Epidemiology and Outcomes of Achilles Tendon Ruptures in the National Football League

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Disclosure

NO CONFLICTS TO DISCLOSE

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My disclosures are in the Final AOFAS Mobile App.
I have no potential conflicts with this presentation.
Background and Objectives

• **Background**
  - Achilles ruptures represent career-altering injuries to National Football League (NFL) players
  - Our previous study examined the impact of Achilles tendon ruptures on NFL players from 1997-2002
  - However, in past decade, techniques for surgical repair and rehabilitation have evolved to include more mini-open and percutaneous techniques: minimizing wound complications and expediting rehabilitation of athletes

• **Objectives**
  - Update the epidemiology of Achilles tendon ruptures in the NFL
  - Analyze how recovery and post-injury performance of NFL players with this injury have progressed in the last two decades
Methods

- Several online resources and injury databases were cross-referenced to identify all NFL players sustaining an Achilles tendon rupture during the 2010-2015 NFL seasons.

- A power rating formula and “approximate value” algorithm, commonly used to evaluate player production, were borrowed to calculate yearly Offensive and Defensive performance metrics for each injured player up to 3 years before and after Achilles tendon rupture.

<table>
<thead>
<tr>
<th>Table 1. Formulas Used to Calculate the Offensive Power Rating (OPR) and Defensive Power Rating (DPR) for National Football League Players Who Suffered From Achilles Tendon Rupture</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OPR</strong> = ( \frac{\text{PassYd} + (\text{RushYd} + \text{RecYd}) + \text{PassTD} \times 4 + (\text{RushTD} + \text{RecTD}) \times 6 - \text{Int}}{20} )</td>
</tr>
<tr>
<td><strong>DPR</strong> = ( \text{Tackle} + \text{Int} )</td>
</tr>
<tr>
<td><strong>PassYd</strong> = number of passing yards</td>
</tr>
<tr>
<td><strong>RushYd</strong> = number of rushing yards</td>
</tr>
<tr>
<td><strong>RecYd</strong> = number of receiving yards</td>
</tr>
<tr>
<td><strong>PassTD</strong> = number of passing touchdowns</td>
</tr>
<tr>
<td><strong>RushTD</strong> = number of rushing touchdowns</td>
</tr>
<tr>
<td><strong>RecTD</strong> = number of receiving touchdowns</td>
</tr>
<tr>
<td><strong>Int</strong> = number of interceptions</td>
</tr>
<tr>
<td><strong>Tackle</strong> = number of tackles</td>
</tr>
</tbody>
</table>
Results: Epidemiology

- 78 total Achilles tendon ruptures
  - Average player age = 27 years
  - Players in league an average of 5 yrs before injury
- 58% of injuries occurred during the pre-season with 26% of players never returning to play
- Players who did return to play took an average of 9 months

Figure 1.
Number of Achilles tendon ruptures suffered by NFLers, by player position.
Results: Post-Injury Performance

- Players played average of 12.5 games/season pre-injury and 10 games post-injury
- Net decrease in power ratings by 22% and approximate value by 23% with running backs suffering the biggest decrease in production of 78%
- Change in performance through approximate value was statistically significant (p<0.05) for both offensive and defensive players

![Figure 2](image_url)

*Figure 2.* Percent decrease in power ratings and approximate value over three years post-injury, by player position.
Conclusion

• Incidence of Achilles tendon ruptures in NFL has more than doubled in the last two decades, with significantly more occurring during pre-season.
• Significant decrease in player performance and career-ending in > 25% of the players affected.
• This study suggests advancements in surgical techniques and rehabilitation have allowed NFL athletes to recover quicker, play longer, and perform better after Achilles tendon ruptures.

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Number of Achilles tendon ruptures</td>
<td>31</td>
<td>78</td>
</tr>
<tr>
<td>Percent of players never returning to play post-rupture</td>
<td>32</td>
<td>26</td>
</tr>
<tr>
<td>Percent post-injury reduction in power ratings</td>
<td>&gt;50</td>
<td>22</td>
</tr>
<tr>
<td>Percent of injury occurring during preseason</td>
<td>35</td>
<td>58</td>
</tr>
<tr>
<td>Average time to return to play (months)</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>Average games played per season after return to play</td>
<td>6</td>
<td>10</td>
</tr>
</tbody>
</table>
References


