#7-45966 Yale Rd, Chilliwack, BC V2P 2M3
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Acute (New) Concussion Management

This handout is for anyone who has suffered from a new concussion (less than 2-4 weeks since injury). Please read each section to make sure you manage your concussion well and reduce the risk of continuing symptoms and disability.

It is important to monitor those with a suspected concussion for 24-48 hours after injury for worsening signs and symptoms.

What is a concussion?

A concussion is a mild traumatic brain injury (mTBI) following a sudden acceleration-deceleration mechanism to the neck and head. Although classified as a mild brain injury because there is no structural damage, concussions are serious injuries and can go on to become chronic or permanent if not managed well.

If a concussion is suspected, stop ALL high risk physical activity until assessed by a concussion-trained healthcare practitioner.

Normal symptoms after a concussion:

- Headaches, fatigue, and dizziness
- Vertigo, balance problems, and fatigue
- Drowsiness, fogginess, difficulty concentrating or remembering
- More emotional than normal - sadness, nervousness, irritability
- Nausea, vomiting, and visual problems
- Trouble with sleep and mental or physical exertion

Things family members, teammates, coworkers, or friends may notice immediately after a concussion:

- Loss of consciousness
- Amnesia - repeating themselves or not taking on new information after the injury, or not remembering the events leading up to the injury
- Confusion, convulsions
- Inappropriate crying or laughter
- Glazed look in the eyes
- Slurred speech, decreased coordination, balance problems

Red Flags: worrisome symptoms or signs that suggest emergency medical evaluation is needed immediately after a concussion

- Head/neck trauma in those over the age of 65
- Dangerous mechanism of injury (high speeds, compressive mechanism, falls)
- Seizure or loss of consciousness >30 minutes after injury
- Greater than 2 episodes of vomiting
- Amnesia lasting > 24 hours
- One pupil enlarged, weakness in part of the body
- Difficulty breathing, speaking, or swallowing
- Weakness in limbs

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Follow a "Return to" Protocol

Once more serious issues have been ruled out and a concussion has been diagnosed, it is important to follow a "return to" protocol. This will reduce the risk of ongoing symptoms and help to speed up your recovery. Below are some general guidelines you can follow.

Rules of a return to protocol:

1. **Spend at least 24 hours on each stage**
2. **Move onto the next stage only if activities at the current stage do not cause new or worsening symptoms.**
3. **Drop back to the previous stage if activities at the current stage worsens symptoms.**

Stage 1 - Relative cognitive and physical rest

After being diagnosed with a concussion, start with a short period of relative rest for 24 to 48 hours. Stay at home in a relaxing environment. Try simple activities such as drawing or listening to quiet music.

Stage 2 - Light cognitive and physical activity

Add light activities, as long as they don't make your symptoms worse. Try simple chores at home, going for short walks, reading and using a screened device, such as a computer or tablet, for short periods. Be sure to take breaks.

Stage 3 - Prepare to return to work or school

Add more cognitive activity, and for longer periods of time, as tolerated. Continue building up your physical activity, such as running regular errands, gardening, jogging and light exercise. You can try your work commute to see how it makes you feel. For school, you can try to do some assignments, readings, or try to study for a few minutes at a time. Consider what types of accommodations you can put in place when returning to work or school based on how you feel at stage 3 - contact your work or school to help with this as needed.

Stage 4 - Reduced working or school hours with accommodations

Begin your return to work or school based on your plan. Use the accommodations you need, such as a quiet work station and regular breaks for work, or reduced school hours and choosing less stimulating classes for school. Gradually increase working or school hours as long as your symptoms do not return or get worse.

Stage 5 - Regular hours with accommodations

Gradually decrease accommodations as tolerated. Be aware of how much energy you have left after the work or school day for things like entertainment, social activities, or household chores.

Stage 6 - Return to work or school

Full return to your regular work schedule without accommodations. **Important: it is recommended you get clearance before returning to full work or duties, especially if your work places you or others at risk. For ex. driving, operating heavy machinery, etc.**

Stage 7 - If needed, start a return to sport protocol at this stage

This is best done on an individual basis with a concussion-trained healthcare practitioner. Practice and return to play is strongly discouraged if you have not had clearance (see second impact syndrome on page 3).

