

Common causes of concussion and how to prevent them

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About Parachute

Parachute is Canada's national charity dedicated to injury prevention.

We envision a Canada free of serious injuries, with Canadians living long lives to the fullest.

Levels of injury prevention

Primary Prevention

Preventing the incident or injury from happening.

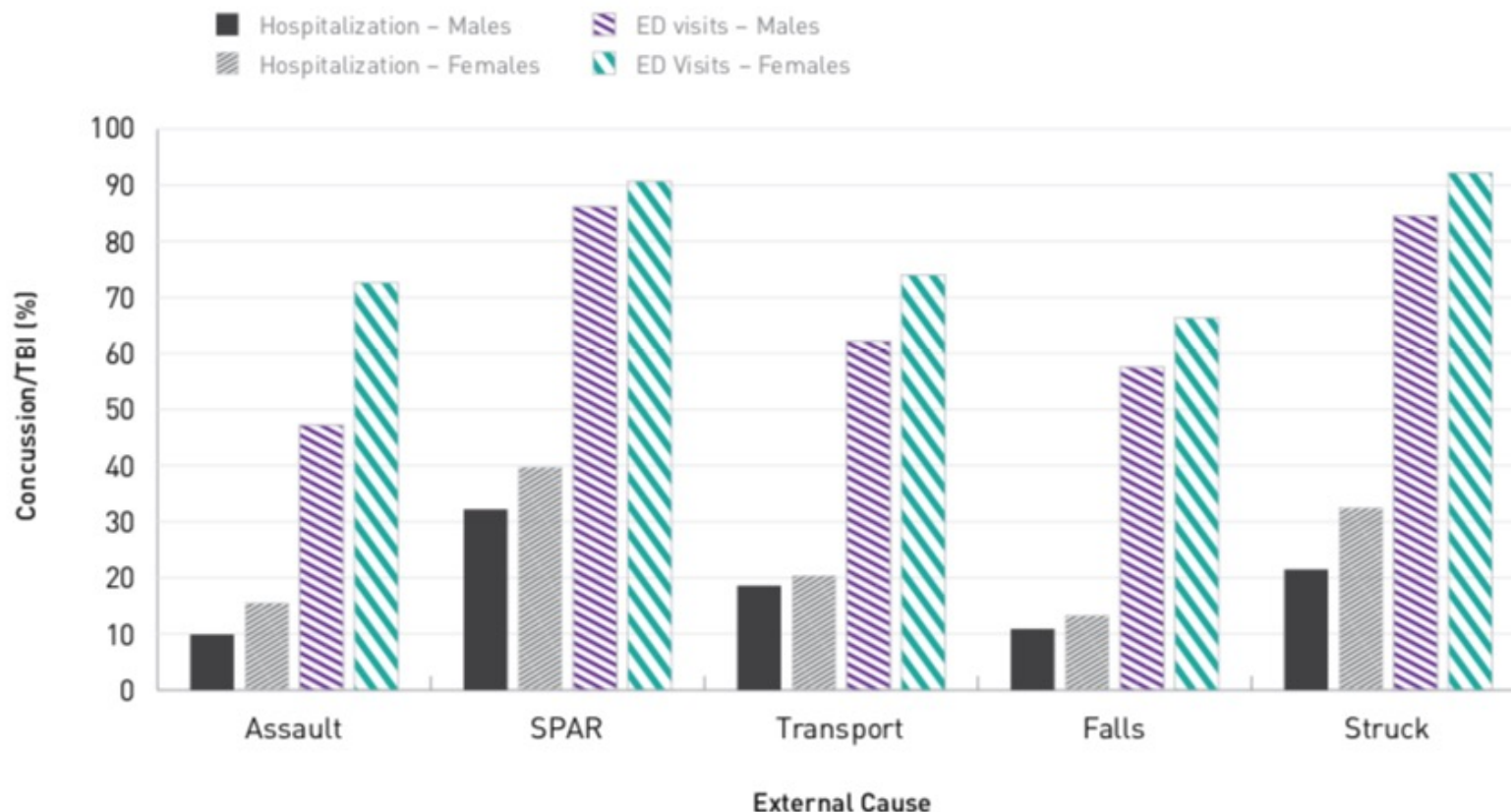
Secondary & Tertiary Prevention

Reducing the severity of the injury.

Improving the outcome of the injury (e.g., care, recovery).









Concussions are the most common TBI

Percentage of concussions among all traumatic brain injuries, by cause



Source: Public Health Agency of Canada, 2020. Data source: Hospitalizations: HMDB/DAD, 2006/07-2017/18; ED visits: NACRS, 2002/03-2017/18

Leading causes of concussion

	ED visits	Hospitalizations	
	Sport and recreation	Falls	
	Falls	Sport and recreation	
	Struck by	Transport	
	Transport	Assault	

Source: Public Health Agency of Canada, 2020.

