Concussion

Concussion is probably the most feared injury for an athlete and their parent. A concussion is defined as a traumatic blow to the head or neck causing temporary brain dysfunction. This injury will require a variable recovery depending on the severity of the injury. The incidence is as high as 10% of athletes in any given season. The rates are higher for football but soccer is not far behind. The symptoms of concussion are not always definite and the appropriate time to return to play are not always clear.

Concussions in soccer usually occur due to contact with another player's head, getting hit unexpectedly in the head by the ball, hitting the goal posts or the ground. Modern studies do not show a direct link with correctly heading the ball and concussions. Proper technique involves tightening the neck muscles and thrusting the torso and head together towards the ball striking it on the forehead near the hairline. The younger players are not able to kick the ball with enough force to cause a concussion. The older players are heading balls that are not struck at full force from close range. Even the punted ball from the goalie is not traveling at a velocity great enough to cause a concussion when headed properly. The ball driven hard by a player that inadvertently strikes another player at close range dose pose a risk for concussion since that player is not able to stabilize their neck muscles to protect themselves and they may be hit on the side or back of the head.

The Center for Disease Control in conjunction with the University of Pittsburgh Sports Medicine Sports Concussion program has developed a Program to help identify concussions and assist with safe return to play. Symptoms of a concussion reported by the athlete include but are not limited to: headache, nausea, dizziness, visual disturbances, light sensitivity, change in sleep pattern and concentration or memory problems. Coaches and parents may notice: a stunned appearance, confusion about assignments, forgetting certain plays, not recalling game score or opponent, moving clumsily, answering questions slowly, loss of consciousness, personality changes and amnesia of events prior to or after the event. On field identification of a mild concussion requires close attention to these traits. The symptoms of the acute concussion are worrisome enough, but the true danger is in the long term damage from a single concussion or the long term affects of multiple concussions. Several high profile professional athletes have had their careers end due to this. There is also a very concerning but thankfully rare condition called second concussion syndrome. This is seen about once a year often in high school football players that return too soon after a concussion and get a second concussion that leads to rapid brain swelling and death. Again this is very rare, but it is what drives us to be extremely conservative in our management of concussions.

There are actually several different classification systems for concussion severity, but they generally have similar delineations into three different grades. The guidelines by Robert Cantu MD have been my preference for over 10 years. (see attachment) The grade and number of concussions help determine potential return to play. It should be noted that these are guidelines and should be used by physicians on an individual basis for each injury.

The program developed by the CDC was adapted from the work of Mark Lovell PhD, a neuropsychologist from the University of Pittsburgh. He has been a leader in the field of head injuries and athletes. His group has also developed a program called ImPACT which is a computerized analysis to help clinicians determine if the athlete's brain function has recovered from the injury. They have performed extensive research using this program. Athletes take a 20 minute computer test before the season to determine a baseline of neurocognitive function. If an injury occurs, the test is repeated sequentially until function returns to baseline. Radiologic scanning will not pick up the subtle neurologic changes that this program can. It is being used by US Soccer, NFL, NBA, MLB, Indy Racing and numerous individual teams. This test provides an objective measure for clinicians and has been studied in young athletes but not children to this point. It would be difficult to measure a baseline on a child whose brain is constantly developing, project their development and then try to determine when their function has returned to a baseline that may no longer appropriate for them.

Active involvement with your child's physician in the evaluation and recovery phase will help your child to have the best opportunity for full recovery. Education of coaches and parents about the signs and symptoms of concussion and proper heading technique can help limit the long term consequences of this serious injury.

Heads Up!