

Pashby Sports Safety Fund Concussion Site

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Risky Sports

Everyone knows that football, hockey, soccer and boxing can cause concussion. Other sports can too! Even when you are practicing recreational activities you need to be aware of the risk of receiving a concussion. Sports listed below are ones at high risk for concussion:

RISKY SPORTS	
Football	Horseback riding

Rugby
Boxing
Ice hockey
Gymnastics
Wrestling
Soccer
Motor racing
Equestrian
Martial arts

Cycling
Alpine skiing
Diving
Snowboarding



80% of professional boxers get a concussion

20% of high school players experience a concussion in a given season



17% of all horseback riding injuries are concussion

17% of professional's injuries and **15%** of amateurs' injuries are concussion





10% of hockey players suffer a concussion

5% of soccer players receive a concussion



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Concussion

A concussion is any direct or indirect hit to the head that can cause a change in behavior, awareness, and/or physical feeling.

Direct Blow

By a stick, puck, ball hitting the head. When you fall and your head hit the ground, ice, board...

[Click here](#) for a video example of a direct blow.

Indirect Blow

Like a quickly moving player hitting an immovable object like boards, goal post or another player. This forces the players to stop or change direction suddenly which makes their brain crash into their skull.

[Click here](#) for a video example of an indirect blow.

YOU DON'T NEED TO BE KNOCKED OUT TO HAVE A CONCUSSION.

Which changes will you or someone else notice in your behavior?

- Inappropriate playing behavior (skating the wrong direction, shooting on own net)
- Significantly decreased playing ability from earlier in the game
- Being slow to answer questions or follow directions
- Being easily distracted
- Being unable to do normal activities
- Displaying unusual emotions (crying/laughing)
- Changes in personality
- Irritability and low frustration tolerance
- Anxiety and depressed mood
- Sleep disturbance

What will tell you that you or someone else are unaware?

- Being unaware of time
- Being unaware of date
- Being unaware of place
- Being unaware of the period or score in the game
- Being generally confused

How will you feel?

- Being dazed, dinged or stunned
- Having your bell rung
- Having a blank stare
- Feeling dizzy
- Seeing stars or flashing lights
- Having ringing in the ears
- Having a headache
- Feeling sick or throwing up
- Noticing blurred vision
- Not seeing everything well
- Having poor coordination or balance
- Having slurred speech

THE PRESENCE OF ANY OF THESE SYMPTOMS CAN BE A SIGN THAT YOU ARE HAVING A CONCUSSION. YOU SHOULD SIT DOWN RIGHT AWAY, TALK TO YOUR COACH AND BE EVALUATED BY A DOCTOR. YOU MUST NOT CONTINUE TO PLAY.

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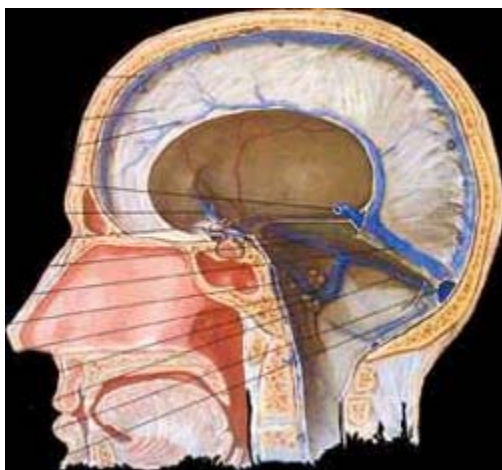
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Impact

How does it happen?

You don't necessarily need to hit your head against the ground, the ice, the board, or to get hit by a stick, a puck, an elbow... to get a [concussion](#). A quickly moving player that hits another player and causes a sudden change in direction may produce a rapid back and forth movement of the head and neck.



This back and forth movement causes extra force between the brain and its surrounding attachments.

[Click here](#) to see the impact on the brain.

Those forces not absorbed are transmitted to the brain. From this concussion injury, brain cells become abnormal and don't function properly. Sometimes the player may get knocked out but most of the time the main problems are headaches, dizziness, fatigue and memory problems. These are called post concussion symptoms.

