Q: Is it true that girls who play high school sports are more at risk for sustaining concussions than boys?

A: A recent study conducted at MedStar Research Institute and published in the American Journal of Sports Medicine examined three high school sports that are most similar for boys and girls — basketball, soccer and baseball/softball — and reported that girls consistently suffered twice as many concussions as boys.

Several factors may contribute to this statistic, including gender differences in head size and neck strength and girth, and the fact that girls may be more likely to report injuries.

Investigators noted that although boys’ football and lacrosse had the highest number of concussions — and football had the highest concussion rate — the concussion rates observed in girls’ sports are similar to or higher than those of boys’ sports.

Girl’s soccer had the most concussions and the second-highest incidence rate for concussion of all 12 sports that were studied. The next highest number of concussions in girls’ sports occurred in cheerleading, basketball and lacrosse, respectively.

Concussion: A mild brain injury

“Concussion is a type of mild traumatic brain injury — also called a ‘TBI’ — caused by a bump, blow, or jolt to the head,” explains Gary Pace, Ph.D., supervising psychologist for May Institute’s school for children and adolescents with brain injury.

“Approximately 300,000 sports-related concussions occur annually, and more than 60,000 of those occur in high school contact sports,” he says.

The MedStar study reported an annual 16.5 percent increase in concussions over the past decade in both boys’ and girls’ sports, with a substantial increase beginning in 2005.

“This is an alarming trend and one that athletes, parents, coaches and medical professionals must take seriously,” Dr. Pace says. “Few people realize how pervasive sports concussions have become, especially in younger and in female athletes.”
Diagnosing concussion

According to the Brain Injury Association of Massachusetts, concussion can be difficult to diagnose, especially if an athlete never loses consciousness and does not exhibit obvious symptoms. Neurological exams such as CAT scans (computerized axial tomography), MRIs (magnetic resonance imaging) or EEGs (electroencephalograms) cannot always detect mild brain injuries. Neuropsychological testing is one of the most effective ways to identify concussion.

Athletes with concussion may experience a wide variety of cognitive, emotional and physical problems. Common symptoms include:

- Headache or nausea
- Balance problems or confusion
- Memory problems
- Loss of consciousness
- Double or fuzzy vision
- Sensitivity to light or noise
- Sluggish or foggy feeling
- Changes in sleep pattern
- Memory problems

Parents and coaches may notice that the athlete:

- Appears dazed, stunned or confused
- Moves clumsily
- Forgets events prior to play or after being hit
- Answers questions slowly
- Shows behavior or personality change

It is important to note boys and girls who have concussions may experience different symptoms. A study published in 2010 in the Journal of Athletic Training found that although the most common symptom of concussion for both sexes is headache, boys and girls complained of different secondary symptoms. For example, boys were more than twice as likely than girls to report amnesia as one of their symptoms; girls were three times more likely than boys to complain of sensitivity to noise after being hit in the head.

“Learning the facts about concussions — including what signs and symptoms to watch for in girls and boys — is the first step in protecting these youngsters from permanent brain damage or death,” Dr. Pace says. “Any athlete who has experienced a TBI — even a mild one — needs prompt attention and rehabilitative treatment in order to recover fully.”
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