

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

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**Introduction/Purpose:** While much less common than ankle sprains and other sports injuries, Achilles tendon ruptures have represented unexpected and potentially career-altering injuries for professional football athletes in the National Football League (NFL). Over the past decade, the technique for surgical repair of the ruptured Achilles tendon has evolved. Mini-open and percutaneous techniques have become more common, allowing for the minimization of wound complications and expediting the rehabilitation of athletes. Therefore, the objectives of this study were to update the epidemiology of Achilles tendon ruptures in the NFL, and to analyze how recovery and post-injury performance of professional football players with this injury have progressed in the last two decades.

**Methods:** Several online sources including NFL news and injury reports, player registries, and player statistic databases were cross-referenced to conduct a retrospective identification of all NFL players sustaining complete Achilles tendon ruptures during the 2010-2015 NFL seasons. Yearly player performance statistics were also obtained and recorded for both offensive and defensive players. 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. These calculated measurements were used to quantify both offensive and defensive player performance up to 3 seasons before and after their respective Achilles tendon rupture injuries, allowing for each player to serve as his own control.

**Results:** 78 Achilles tendon ruptures were identified in professional football players during the 2010-2015 NFL seasons. 58% of these injuries occurred during the preseason. Of those that suffered an Achilles tendon rupture, 26% did not ever return to play in the NFL. Players who did return to play in the NFL took an average of 9 months to recover after the date of injury. Across all positions, there was a net decrease in power ratings by 22% and a net decrease in approximate value by 23% over 3 years following player return after Achilles tendon rupture. Across all positions, running backs saw the biggest decrease in production with a 78% decrease over 3 years post-injury in both power ratings and approximate value.

**Conclusion:** While the incidence of Achilles tendon ruptures in NFL players, especially in the preseason, has increased substantially, more players are returning to play after injury and with better post-injury performance as compared to the previous two decades. These injuries should still be considered potentially career-altering as 26% of players never return to play after Achilles tendon ruptures and there is still a net decrease in power-ratings by 22% for those who do return. However, these numbers optimistically suggest that advancements in treatment protocol and rehabilitation are resulting in faster recovery and improved performance after Achilles tendon ruptures in NFL players.

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