Patient Reported Outcomes in Athletes following ORIF of Jones Fracture

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Introduction

- Proximal fifth metatarsal fractures compose approximately 70% of metatarsal fractures

- Occur at the metaphyseal-diaphyseal junction

- Prolongs return to play in athletes
Anatomical Healing

• Zone 2 (Jones fx) represents a vascular watershed area

• High occurrence of nonunion due to the poor blood supply

• Nonoperative management in elite athletes increases risk of nonunion and 2° fracture
Operative Treatment

• Primary screw fixation remains the standard of care for athletes

Watershed $\rightarrow$ Decreased Healing Potential $\rightarrow$ Delayed Union or Nonunion

• Bone marrow aspirate concentrate (BMAC) is used as a stem cell source to augment surgical fixation
Hypothesis

Open reduction internal fixation (ORIF), augmented with BMAC, will improve patient-reported outcome (PRO) measures following Jones’ fracture injuries in elite athletes.
Methods

• Level III Retrospective Review
• Inclusion Criteria
  – Elite Athletes
  – Jones’ fractures
  – Prior intramedullary screw fixation
  – Augmentation with BMAC
Study Measures

• Outcomes of Study
  – Preoperative and postoperative PROs and visual analog score

• Analysis
  – T-test were used to compare scores following surgical intervention
  – P-value < 0.05 was considered significant
Results

• Study Population
  – Total of 16 elite athletes
  – All treated with ORIF/BMAC for Jones fracture
  – Mean age of 22.2 years (range 19–26)
  – Gender: 9 (56%) males and 7 (43%) females
  – Sport activity included collegiate and/or professional level
Results

- Mean visual analog score for pain

<table>
<thead>
<tr>
<th>Preop VAS Avg (range)</th>
<th>Postop VAS Avg (range)</th>
<th>Δ in VAS</th>
<th>P-Value *&lt;0.05</th>
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<tbody>
<tr>
<td>6.2 (3-8)</td>
<td>2.75 (1-6)</td>
<td>3.45</td>
<td>*0.06</td>
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All athletes returned to Competitive Sports with minimal to no pain
Discussion

• Surgical fixation results in return to pre-injury activity level play for most elite athletes

• Augmentation with BMAC may play a crucial role in healing and minimize risk on nonunion

• A high-powered and long-term study with validated patient-reported outcomes is needed

• A study comparing surgical fixation with and without BMAC could also impact management of these injuries

Intramedullary screw fixation of Jones’ fractures with BMAC results in optimal surgical outcomes in the elite athlete
References


