

# When contact sports cause concussion injuries, who comes out ahead?

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Concussions are common injuries among contact sport athletes. While most athletes experience full recovery within a few weeks and can return to their sport, according to a study published in the December issue of the *Journal of the American Academy of Orthopaedic Surgeons*, female athletes tend to experience a higher concussion injury rate than male athletes. Additionally, athletes who suffered a concussion injury prior to college were three times more likely to suffer a contact sport-related concussion than their collegiate peers without a history of the injury.

In a 15-year retrospective study of 1,200 varsity student athletes at Columbia University in New York, study authors found:

- the most commonly reported [concussion symptoms](#) include headache, impaired concentration, and dizziness;
- the risk of [concussion](#) was higher among females (23.3 percent) than males (17 percent) over the course of their collegiate career; and,
- the findings support prior research that indicate female contact sport athletes have a greater risk of concussion injuries than their male counterparts. The reasons for this difference are not clear, but awareness of this finding is an important step in taking these injuries into consideration.

"Concussion injuries in football, for instance, receive the lion's share of media attention, but in our study female athletes were more likely to suffer a concussion injury," says lead study author Cecilia Davis-Hayes,

BA. "The greater the number of reported post-concussion symptoms, the greater the likelihood the [athlete](#) will have a prolonged recovery period and a longer to return to play than athletes reporting fewer symptoms. This was more prevalent among female compared to male contact sport athletes."

"For the most part, a concussion is a concussion, regardless of the sport in which it happens. But each concussion is different in mechanism, symptoms and recovery even within a single individual," says study co-author James M. Noble, MD, assistant professor of neurology at Columbia University Medical Center. "Young men and women experience similar concussion symptoms and recovery periods. Our study also supports past findings that suggest women may be more likely to either experience or report poor sleep while men may be more likely to report poor memory immediately after the concussion."

Team physicians, parents and coaches should:

- maintain a high index of suspicion for concussion injuries among [female athletes](#);
- establish a positive environment towards athletes so that they do report concussion injuries, and discourage athletes from hiding concussion injury symptoms; and,
- be aware that [concussed athletes](#) expressing a greater number or severity of symptoms are more likely to experience a prolonged recovery.

"While our study was not designed to explain why the latter occurred, one can reason that more symptomatic patients are experiencing a more severe injury requiring a longer [recovery](#) period," says Davis-Hayes.

The co-authors intend to follow-up their multifaceted study on this group of collegiate athletes to identify subsequent risk of orthopaedic [injury](#) as

well as subtle neuropsychological deficits among athletes who have had a concussion, and long-term outcomes following a contact sports career.

**More information:** Cecilia Davis-Hayes et al, Sex-specific Outcomes and Predictors of Concussion Recovery, *Journal of the American Academy of Orthopaedic Surgeons* (2017). [DOI: 10.5435/JAAOS-D-17-00276](https://doi.org/10.5435/JAAOS-D-17-00276)

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