

Clinical Viewpoint

An Apparent Achilles Heel of the NFL: Have Achilles Tendon Injuries Significantly Increased to Unacceptably High Incidence Levels in the NFL and if so, why? A Clinical Insight

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Many if not most of us watched in utter disbelief and horror last September 11th as Aaron Rogers, the newly acquired \$75 million dollar quarterback with the New York Jets just 4 snaps into the new season, suffered an Achilles Tendon ruptures (ATR) in his inaugural game on nationally televised Monday Night Football with his new and excited team and demanding fanbase. With cell phones in hand, we watched as our X apps lit up with claims of an excess of ATRs in the NFL in recent years and much of the blame placed on the new rubberized turf surfaces in place in most of the NFL stadiums. That first week of the NFL season the NFL Players Association, the NFLPA, put out a statement to this effect that demanded removal of rubberized turf surfaces throughout the NFL! With Kirk Cousins devastating ATR a few weeks later, amongst 21 others this season, and Aaron Rogers return to practice after a mere seven to eight weeks post-injury, this conundrum remains foremost in our hyper-questioning minds!

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This leaves us with two highly relevant, though unanswered, and largely unaddressed questions:

1. Have Achilles Tendon Injuries significantly increased to unacceptably high incidence levels in the NFL?
2. What are the underlying causes of the high incidence levels of Achilles Tendon ruptures in the NFL?

Interestingly, Achilles Tendon ruptures in the NFL have been tracked with relatively high fidelity over the last 25 years, though the NFL is not always totally forthcoming with the injury reports. The Achilles tendon is the largest, strongest, most powerful spring in the human body that experiences enormous loads, especially during eccentric calf contractions, and requires large loads to rupture.¹ Prior studies reported an average of 4 Achilles tendon ruptures (ATRs) per NFL season between 1980 and 2001 and approximately five Achilles tendon ruptures per year between 1997 and 2002, approximately 43 to 21 years ago.² Our research group reported a large increase in the prevalence of Achilles tendon ruptures in the NFL in the season following the 2011 season lock-out, especially in the preseason, in which 12 ruptures occurred. The latest peer-reviewed reports that ranged between 2009-2016 showed a significantly increased prevalence to between 13 and 16 ruptures per year.³ Since then, social media reports over the last 3 seasons have average 17 per year and the current 2023 season 22 ATRs have occurred in NFL. There is no doubt that the prevalence of ATRs in the NFL has increased between 3 and five-fold and that this 300-500% increase is both clinically and fiscally significant.

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With regard to the second relevant question, the answer is likely not as simple as the NFLPA purports it to be. One must ask: what are the primary potential contributors? Similar to other sports medicine injuries there are both modifiable and nonmodifiable risk factors. Here is the current synopsis based on evidence-based hypotheses and historic injury risk modeling in order of relative potential predictive power:

1. Demographic and anthropometric factors are always important and come out of nearly every injury risk profile assessment: age, activity level, height, body mass, and BMI may play significant roles.⁴ With the exception of age, all are increasing in the NFL. These are examples of non-modifiable factors.
2. The absence of sufficient preparatory training, such as heavy eccentrics. This has likely increased due to the new collective bargaining agreements between the NFL and NFLPA, which restrict team access to players during the off-season.
3. Surface (newer generation rubberized turf versus grass) shoe, rigid ankle taping, and bracing.
4. The use of anabolic and corticosteroids. The unknown and upregulated use of these drugs is unknown but have likely increased.
5. There are other potential contributors that are possible as well.

Treatment for ATRs has historically revolved around open treatment, but newer minimally invasive treatments such as the “speed bridge procedure” may have improved the recovery and post-operative course. We all will continue to follow Mr. Rogers’ progress with very high levels of interest! Future randomized trials looking at earlier return to play will be vital with regard to these newer technologies.

In conclusion, there is absolutely no doubt that the prevalence of ATRs has increased over the last half to quarter century 3 to 5-fold. The questions that remain are which are the greatest contributors to this highly impactful and expensive problem and what interventions can be instituted to reduce the risk of these devastating injuries? For example, Aaron Rogers and Kirk Cousins, what characteristic do they share as NFL quarterbacks may be the common predictive factors and most important determinants of not only recovery time but of the length of their future careers? The NFL and the sports medical community must address this issue before next season and the next oncoming round of ATR injuries in 2024. As outlined above the modifiable risk factors should be examined in detail and attention to improving those factors as much as possible.

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REFERENCES

1. Nagelli CV, Hooke A, Quirk N, et al. Mechanical and strain behaviour of human Achilles tendon during in vitro testing to failure. *Eur Cell Mater.* 2022;43:153-161. [doi:10.22203/ecm.v043a12](https://doi.org/10.22203/ecm.v043a12)
2. Myer GD, Faigenbaum AD, Cherny CE, Heidt RS Jr, Hewett TE. Did the NFL Lockout expose the Achilles heel of competitive sports? *J Orthop Sports Phys Ther.* 2011;41(10):702-705. [doi:10.2519/jospt.2011.0107](https://doi.org/10.2519/jospt.2011.0107)
3. Yang J, Hodax JD, Machan JT, et al. Factors Affecting Return to Play After Primary Achilles Tendon Tear: A Cohort of NFL Players. *Orthop J Sports Med.* 2019;7(3):2325967119830139. [doi:10.1177/2325967119830139](https://doi.org/10.1177/2325967119830139)
4. Krill MK, Hoffman J, Yang J, Hodax JD, Owens BD, Hewett TE. Previous foot injuries associated with a greater likelihood of Achilles tendon ruptures in professional American football players. *Phys Sportsmed.* 2018;46(3):342-348. [doi:10.1080/00913847.2018.1482188](https://doi.org/10.1080/00913847.2018.1482188)