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Improving concussion treatment using evidence-based cognitive assessments

Help us write an open letter about brain injury

Our conference is back and bigger than ever

New information on mental health coming soon
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An estimated 52 million concussions occur every year world-wide, (1) with over 4 million occurring in Canada and the US alone.(1,2,3) According to the Consensus statement at the 5th International Conference on Concussion in Sport, a concussion can be best defined as a traumatic brain injury induced by biomechanical force,(4) and has been described as a serious public health concern.(4-7) In addition to the human toll of this injury, the economic impact of concussion costs the two nations over $18 billion each year.(1)

A common misconception of concussion is that standard methods of generating images of the brain such as CTs, PETs, and MRIs are capable of identifying a concussion.(4) However, unlike most traumatic brain injuries (TBIs), concussion is not a structural injury of the brain.(4) Rather, it is a functional injury affecting cognitive performance.(4,8,9) In particular, core cognitive functions responsible for tasks such as automatic attention, reactive attention, working memory, response inhibition, concentration, language comprehension, and executive function have been demonstrated repeatedly to be diminished in those who have sustained a concussion.(10-30) As a result, traditional neuroimaging methods are not suitable approaches in assessing concussion.(4)

Today, concussion diagnosis and treatment decisions are made by clinicians who use information from signs and symptoms collected through a combination of clinical assessments, patient self-reporting, structural neuroimaging, and concussion-targeted questionnaires.(31) As a result, decisions about whether someone has a concussion are heavily dependent on the knowledge of the clinician evaluating the patient the results of these tests, and the patient’s responses.
Objective biomarkers that can aid in diagnosis of concussion, empower clinicians to make targeted rehabilitation plans, and track progress are needed.

Electroencephalography (EEG) is a method that offers a solution. In contrast to common resting-state applications of EEG, an active approach can be used to measure cognitive function while patients are completing neuropsychological tests. This active-state approach makes it possible to measure event-related potentials (ERPs) (which are representative of core cognitive functions) and document the presence, absence, and characteristics of specific cognitive functions.

Research has demonstrated the utility of ERPs in identifying concussion-specific cognitive symptomatology for over 30 years.(10-30) Objective, biometric based, cognitive assessments are becoming more available as an option to assist in accurate concussion diagnosis. When using biometric data to help inform clinical decision making, healthcare teams are more empowered, and patients can receive more precise care after a concussion. (See references here)
As part of the national Brain Injury Awareness Month campaign in June and in collaboration with brain injury associations across Canada, we will be circulating an open letter for individuals, caregivers and anyone else with an interest in advocating for the brain injury community to add their name to show their support. The goal of the letter is to show a groundswell of support for important issues relevant to the brain injury community and ensure this is made known to policy makers and members across all political parties.

In order to develop the letter, we need to know what issues are important to you. We have created a survey to gather this information. The letter will be developed based on issues identified by the majority of respondents. We understand not everyone will have the same priorities, but this does not mean issues that are not included in the letter are not important. Advocacy in all areas of brain injury is on-going and the results from this survey will continue to inform advocacy efforts.

Fill out the survey at this link: https://www.surveymonkey.com/r/FDKVZDH

You can also scan this QR code with your smartphone camera to access the survey.
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Brain Injury Canada would like to extend our sincere appreciate for the continued support of the McColl-Early Foundation and Dr. Dan Andreae, Patron of Brain Injury Canada
It's been a long time in the making, but The Brain Injury Canada Conference is officially happening virtually on June 2-4, 2021. Our registration is open and we are excited to be offering a truly national conference for the first time in our history.

We have speakers from across Canada presenting on topics such as health care in the digital age, trauma informed care, and cannabis - just to name a few.

Our conference is divided into two streams to best serve our audience.

**Stream One: Navigating the Landscape of Brain Injury, June 2-3, 2021**

This stream is designed for health care and service providers in the brain injury sector, and includes more technical/research-based information and language.

**Stream Two: Healthy Brain & Well-Being, June 4, 2021**

This stream is designed for those living with brain injury, caregivers, and anyone who is interested in learning more about supporting brain injury recovery.

For full conference schedules, speaker information and registration, please visit our brand new conference website.

[www.braininjurycanadaconference.ca](http://www.braininjurycanadaconference.ca)
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Naval commander Tim Kerr didn’t know anything about brain injury or stroke before he suffered his own in 2012.

It happened out of the blue while I was at sea,” Tim says. At the time, Tim was a captain of a destroyer stationed off the west coast of America. “I was exercising on an elliptical: next thing I knew I was in a hospital.”

What happened between the elliptical and waking up in the hospital was filled in for Tim by crew members and doctors. “The crew said they found me seizing on the floor: luckily we had a medical professional on board who followed stroke protocol. They evacuated me to another ship nearby with a physician, who then ordered my evacuation to a hospital.”

The first few days

“I remember waking up and feeling surprised, fearful, and confused,” Tim remembers. “My initial concern was ‘I have to get back to my ship’. I had a lot of questions.”

It took some time for doctors to confirm why Tim had had a stroke – he was a healthy man in his 40’s when it happened. But after several tests, including MRIs, they had their diagnosis. I had a hemorrhagic stroke in the right parietal [section of the brain] which affected the left side of my body,” Tim explains. This left him with paralysis in the left side of his body and mild issues with his memory.

“I remember thinking ‘I had a stroke. I’m disabled. Is this going to be my state? Am I going to recover?’” Tim recalls. “In early recovery, I was extremely emotional – I couldn’t control them. [I felt] anger at the situation, uncertainty, fear, and sadness.”
A lot of that uncertainty resolved into determination. “Family was a motivator: I was determined to recover as best as I could,” Tim says. He had young kids, and he was determined to do as much with them as possible.

