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Study: Concussed College Athletes Almost Twice as Likely to Experience Later Lower Extremity Injuries

A study of Division I college athletes has reinforced the idea that there's a connection between concussion and later musculoskeletal injury, with an estimate that for as much as a year after the initial head injury, concussed athletes are nearly twice as likely to suffer an acute lower extremity injury than they were prior to the concussion.

Researchers analyzed electronic medical records of 44 concussed and 58 nonconcussed college athletes for a 2-year period that extended 1 year before and after the concussion (the nonconcussed athletes were matched with the concussed athletes over the same time period). Records were retrieved at 365 days, 180 days, and 90 days before and after the concussion, with researchers focusing on reports of acute lower extremity musculoskeletal injury that included sprains, strains, contusions, and fractures, but didn't include chronic and overuse injuries.

Authors found no differences in injury rates between the concussed and control groups prior to concussion events, but things changed significantly after that. The study was e-published ahead of print in *Medicine and Science in Sports and Exercise* ([abstract only](#) available for free).

While injury rates for the concussed players at the 90-day mark were not significantly different from average rates, by 180 days the group reported an injury rate 2 times higher than average. A year later, the concussed group was reporting an injury rate 1.97 times higher than average, and 1.64 times higher than the control group.

Authors cite several potential explanations for the increased injury rate but lean toward the idea that disrupted cortical pathways after a concussion may be among the most plausible.

"While still a hypothesis, reduced cortical excitability observed following concussion may contribute to overall reductions in function ability," authors write. "The brain's ability to effectively control and coordinate movement

following concussion may be impaired. In a dynamic athletic setting, any disruption of the cortical pathways to the musculoskeletal system has the potential to negatively affect movement."

Researchers acknowledge several limitations to the study, including small sample size, the potential unreliability of electronic medical records, and the possibility that some concussions may have gone unreported. Among the study's strengths, according to authors, is the fact that all the athletes were from the same university, which operates under a uniform concussion management policy.

Authors believe that their study points out the need for more refined measures of neuromuscular control deficits after concussion.

"Importantly, the underlying causes for these lingering balance deficits must be explored further," they write. "If our current measures of balance following concussion are not sensitive enough to detect deficits, more functional balance assessments should be identified."

APTA offers multiple resources on concussion, which include a [Traumatic Brain Injury webpage](#), and a [clinical summary on concussion](#) available for free to members on PTNow. The association also offers a patient-focused [Physical Therapist's Guide to Concussion](#) on APTA's MoveForwardPT.com consumer website. Continuing education offerings from APTA include the prerecorded webinar "[Managing Concussions with an Interprofessional Team](#)," as well as the online courses "[Concussion and the Postconcussive Syndrome](#)," and "[Sports-Related Mild Traumatic Brain Injury](#)," all available through the APTA Learning Center.

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Posted by News Now Staff at 1:53 PM

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I lead a case series/pilot study with 5 NFL players on post concussion syndrome. Results are significant. We would like to publish this. Where do you suggest we start to inquire for publication?

Posted by Gail Wetzler on 7/19/2015 1:23 PM

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