

Health · Second Opinion

# Hundreds of thousands of Canadians get concussions each year — many don't recover

Almost half of those with concussions still have symptoms 6 months later, study finds



[Lauren Pelley](#), [Adam Miller](#) · CBC News · Posted: May 13, 2023 4:00 AM EDT |



New research suggests that for nearly half of patients, concussion symptoms can last six months, which is well beyond Health Canada's recovery guidance of a month or less. The study is leading to questions about existing guidelines and support for concussion recovery.

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comments

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After Michelle Tobin-Forgrave fell and hit her head more than five years ago, she developed a constellation of symptoms that began to derail her day-to-day life.

The Miramichi, N.B., resident knew she had a concussion — her second one — and expected to have a quick recovery, just like her first experience years earlier. But this round felt different.

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## **VIDEO**

### **[The invisible injury: How concussions have changed our lives](#)**

Tobin-Forgrave went back to her job in the education sector after taking two months off work, then realized she needed to take hourly breaks from her computer. Sometimes she'd just lay on a yoga mat in her office, wracked by fatigue. The busy mother of two also started experiencing insomnia, couldn't remember basic words like the names of household appliances, and developed issues with her vision and depth perception.

"The symptoms just never, ever went away," she said, "and got worse — much worse — over time."



Michelle Tobin-Forgrave is no longer able to work, and has no clear roadmap to a full recovery, years after a concussion. New research suggests almost half of people with concussions still show symptoms six months later. (Philip Boudreau/CBC)  
The latest available data suggests hundreds of thousands of Canadians get concussions every year, and [federal guidance last updated in 2021](#) suggests while recovery times can vary, most people get better in "10 days to 4 weeks."

Yet a growing body of research indicates that many take much longer to recover than previously thought — or don't ever fully recover at all.

## **Many with concussions don't recover quickly, if at all**

A study published in the journal [Brain](#) in February found that almost half of people with concussions still show symptoms of brain injury six months later, likely due to damage in an area of the brain called the thalamus, which relays information from the senses.

Researchers analyzed the brain scans of 108 patients in Europe who had recently had a concussion to look for structural changes in the brain, and found a marked increase in the activity between the thalamus and the rest of the brain shortly after a concussion.

"It's almost like they were doing more work than those areas normally do. They were trying to communicate harder," said Emmanuel Stamatakis, lead author of the study and head of the Cognition and Consciousness Imaging Group at the University of Cambridge in England.

"We found that the more hyper-connected those areas were, the more likely it is that you will have one of the symptoms that are associated with concussion — such as headaches, fatigue and sleep disturbances."

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## **SECOND OPINION**

### **His brain was inflamed. Suddenly the line between physical and mental health began to blur**

The researchers used a less-common type of scan called a resting-state functional MRI — which isn't widely available to patients — to analyze structural changes in the brain. Stamatakis said he hoped the findings would better inform patient care in the future and potentially lead to new concussion treatments.

"What I hope this study will achieve is to have clinicians think twice or three times before they send somebody with a concussion home and tell them: 'You're healthy,'" he said.

Dr. Charles Tator, an internationally renowned neurosurgeon and head of the Canadian Concussion Centre at Toronto Western Hospital's Krembil Brain Institute, said the study points to the thalamus as an important area for concussion research for the first time.

"We've always known that it's a more or less waystation — it's the Union Station for pain," he said, referring to Toronto's bustling downtown transit hub. "But what this paper has identified is that in concussion it's also an important structure and we didn't really know that beforehand."



Dr. Charles Tator says the estimated 400,000 Canadians who experience concussions each year is a 'phenomenal' figure and that many 'don't get better.' (Alex Lupul/CBC)

## Lingering concussion symptoms can be life-altering

The long-term impacts of brain injuries — from concussions among the general population, to reports of chronic traumatic encephalopathy (CTE) among professional athletes who've sustained repeated hits to the head — has been a growing field of study, and concern, in recent decades.

The latest European study's sample size was fairly small, noted Toronto-based neurologist Dr. Matthew Burke, the medical director of the Traumatic Brain Injury program at Sunnybrook Hospital Health Science Centre, and the number of patients experiencing lasting symptoms was higher than most previous estimates, which range from around 15 to 30 per cent.

But he agreed the paper shows a "strong signal" that concussions can directly cause an array of cognitive and emotional issues that "might persist longer than we anticipate."

- [NHL enforcers die 10 years younger than their fellow players, study finds](#)

Those lingering impacts may also be broader, and more life-altering, than the acute injury itself.

Research on sports-related brain injuries has found links to degenerative brain disease that can manifest in [major personality changes](#), or even [early-onset dementia](#).

[A new peer-reviewed Columbia University study](#) on former National Hockey League players even showed being an enforcer, a role known for [violent fights involving knocks to the head](#), was associated with [dying approximately 10 years earlier](#) — and more frequently of suicide and drug overdose — than control groups of other players who avoided fighting.

***WATCH | NHL enforcers die 10 years younger than other players, study suggests:***



Researchers at Columbia University in New York conducted a study comparing former NHL enforcers to their peers and found the enforcers were dying a decade earlier and were more likely to die from suicide or drug overdose.

