

Where **kids** come first

Mild traumatic brain injury



L'Hôpital de Montréal pour enfants
The Montreal Children's Hospital

Centre universitaire de santé McGill
McGill University Health Centre

A mild traumatic brain injury (MTBI), often referred to as a concussion, is a disturbance in brain function that can be caused by a direct or indirect hit to the head or body.

The following information is geared toward children and teenagers.

Most common causes of an MTBI

An MTBI is frequently the result of:

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



Your child or teenager has been examined and can return home at this time. However, certain symptoms can arise over the first 24 – 72 hours after the injury. If any of the following develop, go to an emergency department immediately:

- **Excessive drowsiness (if you find your child extremely sleepy or difficult to arouse)**
- **Persistent vomiting**
- **One pupil becoming larger than the other**
- **Increasing headache**
- **Difficulty seeing, hearing, speaking, or walking**
- **Behavioural changes (persistent irritability in younger children; increasing agitation or aggression in teenagers)**
- **Seizure**



What to expect following an MTBI?

Signs and symptoms following an MTBI usually last 1 – 2 weeks but may occasionally last longer. **Common symptoms include:** headache, dizziness, nausea, difficulty sleeping and fatigue. **Other symptoms include:** irritability and restlessness; sensitivity to light and sound; difficulty with memory, concentration, attention span, judgment or balance.

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

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

- Inform school personnel and coaches of the MTBI and the restrictions
- Return to school gradually (half days for the first few days). A modification in the workload may be temporarily necessary if symptoms persist
- No academic exams for at least 1 week
- No gym, sports or other strenuous activities
- Supervised leisure swimming is permitted; no diving or jumping
- Adequate rest and breaks are encouraged
- Limit time spent on video games, computers, television and musical instruments. These activities may provoke headaches
- Drink plenty of water to prevent dehydration which may provoke headaches

Additional considerations for teenagers

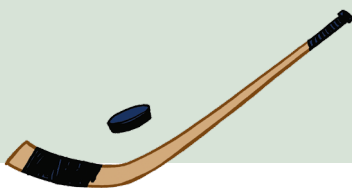
- Avoid going to parties and movies in theatres, excessive noise and lights may provoke headaches
- Absolutely no drugs or alcohol
- Must avoid driving until symptoms have resolved

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 symptoms are not resolved in approximately 2 weeks following the MTBI, further consultation by the Neurotrauma Program is recommended.

Please call 514-412-4400 x 22983.

Your child or teenager must be completely symptom free at rest for 1 week before returning to physical activity. At that point, a gradual increase in exercise intensity over a few days is recommended.



Returning to Sports following an MTBI

If your child or teenager plays organized sports, have him/her follow these 5 progressive steps before returning to play.

There should be at least 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 step 1. If symptoms return or get worse, seek medical attention.

STEP 1 Light general conditioning exercises

- Begin with a sport specific warm up.
- Do a workout (15-20 minutes) which can include: stationary bicycle, fast paced walking, light jog, rowing or freestyle swimming.

STEP 2 General conditioning and sport specific skill work; *individually*

- Continue with the sport specific warm-up.
- Slowly increase intensity and duration of workout (20-30 minutes).
- Begin sport specific skill work within the workout, but no spins, dives or jumps.

STEP 3 General conditioning, sport specific skill work; *individually and with a team-mate*

- **NO CONTACT.**
- Continue with general conditioning. Increase intensity and duration (up to 60 minutes).
- Begin resistance training.
- Continue practicing sport specific individual skills.
- Begin general shooting, kicking or passing drills with a team-mate.
- Start beginner level spins, dives and jumps.

STEP 4 General conditioning, sport specific skill work and *team drills*

- **NO CONTACT.**
- Do not play live scrimmages.
- Resume regular conditioning, duration of practice and team drills.
- Increase resistance training and skill work as required.
- Gradually increase skill level of spins, dives and jumps.
- Review team plays with no contact.

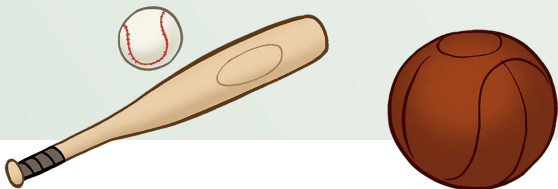
STEP 5 Full practice *with contact*

- Participate in a full practice. **If it is completed with no return of symptoms, you are ready to return to competition.** Discuss with the coach about getting back in the game.

MTBI 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.
- Never play through an injury. Seek medical attention early on and follow the recommendations.

**Being active is important!
Have fun and make smart choices!**



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The Montreal Children's Hospital

2300 Tupper Street, C-831, Montréal (Québec) H3H 1P3
514-412-4400, extension 23310

www.thechildren.com/trauma