

How can we reduce concussions in football? Change kickoffs, experts say

October 1 2018



Credit: CC0 Public Domain

How best to reduce concussions and other brain injuries that occur in American football continues to perplex scientists, coaches, and fans at all levels of the sport, but a new study published today in *JAMA* points to

one way to make the sport safer: move the kickoff line. A 2016 and 2017 Ivy League experimental rule that moved the kickoff line from the 35- to the 40-yard line and the touchback line from the 25- to the 20-yard line reduced the average annual concussion rate by more than 68 percent, according to the research conducted by a team from The Ivy League and Perelman School of Medicine at the University of Pennsylvania.

Kickoffs occur multiple times throughout the course of a football game, including at the start of each half and after a scoring play. During a kickoff return, a player from the receiving team who catches the ball has the option to return the ball while the opposing team attempts to tackle them, or to take a knee. This specific play has a much higher rate of [concussion](#) than other plays in the sport, most likely due to the high speed at which collisions can occur. In 2015, kickoffs in Ivy League football, a NCAA Division I conference of eight private universities, accounted for 6 percent of all plays but 21 percent of concussions.

Seeing the risk of injury in these plays, in 2016 Ivy League football coaches recommended changing the kickoff line in hopes of causing more kickoffs to land in the end zone, thereby causing touchbacks—where the receiving player chooses to not advance the ball.

"The national conversation on concussions that occur in football can be informed by scientific research aimed at making sports safer," said senior author Douglas J. Wiebe, Ph.D., a professor of epidemiology in Biostatistics, Epidemiology, and Informatics, who co-leads the Ivy League's concussion surveillance system, which has amassed data on more than 2,000 concussions since 2012 to better understand causes and effects of these injuries. "We've found that this simple yet strategic policy change helps sustain the quality of the game, while also making it safer for student athletes."

Using the data from this concussion surveillance system database, the researchers identified the concussions that occurred in regular season in-conference games before the rule (2013-2015) and after the 2016 rule (2016-2017) by the type of play: kickoff, play from scrimmage, punt, and field-goal or point-after-touchdown attempts.

In 68,479 plays during 2013-2017, 159 concussions occurred, an overall rate of 2.3 for every 1,000 plays. Kickoffs resulting in touchbacks more than doubled from an average of 17.9 percent per year before the rule change to 48 percent after. The rule caused average annual concussion rates (per 1,000 kickoffs) to go from 10.93 before the rule change to 2.04—a decrease of 68.8 percent. Concussions in non-kickoff plays also went down after the rule change, from 2.56 (per 1,000 plays) to 1.18 (per 1,000 plays).

Preliminary results of the Ivy League experimental kickoff rule change influenced the NCAA to adopt a new kickoff rule that went into effect for all levels of football at the start of the 2018 season. Under the new rule, receiving teams can call for a fair catch inside their 25-yard line and have it result in a touchback (and the offense would start at the 25-yard line). The intent is the same as the Ivy League rule: to reduce the number of times the ball is returned on kickoff plays, while not changing the play fundamentally.

"This swift action by Ivy League leadership, supported by rigorous injury epidemiology, is a compelling example of how collaboration and targeted policy change can be effective in reducing sport-related concussion in football and in other sports," said Bernadette A. D'Alonzo, MPH, a co-author and research coordinator in Biostatistics, Epidemiology, and Informatics and the senior coordinator of the concussion surveillance system.

In 2010 the Ivy League initiated an internal review of the incidence and

impact of concussions in all varsity sports, which led to this study.

"The Ivy League Presidents identified concussion injuries as a significant student-athlete welfare issue and charged the Ivy League sports medicine staff with taking a leadership role in identifying interventions that would make all sports safer," said Robin Harris, Executive Director of the Ivy League and an author on the study. "We are proud to make this contribution to improving the game of [football](#) for our student-athletes."

More information: *JAMA* (2018). [DOI: 10.1001/jama.2018.14165](https://doi.org/10.1001/jama.2018.14165)

Provided by Perelman School of Medicine at the University of Pennsylvania

Citation: How can we reduce concussions in football? Change kickoffs, experts say (2018, October 1) retrieved 4 May 2024 from <https://medicalxpress.com/news/2018-10-concussions-football-kickoffs-experts.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--