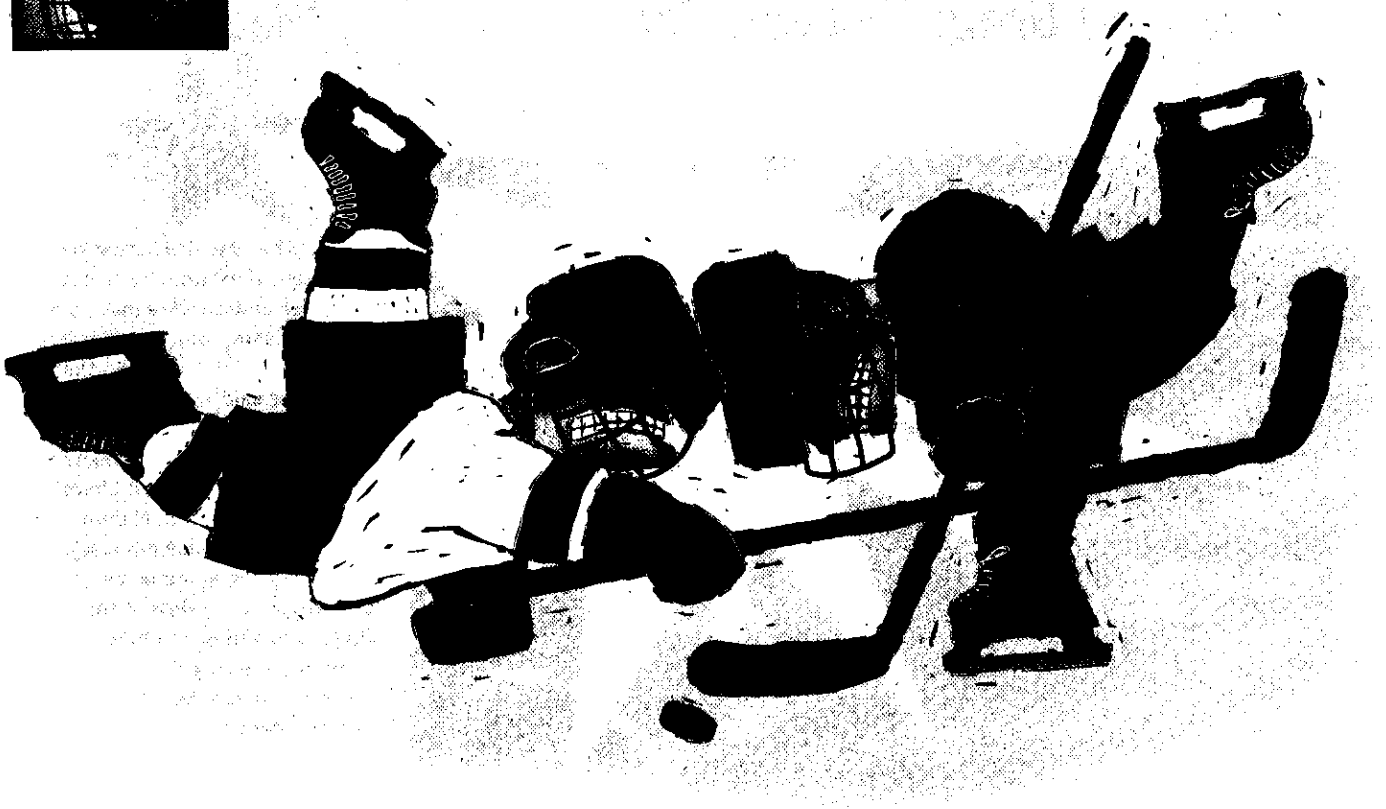
Understanding Concussions

By Dr. Michael Stuart • Illustrations by Krik Lyttle



The toughness of hockey players is legendary. Gordie Howe received almost as many stitches as he scored goals in his Hall of Fame career. Toronto Maple Leafs defenseman Bob Baun played the end of Game 6 and all of Game 7 of the 1964 Stanley Cup finals with a broken ankle.

But when it comes to concussions, there is no badge of honor to play through the pain and haze that comes with an injury to the head.

Concussions in hockey are not new. What is new is the attention that is finally being paid to the seriousness of them. When a high-profile athlete like Pat LaFontaine retires in the prime of his career from the effects of a concussion, fans, players, coaches and parents are finally taking notice.

From Peewees to the pros, concussions are a serious issue, and are now being dealt with in a serious manner at all levels of the game.

- Loss of consciousness
- Altered mental status
- Poor coordination
- Slow to answer
- Poor concentration
- Nausea or vomiting
- Vacant stare
- Slurred speech
- Personality changes
- Inappropriate emotions (laughing, crying)
- Abnormal behavior

What Is A Concussion?

A concussion is an injury to the brain that typically results in the rapid onset of neurological impairment. A concussion is caused by a direct blow to the head, face, neck or elsewhere on the body. The blow causes a concussion by transmitting an impulsive force to the head.

While concussions in sports are nothing new, how we deal with them has changed. No longer do we use terms like "getting your bell rung" or "seeing stars." In fact, one of the most important things we've learned is that an athlete may suffer a severe brain injury without getting "knocked out."

