



# Concussion In Sports

## WHAT YOU NEED TO KNOW



### Gender Differences

It is not known why girls have higher concussion rates than boys in similar sports, such as soccer and basketball. There are several theories as to why this may be the case, but nothing has yet been proven. Possible explanations include the following:

#### 1. Neck musculature?

In general, boys have greater muscle mass in their necks as compared to girls. It is possible that the increased muscle strength in the neck may allow boys to attenuate a blow or jolt to the head more effectively, thus diminishing force transmission to the brain. We do not have any proof that this is the actual case, however, and there are no currently known benefits to having girls work on neck strengthening exercises in effort to decrease their risk of concussion.

#### 2. Susceptibility?

While not proven scientifically, some experts speculate the differences between male and female adolescent brains may lead to an increased risk of injury for girls. It is known that there certainly are some gender differences in brain function and the effects of testosterone and estrogen may have effects upon the brain that are not yet completely understood.

#### 3. Girls more likely to report?

There is also some belief that girls may be more likely to report concussion symptoms to their coaches or health care professionals than boys. Given the culture of male sports, perhaps boys feel more compelled to adhere to mantras such as “no pain, no gain” and feel more pressure to “tough out” an injury. Again, we have no definite proof of this being the case and given the highly competitive nature of girl’s sports, this explanation seems the least likely of the three.