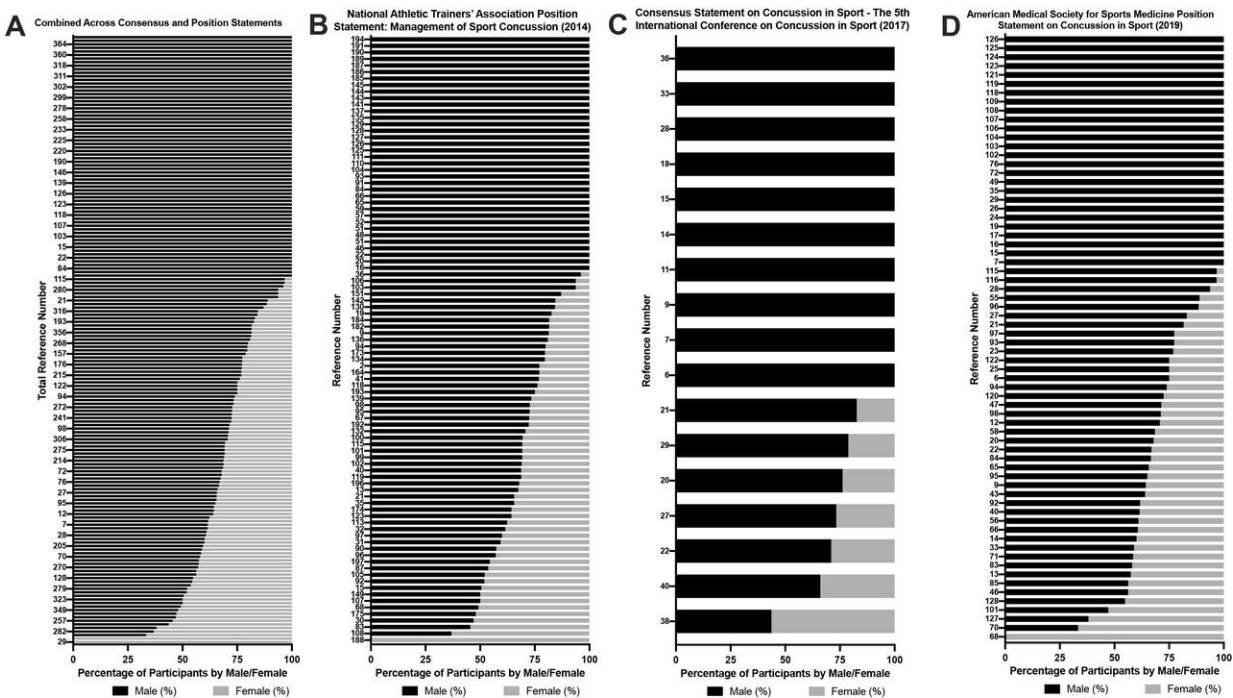


# Women's gymnastics leads NCAA sports with most preseason concussions

June 5 2023, by Laura Bailey



Percentage of male and female participants across individual studies cited across all statements (A) and in the three organizational statements (B–D). Each statement was ranked by percentage of female/male athletes for facilitated visual comparison, starting with 0% female athlete studies at the top. Each column represents one study referred to by that consensus statement’s reference number on the left axis (eg, reference #191 in NATA 2014). Reference numbers for each study in the combined graph are available in online supplemental file 2. NATA, National Athletic Trainers’ Association. Credit: *British Journal of Sports Medicine* (2022). DOI: 10.1136/bjsports-2021-105045

Women's gymnastics has the highest rate of preseason concussion of all NCAA sports, with women gymnasts experiencing concussions at a rate 50% higher than football players.

Concussion rates dropped during the regular season, with women gymnasts experiencing concussions at half the frequency compared to preseason levels. The sport hasn't historically been considered a high concussion risk like football or soccer, said lead researcher Steven Broglio, professor of kinesiology and director of the University of Michigan Concussion Center.

## **High numbers of concussions in gymnastics surprised researchers**

The study looked at sport-related concussion rates for NCAA sports during the preseason practice period and regular season from 2013-14 through 2018-19.

Findings show that in the preseason, roughly 9 gymnasts for every 10,000 athlete participations experienced concussion. By comparison, roughly 6 [football players](#) per 10,000 athlete participations experienced concussion during the preseason. An athlete participation is when an athlete steps into a practice or competition.

"Everybody worries about football, [ice hockey](#) and mens' and womens' soccer, but gymnastics is out there by themselves with a preseason injury risk that we didn't expect to see," Broglio said. "We're not aware of anybody who has identified this problem before, so we now need to look at how to improve the health and safety of the athletes."

The preseason sessions are practices only, while the regular season includes practice and competition. Broglio said he doesn't know the sport

of gymnastics well enough to speculate on what activity or activities caused the preseason spike, but he stressed he does not believe coaches are being careless.

"It's likely a situation where it's an activity that's been done for a long time and we just need to ask, 'Do we really need to have the women engaging in this training activity knowing there is an increased risk for injury associated with it?' Or, perhaps during the preseason, women are working on new routines so the risk of injury is higher with unfamiliar skills," Broglio said.

## **Dearth of concussion research on female athletes**

Broglio recently co-authored a study in the *British Journal of Sports Medicine* that examined three influential position and consensus papers that guide [clinical care](#) on sport-related concussion. The 171 studies cited by these three papers consisted of roughly 80% male study participants. Moreover, 40% of these studies had no female participants at all.

"There is a very clear lack of science in the broader literature around women's sports," Broglio said. "We're hoping research like this shines a light on the deficits in the literature and allows people to take a deeper dive to understand what's going on to improve outcomes."

## **Other results were as expected**

"All sports carry some level of risk, and we should constantly be looking for ways to make sports safer," Broglio said. "We want to optimize performance but in a healthy and safe way."

Concussion rates for other NCAA sports were as expected. Findings

include:

- During the preseason, the top sports for concussion were gymnastics, football, men's lacrosse, women's volleyball, women's basketball and women's soccer.
- During the regular season, the top sports for [concussion](#) were women's and men's ice hockey, men's wrestling, women's soccer, men's football and women's field hockey.

**More information:** Christopher D'Lauro et al, Under-representation of female athletes in research informing influential concussion consensus and position statements: an evidence review and synthesis, *British Journal of Sports Medicine* (2022). [DOI: 10.1136/bjsports-2021-105045](#)

Provided by University of Michigan

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