Concussion Management

Authors: Anne Mucha, PT, MS, NCS
Lisa Heusel-Gillig PT DPT NCS

Fact Sheet

Diagnosis of Concussion

Concussion is defined by the American Academy of Neurology as a "trauma-induced alteration in mental status that may or may not involve loss of consciousness".[1] Loss of consciousness occurs in less than 10% of cases.[2,3] Because concussion is a functional, rather than a structural injury, approximately 95% of concussed patients have normal CT scans,[4] and 70% have normal MRI's.[5] In the absence of loss of consciousness or abnormal imaging, the diagnosis of concussion is made on the basis of neurocognitive impairment and presence of symptoms.

Signs and Symptoms of a Concussion

Immediate signs/symptoms may include any of the following:[6,7]	**Ongoing** signs/symptoms may include:[8]
• Vacant stare • Delayed verbal expression (slower to answer/follow instructions) • Inability to focus attention (distractable) • Disorientation (walking in wrong direction, unaware of time/day/place) • Slurred or incoherent speech • Gross observable incoordination (stumbling, unable to tandem walk) • Emotional lability • Memory deficits • Any period of loss of consciousness • Nausea/vomiting • Headache • Dizziness	• Cognitive impairment (memory, attention, concentration, reaction time) • Headache(with/without migraine component) • Difficulty with balance • Dizziness • Difficulty focusing or reading • Fatigue • Photo/phono-sensitivity • Fogginess • Feeling slowed down (bradyphrenia) • Mood disruption (irritability, nervousness, depression) • Amnesia (retrograde or anterograde) surrounding the injury • Sleep disturbance (inadequate or excessive)

Management of Concussion

1. The treatment of choice is rest for the first 24-48 hours following the concussion, with limitations of both cognitive and physical exertion. After that time, gradual return to activities are encouraged as long as symptoms remain in the mild ranges
2. Protection from additional injury is another key aspect to management of a concussion. There appears to be increased vulnerability for repeat concussion while the brain is healing from a current concussion.[9]

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Contact us:
ANPT
Phone: 952.646.2038
info@neuropt.org
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6. Neurocognitive assessment, typically performed by a neuropsychologist and combined with symptom monitoring, is recommended following sports concussion to help delineate presence of a concussion and to help determine recovery from the injury.[10]
7. Balance testing is helpful to establish the presence of concussion as well as track recovery.[11,12]
8. Medication and/or physical therapy may be beneficial in cases where recovery is incomplete after 1-2 weeks. When indicated, medications should be directed toward specific post-concussive symptoms which may include headache/migraine, sleep disturbance, mood dysfunction or cognitive deficits.

Recovery from a Concussion

Current guidelines recommend restriction from contact sports which may lead to another concussion until full recovery can be demonstrated from the current concussion. While there is no single clinical test to establish full recovery, best current practice models require that patients are symptom-free at rest; have normal neurocognitive and balance testing; and experience no return of abnormalities when full cognitive and physical activity with exertion are introduced.[13,14]

Physical Therapy for Concussion

Following sports concussion, up to 79% of patients report dizziness and 56% of patients experience balance impairment.[8] Vestibular physical therapists are specially trained in the assessment and treatment of dizziness and balance deficits. Post-concussive dizziness may arise from several sources, including benign paroxysmal positional vertigo (BPPV), post-traumatic migraines, labyrinthine concussion, perilymphatic fistula and brainstem concussion.[15] Vestibular physical therapy has been shown to be effective in managing patients following concussion who continue to experience ongoing imbalance or dizziness without spontaneous resolution.[16] In addition, athletes who sustain a concussion may benefit from structured physical therapy to aide in recovery of strength and conditioning necessary for return to sports activity.[17]

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