



“Psychology Works” Fact Sheet: Concussions

What is a Concussion?

A concussion is an injury to the brain that is caused when a force is applied to the head or body. Concussions are the most common type of head injury, with an incidence of 210,000 per year in Canada (Longman & Rach-Longman, 2017). Concussions are often referred to as mild traumatic brain injuries (mTBI) because they do not cause external visible damage. Instead, they produce changes to the chemical composition of the brain that temporarily interfere with brain functioning.

Concussions can be caused by a direct blow to the head (e.g., in sports or through physical altercations), abrupt speed changes that affect head and body movement (e.g., motor vehicle collisions), or by exposure to an explosion (e.g., in combat situations) (Friesen, 2017).

What are the Symptoms of a Concussion?

Brain injuries are classified as mild, complicated mild, moderate or severe, depending on the injury characteristics within minutes to hours of an injury. Concussions are also known as mild traumatic brain injuries. Concussive injuries may or may not include a loss of consciousness but do involve at least an alteration of consciousness (e.g., being dazed, confused, incoherent, disoriented, or having significant incoordination) and/or an inability to form memories around the time of injury (i.e., posttraumatic or anterograde amnesia). The symptoms following a concussion are not specific to concussions as they are often found in other non-brain injuries (e.g., orthopedic injuries), and can include a combination of:

- *Physical Symptoms* such as headache, dizziness, sensitivity to noise and light, blurred or double vision, alterations in sleep, nausea and vomiting;
- *Emotional and Behavioural Symptoms* such as irritability, mood changes, anger, sadness, frustration, depression, anxiety; and
- *Cognitive Symptoms* such as confusion, disorientation, trouble concentrating, slowed thinking, and short-term memory problems (Friesen, 2017).

When Should an Individual Seek Help?

If one is suspected to have experienced a concussion, regardless of whether symptoms are mild or severe, it is important to immediately see a physician to rule out a more serious brain injury that can become life threatening.



When can an Individual Return to Work, School or Sports?

Clinical recovery from a concussion usually occurs between 10 days and three months post-injury (Plourde, Kirkwood, & Yeates, 2017). Recovery time will vary, depending on: severity of the injury, number of symptoms experienced immediately post-concussion, pre-injury psychological or neurodevelopmental conditions, one's psychosocial environment, and clinical management strategies. (Plourde, Kirkwood, & Yeates, 2017)

Risk factors for prolonged symptoms include: history of previous concussion(s); female gender; co-morbid medical conditions (e.g., migraines) or psychological conditions (e.g., depression, anxiety, PTSD); history of learning or attention difficulties; substance abuse; and adolescent age range.

To date, a consensus regarding effective treatment for concussion has yet to be identified. Research tells us that the brain needs time to heal and clinicians have typically recommended an initial but brief (i.e., a few days to a week) period of physical and mental rest, enough and good quality sleep, a healthy and balanced diet, and relaxation (Holland Bloorview Kids Rehabilitation Hospital). Mild physical exertion may be beneficial in the recovery process, starting as soon as three days post injury, as tolerated. (Longman & Rach-Longman, 2017)

Decisions regarding returning to school, work, and sport should be made in consultation with a physician or neuropsychologist and, ideally, the decision should be informed by results obtained through a multidisciplinary assessment as needed (e.g., clinical neuropsychologist, vestibular physiotherapist, etc.).

How can a Psychologist Help?

Psychologists (neuropsychologists, clinical psychologists, sport psychologists, school psychologists) can help in numerous ways related to concussions including assessment, treatment, and conducting research.

Assessment. A clinical neuropsychologist is a licensed psychologist with expertise in brain-behaviour relationships and knowledge of the interplay among neurological, psychological, and behavioural factors (Ontario Psychological Association, 2016). Neuropsychologists have expertise in the areas of assessment, intervention, and psychometrics in the context of brain injury, are uniquely qualified to interpret measures of cognitive and emotional functioning; and can objectively determine the presence or absence of neurocognitive and emotional sequelae of concussion. (Plourde, Kirkwood, & Yeates, 2017)

Treatment. Neuropsychologists are well positioned to educate patients about concussion symptoms and recovery patterns, and to recommend compensatory strategies (e.g., academic or work accommodations) to manage presumably transient cognitive symptoms of concussion during the recovery process. (Plourde, Kirkwood, & Yeates, 2017)

Additionally, in the case of psychological or emotional difficulties following a concussion (e.g., heightened attention/focus on symptom experience; depression; anxiety; emotional dysregulation) short-term psychological treatment may be recommended. Treatment for clinically diagnosed psychological conditions is typically provided by a clinical psychologist and may address emotional responses to



concussion and the associated changes in activity and family dynamics. Patients requiring medications are referred to a medical practitioner (i.e., physician or psychiatrist).

