

# Concussion Rehabilitation Program



**613-822-0101**

*We keep you moving!*

## Graduated Return to Cognitive Activity Post-Concussion

A concussion can affect the brain in numerous ways and its recovery can be difficult to predict. Your goal should be to create an ideal environment for the brain to recover. Most people can appreciate that they shouldn't run in a track meet with a torn leg muscle – similarly, mental activity such as watching TV, spending time at the computer and reading cause strain on the brain while it is healing. Before you return to physical activity, you need to return to normal cognitive function in a gradual progression described in the stages below.

Stage	Tasks
1. Cognitive rest	Limit cognitive tasks. No school. No computer, reading, texting or television. Talking on the phone, listening to music and simple board games are okay.
2. Increase cognitive tasks	As symptoms improve, slowly add cognitive tasks for a maximum of 20min per day initially. Light activities include watching TV, drawing, cooking or listening to audio books. These activities should be stopped when they provoke moderate symptoms. The duration can be increased by small increments (of about 5-10 minutes) if symptoms return to normal within 30 minutes of rest.
3. Resume modified school/work attendance	When you can tolerate 1-2 hours per day of light cognitive activity, you can return to work or resume school attendance, starting with half-days if possible. Do homework/reading in 20-30 minute blocks and keep combined reading and screen time to about 2 hours per day to start. Increase the duration of the work/reading blocks gradually provided symptoms don't worsen severely and they return to normal within 30 minutes of rest. <b>Do not</b> start another block of reading/computer work if the symptoms from the previous session haven't resolved.
4. Increase school/work attendance	Gradually increase school/work attendance to full days as symptoms allow. Specific accommodations may be required to avoid symptom exacerbation (Table 1). Tests at school should be limited to one per day in a quiet area, with unlimited time and frequent breaks.
5. Return to Play protocol	Once symptom-free and back to full-time school/work attendance without accommodations, the patient can start with graduated return to play (Table 2).

**Table 1 - Cognitive accommodations for work/school**

<b>Post-concussion symptom</b>	<b>Effect on school performance</b>	<b>Accommodation</b>
Headache	Difficulty concentrating	Frequent breaks, work in a quiet area; hydration
Fatigue	Decreased attention, concentration	Frequent breaks; shortened day; attend only certain classes (avoid gym class or long meetings)
Sensitivity to light or noise	Worsening symptoms (headache)	Sunglasses, ear plugs or headphones, avoid noisy areas (cafeterias, assemblies, sport events, music class); limit computer work
Anxiety	Decreased attention or concentration, overexertion to avoid falling behind	Reassurance and support from teachers/employers about accommodations; reduced workload, potentially making up lost school credits by taking summer classes
Difficulty concentrating	Limited focus on school work	Shorter assignments, decreased workload, frequent breaks; having someone read aloud can help by reducing the strain of reading; more time should be given to complete assignments/reports and tests; quiet area to complete work
Difficulty remembering	Difficulty retaining new information, remembering instructions, accessing learned information	Written instructions, smaller amounts to learn, repetition

**Other Considerations:**

Although further study is still necessary, research (largely based on a study commissioned by the U.S. Department of Defence looking at war veterans with traumatic brain injury) also suggests that nutrition may have an impact on recovery post-concussion. Current recommendations are:

- stay well hydrated
- increase your daily protein intake especially in the first 2 weeks post-concussion (1 gram protein for every kilogram of body weight has been suggested in the study noted above)
- eat frequent, small meals



**Table 2 - Return to Play Guidelines Post-Concussion**

Rehabilitation stage	Functional exercise at each stage of rehabilitation	Objective of each stage
1. No activity*	Symptom-limited physical and cognitive rest until symptom free	Recovery
2. Light aerobic exercise	Walking, swimming or stationary cycling, keeping your heart rate <70% of your predicted maximum (maximum heart rate is 220 minus your age). No resistance training.	Increase heart rate
3. Sport-specific exercise	Skating drills in ice hockey, running drills in soccer. No impact activities	Add movement
4. Noncontact training drills	Progression to more complex training drills (eg, passing drills in football and ice hockey) May start progressive resistance training	Exercise, coordination and cognitive load
5. Full-contact practice	Following medical clearance, participate in normal training activities	Restore confidence and assess functional skills by coaching staff
6. Return to play	Normal game play	

*\*Children and adolescents should remain at this step until symptom-free for several days (optimally seven to 10 days).*