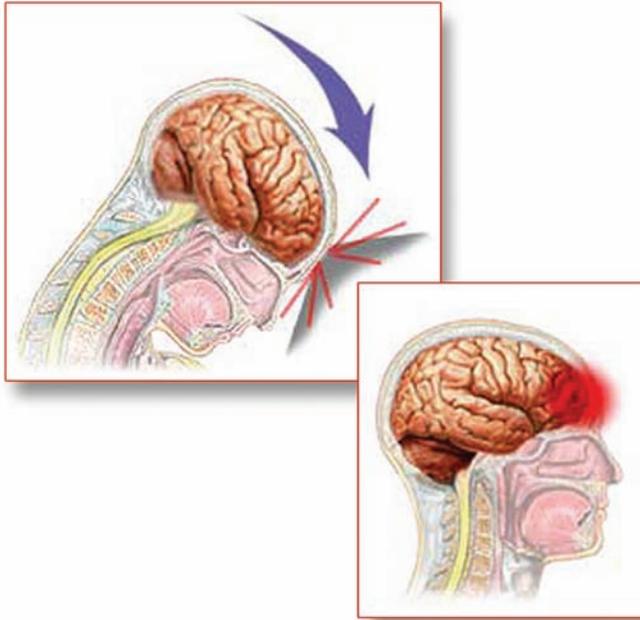


What is a Concussion?

A Concussion is a violent jarring or shaking that results in a disturbance of brain function.



References

1. Traumatic Brain Injury (TBI): Incidence & Distribution, 2004. Center for Disease Control and Prevention (CDC), www.cdc.gov
2. Sports Concussions and Second Impact Syndrome, 2004. University of Virginia Neurogram, www.healthsystem.virginia.edu
3. AAN Practice Guidelines, 1997. American Academy of Neurology, www.aan.com

Created and Designed by El Dorado Hills Fire Dept.

Don't Ignore These Symptoms of a CONCUSSION!

SIGNS

- Vacant stare
- Delayed verbal and motor responses
- Confusion and inability to focus attention
- Disorientation
- Slurred or incoherent speech
- Gross observable lack of coordination
- Emotions out of proportion to circumstances
- Memory deficits
- Any period of loss of consciousness

SYMPTOMS

EARLY (within minutes or hours)

- Headache
- Dizziness or vertigo
- Lack of awareness of surroundings
- Nausea or vomiting

LATE (days to weeks later)

- Persistent low grade headache
- Light headedness
- Poor attention and concentration
- Memory dysfunction
- Easily fatigue
- Irritability and low frustration tolerance
- Intolerance of bright lights or difficulty focusing vision
- Intolerance of loud noises; sometimes ringing in the ears
- Anxiety and/or depressed mood
- Sleep disturbance

Provided by: The El Dorado County Emergency Medical Services Agency (EMS) 415 Placerville Dr., Suite J
Placerville, CA 95667 Phone: (530)621-6501 Fax: (530)621-2758
email: tmurphy@co.el-dorado.ca.us

Go BIG...
but know
when to go
HOME!



SIS

SECOND IMPACT SYNDROME

Become educated...

Become aware...

Become the coach, friend or
family member who says "NO!"



He was a Fire-fighter and Paramedic who should have known better but his passion for excellence, his need to 'go big,' overruled his judgment one too many times. He was tenacious in his pursuit of new athletic skills, and was the epitome of the 'extreme sport' enthusiast and athlete. But at the peak of his athletic career Ryan Shreve's life was unnecessarily cut short by a common but little known condition called **Second Impact Syndrome or SIS**.

Second Impact Syndrome (SIS) is a catastrophic event that occurs when an athlete - or anyone - sustains a second head injury (a concussion) before the symptoms from the first injury have resolved. These symptoms may occur immediately or several minutes after the traumatic event.



Concussions are a common consequence of trauma to the head in contact sports, collisions, falls, and many other forms of athletic activity. The second concussion may occur anytime from days to weeks after the first injury. The second impact is the dangerous one and is more likely to cause uncontrolled brain swelling or other widespread damage. **IT CAN BE FATAL!** At the onset of SIS, the athlete may be stunned but doesn't lose consciousness and often continues with the game or event. In the next 15 seconds - and up to several minutes later - the brain is severely compromised. The residual swelling from the first impact impairs the brain's ability to prevent further swelling from a second impact. The second impact may be as simple as a thump, a bump or a jarring motion to any part of the body which causes a rotational force on the head. Respiratory failure begins and the person collapses. The time from second impact to brain stem failure is two to five minutes! Death often occurs shortly thereafter.

Ryan, as a Paramedic, should have known better. He should have known that the symptoms he was experiencing - headaches, intermittent confusion, etc. - were indications of a concussion. In Ryan's case, they were indications of the multiple minor concussions he had received during the summer while practicing his wakeboarding maneuvers. He should have been taken out of the sport for two weeks or longer, but Ryan couldn't make that decision. His head injuries had impaired his usually sound, professional judgment.

Each year in the United States an estimated **1.4 MILLION** people sustain a Traumatic Brain Injury or TBI. The Center for Disease Control and Prevention estimates that at least 300,000 sports related concussions occur each year. Up to fifty percent of the reported SIS cases result in death. More alarming is the fact that, after athletes incur one concussion they are three times more likely to sustain a second concussion.

Suggestions for preventing SIS from occurring

- Encourage the use of protective equipment such as a helmet for all sports ranging from snow sports and bike riding to wakeboarding. Helmet damage likely indicates a head injury.
- Encourage rule changes in athletics to reflect the risk of SIS.
- Recognize that head injured athletes need immediate medical attention.
- **DO NOT** allow the athlete to return to play after any head trauma.
- Seek medical advice from a health professional after any head injury.
- If an athlete complains of a headache, light headedness, vision problems or other neurological symptoms, bar that person from any further athletic participation until seen and cleared by a physician to return to play.

Ryan Shreve was trained to save lives and yet he was unable to save his own. Because of his education and training, he knew about traumatic head injuries. But due to his initial concussion, which impaired his judgment, he was unable to make sound decisions about his own health. If those around him had been aware of his head injury, and knew about SIS, they may have been able to help. Coaches, families and friends of athletes, or anyone who sustains a head injury, should stress the need for immediate medical attention. Become educated. Become aware. Become the coach, friend or family member who says "NO!" Honor Ryan's memory and learn from his death. Tell the injured person to "Wait before it's too late." Save a life.

For more information on **SIS, Second Impact Syndrome**, please contact Dr. Terry Murphy