

An Active & Safe Program Resource

Putting concussion prevention and management tools in the hands of the participants

Concussion 101

Concussion 101 contains basic information about concussion to help you lead a conversation within your club or with your team.

Download related resources at www.cces.ca/activeandsafe.

Go For
It

Play
Fair

Respect
Others

Keep It
Fun

Stay
Healthy

Include
Everyone

Give
Back



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Concussion 101

If you are taking part in the Active & Safe Initiative, you have a genuine interest in the safety of your athletes. Congratulations! You are taking the right steps to creating a safer sport environment. To help get you started, here is the basic information about concussion that you need to know to lead a conversation within your club or with your team.

What is a concussion?

Concussion is a brain injury. In medical terms, concussion is a mild traumatic brain injury caused by excessive, rapid movement of the brain inside the skull. This movement causes damage that changes how brain cells function, causing various signs and symptoms. Concussions cannot be seen in an x-ray or scan and are often referred to as the “invisible injury” because we can’t see the injury itself, like when someone breaks a leg or arm. When it comes to concussion, we often have to rely on the injured person to tell us how they are feeling because we can’t see it for ourselves.

What actually happens?

When a person suffers a concussion, the brain suddenly shifts or shakes inside the skull and can knock against the skull's bony surface. It is not yet known exactly what happens to brain cells in a concussion, but the mechanism appears to involve a change in chemical function. In the minutes or days following a concussion, brain cells remain in a vulnerable state. New research emphasizes that the problem may not be the structure of the brain tissue itself, but how the brain is working. The exact length of this change is unclear. During this time period, the brain does not function normally on a temporary basis, and is more vulnerable to a second injury.

How do concussions occur?

Most concussions occur as a result of a collision with another object while the object or person is moving at a high rate of speed. However it must be noted that a concussion can occur from an indirect blow to the head, such as whiplash; there doesn't always have to be direct contact to the head itself.

Now that we have a basic understanding of what a concussion is and how it happens, read to learn about what to look for when a concussion is suspected, and what can be done to minimize the occurrence and severity of these injuries.

See the infographic at www.ccs.ca/activeandsafe.

How a Concussion Occurs
Click the tabs below to see actions that can lead to a concussion.

Direct Impact to Head | Impact to Head from Body Blow | Direct Impact Due to Fall | Indirect Impact

THE ACTION
Sudden impact to the head causes the head to snap forward, back or to the side. Possible causes: impact to the head by another player or sports equipment (ball, stick, protective equipment etc.).

THE RESULT
When the head snaps, the momentum causes movement of the brain within the skull leading to an alteration of brain function, causing concussion signs and symptoms.

Concussion Signs and Symptoms

Symptoms

- Headache
- Dizziness, Confusion, disorientation
- Feeling dazed/Seeing stars
- Sensitivity to light
- Ringing in ears
- Tiredness
- Nausea, vomiting
- Irritability

Signs

- Poor balance or coordination
- Slow or slurred speech
- Poor concentration
- Delayed responses to questions
- Vacant stare
- Decreased playing ability
- Unusual emotions, personality change, and inappropriate behavior

It's important to remember two things:

- Signs and symptoms may be delayed and may only appear hours, days or even a week after the injury.
- Every person will have a different combination of signs and symptoms and some may only have one. ONE sign or symptom can constitute a concussion.

Prevention Tips

Wear the right helmet for the activity. A bike helmet will not properly protect you when skating or playing hockey while a hockey helmet will not properly protect you when skiing or snowboarding. Each one is made specifically for the activity.

Make sure your helmet fits properly and the strap is fastened. Although there is currently no such thing as a concussion-proof helmet, a helmet will protect your head from serious injury.

- Respect the rules and play fair
- No hits to the head.
- No hits from behind.
- No fighting.
- Do not attempt to injure anyone on purpose.
- Respect your brain!
- Don't hide symptoms.
- Respect the decision of your coaches, parents and medical professionals.
- When in doubt, sit it out! until you can be diagnosed by a medical professional. A second injury can cause the symptoms to worsen and a longer recovery. This is called Second Impact Syndrome.
- Ensure the playing surface and equipment is safe.
- Avoid unsafe activities.
- Educate others about concussion prevention.

Action Steps

If there is a suspected occurrence of concussion:

- Remove the player from the current game or practice – **WHEN IN DOUBT, SIT THEM OUT!**
- Do not leave the player alone; monitor signs and symptoms.
- Do not administer medication.
- Inform the coach, parent or guardian about the injury.
- The player should be evaluated by a medical doctor.
- The player must not return to play in that game or practice.

Six-Step Return-to-Play Protocol:

1. No activity, only complete rest. Proceed to step 2 only when symptoms are gone.
2. Light aerobic exercise. Monitor for symptoms and signs. No resistance training or weight lifting.
3. Sport specific activities and training (e.g. skating).
4. Drills without body contact. May add light resistance training and progress to heavier weights.
The time needed to progress from non-contact to contact exercise will vary.
5. Begin drills with body contact.
6. Game play.

Remember:

Everyone will progress through each step at their own pace. There must be at least 24 hours between each step so a person with a concussion will be unable to return to play for at least one week.

You must be symptom-free for 24 hours without medication to mask symptoms to move to next step.

If symptoms reoccur, return to prior step for at least 24 hours or until you are symptom-free again.

Return to play only when you do not experience any symptoms and signs, and when a doctor or nurse practitioner has given you the go ahead.

Never return to play if symptoms persist!

About the Active & Safe Program

The Active & Safe program provides resources to reduce the incidence and severity of concussion, while creating the conditions for active and safer play throughout the Canadian sport system.

The project targets coaches, trainers, educators, health professionals, community leaders, parents and athletes. Our combined efforts will contribute to building capacity, engaging communities and their citizens, as well as educating and training those who deliver sport through activities that focus on concussion prevention and treatment. The partners are:

Hockey Canada	www.hockeycanada.ca/apps
Parachute Canada	www.parachute.org/activeandsafe
Canadian Centre for Ethics in Sport	www.cces.ca/activeandsafe
Coaching Association of Canada	www.coach.ca

Funding for this project has been made possible through a contribution from the Public Health Agency of Canada. The views expressed herein do not necessarily represent the views of the Public Health Agency of Canada.