Data source: Hospitalizations: HMDB/DAD, 2006/07-2017/18; ED visits: NACRS, 2002/03-2017/18

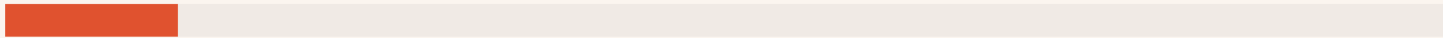
Leading causes of concussion

Common causes of concussions, children under 6 years old

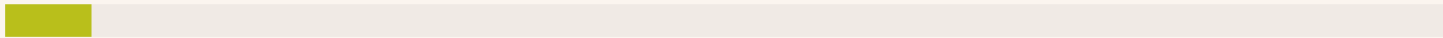
Falls - 71,2%



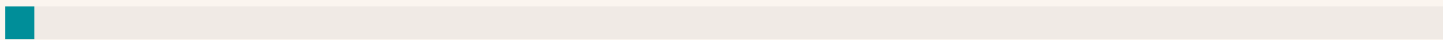
Impacts caused by an object - 12,3%



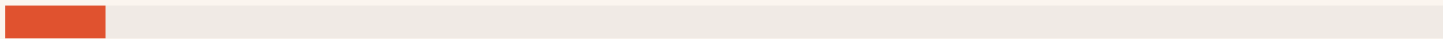
Motor vehicle collisions - 6,8%



Assaults - 2,7%

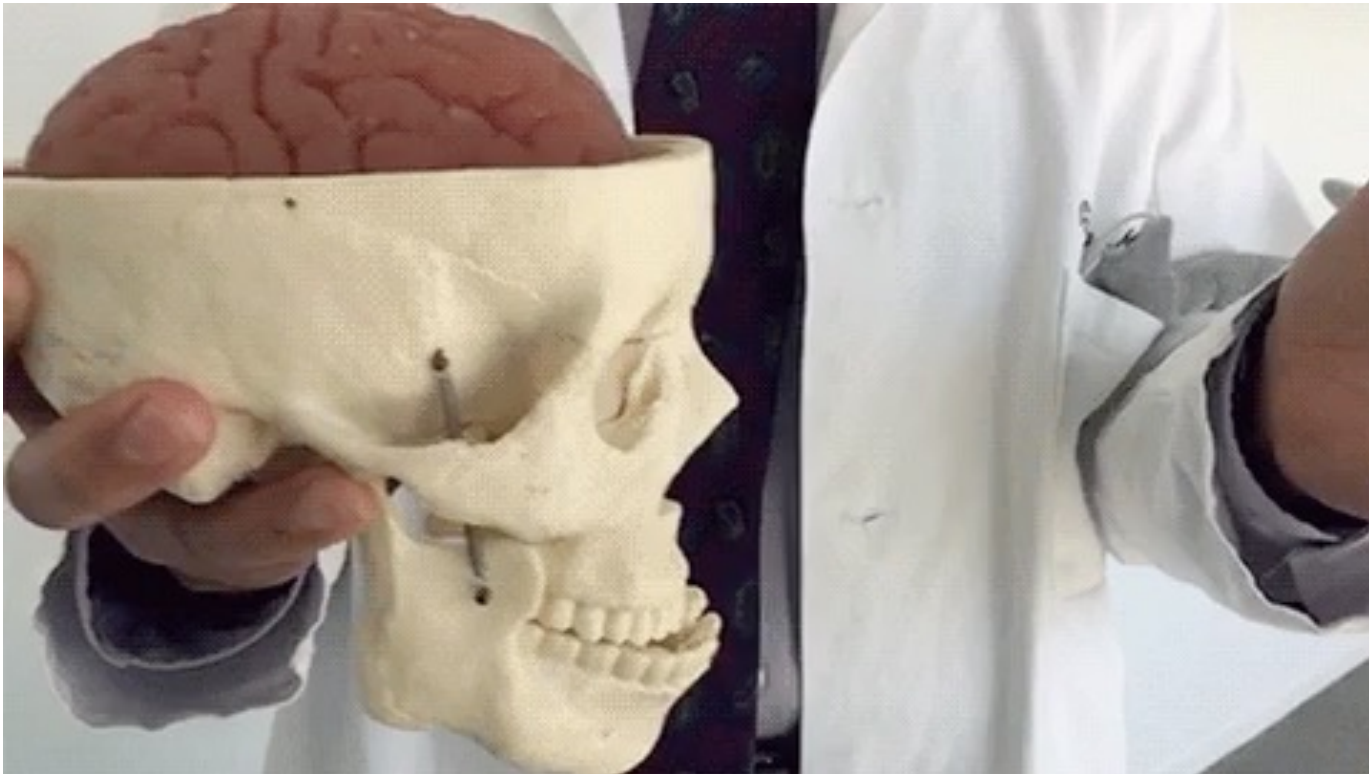


Others (Bicycle accidents, collision with a person, etc.) - 7%



Source: ABCs Lab, University of Montreal. (2024). <https://coco.umontreal.ca/en/i-am-a-parent/>

What works to prevent concussions?



Despite claims you might hear,
there is no consumer product
available that can prevent
concussions.