SECOND IMPACT SYNDROME

A second direct or indirect impact to the injured brain (when post concussion symptoms still present) can cause dangerous change in the brain's blood supply. This leads to a rapid brain swelling that can cause rapid coma and death. The only way to prevent this catastrophic event is to **NEVER GO BACK TO PLAY BEFORE ALL [SYMPTOMS FROM A CONCUSSIVE INJURY ARE COMPLETELY GONE!](#)**

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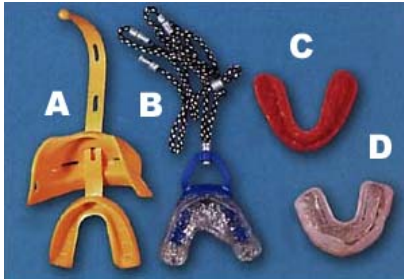
EQUIPMENT



Hockey

- Need to be certified by CSA
- Sits just above your eyebrows (2-3 cm)
- Tight enough to stay still
- Chinstrap fastened only one finger should move easily between the strap and chin
- CHECK REGULARLY FOR CRACKS AND CHIPS. If there are any, stop using this helmet
- Check liners regularly. Sweat, hairspray, gel, etc. will deteriorate liners. If you play and practice several times a week at a competitive level, you may have to change your helmet yearly even if the outside looks good.
- MOST IMPORTANT, NO HEAD CHECKING

	<p>Football</p>	 <ul style="list-style-type: none"> • Need to be approved by NOCSAE • Anterior rim should be 1-2 finger widths above the eye brows. • Air cells has to be inflated • You should feel an even pressure on the top of the head when pressure is applied to the top of the helmet. <ul style="list-style-type: none"> • Posterior rim of the helmet should cover the occipital bone, but not pinch the neck when the neck is extended • No gap should be between the forehead and anterior rim when there is pressure on the back of the helmet and you hold your head still. • Chin strap should fit tightly with equal tension on both sides. • Regular inspection of the helmet to ensure that it does not have any cracks in the hard outer shell or soft inner padding. If there is any, stop using this helmet.
 <p>Mouthguards</p>	<p>We do not yet know if mouthguards prevent concussions. Some people think they may act as a shock absorber if you get hit upwards into the lower jaw. Because most concussions don't occur that way, we need much more research before we know the true answer. Whether mouthguards are eventually shown to prevent concussion or not, they are very important to wear because they protect your teeth, mouth, lips, cheeks, gums, tongue and jaw.</p> <ul style="list-style-type: none"> • Should cover all of the teeth, including the molars • Children aged 6-14 should have their mouthguards checked approximately every 3 months. • Athletes younger than 16 years should replace their mouthguard annually • Adults should replace their mouthguard approximately every 2 years because mouthguards lose their resiliency and flexibility over time. 	



4 types of mouthguards are commonly available:

A. Stock (already made): inexpensive, but do not offer as good a fit and comfort for breathing and speaking as other types. They offer the least protection.

B. Mouth-formed (boil and bite): relatively inexpensive. Molded in the mouth after being softened in boiling water. They come in limited sizes and with little attempt at proper fit.

C. Custom formed: made by a dentist from a model of athlete's mouth using a vacuum machine. Until recently, believed to be the best type of mouthguard available. Over time they can change and become loose, thinning and perforating. There is no way to insure proper thickness.

D. Pressure laminated custom made: made on a model from several layers of mouthguard material in a special heat/pressure lamination machine. Due to the method of production the material maintains its fit and protective thickness over prolonged periods of time.

TRAINING

<p>Neck:</p>	<ul style="list-style-type: none"> • Good baseline neck strength • Ability to tense neck muscle • Both reduce the potential for serious injury by absorption or dissipation of these forces
<p>Technique:</p>	<ul style="list-style-type: none"> • How to body check and protect from a body check in hockey • How to block, and tackle in football • How to head the ball in soccer • ALWAYS TALK TO YOUR COACH TO LEARN PROPER TECHNIQUE <p>Click here for some comments on technique by Martin Raymond, McGill Head Hockey Coach.</p>

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Does your friend have a concussion?

Sometimes signs are hard to pick up, but that does not mean there is no danger.

ALWAYS MAINTAIN A HIGH INDEX OF SUSPICION.

Everyone has to be aware that players suffering a concussion, for the purpose of continuing competition, can minimize and/or deny symptoms. A working knowledge of the athlete's personality, a high index of suspicion and an early detection of signs and symptoms of concussion are the best way to prevent additional concussive injury, long term damage to the brain or catastrophic outcome.

STEP 1

Look at the facial expression of the player.

- Vacant stare, befuddled facial expression?

STEP 2

Check his behavior.

- Playing inappropriately?
- Easily distracted?
- Unusual emotional reactions (crying/laughing/irritable)?