**Going through rehabilitation**

Tim’s determination started in the hospital. Before he started rehabilitation, he tried to use his right side to manage his left-side deficit. “One example is that I would drag myself to the bathroom with the help of my wife or using other supports in the room with my right side trying to compensate for my left.”

“It didn’t really hit me until I arrived at the Élisabeth Bruyère rehab centre [in Ottawa] how disabled I was. I was in a wheelchair, and they showed me my room. Then they took me to the dining room with all the other stroke survivors. I was leaning because of my left-side deficit. One of the volunteers there tried to begin the process of feeding me.”

The action really shocked Tim. “I thought “is this how I’m going to be for the rest of my life?”” It was difficult for him to come to terms with all the changes he had faced, and would continue to face as he recovered.

[Continue reading Tim’s story](#)
Interested in Sharing Your Story?

Brain injury affects over 1.5 million Canadians. Our 'Brain Injury Across Canada' series brings comfort and connection to all our readers across the country.

If you'd like to share your story, please email info@braininjurycanada.ca. We will send you our submission rules and help make the process as accessible as possible.
You can find more information about your local brain injury association at braininjurycanada.ca/brain-injury-associations

<table>
<thead>
<tr>
<th>Province</th>
<th>Local Associations</th>
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| Alberta        | - Southern Alberta Brain Injury Society  
                 - Brain Care Centre                                                             |
| British Columbia | - British Columbia Brain Injury Association  
                          - Braintrust Canada  
                          - Bulkley Valley Brain Injury Association  
                          - Fraser Valley Brain Injury Association  
                          - Comox Valley Head Injury Association  
                          - Kamloops Brain Injury Association  
                          - Nanaimo Brain Injury Association  
                          - North Okanagan Shuswap Brain Injury Association  
                          - Northern Brain Injury Association of BC  
                          - Powell River Brain Injury Association  
                          - Prince George Brain Injured Group Society  
                          - South Okanagan Similkameen Brain Injury Society  
                          - West Kootenay Brain Injury Association  
                          - Vancouver Brain Injury Association  
                          - Victoria Brain Injury Association |
| Nova Scotia    | - Brain Injury Association of Nova Scotia                                           |
| Ontario        | - Ontario Brain Injury Association  
                          - Brain Injury Association of Quinte District  
                          - Brain Injury Association of Fort Erie  
                          - New Beginnings - Chatham-Kent  
                          - Brain Injury Association of Durham Region  
                          - Hamilton Brain Injury Association  
                          - Brain Injury Association of London and Region  
                          - Brain Injury Association of Niagara  
                          - Brain Injury Association of North Bay and Area  
                          - Brain Injury Services of Northern Ontario  
                          - Brain Injury Association of the Ottawa Valley  
                          - Brain Injury Association of Peel Halton  
                          - Brain Injury Association of Peterborough Region  
                          - Brain Injury Association of Sarnia Lambton  
                          - Brain Injury Association of Sault Ste Marie  
                          - Seizure & Brain Injury Centre  
                          - Brain Injury Association of Sudbury  
                          - Brain Injury Association of Toronto  
                          - Brain Injury Association of Waterloo/Wellington  
                          - Brain Injury Association of Windsor Essex  
                          - Brain Injury Association of York Region |
| Newfoundland & Labrador | - Newfoundland & Labrador Brain Injury Association  
                            - Neuropsychiatric Patients' Association |
| Prince Edward Island | - Brain Injury Association of Prince Edward Island |
Quebec

- CONNEXION - Regroupement des Associations des Personnes TCC du Québec
- Association des personnes ACVA-TCC du Bas-Saint-Laurent
- Association des traumatisés crâniens de l’Abitibi-Témiscamingue
- Association des handicapés adultes Côte-Nord
- Association des accidentés cérébro-vasculaires et traumatisés crâniens de l’Estrie
- Association des TCC et ACV de la Gaspésie et des Îles-de-la-Madeleine
- Association des personnes handicapées physiques et sensorielles du secteur Joliette
- Centre d’aide personnes traumatisées crâniennes et handicapées physiques Laurentides
- Association des traumatisés cranio-cérébraux Mauricie-Centre-du-Québec
- Association des Traumatisés cranio-cérébraux de la Montérégie
- Association québécoise des traumatisés crâniens
- Association des neurotraumatisés – Outaouais
- Association des TCC des deux rives
- Association Renaissance des personnes traumatisées crâniennes du Saguenay/Lac-Saint-Jean

Saskatchewan

- Saskatchewan Brain Injury Association
- Lloydminster and Area Brain Injury Society

Download our Return to Work guidebook

Download the English version

Version français
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COVID-19 has taken a toll on all of us, particularly when it comes to mental health. Individuals with brain injury are experiencing increased isolation and less access to much-needed resources (for example, rehabilitation). It's been an incredibly long and challenging year, and the mental health of Canadians needs more support than ever.

Brain Injury Canada is currently developing a more in-depth mental health section of our resource website to support individuals and caregivers affected by brain injury. These resources will directly address topics such as COVID-19 fatigue, safety measures, mindfulness practices, and ways to find help.

Keep visiting our website and stay tuned for new content over the coming weeks.

Our resource website is now available in French

We are excited to share that our resource website is now available in French. We will continue providing new content in both official languages to best serve the Canadian brain injury community.

braininjurycanada.ca/fr
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