Fall prevention: Children

- Buckle your child in their high chair or stroller every time.
- Use stair gates.
- Keep one hand on your child when they are on a high surface.
- Place furniture away from windows and balcony door handles. Keep balcony doors locked.
- Keep stairs and high-traffic areas in your home free from clutter and tripping hazards.

Fall prevention: Adults

- Install hand rails along stairs and grab bars in the bathroom
- Strength and balance training
- Nutrition and hydration
- Health management, medication review
- Check your vision and hearing
- Keep stairs free of clutter and exterior stairs and walkways free of clutter, ice or snow

Transport

- Major contributing factors in collisions:
 - Speeding
 - Impaired driving
 - Distracted driving
- Passenger safety: Seatbelts, car seats/booster seats

Sport - Protective equipment

Helmets are an important piece of equipment for many sports and activities and can prevent serious head injuries. However, **helmets are not proven to prevent concussions.**



Sport - Protective equipment

- Headgear:
 - potential protection in soccer, more research needed to recommend
 - no evidence of protection in rugby or lacrosse
- Mouthguards:
 - evidence suggests mouthguards may be associated with lower odds of concussion
 - prevent injuries to teeth and mouth area

Sport - Protective equipment

- Other:
 - No evidence to support jugular vein compression collars, protective eyewear

Sport – Participation environment

- Environment (e.g., field/surface, equipment)
- Training and skill development
 - Policies prohibiting checking in hockey
 - Limiting contact practice in youth football
 - Neuromuscular training warm-up
- Control of the game/activity
- Culture

Sport policies and enforcement

Policy changes have
the **strongest evidence base**
for concussion prevention

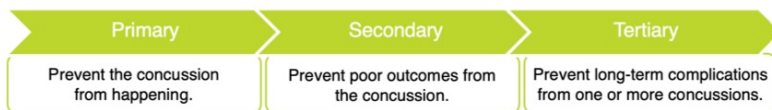
Canadian Guideline on Concussion in Sport, 2nd edition

 : parachute.ca/guideline

Concussion Prevention

Concussion prevention is a fundamental and continuous practice in sport and physical activity. Prevention takes place at multiple, complementary levels: primary prevention works to prevent a concussion before it occurs; secondary prevention focuses on reducing the effects of a concussion if it occurs; and tertiary prevention involves the prevention of long-term complications from one or more concussions.

Levels of concussion prevention



Primary concussion prevention

The first step in primary prevention is understanding the issue in your specific context. Through data collection (surveillance), documentation and consulting published literature, identifying the following information for the specific sport or activity is important to know where to target prevention efforts and which solutions to choose. Ongoing data collection will also help you know if any changes you implement have the desired effect.

Considerations for understanding concussion in a sport or activity

Who is being affected by concussion injuries? There may be differences by age, sex and/or gender, position (e.g. goalie, catcher) or other factors.

How are concussions occurring? There may be specific drills, plays, skills, types of contact or other scenarios that are commonly present in the context of the injury.

When and where are concussions happening? For example, consider injury patterns during training or practice versus competition and gameplay.

Prevention matters

Concussion

Long-lasting symptoms

Cumulative effects

Sub-concussive impacts

Second Impact Syndrome

School and work

Mental health and identity

Lifelong physical activity

Thank you



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www.parachute.ca

Resources


 : parachute.ca/concussion

Injury Topics > Concussion

Concussion

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 See professional resource collection

Concussion

- Signs and symptoms of a concussion
- What to do if you suspect a concussion
- Concussion treatment
- Concussion healing time varies
- Concussion prevention
- Mandatory baseline testing not recommended

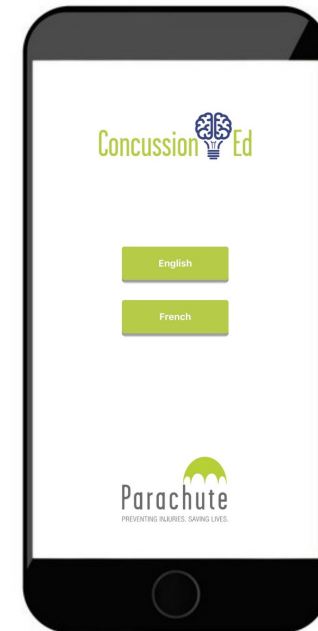
 Resources

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A concussion is a brain injury that can't be seen on routine X-rays, CT scans or MRIs. It affects the way a person may think and remember things, and can cause a variety of symptoms. Any blow to the head, face or neck, or a blow to the body that jars your head, could cause a concussion.



Parachute's "CheckForConcussion" awareness campaign features champion Canadian athletes Scott Moir, Marie-Philip Poulin, Cindy Ouellet and Steve Podborski.



Resources

- Concussion Awareness Training Tool (CATT)
cattonline.com
- Abused & Brain Injured Toolkit
(Content warning: Intimate partner violence)
abitookit.ca
- CoCo – Concussions in early childhood
coco.umontreal.ca
- Rowan's Law (Ontario)
ontario.ca/concussions