

HEALTH: BELL RINGING

BROBSON LUTZ, M.D. JANE SANDERS ILLUSTRATION

Adults who played high school football remember all their broken bone injuries as badges of honor. Closed head injuries rate less respect, though mothers remember best.

“My son Richard played football for Jesuit in the 1990s and as I remember had several concussions. Tell him his mother said it was okay to talk,” e-mailed Sally Edrington.



Her son Richard Edrington has fading memories of only one concussion: when Jesuit High School beat De La Salle in 1992. Edrington was lead blocker for the Jesuit Blue Jays. “I had a head-on-head collision, face mask to face mask, with a De La Salle player near the end of the game. We were both going 100 miles an hour. I blacked out but went back in for a field goal lineup. They say I was just wandering around on the field when I went back and I got pulled from the game. Dr. Liccardi, the team physician, checked me out later.

“The next day I didn’t remember what had happened or even that we had won the game. I was woozy for a few days and had a headache. I think I was out of practice for a few days but I don’t remember any treatment except for Dr. Liccardi telling me I would be alright,” says Edrington.

Now Edrington is helping to put the infrastructure of New Orleans back together again. He and three partners own Equipco, a locally owned and located dealership that rents and sells heavy equipment.

“Would I recommend football now? Of course. It taught me responsibility, got me off my ass and made me a better person. It is a good way to keep in shape and a good way to grow up.”

What about impaired learning? Did his academics suffer after the concussion? “No way,” Edrington adamantly replies laughing. “I was a C student before the concussion and a C student afterwards.”

Edrington suffered classic concussion symptoms – dizziness, lack of awareness of surroundings and a “blackout.” His inability to line up for the subsequent field goal and walking in the wrong direction reflected disorientation. Later classic symptoms of a concussion included his several day headache and inability to remember game details the next day.

Other common immediate features of a concussion according to the American Academy of Neurology are a vacant stare or befuddled facial expression, slurred or incoherent speech, a stumbling gait, repeatedly asking the same question, inability to memorize and recall three out of three words after five minutes and nausea, vomiting or both.

Late symptoms that can last for days to weeks include a persistent low-grade headache, light-headedness, poor attention and concentration, irritability and low frustration tolerance, intolerance of bright lights or loud noises, ringing in the ears and a more anxious or depressed mood.

There are several ways to grade concussions according to severity. One popular rating system defines a Grade 1 concussion as transient confusion without any loss of consciousness resolving in less than 15 minutes. Mental symptoms lasting longer than 15 minutes elevate it to a Grade 2. Any loss of consciousness is an automatic Grade 3.

By far, the most common head injury in high school football is a Grade 1 concussion. The player describes being “dinged” or having his “bell rung.” Any Grade 2 or 3 symptom or abnormality lasting more than one hour raises the bar as to seriousness. Any possible concussion calls for a standardized sideline evaluation (see top box).

Looking back and using current criteria, Edrington experienced the most severe – a Grade 3 concussion. He is fortunate that he didn’t get tackled a second time when he returned to the game (see bottom box).

Dr. Clifton Morris speaks of concussions from personal experience. He suffered a concussion along with a skull fracture at age 12 when he was thrown from a horse. He went on to play grade school football in Baton Rouge, graduated from medical school, specialized in pediatric cardiology and then switched careers to radiology. Years ago he volunteered as a team doctor. Now he has grandfather bragging rights.

“My grandson is a player at top-rated Union High School in Tulsa and is being watched by some college recruiters. He has had a couple

of mild concussions. Now he has a pneumatic helmet like the pros use. I think there should be wider use of these pneumatic helmets among high school players. They really help prevent concussions," says Morris, adding that at birth his football champion grandson weighed in at only two pounds and eight ounces.

Fortunately most concussions occur as isolated injuries but it's always possible that a more serious brain injury is lurking behind the symptoms of a concussion. Conditions causing serious brain bleeding and swelling include intracerebral hemorrhage, subarachnoid hemorrhage, cerebral contusions, skull fractures and subdural hematomas.

The American Journal of Sports Medicine recently published a review on head injuries among high school football players. Better headgear has decreased the number of catastrophic head injuries since the 1960s. Still, an "unacceptably high" number of high school players sustain and continue playing with minor brain injuries that make them more susceptible to permanent injuries.

This study compared traumatic head injuries between high school and college football players. The conclusion – high school athletes are three times more likely to sustain a significant head injury than college players.

Most experts believe that the younger brain is more susceptible to blunt force injury. The skull protecting the brain may be thinner in a teenager. There may be less expert medical care available on the immediate sidelines to identify injuries in players who should be pulled from subsequent game play. Younger bruised brains may be more susceptible to repetitive trauma. Serious head injuries among high school players are often caused by multiple small injuries rather than by one big blow.

Sideline evaluation for football head injuries

Most high school head injuries occur during a game and not during practice. Tackling is the activity associated with the highest rate of head and spine injuries.

A concussion is defined as an immediate but transient post-traumatic neurologic impairment such as altered consciousness and/or disturbance of vision or equilibrium. There does not have to be a loss of consciousness, only an alteration of awareness of the environment.

Orientation – Refers to person, time, place and situation. Ask the player to describe the circumstances of the injury.

Concentration – Ask the player to repeat four digits such as 8-3-1-7 in reverse order.

Memory recall – Ask names of teams in prior contests. Give the player three objects to remember and then ask for them five minutes later

External provocative tests – Have the player run a 40-yard sprint or do push-ups to see if any abnormal symptom such as headache, dizziness, blurred vision or unsteady gait reoccurs.

Brief neurological exam – Check pupil responses, finger to nose testing with eyes closed, tandem gait testing

Worrisome signs of serious head injury – Prolonged unconsciousness, persistent mental status alterations, abnormalities on the neurological examination

Source: Dr. Joseph Nadell, Neurosurgery, Children's Hospital in New Orleans

Second impact syndrome

Second impact syndrome occurs when an initial head injury is followed by a second, often trivial tackle before resolution of the first. The second impact syndrome is thought to be due to loss of autoregulation of blood flow to the brain.

The initial brain injury temporarily disturbs the mechanism that controls blood flow into the brain. A sudden second injury then sends a surge of blood into the brain which cannot function properly under the increased pressure.

After the second injury, the player typically remains conscious but may appear dazed, as if suffering from a Grade 1 concussion. Within seconds to minutes, the player collapses and becomes rapidly comatose. In a matter of minutes, brain stem signs such as dilated pupils, posturing and respiratory arrest appear. The player can rapidly progress to a moribund state or death.

A player with any kind of lingering neurological symptom should stay out of the game until the symptom clears. A proper medical evaluation is mandatory.

Source: DeLee and Drez's Orthopaedic Sports Medicine, 2nd edition.