

## **CONCUSSION**

### **What is a concussion?**

Head injuries in children are common, especially when they are learning to walk, ride a bike, or engaging in sports. Most are mild and do not result in concussion.

A concussion is a brain injury that can affect how a child thinks and remembers. It can occur from a fall, direct blow to the head, neck, or face, or a blow to the body that cause the head to move back and forth.

A concussion is “invisible” – it will not show up on an X-ray, CT scan, or MRI.

### **What are the symptoms and signs of a concussion?**

You do not need to lose consciousness to get a concussion! Symptoms may be unclear in very young children. They may develop shortly after the incident, or may take hours or days. Most people recover fully within 7-10 days

#### *Physical Signs*

- Headache
- Nausea/vomiting
- Dizziness
- Vision changes
- Loss of consciousness
- Finding lights or noise bothersome
- Loss of balance and/or coordination
- Memory loss

#### *Behaviour Changes*

- Irritability
- Sadness
- Anxiety
- Inappropriate emotions or mood swings

#### *Thinking Problems*

- Slow reaction time
- Confusion
- Difficulty concentrating
- Difficulty remembering
- Feeling “dazed” or “foggy”

### *Sleep Difficulties*

- Drowsiness
- Trouble falling asleep
- Sleeping more or less than usual

### **What should I do if my child has symptoms of a concussion?**

They should NOT return to playing their sport/game.

They should be evaluated by a doctor that day, as soon as possible

If there is loss of consciousness, go to the hospital or call 911 immediately.

Do not remove sporting equipment (e.g. helmet)

Look for signs or symptoms of a serious brain injury:

- Infants
  - Poor feeding
  - Repeated vomiting
  - Inconsolable crying
  - Very drowsy
  - Seizures
  - Tense bulging of the soft spot on skull (fontanelle)
- Older children
  - Worsening headache
  - Repeated/worsening vomiting
  - Strange behaviour
  - Trouble with speech, coordination, vision
  - Seizures

### **Treatment of Concussions**

In the short term- Your child will need to REST and be watched closely for the next 24-48 hours for any changes or worsening of symptoms.

If any concerns, take them to the Emergency Department for assessment.

The main ongoing treatment for concussion is rest – both physical and mental. This means no exercising, sports, video games, or screen time.

Your child may have to stay home from school because school work can also make symptoms worse.

If the child returns to school or play before symptoms have resolved, the symptoms could get worse or take longer to go away.

### *Returning to Learning*

- A concussion may make it difficult for your child to concentrate at school
- Your child should stay home from school until the worst of the symptoms have resolved, usually over the first few days
- Once they start to feel better, they can try attending half-days. Homework should be limited as well during this time.
- When your child is symptom free with half-days, they can progress to going back to school full time.



### *Returning to Play*

- Your child should NOT return to their sport unless cleared by a doctor
- A second concussion before your child has fully recovered can be very dangerous, and is more likely to happen because their attention, coordination, and reaction time may be off
- Your child can return to physical activity only after they are symptom-free and can attend school (full-days) without any symptoms
- Once they have been seen by a doctor, they can gradually increase their physical activity by progressing through the steps below:
  - Start with light exercise, like walking for 10-15 minutes
  - Try a sport-specific but low-risk activity (e.g. skating for hockey, running drills for soccer) for 20-30 minutes
  - Full practice with no contact
  - Full practice with contact (once cleared by a doctor)
  - Full game
- Each step must take at least 1 day
- If any symptoms return with activity, they should stop, rest for 24-48 hours again, then see their doctor before starting again

### **Concussion Prevention**

- Certified helmets should be worn for all sports with risk of head injury (cycling, skateboarding, roller-blading, downhill skiing, snowboarding, equestrian) and all contact sports
- Equipment should be well-maintained and properly fitted
- Helmets are not “concussion proof”!
- Good sportsmanship and respecting the rules of play (e.g. no hitting from behind) should be taught in all sports
- Coaches and trainers should teach proper technique including body-checking in hockey, heading in soccer, and tackling in football/rugby to reduce the risk of injury

*This handout has been adapted from the Concussion handout found on [caringforkids.cps.ca](http://caringforkids.cps.ca)*



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# Strategy for RETURN TO SCHOOL after a Concussion

1. Each stage is at least 24 hours. Move to the next stage only when activities are tolerated without new or worsening symptoms.
2. If symptoms re-appear, return to the previous stage for at least 24 hours.
3. If symptoms don't improve, but continue to get worse, contact your doctor or get medical help immediately.