Whether you're a coach or a parent, it's important to understand the signs (above) and symptoms (facing page) of a concussion and look for them whenever a player suffers a blow to the upper body or head.

'When in doubt, sit them out'

While it may seem rash to pull a star player from a big game because he or she may have suffered a concussion, think of the alternative.

A second blow to the head can be serious, since repeated concussions can cause cumulative damage, and the severity increases with each incident. After an initial concussion, the chance of a second concussion is four times greater, and symptoms can be much more severe.

The severity of a concussion can't be determined until all symptoms have resolved. That's why it's important to have the athlete checked out by a doctor.

Getting Back In The Game

The evaluation of an athlete with a suspected concussion should be prompt and thorough. The course of treatment depends on the patient's age, concussion history, symptoms, signs and type of sport. It is recommended that all concussed athletes be cleared for return to play by a doctor.

According to the Summary and Agreement Statement of the First International Conference on Concussion in Sport, Vienna, Austria in 2001, certain guidelines were established in regards to when to let a player who suffered a concussion to return to action, whether it's practice or a game.

Concussion In Sport Group Protocol

When a player shows ANY symptoms or signs of a concussion, he or she should not be allowed to return to play in the current game or practice. The player should be medically evaluated and should not be left alone. His or her return to play must follow a medically supervised stepwise process.

- Unaware of situation
- Confusion (slow to answer or follow directions)
- Amnesia
- Headache
- Dizziness
- Nausea
- Poor coordination
- Loss of balance
- Flashing lights
- Ear ringing
- Double vision
- Slurred speech
- Sleepiness
- Inappropriate playing behavior or decrease playing ability
- Feeling dazed

The most important thing a coach or parent should remember is that any player experiencing symptoms or displaying signs of a concussion should not return to the practice or game.

Return To Play Protocol

Return to play after a concussion follows a stepwise process. The brain injury needs to heal and a concussion rehabilitation program promotes recovery as well as safe return to play. The player should proceed to the next level if free of symptoms at the current level. If any symptoms or signs occur, drop back to the previous level and progress to the next level again after 24 hours.

1. No activity, complete rest.
2. Light aerobic activity; exercise such a walking or stationary cycling.
3. Sports specific training – skating.
4. Non-contact training drills.
5. Full-contact training after medical clearance
6. Return to competition

The athlete can't resume playing until all their symptoms have resolved and their examination by a doctor is normal. Some coaches or parents may think that return to play guidelines may seem too severe. It's hard to keep your son or daughter in the stands when you've spent a great deal of money for them to play hockey, but consider the risks. As a hockey doctor and the father of four hockey players, I know that it's always better to be safe than sorry. ✪

Dr. Michael Stuart is the chief medical officer for USA Hockey and a professor of orthopedics and coordinator of sports medicine at the Mayo Clinic in Rochester, Minn.

*In the November issue we will look at ways to prevent a concussion.

BELL RINGER OR BRAIN DIM

By Kim Tinkham

TWO PLAYERS CHASE AFTER THE PUCK near center ice, reaching it at the same time with equal force. They both topple to the ice. One player bounces right up while the other stays down on the ice.

The coach is called out and makes his way across the ice to the player who is now flat on his back, eyes wide open and ... snoring.

"Adam," the coach calls the player's name. "Adam," still no reaction. Twenty-five seconds pass and Adam's snoring becomes regular breathing. The coach thinks to himself that his player is sleeping.

Adam slowly closes his eyes. After lying on the ice for close to two minutes, he opens his eyes and answers the coach with, "What?" as if nothing ever happened.

Adam is demonstrating the classic symptoms of a concussion. Many people in the sports world refer to them as 'getting your bell rung.' It used to elicit chuckles as coaches would tell a player to take a shift off, have a drink of water and get ready to hit the ice again.

With the increased research being done regarding concussions, it should now be recognized as a much more serious injury. Players, parents, coaches and trainers need to realize that a concussion, no matter how seemingly harmless the impact, can lead to long-term disability if not managed with caution.

USA Hockey's Safety and Protective Equipment Committee, working with the Coaching Education Program, is devoted to making hockey as safe as possible. That's why coaching clinics and manuals work with coaches at every level to discuss what to do when a player gets his or her "bell rung." The first step is diagnosing a concussion.

A concussion is an injury to the brain caused by a blow to the head that results in temporary loss of normal brain function. It can range in severity from dizziness to loss of consciousness. Signs of a concussion include varying levels of consciousness, problems with balance, memory loss, a lack of concentration, ringing in the ears, nausea and headaches.

In layman's terms it would be similar to pressing the reset button on a computer and waiting for it to reboot. You are taking the chance that what you haven't saved on your hard drive will not be there the next time you go to look for it.

With the recent publicity of well-known athletes suffering from recurrent concussions, the awareness of sports-related concussions has increased.

