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

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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)

• **Purpose**: 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
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
• Surgical protocol:
  • 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

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>NFL Players (n = 27)</th>
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<tbody>
<tr>
<td>Ave age (years)</td>
<td>24.1 ± 2.8</td>
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<tr>
<td>Ave BMI</td>
<td>31.3 ± 4.0</td>
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<tr>
<td>Time until RTP (weeks)</td>
<td>9.7 ± 3.2</td>
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<tr>
<td>Return to play (RTP)</td>
<td>93%</td>
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• 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.
References