## AT HOME

Cognitive & physical rest  
(24-48 hours)



- | OK if tolerated  | Not OK  |
|--|---|
| <ul style="list-style-type: none"> <li>✓ Short board games</li> <li>✓ Short phone calls</li> <li>✓ Camera photography</li> <li>✓ Crafts</li> </ul> | <ul style="list-style-type: none"> <li>✗ School</li> <li>✗ Physical exertion/<br/>stair climbing</li> <li>✗ Organized sports</li> </ul> |

If tolerated, limited amounts of

- TV
- Computer/cell phone use
- Reading

READY  
FOR  
NEXT  
STAGE?

Symptoms start to improve OR  
after resting for 48 hours max.

Stage  
1

Light cognitive  
activity



- | OK if tolerated  | Not OK  |
|--|---|
| <ul style="list-style-type: none"> <li>✓ Easy reading</li> <li>✓ Limited TV</li> <li>✓ Drawing/LEGO/<br/>board games</li> <li>✓ Some peer<br/>contact</li> </ul> | <ul style="list-style-type: none"> <li>✗ School</li> <li>✗ Work</li> <li>✗ Physical exertion/<br/>stair climbing</li> <li>✗ Organized sports</li> </ul> |

If tolerated, limited amounts of

- Computer/cell phone use

READY  
FOR  
NEXT  
STAGE?

Tolerate 30 mins. of cognitive  
activity at home

Stage  
2

School-type work/  
Light physical activity



- | OK if tolerated  | Not OK   |
|--|--|
| <ul style="list-style-type: none"> <li>✓ School-type work<br/>in 30 min. chunks</li> <li>✓ Light physical<br/>activity</li> <li>✓ Some peer<br/>contact</li> </ul> | <ul style="list-style-type: none"> <li>✗ School<br/>attendance</li> <li>✗ Work</li> <li>✗ Physical exertion/<br/>stair climbing</li> <li>✗ Organized sports</li> </ul> |

READY  
FOR  
NEXT  
STAGE?

Tolerate up to 60 mins. of  
cognitive activity in 2-3 chunks

## AT SCHOOL

Stage  
3a

Part-time school  
Light load



- | OK if tolerated  | Not OK  |
|--|---|
| <ul style="list-style-type: none"> <li>✓ Up to 120 mins.<br/>of cognitive<br/>activity in chunks</li> <li>✓ Half-days at<br/>school, 1-2 times<br/>a week</li> <li>✓ Some light<br/>physical activity</li> </ul> | <ul style="list-style-type: none"> <li>✗ Music/Phys. Ed<br/>class</li> <li>✗ Tests/exams</li> <li>✗ Homework</li> <li>✗ Heavy physical<br/>loads (e.g.<br/>backpack)</li> <li>✗ Organized sports</li> </ul> |

READY  
FOR  
NEXT  
STAGE?

Tolerate school work up to 120  
mins. a day for 1-2 days/week

Stage  
3b

Part-time school  
Moderate load



- | OK if tolerated  | Not OK  |
|--|---|
| <ul style="list-style-type: none"> <li>✓ Limited testing</li> <li>✓ School work for<br/>4-5 hours/day in<br/>chunks</li> <li>✓ Homework up to<br/>30 mins./day</li> <li>✓ 3-5 days of<br/>school/week</li> <li>✓ Decrease learning<br/>accommodations</li> </ul> | <ul style="list-style-type: none"> <li>✗ Phys. Ed class/<br/>physical exertion</li> <li>✗ Standardized<br/>tests/exams</li> <li>✗ Organized sports</li> </ul> |

READY  
FOR  
NEXT  
STAGE?

Tolerate school work 4-5 hours/  
day in chunks for 2-4 days/week

Stage  
4a

Nearly normal  
workload



- | OK if tolerated  | Not OK   |
|--|--|
| <ul style="list-style-type: none"> <li>✓ Nearly normal<br/>cognitive<br/>activities</li> <li>✓ Routine school<br/>work as tolerated</li> <li>✓ Homework up to<br/>60 mins./day</li> <li>✓ Minimal learning<br/>accommodations</li> </ul> | <ul style="list-style-type: none"> <li>✗ Phys. Ed class</li> <li>✗ Standardized<br/>tests/exams</li> <li>✗ Full participation<br/>in organized<br/>sports</li> </ul> |

READY  
FOR  
NEXT  
STAGE?

