

## Diagnosis and Management of Concussion

Diagnosis	
<p><b>Blow to head/sudden jolt of the head</b> with at least one of the following:</p> <ul style="list-style-type: none"> <li>• <b>≥1 Clinical Signs:</b> Altered mental status, loss of consciousness (&lt;30 min), amnesia (&lt;24 h), neurological signs (e.g., seizure, coordination problems).</li> <li>• <b>≥2 Symptoms:</b> Dazed/confused feeling, physical symptoms (headache, nausea, dizzy, light/sound sensitivity), cognitive symptoms (feeling run down, fatigued, foggy), emotional symptoms (irritability, sadness).</li> <li>• <b>Imaging:</b> Clear evidence of neurotrauma.</li> </ul> <p><b>Exam:</b> Cranial nerve tests, motor strength/sensory/reflex tests of upper/lower extremities, cerebellar/vestibular/proprioceptive function tests, memory/cognition tests, upper/lower motor neuron tests, neck physical exam and others based on signs/symptoms (refer to other care pathways).</p> <p><b>Tools:</b> SCAT6, SCOAT6, child SCAT6, child SCOAT6.</p>	
Management Approach	
<p><b>Initial Management</b></p> <p><b>Education &amp; Reassurance:</b> Provide information on typical recovery timeline (2 weeks for adults, 4 weeks for children).</p> <p><b>Rest:</b> 24-48 hours of physical and cognitive rest, then gradual activity resumption.</p> <p><b>Return-to-Learn/Sport:</b> Stepwise reintegration into activities, prioritizing learning before sport. Refer to SCOAT6/child SCOAT6.</p> <p><b>Address Psychosocial Factors:</b> Manage anxiety, depression, fear of movement.</p> <p><b>Self-care:</b> Encourage healthy lifestyle (nutrition, sleep, exercise, stress management).</p> <p><b>Follow-up:</b> Continuously monitor and adjust treatment to meet goals.</p> <p><b>Criteria for discharge:</b> Achieved goals, worsening symptoms, failed treatment (e.g., no improvement after 12 weeks).</p>	<p><b>Symptom Management</b></p> <p>Multidisciplinary care may be required especially for persistent symptoms.</p> <p><b>Headache/Neck Pain:</b> Exercise therapy, manual therapy (e.g., SMT/mobilization to neck and back), electrotherapy, cautious use of medications (e.g., over-the counter analgesics) to avoid medication overuse headache (discuss options/risks with medical provider).</p> <p><b>Sleep/Fatigue:</b> Sleep hygiene, CBT, supplements (melatonin, zinc, magnesium).</p> <p><b>Mental Health/Emotional/Behavioural:</b> CBT, referral to mental health specialists.</p> <p><b>Cognitive/Memory:</b> Behavioral modifications, school/work accommodations, neuropsychological referral.</p> <p><b>Vestibular (balance/dizziness) or Vision:</b> Sub-symptom threshold exercise, cervicovestibular rehab (e.g., non-provocative ROM, postural stability, craniovertebral flexion/extension), vestibulo-oculomotor exercises (e.g., gaze stabilization, saccades, smooth pursuits), canalith repositioning (Epley, Brandt-Daroff).</p>
Red Flags: Immediate Referral to Emergency Care	
<p><b>Canadian CT Head Rule:</b> GCS &lt;15 at 2 hours, suspected skull fracture, signs of basal fracture (raccoon eyes, leaking fluid from ears/nose), vomiting ≥2 episodes, age ≥65 years.</p> <p><b>Canadian C-Spine Rule:</b> Age ≥65 years, dangerous mechanism, weakness/tingling in extremities, inability to rotate neck 45° left/right, midline tenderness.</p> <p><b>Additional Red Flags:</b> Seizure, double vision, severe/increasing headache, visible skull deformity, loss of consciousness, deteriorating conscious state, agitation, GCS &lt;15.</p> <p><b>Children &lt;2 years:</b> GCS score &lt;15, altered mental status, palpable skull fracture, scalp hematoma (except frontal), loss of consciousness ≥5 seconds, severe mechanism of injury (e.g., fall &gt;3 feet), not acting normally according to the parent.</p>	
<p><b>Orange Flags (Psychiatric Disorders):</b> Major depression, personality disorders, PTSD, substance addiction and abuse.</p> <p><b>Action:</b> Refer to appropriate provider/psychiatric specialist.</p>	<p><b>Yellow Flags (Psychosocial Factors):</b> Fear of movement, poor recovery expectations, depression, anxiety, work-related or family issues, litigation or compensation claims, maladaptive coping mechanisms.</p> <p><b>Action:</b> Address these as part of conservative care, co-manage, or refer to an appropriate provider.</p>