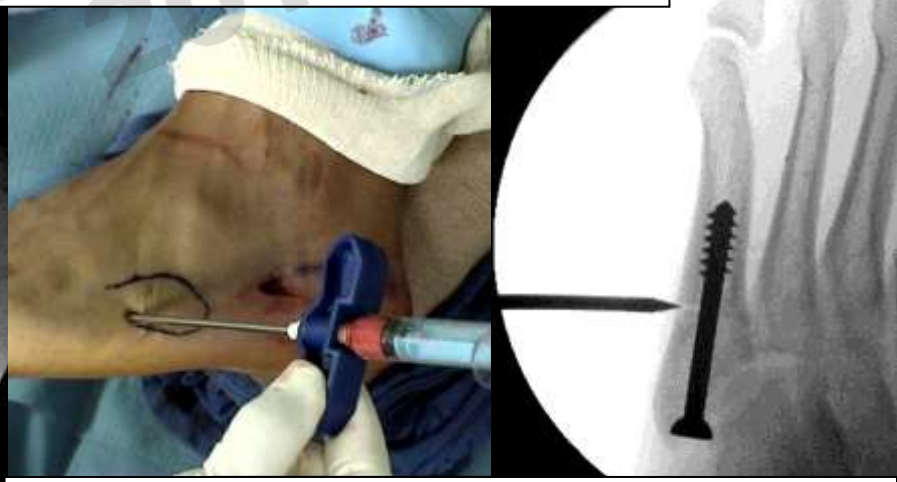
Solid screw is inserted free-hand



Confirmation of “high and inside” screw starting point



Final oblique and lateral fluoroscopic views



Mixture of BMA and DBM is injected at the fracture site

Postoperative Rehab Protocol

- Weeks 0-2: non-weight-bearing (NWB) splint
- Weeks 2-4: suture removal, begin weight-bearing in CAM boot
- Weeks 4-6: transition to running shoe, begin run progression protocol (guided by trainer/PT)
  - A clamshell orthosis or turf toe plate is used during rehab to protect the MT base
- Weeks 6-8: sport-specific integration (guided by trainer/PT)
- Weeks 8-10: RTP in full-length orthosis with lateral hindfoot post

Note: bone stimulators are used postop 20 minutes/day until radiographic union is achieved

Results

- 93% (25/27) of NFL players able to RTP

Positions:
8 wide receivers (30%)
6 linebackers (22%)
3 tight ends (11%)
3 defensive tackles (11%)
2 cornerbacks
2 offensive tackles
1 center
1 offensive guard
1 quarterback

Outcomes	NFL Players (n = 27)
Ave age (years)	24.1 ± 2.8
Ave BMI	31.3 ± 4.0
Time until RTP (weeks)	9.7 ± 3.2
Return to play (RTP)	**93%**

- Refracture rate = 7.4% (2/27), both still playing
- 74% (20/27) diagnosed during first three seasons
- 44% (12/27) diagnosed during their rookie season

Summary

- Jones fractures in NFL players are well managed with operative treatment using a large-diameter, indication-specific solid screw
- An accelerated rehab protocol led to an average RTP < 10 weeks from surgery with low complication rates
- Majority (93%) of NFL players treated are able to RTP
- Injury occurs most frequently within the first three seasons, particularly in wide receivers and linebackers
- *Limitations:* retrospective study, small sample size, no control group, no clinical or functional outcome measures, multiple factors affecting RTP

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