CONCUSSION
Children and Youth

Mild Traumatic Brain Injury (mTBI)

OBIA
Ontario Brain Injury Association
education • awareness • support
The Ontario Brain Injury Association (OBIA) is a non-profit charitable organization whose mission is to enhance the lives of Ontarians living with the effects of Acquired Brain Injury (ABI) through education, awareness and support.

OBIA provides a variety of services for people living with brain injury, caregivers and professionals, including: Peer Support; numerous ABI training programs delivered in the community and online; and support and advocacy through our toll free support line. We also facilitate linkages to local community resources including connection to the brain injury association in their community.

For more information about OBIA please visit: www.obia.ca

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What is a Concussion?

Concussion is a brain injury which can be caused by a sudden acceleration of the head and neck resulting from a blow or contact to the body. Your child does not need to lose consciousness to have sustained a concussion. Concussions can occur from many different activities including falls, assault, motor vehicle collisions, sports or being struck by an object. Symptoms can appear immediately or, in some cases, days following the initial injury.
Anatomy of a Concussion

Concussions occur with sudden linear (Coup Contrecoup) and/or rotational acceleration of the head, which causes the brain to move within the skull. It is this movement of the brain that stretches and even tears neural tissue of the brain and produces the symptoms of concussions.

Linear
1. Direct impact stops the head’s forward motion.
2. The brain keeps moving, colliding with the inside of the skull and injuring the frontal lobe.
3. The brain recoils, crashing into the back of the skull injuring the occipital lobe.

Rotational
A lateral impact, like a cross-punch in boxing, spins the brain on its axis, stretching or tearing neurons.

Source: Centers for Disease Control and Prevention
The following are some of the most common symptoms your child can experience after sustaining a concussion. No two concussions are the same and your child may experience some or all of these symptoms.

<table>
<thead>
<tr>
<th>PHYSICAL</th>
<th>COGNITIVE</th>
<th>EMOTIONAL/BEHAVIOURAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dizziness or Balance Problems</td>
<td>Poor Concentration</td>
<td>Sad/Depressed</td>
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<tr>
<td>Headache</td>
<td>Memory Problems</td>
<td>Anxious</td>
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<td>Nausea or Vomiting</td>
<td>Confusion</td>
<td>Irritable</td>
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<td>Fatigue/Sleep Disturbances</td>
<td>Feeling like you are “in a fog”</td>
<td>Unusual withdrawal from regular activities</td>
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<td></td>
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<td>(social or recreational)</td>
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<td>Blurry Vision</td>
<td></td>
<td>Symptoms can be more difficult to identify in</td>
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<td></td>
<td></td>
<td>younger children because they cannot</td>
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<td></td>
<td></td>
<td>communicate as well as older children. Look</td>
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<td></td>
<td></td>
<td>for non-verbal cues such as: headaches (rubbing</td>
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<td></td>
<td></td>
<td>the head), loss of newly acquired skills (toilet</td>
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<tr>
<td></td>
<td></td>
<td>training), overly cranky/increased irritability</td>
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<td></td>
<td></td>
<td>and changes in sleep/eating habits. For</td>
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<td></td>
<td>school-aged children, asking the teacher</td>
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<td></td>
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<td>about the child’s performance may also be</td>
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<tr>
<td></td>
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<td>important.</td>
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<tr>
<td>Sensitivity to Light or</td>
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<tr>
<td>Sound</td>
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<tr>
<td>Loss of Consciousness</td>
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<tr>
<td>(not always)</td>
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<td></td>
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<tr>
<td>Tinnitus</td>
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<tr>
<td>(ringing in ears)</td>
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What Should I Do?

If you think your child has sustained a concussion, you should:

Immediately stop/remove her/him from the activity she/he was doing when the concussion happened.

Seek medical advice/attention immediately.

Watch your child closely for the first 24 - 48 hours. Do not send her/him to school or childcare provider for the first 48 hours. Full bed rest should not exceed three days and a gradual return to activities should begin as soon as tolerated.

RED FLAGS

If any of the following are identified/observed, go to the ER IMMEDIATELY.

• continuous or persistent vomiting
• difficulty waking the child
• unexplained swelling on the head
• pupils of unequal size
• seizures
• lethargic/sluggish

It is highly recommended that the child be followed by a doctor who is knowledgable in dealing with pediatric concussion.