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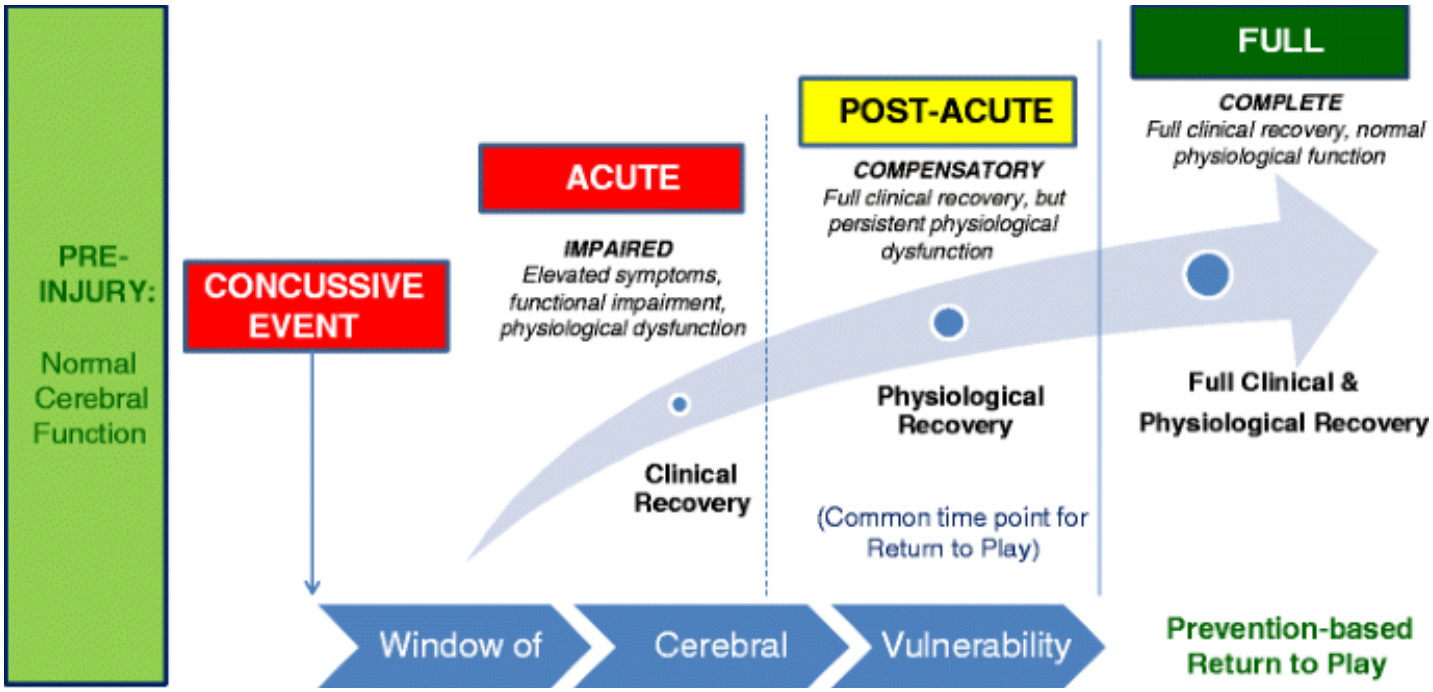
Recovering quickly, Reducing risk

- **For 60-70% of people, most concussive symptoms will be gone 10-14 days after injury. Full physiologic brain healing does not occur until around 3-4 weeks, however.** This means that symptoms alone are often a poor guide when making a return to high-risk activities, such as contact sports. Concussion-specific testing is strongly recommended if attempting to return to sport or demanding work within a month following a concussion.



Nelson, L.D., Janecek, J.K. & McCrea, M.A. Acute Clinical Recovery from Sport-Related Concussion. Neuropsychol Rev 23, 285–299 (2013). https://doi.org/10.1007/s11065-013-9240-7

Returning to play too early significantly increases the risk of:

1. **Second impact syndrome** - having a second concussion while still healing from one. This significantly delays recovery (some studies show symptom reduction takes 5-10x longer than it did on the first concussion), and in worst case scenarios can cause permanent brain injury.
2. **Post-concussive syndrome** - concussion symptoms and disability lasting beyond 1-3 months. Some studies estimate that 30-40% of concussions transition to post-concussive syndrome, and that seeing a concussion-trained healthcare practitioner soon after a concussion can significantly reduce this risk.

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Ongoing Concussion Symptoms

- Unfortunately, 30-40% of people experience concussion symptoms beyond 2 weeks. This is known as post-concussive syndrome. Research strongly recommends concussion-specific testing and rehabilitation in these situations. This usually involves testing of visual tasks, vestibular systems, neck and head (joint position awareness, strength), balance, and exertional testing. Chronic concussions are treated by finding the area(s) of dysfunction, and performing targeted rehab where needed.

- Most common areas affected by post-concussive syndrome:

Physiologic Dysfunction

Common symptoms: Trouble with sleep, exertion, fatigue, light sensitivity, emotional regulation, cognitions, and a number of other symptoms. *This is a key area that influences the rate of healing of other areas.*
Diagnosed by: symptom pattern plus exertion heart-rate specific testing (buffalo concussion treadmill test).
Treatment: sub-threshold heart rate aerobic exercise, sleep interventions.

Visual & Vestibular Dysfunction

Common symptoms: Vision problems, dizziness, vertigo, balance problems, headaches, neck tension, motion sickness and others. This area often contributes to and overlaps with cervicogenic dysfunction.
Diagnosed by: symptom pattern plus vestibulo-oculomotor testing, additional vestibular and visual testing.
Treatment: functional visual and vestibular rehab - based on symptoms and test results.

Cervicogenic Dysfunction

Common symptoms: Neck pain, jaw pain, headaches, dizziness, light sensitivity, and others. This area often contributes to and overlaps with visual & vestibular dysfunction.
Diagnosed by: symptom pattern plus cervical spine assessment - posture, range of motion, motor control, palpation, joint position error testing, and other cervical spine tests.
Treatment: gentle cervical manual therapy (soft tissue and joint therapies), cervical mobility, posture, strength, and motor control exercises. Cervical joint position training, balance training.