Return to Duty and Disability after Combat Related Hind Foot Injury

Andrew J. Sheean, M.D.¹
Chad A. Krueger, M.D.¹
Joseph R. Hsu, M.D.²

Skeletal Trauma Research Consortium (STReC)

¹ San Antonio Military Medical Center, San Antonio, TX
² Carolinas Medical Center
Disclaimer

- The views/opinions expressed in this presentation do not reflect the views/opinions of the United States Government, the Department of Defense, or the U.S. Army

- “This study was conducted under a protocol reviewed and approved by the US Army Medical Research and Materiel Command Institutional Review Board, and in accordance with the approved protocol.”

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Ankle fusion worse than amputation
Military

- Late Amputation
  - 15%

- METALS
  - Amputees better SMFA and higher activity
  - No rehab protocol for limb salvage

Prevalence of Late Amputations During the Current Conflicts in Afghanistan and Iraq

CPT Daniel J. Stinner, MC USA; MAJ Travis C. Burns, MC USA; LTC Kevin L. Kirk, MC USA; COL Charles R. Scoville (Ret.), PT; COL James R. Ficke, MC USA; MAJ Joseph R. Hsu, MC USA; Late Amputation Study Team (LAST)

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The Military Extremity Trauma Amputation/Limb Salvage (METALS) Study
Outcomes of Amputation Versus Limb Salvage Following Major Lower-Extremity Trauma

COL (Ret) William C. Dohlas, MD, COL (Ret) Romain A. Hayda, MD, H. Michael Frisch, MD, COL Romney C. Andersen, MD, CDR Michael T. Mazurek, MD, COL James R. Ficke, MD, CDR John J. Keelung, MD, COL Paul F. Pasquina, MD, Harold J. Wain, PhD, Anthony R. Carlino, MS, and Ellen J. Mackenzie, PhD

Introduction

- Talus and/or Calcaneus fractures
- Amputation vs. Limb Salvage
- Primary Outcome Measure: Return to active duty

How do RTD rates and disability ratings for amputees compare to those treated with hind foot fusion or repair?
Methods

Data sources:

- **Military Amputation Database**: Identify major extremity amputees (Sep 2001 through Jul 2011)
- **Joint Trauma Theater Registry**: Demographic and injury information about each amputee
- **Electronic Medical Records**: May 2005 - Jun 2011
- **Physical Evaluation Board (PEB) Liaison Office**: Final disposition, disability rating and disabling conditions of each patient.
The Process...

Talus and/or Calcaneus Fracture

Amputation or Hind Foot Repair/Fusion:

Outcome
The Process…

Outcome

- Return to Duty with Recovery
- Physical Evaluation Board
  - Fit for Duty
  - Continue on Active Duty (COAD)
  - Medically Retired or Separated
Results

Combat Related
Hind Foot Injuries (122)
89% IED

Limb salvage
(65)

Amputation
(57)
Results

Combat Hind Foot Injuries (122)

- Limb salvage (65)
- Amputation (57)

RTD Rate: 20%
Results

Amputation (57)

7 RTD (12%)

50 MRS (88%)

0 RTD by Recovery

4 RTD by Fit for Duty

3 RTD by COAD
Results

Limb salvage (65)
- Fusion (24)
  - 5 RTD (8%)
  - 19 MRS (29%)
- Repair (41)
  - 12 RTD (18%)
  - 29 MRS (45%)

Amputee RTD Rate: 12%
Repair/ Fusion RTD Rate: 26%
(P < 0.06)
Results

‘Impact’ = Frequency of Disabling Condition X Percent Disability

### Results

<table>
<thead>
<tr>
<th>Rank No.</th>
<th>Unfitting Condition</th>
<th>Frequency</th>
<th>Average Percent Disability</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PTSD</td>
<td>22</td>
<td>42</td>
<td>924</td>
</tr>
<tr>
<td>2</td>
<td>Foot injury</td>
<td>25</td>
<td>26</td>
<td>660</td>
</tr>
<tr>
<td>3</td>
<td>Loss of joint motion</td>
<td>29</td>
<td>22</td>
<td>641</td>
</tr>
<tr>
<td>4</td>
<td>Lower extremity amputation</td>
<td>10</td>
<td>47</td>
<td>560</td>
</tr>
<tr>
<td>5</td>
<td>Arthritis</td>
<td>20</td>
<td>17</td>
<td>331</td>
</tr>
<tr>
<td>6</td>
<td>TBI</td>
<td>10</td>
<td>33</td>
<td>330</td>
</tr>
<tr>
<td>7</td>
<td>Nerve: Loss of function</td>
<td>11</td>
<td>28</td>
<td>310</td>
</tr>
<tr>
<td>8</td>
<td>Hand condition</td>
<td>7</td>
<td>29</td>
<td>203</td>
</tr>
<tr>
<td>9</td>
<td>Anxiety Disorder</td>
<td>4</td>
<td>35</td>
<td>140</td>
</tr>
<tr>
<td>10</td>
<td>Spine condition</td>
<td>6</td>
<td>20</td>
<td>120</td>
</tr>
<tr>
<td>11</td>
<td>Burn scar of head, face, neck</td>
<td>3</td>
<td>40</td>
<td>120</td>
</tr>
<tr>
<td>12</td>
<td>Sleep Apnea</td>
<td>1</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>13</td>
<td>Forearm Condition</td>
<td>1</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>14</td>
<td>Genitourinary condition</td>
<td>1</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>15</td>
<td>Nerve: Pain</td>
<td>1</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>
Results

72% of limb salvage vs. 28% of amputees (P < 0.002)
Discussion/Conclusions

- The burden of psychiatric conditions
- Psychiatric diagnoses significantly more prevalent among those treated with either hind foot fusion or repair


Limitations

- **Associated injuries**
- **Patient population**
  - Comparison
  - Captured disability data
    - Ratings vs. outcome
- **Effect of RTR**
  - Established 2009
  - Analysis ongoing
Potential Confounder
Discussion/Conclusions

- Hind Foot injuries treated with reconstruction RTD at a higher rate than similar injuries treated with amputation


Thank You
Questions?