Tolerate full-time academic load  
without worsening symptoms

Stage  
4b

Full time



- | OK if tolerated  | Not OK  |
|--|---|
| <ul style="list-style-type: none"> <li>✓ Normal cognitive<br/>activities</li> <li>✓ Routine school<br/>work</li> <li>✓ Full curriculum<br/>load</li> <li>✓ No learning<br/>accommodations</li> </ul> | <ul style="list-style-type: none"> <li>✗ Full participation<br/>in sports until<br/>medically cleared.<br/>(See Return-to-<br/>Sport Strategy)</li> </ul> |

READY  
FOR  
NEXT  
STAGE?

Stages 5-6 of the  
Return-to-Sport Strategy

After a Concussion:

# RETURN-TO-SPORT STRATEGY



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A concussion is a serious injury, but you can recover fully if your brain is given enough time to rest and recuperate.

Returning to normal activities, including sport participation, is a step-wise process that requires patience, attention, and caution.

In the Return-to-Sport Strategy:

- ▶ Each stage is at least 24 hours.
- ▶ Move on to the next stage when activities are tolerated without new or worsening symptoms.
- ▶ If any symptoms worsen, stop and go back to the previous stage for at least 24 hours.
- ▶ If symptoms return after medical clearance, follow up with a doctor for re-assessment.

## Stage 1: Symptom-limiting activities

After an initial short period of rest of 24 to 48 hours, light cognitive and physical activity can begin, as long as these don't worsen symptoms. You can start with daily activities like moving around the house, simple chores, and gradually introducing school and work activities at home.

## Stage 2: Light aerobic activity

Light exercise such as walking or stationary cycling, for 10 to 15 minutes. The duration and intensity of the aerobic exercise can be gradually increased over time if symptoms don't worsen and no new symptoms appear during the exercise or in the hours that follow. No resistance training or other heavy lifting.

## Stage 3: Individual sport-specific exercise with no contact

Activities such as skating, running, or throwing can begin for 20 to 30 minutes. There should be no body contact or other jarring motions, such as high-speed stops or hitting a ball with a bat. No resistance training.

## Stage 4: Begin training drills with no contact

Add in more challenging drills like passing drills. There should be no impact activities (no checking, no heading the ball, etc.). Start to add in progressive resistance training.

## Stage 5: Full contact practice following clearance by a doctor.

## Stage 6: Return to Sport

Full game play or competition.



### How long does this process take?

Each stage is a minimum of 24 hours, but could take longer, depending on how activities affect the way you feel. Since each concussion is unique, people will progress at different rates. For most people, symptoms improve within 1 to 4 weeks. If you have had a concussion before, you may take longer to heal the next time.

If symptoms are persistent (i.e., last longer than two weeks in adults or longer than four weeks in youth), your doctor should consider referring you to a healthcare professional who is an expert in the management of concussion.

### How do I find the right doctor?

When dealing with concussions, it is important to see a doctor who is knowledgeable in concussion management. This might include your family doctor or a specialist like a sports medicine physician. Your family doctor may be required to submit a referral for you to see a specialist.

Contact the Canadian Academy of Sport and Exercise Medicine (CASEM) to find a sports medicine physician in your area. Visit [www.casem-acmse.org](http://www.casem-acmse.org) for more information. You can also refer your doctor to [parachute.ca/concussion](http://parachute.ca/concussion) for more information.

### What if my symptoms return or get worse during this process?

If symptoms return or get worse, or new symptoms appear, return to the previous stage for at least 24 hours. Continue with activities that you can tolerate.

If symptoms return after medical clearance (Stages 5 and 6) you should be re-assessed by your doctor before resuming activities. Remember, symptoms may return later that day or the next, not necessarily during the activity!

### Never return to sport until cleared by a doctor!

Returning to active play before full recovery from concussion puts you at higher risk of sustaining another concussion, with symptoms that may be more severe and last longer.

### Additional Resources

Available at [parachute.ca/concussion](http://parachute.ca/concussion):

- **Return-to-School Strategy**
- **Canadian Guideline on Concussion in Sport**
- **Concussion: Baseline Testing**