STEP 3

Test orientation and memory

- Which quarter/period is it?
- How far into the quarter/period is it?
- Which field/arena are we at?
- Which team are we playing?
- Which side scored the last goal?
- Which team did we play last week?
- Did we win last week?

STEP 4

Look for post traumatic amnesia (length of time after trauma during which a person is unable to memorize ongoing events)

- How did you get injured?
- What is the first thing that you recall after you got hit?
- What is the last thing that you remember before you got hit?

STEP 5

Check for any post concussion symptoms:

- Blurred vision
- Fatigue
- Ringing in the ears
- Trouble falling asleep
- Dizziness
- Sleeping more/less than usual
- Headache
- Sensitivity to light/noise
- Nausea/vomiting
- Feeling more emotional
- Poor coordination or balance
- Difficulty concentrating
- Irritability
- Difficulty remembering

STEP 6

If you detect any of the symptoms listed above on you or your friend/son/daughter, you should **not let this person go back to play**. This player should be removed from the game, sit down and have been evaluated by a physician. **SERIAL ASSESSMENT is very important**, post concussion symptoms may take a few minutes to show.

NO ATHLETE SHOULD BE RETURNED TO PLAY UNTIL A DOCTOR HAS CLEARED HIM OR HER, BEING COMPLETELY ASYMPTOMATIC, BOTH AT REST AND WITH EXERTION.

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Severity

How severe is a concussion?

Many classifications of severity of concussion exist. There is no agreement on one grading systems, but specific symptoms need to be evaluated to be able to decide if it is a grade 1, grade 2 or grade 3 concussion. These symptoms are Loss of Consciousness (LOC), [Post Traumatic Amnesia](#) (PTA) and [Post Concussion Symptoms](#) (PCS) and can occur for different times and in different combinations. The grade of concussion means the presence or absence of any symptoms, and their severity at the time of the concussion and on serial evaluation. It does not mean a faster or slower time to return to play. Someone who had previous concussions may take more time to return to play even if the actual concussion is grade as a mild one.

ALL GRADES OF CONCUSSION SHOULD BE EVALUATED BY A MEDICAL DOCTOR BEFORE LETTING A PLAYER GO BACK TO PLAY.

WHATEVER THE GRADE OF CONCUSSION, NO PLAYER SHOULD GO BACK TO PLAY BEFORE BEING SYMPTOM FREE AT REST AND ON EXERTION.

ALWAYS REMEMBER THIS: ANY CONCUSSION HAS THE POTENTIAL TO BE A SERIOUS INJURY. GET IT CHECKED OUT!

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When can I go back to play?

Any concussed athlete should be removed from competition, examined and observed. Repeated assessment is very important, the athlete should not be left alone. Any player with post concussion symptoms needs a medical evaluation. Return to play must follow a gradual process, monitored by a medical doctor.

**A PLAYER SHOULD NEVER RETURN TO PLAY WHILE SYMPTOMATIC!
"WHEN IN DOUBT, SIT THEM OUT!"**

STEP 1

No activity, complete rest. Once **ASYMPTOMATIC**, proceed to step 2. CONTINUE TO PROCEED to the next step **IF ASYMPTOMATIC**. If symptoms occur, drop back to a step where there are no symptoms, and try to progress again.

STEP 2

Light exercise off of the game field (stationary bike, walk...)

STEP 3

Sport specific activity without body contact (light running, skating...)

STEP 4

On field practice without body contact.

STEP 5

On field practice with body contact, once cleared to do so by a medical doctor. The time required to progress from full noncontact exercise to contact will vary with the severity of the concussion.

STEP 6

Return to competition.

REMEMBER: if you play or practice too soon, you may have to sit out even longer.

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Dr. Suzanne Leclerc, Dr. Ian Shrier and Dr. Karen Johnston want to welcome you to the Pashby Sports Safety Fund Concussion site.

Suzanne Leclerc, M.D., is a sport medicine physician at McGill University and currently a PhD student studying concussions. She is a member of the McGill Concussion Research Group and participates in the Canadian Academy of Sport Medicine Concussion Committee. She is team doctor for the McGill University Varsity hockey teams.

Ian Shrier, M.D., PhD, is a sport medicine physician and currently participates in a wide variety of Epidemiological research on the effects of exercise. He is also the Treasurer and the Webmaster for the Canadian Academy of Sport Medicine.

Karen Johnston, M.D., PhD, is the principal investigator of the McGill Concussion Research Group in Montreal and Chairperson of the Canadian Academy of Sport Medicine Concussion Committee. She is a neurosurgeon recognized for her major research and clinical involvement in the concussion field.

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