“When empowered, optimistic, educated parents make better choices about their kids’ recoveries. Parent’s attitude can affect outcome.”

~ Dr. Mike Evans

When in doubt, SIT THEM OUT!
How Long Will it Take for My Child to Feel Better?

The majority of children who sustain a concussion begin to feel better and symptoms are alleviated within a few days to weeks. There is a small percentage of the population whose symptoms can persist for months or longer. This is called post-concussion syndrome (PCS).

While boys sustain more concussions, girls had twice the odds of boys for having symptoms last at least one month.

Older children and teens have a higher risk of persistent symptoms than children under the age of eight.

*If symptoms persist, it is important to see your doctor for follow-up and monitoring.*

*The SP Study: Predicting and Preventing Post-Concussive Problems in Pediatrics*
When Can My Child Return to School?
Return to Learn Guidelines

Step 1:  Rest (for a minimum of 48 hours or until symptom free)
  •  No school
  •  No reading, physical activity and screen time (eg. T.V.,
    texting, computer, gaming)
When symptom free, move to Step 2

Step 2:  Getting Ready
  •  Short activities (eg. 15 mins of screen time 1-2 times daily)
  •  Light physical activity (eg. walking for a few minutes)
When symptom free, move to Step 3

Step 3:  Gradual return to school with modifications
  •  Attend for shortened days (eg. half days a few times a
    week)
  •  No tests, homework or assignments
  •  Attend less stressful classes
  •  Avoid loud environments, gym class, recess, cafeteria,
    carrying heavy books or bags
When symptom free, move to Step 4

Step 4:  Increased participation
  •  Back to full days for most of the days in a week
  •  Complete homework and roughly one test per week
When symptom free, move to Step 5

Step 5:  Full participation
  •  Return to normal activities
  •  Regular attendance, completion of homework and tests
  •  Extracurricular activities

The above are only guidelines. Returning to school should be a
 collaborative team decision between the student, parents, school and
doctor. Returning too early can potentially prolong the symptoms
and make a full return more difficult. Always consult a doctor with
experience managing pediatric concussions.
Return to Play Guidelines
(Note: Return to Learn/Return to School should always come before Return to Play)

Step 1: No activity, only complete rest (24-48 hours)
When symptom free, proceed to Step 2 the next day.

Step 2: Light activity/exercise
- Short walks, stationary bike, swimming
- No resistance or weight training
When symptom free, proceed to Step 3 the next day.

Step 3: Sport specific activities
- 20-30 minutes activity, up to two times per day
- No body contact or movements with high speed stops or jarring motions (eg. hitting a baseball, diving, jumping)
When symptom free, proceed to Step 4 the next day.

Step 4: Sport specific practice with team without body contact
- Start slowly with one or two teammates then increase to full team
- Resistance training can begin at a low level with gradual increase as tolerated
- No body contact, tackling, heading a ball, scrimmages

No symptoms? The time needed to progress from non-contact exercise will vary with the severity of the concussion and with the player. Proceed to Step 5 only after medical clearance.

Step 5: Begin drills with body contact
- Return to regular practices including contact.
When symptom free, proceed to Step 6 the next day.

Step 6: Game play
Always consult a doctor with experience managing pediatric concussions when implementing any return to play guidelines or programming.
When Can My Child Return to Play?
What is Second Impact Syndrome?

Second impact syndrome is a rare condition in which a second concussion occurs before the first concussion has properly healed. When a second impact is sustained, it may lead to severe swelling of the brain.

Although it is an extremely rare condition, it is often fatal. Second impact syndrome occurs primarily in young adolescents during sport participation.

This is one of the reasons why it is so important to remove your child from activity and seek medical attention.

Where Can I Get Help?

If you are looking for more information or support, please contact the Ontario Brain Injury Association (OBIA) at 1-800-263-5404. We will also connect you with the affiliated brain injury association in your community.
Resources

Ontario Brain Injury Association  
www.obia.ca

Ministry of Health  

Concussions Ontario  
www.concussionsontario.org/

Parachute  
www.parachutecanada.org/injury-topics/topic/C9

Disclaimer:  
The information contained in this brochure is for informational purposes only and in no way should replace the advice given by a doctor. If you suspect that you or someone you know has sustained a concussion seek immediate medical attention.