

Mild traumatic brain injury



Hôpital de Montréal
pour enfants
Centre universitaire
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Montreal Children's
Hospital
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Health Centre

TRAUMATOLOGIE TRAUMA

A mild traumatic brain injury (MTBI), also referred to as a concussion, is a disturbance in brain function that can be caused by a blow to the head, jaw, face, neck or body.

The following information is geared towards children and teenagers.

Common causes of an MTBI

- falls from a height at home (beds, changing tables, high chairs, stairs)
- falls at a playground or at school
- sports or recreational activities
- motor vehicle collisions (passenger, driver, pedestrian or cyclist)
- violent acts

Common signs and symptoms of an MTBI

- headache
- nausea and vomiting
- dizziness
- loss of consciousness
- feeling dazed and confused
- memory loss
- poor balance or coordination
- drowsiness
- irritability
- agitation
- fatigue



Your child or teenager has been examined and can return home at this time. However, certain symptoms may appear within 72 hours following the injury. If any of the following develop, seek medical attention at an emergency department immediately:

- **Worsening headache, especially if localized**
- **Persistent vomiting**
- **Behavioural changes (persistent irritability in younger children; increased agitation in teens)**
- **Excessive drowsiness (difficult to arouse)**
- **Difficulty seeing, hearing, speaking or walking**
- **Seizure**
- **Confusion or disorientation (does not recognize people or places)**



What to expect following an MTBI?

Signs and symptoms following an MTBI usually last 1-3 weeks but may occasionally last longer. **Frequently reported are:** headache, dizziness, nausea, sleep disturbances, fatigue, irritability, visual disturbances, sensitivity to light, sound and motion, difficulty with memory, concentration, attention span or balance.

It is very important to allow a child or teenager to **rest both physically and cognitively** until he/she is fully symptom-free. This reduces the chance of developing persistent symptoms.

Restrictions and recommendations for school and other activities during the early recovery period:

- Inform daycare, school, teachers, and coaches of the MTBI and the restrictions in place
- No school for 2 days, then progress to half days and finally full days as tolerated
- No academic exams, tests, quizzes, projects or oral presentations until symptoms have resolved and then increase gradually as tolerated
- No gym, playground, sports or other strenuous activities
- Do not attend sport practices as they may interfere with the resting period
- Do not attend music classes or lessons, drama classes or dance classes
- Supervised leisure swimming is permitted; no diving or jumping
- Adequate rest and breaks are encouraged

- No video games, computers, texting, watching television and playing musical instruments for the first week; then increase gradually as tolerated
- Allow students to bring a bottle of water to the class; dehydration may provoke headaches

Additional recommendations for teenagers

- Avoid going to parties and movies, excessive noise and lights may provoke headaches
- Absolutely no drugs or alcohol
- Avoid driving until symptoms have resolved

Complete resolution from MTBI related symptoms is essential before returning to activities. This reduces the chance of having another MTBI with increased and prolonged symptoms.

If there is no improvement within 10 days following the MTBI, further consultation by the MTBI Program/ Concussion Clinic is recommended.

Please call 514-412-4400 x 23310.



Returning to physical activity and sports following an MTBI:

The child or teenager must be completely symptom free at rest for 5-7 days prior to resuming physical activity. At that point, gradual return to physical activity over a few days is recommended.

If your child or teenager plays organized sports, have him/her follow these progressive steps before returning to play.

There should be approximately 24 hours in between each step. If any symptoms return at any time during this action plan, stop working out. Rest until you are symptom-free for 24 hours, then return to the previous step. If symptoms do not resolve or get worse, seek medical attention.

STEP 1

Light general conditioning exercises

- **NO CONTACT.**
- Begin with a warm up (stretching/flexibility) for 5-10 minutes.
- Start a cardio workout of 15-20 minutes which can include: stationary bicycle, treadmill, elliptical machine, fast paced walking, light jog, rowing or swimming.
- 50% intensity.

STEP 2

General conditioning and sport specific skill work done *individually*

- **NO CONTACT.**
- Begin with a warm up (stretching/flexibility) for 5-10 minutes.
- Increase intensity and duration of cardio workout to 20-30 minutes.
- Begin sport specific skill work within the workout, but no spins, dives or jumps.
- 50-60% intensity.



STEP 3

General conditioning, skill work done *with a team-mate*

- **NO CONTACT.**
- Increase duration of session to 60 minutes. Begin resistance training, including neck and core strengthening exercises.
- Continue practicing sport specific individual skills.
- Begin general shooting, kicking or passing drills with a partner.
- Start beginner level spins, dives and jumps.
- 75% intensity.

STEP 4

General conditioning, skill work and *team drills*

- **NO CONTACT. NO SCRIMMAGES.**
- Resume pre-injury duration of practice and team drills.
- Increase resistance training and skill work as required.
- Gradually increase skill level of spins, dives and jumps.
- 75-90% intensity.

STEP 5

Full practice *with body contact*

- **CONTACT. SCRIMMAGES.**
- Participate in full practice to get yourself back in the lineup. **If completed with no symptoms**, discuss with the coach about getting back in the game.
- **Coaches must make sure that the athlete has regained his/her pre-injury skill-level and is confident in his/her ability to return to activity.**
- 90-100% intensity.

STEP 6

Return to competition!



PREVENTION TIPS

- **Wear appropriate standardized protective equipment. Make sure it fits.**
- **Wearing a helmet decreases the severity of brain injuries.**
- **Participate in activities that are appropriate for your age and skill level.**
- **Physical preparation, proper conditioning and skill training is fundamental.**
- **Fair play which includes teamwork, sportsmanship, respecting the rules and zero tolerance to violence is essential.**
- **Never play through an injury. Seek medical attention early on and follow the recommendations.**

TRAUMA CENTRE

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