The First International Conference on Concussion in Sport issued a *Summary and Agreement Statement* that included the following key recommendations when a player shows ANY symptoms or signs of a concussion:

- The player should not be allowed to return to play in the current game or practice.
- The player should not be left alone; and regular monitoring for deterioration is essential.
- The player should be medically evaluated after the injury.
- Return to play must follow a medically supervised stepwise process.
- A player should never return to play when symptomatic. "When in doubt, sit them out!"

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HOW DO YOU PREVENT A CONCUSSION?

For many years parents have been told that having their players wear helmets and use mouth guards will prevent concussions.

According to Dr. Alan Ashare, chairman of USA Hockey Safety and Protective Equipment Committee, and the president of the Hockey Equipment Certification Council, wearing the right helmet and a mouth guard will not prevent a concussion. It will, however, certainly help to decrease the risk for a concussion. Ashare recommends the following to help decrease the risk for concussions:

WEAR A HECC CERTIFIED HELMET.

The helmet should be tight-fitting. If you can hold onto the helmet and still move your head around inside the helmet, the helmet is too loose.

The helmet should be kept on the player's head by the neck strap (in addition to the straps holding the facemask in place).

HECC certification lasts for five years but Ashare feels that a helmet should be replaced every two years depending upon the use it gets, and immediately if it sustains a crack. A facemask should be replaced if it bends.

MIKE CURTI

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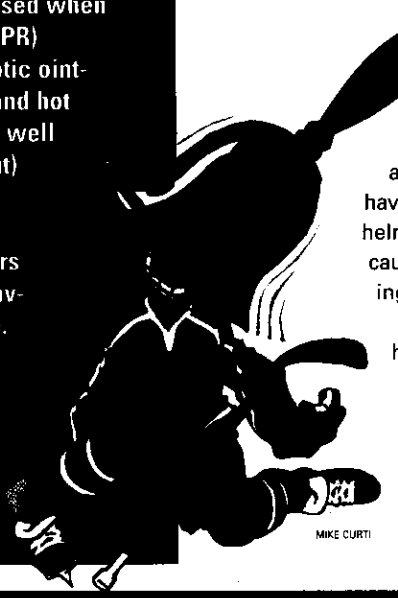
A well-stocked first aid kit does not have to be large, but it should contain a few basic items. The following checklist is a guide for youth hockey teams. Coaches or team managers should add to the kit based on experience or local policies.

- 20 Band-Aids
- 1-2 Rolls of Plastic Tape
- 2-4 Sterile Gauze Pads
- 3-4 Small Ziplock Bags (To be used as Ice Packs)
- 1-2 Chemical Ice Packs
- 2 or more pairs of Latex Gloves
- 2 or more alcohol wipes or disinfectant wipes
- List of emergency telephone numbers for parents of players
- List of supplies contained in the kit
- Scissors
- Mouth-to-mouth breathing device (used when performing CPR)
- Triple antibiotic ointment (Soap and hot water works well to clean a cut)
- Oral Airway (for unconscious players or players having a seizure.
- Tooth saver kit.



MIKE CURTI

WEAR A FORM-FITTED MOUTH GUARD.

This should be fitted by a dentist. Ashare doesn't recommend the boil-and-bite type of mouth guards; they are too loose. A player has to keep his or her mouth closed to keep it in place.

Bimolar mouth guards do not come form-fitted and they make breathing a little difficult. There are two types of form-fitted: laminated and molded. The laminated might have some advantages over the molded. Mouth guards do not have to be attached to the helmet or facemask. Form-fitted mouth guards usually do not come out of the mouth easily, and it is very easy to talk with these form-fitted mouth guards in place.

Ashare also warns that it has been shown that a blow to the side of the head is four times more likely to produce a concussion than a blow to the front or back of the head. This is probably because it causes some rotation of the brain within the skull.

There are exciting advancements in materials and design of helmets. One such design is to have the outer shell of the helmet rotate on the inner helmet material. In that way, an impact that would cause the head to rotate would produce less rotating force.

Ashare offers up one last word of advice: Play heads up hockey. Your helmet can't protect you from everything. ✪

Kim Tinkham is a freelance writer in Boyd, Texas.

If you can hold onto the helmet and still move your head around inside the helmet, the helmet is too loose.

The best form of prevention is to

regarding concussions. Visit the following organizations' Web sites for more information for the prevention and treatment of sports injuries:

The evaluation of an athlete with a suspected concussion should be prompt and thorough. Treatment is individualized according to patient age, concussion history, symptoms, signs and type of sport

- unaware of situation
- confusion
- amnesia
- loss of consciousness
- headache
- dizziness
- nausea
- loss of balance
- flashing lights
- ear ringing
- blurred or double vision
- sleepiness
- feeling dazed
- loss of consciousness
- altered mental status
- poor coordination
- slow to answer
- poor concentration
- nausea or vomiting
- vacant stare
- slurred speech
- personality changes
- inappropriate emotions
- abnormal behavior
- Proceed to the next level if free of symptoms

at the current level

- If any symptoms or signs occur, drop back to the previous level and progress to the next level again after 24 hours

1. No activity, complete rest
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4. Non-contact training drills.
5. Full-contact training after clearance by a sports medicine professional
6. Return to competition