

**Background/problem:**

The public health community has identified concussion in youth sports as an important public health issue. The heightened interest in this issue of late is a direct result of increased awareness of the potential adverse impact of pediatric sport-related concussion on the function of the young brain and is based on a desire to promote safe participation in youth sports.

Sports-related concussions occur relatively frequently in children and adolescents. The sheer number of participants in youth and high school sports make identification and management of pediatric-sports related concussion of major public health import. Nearly 60% of all students in high school participate in sports, with numbers growing annually and many more involved in the younger, pre-high school years.

Sports related concussions represent a substantial percentage of all brain injuries in children under the age of 10 (18.2%) and 10-to 14-year olds (53.4%) and 15-to 19- year old (42.9%). Thus sports-related brain injury and concussions have a relatively high incidence and are a significant public health concern for young athletes.

As many as 20 percent of young athletes in contact sports suffer a concussion each season. Reporting of concussions continues to be a problem area; some studies now say that concussions are underreported by a factor of 5 to 10 times, especially in sports like football. It is estimated that 65% of all concussions go unreported. The consequences of a moderate or severe concussion can be serious, and alter the quality of a young persons' future.

Young athletes are much less likely to receive appropriate on-field medical care. This is particularly true at the youth and recreational level where no trained medical personnel are present to adequately assess and diagnose a concussion. Mild injuries become worse, with consistently longer recovery time, when not managed properly.

The fact that the brain of the young athlete is still developing cannot be ignored and the effects of concussion on the developing brain are not well understood. Even subtle damage may lead to deficits in learning that adversely influence development. The effects of multiple concussions are cumulative and can have devastating effects on cognition and learning over time.

Studies have shown that high school athletes who sustain a concussion demonstrate prolonged memory dysfunction compared with college athletes who sustain a concussion. These studies also show that younger athletes take much more time to resolve concussion symptoms and more critically, younger athletes are at higher risk for neurocognitive decline following concussion than adults are.

Summary of key issues:

1. Recent studies have pointed out that the rates of concussion among girls in youth sports are consistently higher than boys in the same sports.
  - Since Title IX was enacted in 1971, New Hampshire has seen an explosion in the number of girls participating in athletics at all ages and levels. Now one in three girls participates in sports.
  - Documented rates of concussion among girls in sports like soccer, lacrosse, basketball, hockey and snowboarding are consistently higher than among boys in the same sports. Girls sustain concussions 68% more often than boys. Female concussion rates in youth basketball are 3X higher than boys.

- Girls consistently took longer for concussion symptoms to resolve and return to play. Girls are more likely than boys to suffer post concussive symptoms at 1, 3 and 6 months following their injury.
- In general, the medical profession does not do a very good job in recognizing that girls sustain concussions at equal or higher rates than boys. As a result, looking for concussions in girls is not pursued with the same diligence, and it's setting girls up for a worse result.

2. Concussion is the least understood sports injury among parents, coaches and the medical community who works with youth.

- A severely sprained wrist or a broke bone quickly earn a player a visit to a doctor for treatment. Yet the treatment of a concussion, a potentially much more severe injury, is often handled by a coach or parent without any medical knowledge. Few parents are aware of what signs and symptoms to look for.
- There is a significant amount of controversy and misunderstanding surrounding concussions. One of the biggest problems is the fact that there is no single marker for concussion. It relies on a clinical diagnosis, which is not simple.
- Primary care physicians and pediatricians are often not yet aware of the new research and concerns associated with concussion in youth athletes. Many still offer the old standard – “rest a few days and you are ok”

3. A concussion is a brain injury and one of the most unrecognized and ignored public health issues affecting youth today

- There is a lack of understanding that a concussion is a brain injury. Although most concussions resolve spontaneously, the consequences of a moderate or severe concussion can be serious and alter the quality of a young persons' future.
- Multiple concussions can have cumulative and long lasting life changes.
- All concussions should be evaluated by knowledgeable health care professionals to measure severity, monitor progress over time, and properly manage the injury.
- Nearly all athletic endeavors pose some risk of concussive injury. Concussion is prevalent in the following - baseball, basketball, bicycling, cheerleading, football, gymnastics, in-line skating, lacrosse, martial arts, ice and field hockey, rugby, skateboarding, skating, skiing and snowboarding, softball, soccer, volleyball, wrestling, track and field events such as pole-vaulting etc.

4. Many young athletes do not know what a concussion is:

Underreporting of concussion is a major problem. Many athletes do not know what concussion is or simply do not care, hiding their injuries from their coaches for fear of being taken out of the game.