Research. Psychologists engage in research and practice across a wide range of topics, having to do with how people think, feel and behave, many of which are connected to concussions. Psychological research specific to brain functioning, brain disease or illness (e.g. Post-Concussive Syndrome, Second Impact Syndrome, Chronic Traumatic Encephalopathy), individual differences and risk factors, family dynamics, treatment modalities, and protective equipment are some of the areas in which psychologists conduct research that is key to understanding, treating and preventing concussions.

Where Can I Get More Information?

You can consult with a registered psychologist to find out if psychological interventions might be of help to you. Provincial, territorial, and some municipal associations of psychology often maintain referral services. For the names and coordinates of provincial and territorial associations of psychology, please visit: <http://www.cpa.ca/public/whatisapsychologist/PTassociations>

References and Resources from Other Organizations

- Canadian Psychological Association: *Psynopsis* – The Role of Psychologists in the « Concussion Crisis » (Winter 2017, Volumen 39, No. 1) : <http://www.cpa.ca/docs/File/Psynopsis/winter2017/index.html>
- American Psychological Association (APA): <http://www.apa.org/helpcenter/concussions.aspx>
- Canadian Concussion Collaborative (CCC): The CCC (<http://casem-acmse.org/education/ccc/>) has developed its “Four Characteristics of a Good Concussion Clinic” guide to help those with persistent concussion symptoms identify a clinic that provides up-to-date, evidence-based care. <http://casem-acmse.org/wp-content/uploads/2016/07/CCES-PUB-CCC-4Qs-E-FINAL.pdf>
- Concussion Awareness Training Tool - BCIRPU: The BC Injury Research and Prevention Unit has launched a free, online tool for medical professionals, coaches, parents and players and school professionals to learn more about concussion recognition and management. <http://horizon.parachutecanada.org/en/article/concussion-awareness-training-tool/>
- Concussion Handbook - Holland Bloorview Hospital Concussion Centre: Developed by Holland Bloorview Kids Rehabilitation Hospital Concussion Centre, the Concussion Handbook is designed to help you with concussion management and recovery. <http://horizon.parachutecanada.org/en/article/concussion-handbook/>
- Guidelines for Concussion - Ontario Neurotrauma Foundation: Guidelines to enable health care practitioners to effectively diagnose and manage concussion/mTBI in adults (over the age of 18) and treat symptoms that persist over time. <http://horizon.parachutecanada.org/en/article/guidelines-concussionmtbi-persistent-symptoms-second-edition/>
- Heads Up Resource - CDC: CDC developed the HEADS UP Concussion in Youth Sports initiative to offer information about concussions to coaches, parents, and athletes involved in youth sports. <https://www.cdc.gov/headsup/youthsports/>



- Making Headway - Coaching Association of Canada: Resources to help coaches gain a strong awareness of concussion. <http://horizon.parachutecanada.org/en/article/making-head-way/>
- Ontario Psychological Association (OPA) Guidelines for Best Practices in the Assessment of Concussion and Related Symptoms.
<http://www.psych.on.ca/OPA/media/Public/OPA%20Guidelines%20and%20Reviews/OPACConcussionGuidelinesFINAL.pdf?ext=.pdf>
- Operation Headway is a multi-partner program in Atlantic Canada aimed at reducing bike related head injuries by increasing bike helmet use among all ages.
<http://horizon.parachutecanada.org/en/article/operation-headway/>
- Parachute Canada: <http://www.parachutecanada.org/concussion>
- Play Safe Initiative (Play Safe) is a collaborative approach to reducing injury risk in sport and physical activity through research, education and innovation.
<http://horizon.parachutecanada.org/en/article/concussion-policy-guide-recreation-sport-leaders-organizations/>

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Your opinion matters! Please contact us with any questions or comments about any of the *Psychology Works* Fact Sheets: factsheets@cpa.ca

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