



Incidence of Knee Injuries on Artificial Turf Versus Natural Grass in National Collegiate Athletic Association American Football: 2004-2005 Through 2013-2014 Seasons

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Overview

As knee injuries continue to be one of the most common injuries among football players, researchers set out to learn if playing surface makes a difference. From collecting and analyzing National Collegiate Athletic Association (NCAA) Injury Surveillance Systems (ISS) data from 2004 to 2014, researchers found that athletes in all divisions experienced posterior cruciate ligament (PCL) injury rates nearly 3 times higher on synthetic turf than on natural grass. Lower NCAA divisions also showed 63% higher rates of anterior cruciate ligament (ACL) injuries during competitions on synthetic turf than on natural grass. The researchers' findings support that there is a difference between synthetic turf and natural grass in the rate of specific knee ligament injuries, making artificial turf an important risk factor for certain injuries in NCAA football.

Background and Method

Knee injuries account for more than 30% of all lower-body injuries in NCAA football. Previous research demonstrates that synthetic turf is unable to easily release players' cleats in potential injurious situations; in contrast, natural grass can shear, divot and allow cleats to slide, resulting in reduced force and stress on players' lower bodies, particularly the knee. A 2013 research study found that ACL injuries in NCAA football from 2004 to 2009 were 1.39 times higher on synthetic turf than on natural grass. Data for this

study came from the NCAA Injury Surveillance System Men's Football Injury and Exposure Data Sets for the 2004-2005 through 2013-2014 seasons. Injury rates for anterior cruciate ligament (ACL), posterior cruciate ligament (PCL), medial collateral ligament (MCL), medial meniscus, and lateral meniscal injuries were calculated per 10,000 athlete exposures. Rate ratios (RRs) were calculated for injury rates on artificial turf and natural grass and were analyzed by event type (competition and practice) and NCAA division (I, II and III).

Findings

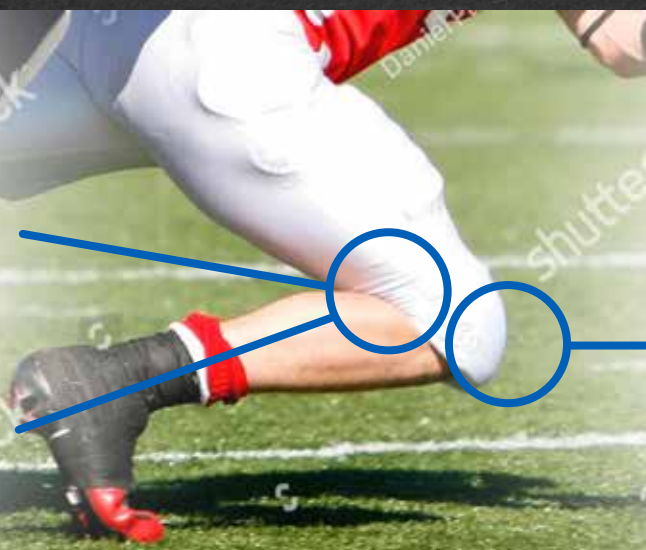
A total of **3,009,205** athlete exposures and **2,460** knee injuries were reported from **2004** to **2014**.

Athletes in all NCAA football divisions experienced PCL injury rates **194%** higher on artificial turf than on natural grass.

Athletes in Division I competitions experienced **199% higher** PCL injury rates on artificial turf than on natural grass.

Athletes in Division II and III competitions experienced **213% higher** PCL injury rates on artificial turf than on natural grass.

Athletes in Division II and III competitions experienced **63% higher** ACL injury rates on artificial turf than on natural grass.



Acknowledgments

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