This article addresses the concept of immediate and follow-up evaluation of sports-related head injuries by athletic trainers and therapists. The American Academy of Neurology defines concussion as an alteration of mental status resulting from a biomechanical force affecting the brain. In some older textbooks, the term concussion is used only in cases in which a loss of consciousness results from trauma to the brain. Although concussion has been the term used most often when referring to head injury in athletics, other terms have appeared recently to represent traumatic brain injury, such as mild traumatic brain injury, closed head injury, and posttraumatic syndrome. Examples of symptoms associated with MHI include nausea, vomiting, lack of concentration, dizziness, disorientation, immediate and long-term memory deficits, and neurological considerations such as unequal pupil size, dymetria (inability to stop muscular movement at a desired point, such as a finger-to-nose task), headache, blurred vision, eye tracking, and abnormal pupil response to light. Experts now think that undiagnosed MHI puts athletes at risk for catastrophic, cumulative, and long-term injuries. One of the most problematic issues in detecting sports-related MHI is that athletes typically minimize symptoms in order to remain in the game or return to play. There are no sports in which the athletes are immune to MHI (Powell & Barber-Foss, 1999). In addition, the Brain Injury Association reports that more than 82,000 brain injuries occur during recreational sports every year.

Second-impact syndrome (SIS) is another major concern when considering a concussed athlete’s return to athletic participation. SIS is caused when the brain has not had sufficient time to heal from one concussion before receiving another impact, even a very minor one.
(Cantu, 1998). The second head injury can cause significantly more damage than the initial one had. Although rare, the results of SIS can be catastrophic in nature and might even include death.

The potential results of mild head injury and SIS have caused a heightened awareness among medical professionals. The importance of adequate, on-site, allied health care evaluation of MHI in the athletic arena is quickly becoming apparent. As more is learned about MHI symptoms, pathology, and consequences, it becomes increasingly important that proper immediate and follow-up assessment be performed in order to ensure proper care and management.

Few would deny that a standard practice after a player sustains loss of consciousness is to refer the athlete for further medical evaluation by a physician before allowing the athlete to return to play. It is the “mild” head injury that does not cause loss of consciousness, but does include one or more of the other symptoms of MHI, that often engenders the most difficult decision-making process for athletic trainers and therapists. When is it appropriate for the athlete to return to participation? When should the athlete be sent to the hospital? Is it appropriate for the athlete to travel to the hospital by car, or should an ambulance be requested? How can the athletic trainer or therapist make the best judgment on the management of an athlete with a mild head injury?

Organizing for the management of MHI is the first step in minimizing its effects. It is important for all involved in the athletic arena to be educated on the signs and symptoms of MHI. Enlisting the assistance of many “observers” for the subtle signs and symptoms of MHI expands our ability to identify athletes with even minor symptoms that might become worse over time. Knowing what to look for while understanding the importance and seriousness of an injury to the brain, even one so minor that there was no loss of consciousness, should be explained to the athletes, coaches, and parents. These individuals can be the “first responders” in the process of identifying problems. Oftentimes the symptoms are subtle, but research has identified the increased danger when repetitive episodes of mild head trauma occur. It might be a fellow athlete or the coach who notices that an athlete is experiencing a minor concentration problem or lack of attention. Athletes experiencing cognitive or neurologic signs or symptoms should be referred to the athletic trainer or therapist or a physician for assessment.

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Head-Injury Follow-Up to Send Home With Parent or Guardian

This is a follow-up sheet for the health and safety of your child. Quite often significant signs and symptoms of a head injury do not appear for several hours after the injury. This fact sheet is to alert you to the signs and symptoms that might not be readily apparent but might materialize over time. DO NOT give your child aspirin, Tylenol, Advil, etc., after a head injury unless directed to do so by a physician.

If any of the following signs or symptoms WORSEN over time, please contact a physician immediately:

- Difficulty remembering recent events or meaningful facts
- Severe headache
- Stiffening of the neck
- Mental confusion or feeling of strangeness
- Nausea
- Irritability
- Changes in emotional status/mood swings
- Dizziness, poor balance, or unsteadiness
- Abnormal drowsiness or sleepiness
- Loss of appetite
- Continued ringing in the ears
- Slurring of speech

If any of the following appears, contact emergency medical services immediately:

- Blood or yellowish/clear fluid from nose or ears
- Vomiting
- Alterations in breathing patterns
- Double or blurred vision, oversensitivity to light
- Convulsions or seizures
- Weakness in either arm or leg
- Unequal pupils or uncontrolled eye movements