Even children aren't immune to potential ripple effects on the brain, other Canadian research recently suggests. A population-based retrospective cohort study led by the Ottawa-based CHEO Research Institute, [published in 2022 by JAMA Network Open](#), found young people who sustain a concussion are at a 40 per cent higher risk of mental

health issues, psychiatric hospitalization, and self-harm compared to those who sustain an orthopedic injury like a broken bone.

Ongoing research is still needed, Burke added, to understand what drives lasting symptoms, and what puts some people more at risk than others — a key piece of the puzzle so medical teams can ensure patients get long-term supports.

"How can someone have all of these symptoms after this somewhat trivial head injury? Well, in a vulnerable brain, that can absolutely happen," Burke said.

"If they're already predisposed or at risk for mental health conditions, or already experiencing things like anxiety, depression or chronic headache or chronic pain disorders, those are known risk factors for having longer recovery periods after a concussion."



Dr. Matthew Burke says ongoing research is still needed to understand what drives lasting concussion symptoms, and what puts some people more at risk than others. (Craig Chivers/CBC)

**Over 400,000 Canadians have concussions each year**

As scientists strive to understand the full mechanisms behind post-injury health issues, basic data on the true number of Canadians actually affected by concussions in the first place remains hard to find.

One 2020 [study](#) in the Journal of Head Trauma Rehabilitation analyzed Ontario medical billing records and found close to 150,000 per year from 2008 to 2016 — or 1.2 per cent of the population.

Keith Yeates, head of the psychology department and Ward Chair in pediatric brain injury at the University of Calgary, said the number is likely an underestimate because the study is based on physician visits and many concussions don't result in medical attention.

- **Body-checking experience does not protect against concussions and injuries, says U of C study**

"The 'real' number is undoubtedly higher," he said. "But we don't know how much higher because we lack some of the surveillance systems that are in place in the U.S."

Even so, the estimate amounts to more than [400,000 Canadians with concussions](#) across the country each year.

"Which is just phenomenal when you think about it," said the Canadian Concussion Centre's Tator. "And they all don't get better."





Dr. Charles Tator is photographed in his office at Toronto Western Hospital in Toronto on May 10. (Alex Lupul/CBC)

Multiple clinicians and advocates who spoke to CBC News stressed that frontline medical teams may still not be aware of those long-term risks, leaving many patients struggling to get ongoing treatment and support after their initial injury.

"Brain injuries are happening far more often than I think anybody realizes, and I think the long term consequences of brain injuries are far more severe than anybody realizes," said Tim Fleiszer, a former professional Canadian football player who is now the executive director of Concussion Legacy Foundation Canada.

"And the system is just not caught up with that yet."

## Health Canada concussion guidelines out of date

[Health Canada's latest guidelines](#), which state that most people recover from a concussion within a month, also note that Canadians who get a concussion should talk to their doctor or health-care provider about when to return to work, school and sports.

But Tator said that guidance is woefully out of date and the percentage of people who recover within a month can range from as low as five per cent to as high as 35 per cent — with a generally agreed upon estimate of about 25 per cent with persistent symptoms.

"I'm surprised that it hasn't been brought up to date," he said of the Health Canada guidelines. "That doesn't give it the credibility that it's a significant problem at all."

- **Early physical activity helps children after concussions, study finds**

In a statement to CBC News, Health Canada and Public Health Agency of Canada (PHAC) spokesperson Mark Johnson said PHAC regularly tracks scientific findings on traumatic brain injury, including concussion.

"New recommendations on sport-related concussion evaluation and management are expected to be released by summer 2023, based on findings from the 6th International Consensus Conference on Concussion in Sport," he said. "These recommendations will be taken into consideration when updating Canada's guidance on concussion."

- **Concussions can damage the connection that helps your left brain talk to the right**

Tator said current Health Canada guidelines also fail to address the fact that many family physicians aren't up to date on the evolving research on concussion treatments and protocols and don't know how to help their patients.

"And it plays out in the fact that when the patient goes to their family doctor they are often not directed appropriately," he added.

Community-based resources are also lacking, particularly since patients often experience such a broad range of symptoms that don't fit neatly into one form of treatment. "If you have a non-sports concussion, and it's been longer than, say, 12 months... there really is just no resources out there," Fleischer said.

## **'I couldn't find my old self'**

That's an experience Tobin-Forgrave understands well. As the years passed following her concussion, she bounced between more than a dozen specialists. None knew how to handle her full spectrum of symptoms. Some didn't know how to treat a concussion at all.

Certain treatments did help more than others, she said, such as specialized glasses to help mitigate a communication breakdown between her eyes and her injured brain, allowing her to walk around more safely.



Michelle Tobin-Forgrave writes on a mirror to help keep track of her day-to-day life after suffering a severe concussion. (Philip Boudreau/CBC)

But given her host of cognitive issues, Tobin-Forgrave — who is now 51-years-old — is no longer able to work, and has no clear roadmap to a full recovery. Until the medical system catches up with how to treat long-term concussion impacts, she's had to come to peace with her challenging new reality. That process, like everything else now in her day-to-day life, hasn't been easy.

"There was grief," she said, "because I couldn't find my old self."

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## ABOUT THE AUTHOR

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