

Women & Concussions

A traumatic brain injury (TBI), such as a concussion, is a disruption in the normal function of the brain that can be caused by a bump, blow, or jolt to the head or hit to the body that causes the head and brain to move rapidly back and forth.

There is little known about the specific effects of TBIs on women, mainly because the majority of studies on the subject have focused more on men. A growing body of evidence suggests, however, that females have a higher rate of concussions than men playing sports with similar rules, such as ice hockey, soccer and basketball,^{1,2} with one study showing that women athletes are 50 percent more likely than male athletes to have a sports-related concussion.³ Researchers have also found that males and females have slightly different post-concussion symptoms⁴ and that women are at increased risk for post-concussion symptoms after sport-related mild TBI as compared with male patients.⁵

Furthermore, a recently published study suggests that female athletes seek specialty medical treatment later than male athletes for sports-related concussions and this delay may cause them to experience more symptoms and longer recoveries.⁶ Another study reported that girls who suffer a sports-related concussion get specialty care nearly a week later on average than boys.⁷ Researchers speculate that because the sports girls tend to play—such as soccer, basketball and cheerleading—are considered “moderate risk” activities, they have less sideline medical care following an injury than the male-dominated sports of football, ice hockey and basketball.



Why Concussions Might Affect Women Differently Than Men

It is unclear why women appear to be at higher risk for sports-related concussions than men or why, following a head injury, women experience more symptoms – and more severe ones – such as greater cognitive decline, poorer reaction times, more headaches, extended periods of depression, longer hospital stays, a higher percentage of prolonged concussion symptoms, and delayed return-to-work compared to their male counterparts.⁵

Differences in their brains and their upper bodies, particularly the muscles in the neck and how they react after collisions, as well as hormonal issues are some reasons why experts believe concussions might affect female athletes and non-athletes differently than males.

The Brain

Scientific research has shown that female and male brains differ in dozens of ways in activity patterns, anatomy, chemistry, and physiology. In one published study, researchers suggest that women have smaller, more breakable nerve fibers in the brain compared to men that may make them more susceptible to concussions and experience worse outcomes than male athletes.⁸

Neck Strength

There is a body of evidence that suggests greater neck strength and activating the neck muscles to brace for impact may both help reduce an athlete's risk of concussion during a collision. Since women and children have less neck strength than men and adults,⁹ they may be at a disadvantage in regard to controlling the head's response during impact.

Hormones

Women who suffer an mild TBI during the two weeks leading up to the premenstrual phase of their period, when the hormone progesterone is at its highest level, fare worse in a number of ways including mobility, pain and emotional health, compared with women at low-progesterone phases of their cycles, according to a recent study.¹⁰ That may be because a sudden drop in progesterone aggravates post-concussive symptoms like headache, nausea, dizziness and brain fog, the study authors suggest. Girls who haven't started menstruating yet and postmenopausal women have outcomes similar to men.

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Vision & Brain Injury

Following a concussion, there is often an interruption in communication between the eyes and the brain. Studies show that at least 50 percent of TBI patients suffer from visual dysfunctions, with one such study finding a 90 percent incidence of post-trauma visual complications.¹¹ Visual problems, however, are often overlooked during initial evaluation as symptoms may not be present until days, weeks or even longer following the incident.

If you notice any changes in your vision following a concussion or some other head trauma, don't ignore them: Immediately contact your eye care professional. Visual deficits related to a traumatic brain injury should be evaluated by an optometrist who is trained in the evaluation and management of eye and vision complications of concussion. For more information and to locate an appropriately trained provider in your area, visit www.noravisionrehab.org.



Where to go for support?



The Neuro-Optometric Rehabilitation Association, International™ (NORA) is a non-profit interdisciplinary group of professionals dedicated to providing patients who have physical or cognitive disabilities as a result of an acquired brain injury with a complete ocular health evaluation and optimum visual rehabilitation education and services to improve their quality of life. For more information, visit www.noravisionrehab.org. Follow NORA on Facebook, Twitter, YouTube, Linked In, and Instagram.

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PINK Concussions is a non-profit organization to focus on pre-injury education and post-injury medical care for women and girls with brain injury including concussion incurred from sport, domestic violence, accidents or military service. Its mission is to drive change and innovation to develop and implement sex-specific/gender-responsive, evidence-based strategies for the identification, management and support of women and girls with brain injuries. For more information, visit www.PINKconcussions.org. Follow PINK Concussions on Facebook, Twitter, YouTube, Linked In, and Instagram.

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