



Level 1 Course (LIVE)
BEST PRACTICES IN CONCUSSION MANAGEMENT

Subject to Change

Final agenda with speakers/timelines will be released close to the course date
Course is 1.5 days (Friday afternoon through end of day Saturday)

Introduction

Brief review of what we know about concussions and what we will discuss during this course

- Why Shift?
- Introduction to the Shift Concussion Management Program and Shift Team

Acute Pathophysiology of Concussion

Our Concussion in Sport Consensus group defines it as “A complex pathophysiological process affecting the brain, induced by biomechanical forces.” This is a rather vague definition – so let’s break this injury down:

- Review of Injury Mechanism and Neurochemical Cascade
- Concussion signs and symptoms
- What we see clinically: impairments in visual-vestibular integration, cognitive performance, autonomic regulation, sensorimotor integration, mood and sleep regulation
- When symptoms persist - “the Trench”
- Clinical recovery and physiological recovery
- Second Impact Syndrome (SIS)
- Post-Concussion Syndrome (PCS), and risk factors for symptom persistence

Clinical Assessment of Concussion

The way in which we approach the clinical evaluation of the concussion patient has changed considerably over the years. Where we used to rely heavily on symptom reporting alone, thanks to recent clinical research, we have a new perspective on functional testing that can provide more objective evidence of impairment in our patients.

- Goals of the clinical assessment
- Patient interview
- Symptom Inventories and outcome measures
- Red flags and Canadian CT head rule
- Gross Neurological screening
- Cervical evaluation considerations (preview)
- Vestibular and oculomotor screening – introduction to the VOMS (with demo)
- Modified BESS, Dynamic Gait evaluations with interpretation considerations
- Neurocognitive Screening Tests
- Assessment for autonomic dysregulation and exercise intolerance (preview)
- Additional assessment considerations and special tests



Rest & Early Concussion Management Guidelines

The concept of advising “rest” as a treatment approach for traumatic brain injury has been the mainstay of concussion management for years. For a long time, this treatment strategy was widely accepted and undisputed. As simple and logical as the concept sounds, there has been a lot of research in this area over the past decade and it turns out that providing your patients with a prescription to “rest” may not be so straightforward after all

- “Rest” for concussion – what’s the research? Historical perspectives
- Impacts of prolonged rest and limited activity on recovery
- Physical exercise and concussion: benefits
- Practical recommendations for energy management during acute recovery
- Activity management based on functional complaint and clinical findings
- Sleep regulation during concussion and sleep hygiene
- Care strategies for symptom persistence (PCS)
- Active rehabilitation methods in concussion - introduction

Return to Learn and Work Interventions

Work and school commitments are a reality for concussion patients and seldom do we find ourselves in a position where we do not need to provide at least some level of guidance in this area. Return to learn and return to work planning may for many cases be Physician directed, but often we find ourselves, as rehabilitation professionals, also assisting in the development of recommendations, timelines, and accommodations – so it’s important to understand all of these moving parts to better support your patient through their recovery.

- Factors affecting return-to-learn post-concussion
- Clinical guidelines review (Canchild, Holland Bloorview, Parachute, ONF)
- School policy (Ontario) and memorandum 158
- Building individualized plans for return to learn and work – where do we start?
- Academic accommodation suggestions based on functional complaint and clinical findings
- Sample academic accommodations form template
- Sample case studies (2)
- Returning to the workplace – risk factors for delayed return
- Considerations for return-to-work planning
- Workplace accommodation suggestions based on functional complaint and clinical findings
- Sample case study

Cervical Injury and Concussion

The neck is something that definitely requires special attention from an evaluation and management standpoint in concussion. As we’ve learned already, significantly less force is required to injure structures in the cervical spine than is required to sustain a concussion. If you’re not looking at the neck, you’re missing out on a potentially huge symptom driver.

- Cervical anatomy/biomechanics review
- Trigeminal nerve complex and cross-over effects



- "Cervicogenic post-concussion disorder"
- Whiplash injury and clinical contribution to concussion presentation
- Visual-vestibular influence and neck injury
- Myofascial pain, cervicogenic and tension headache presentations post-concussion
- Assessment guide (introductory) – See level 2 for more advanced clinical maneuvers
- Multidisciplinary management

Vestibular-Ocular Rehabilitation: Introductory Principles

What can we do for patients with persisting vestibular-ocular impairments in the rehabilitation setting? Let's introduce you to some basic clinical principles you can utilize in your practice as part of a team approach (alongside Optometry, Psychology, Audiology/ENT etc). This is not meant to replace more comprehensive vestibular rehabilitation training but will provide you with foundational knowledge to build upon.

- Definitions, efficacy of vestibular rehabilitation therapy in concussion
- Anatomical and pathophysiological considerations
- Vestibular reflexes review: VOR, VSR, VCR
- Ocular functions: fixation, pursuit, saccades, convergence, accommodation, optokinetic reflex,
- Ambient vs focal visual processing
- Hypersensitivity to visual motion in concussion
- Clinical presentation – vestibular-ocular impairment with concussion
- Dizziness and concussion
- Peripheral vestibular disorders and concussion
- Vestibular-ocular rehabilitation methods using a three-phase approach (with video demonstration of protocols)
- When and when not to apply these concepts, referral indicators and interdisciplinary management

Exercise and Exertion Testing in Concussion

Exercise in concussion is a really hot topic right now and the research has been exploding in the past few years – at the forefront is Dr. Leddy and colleagues out of the University of Buffalo. So, let's take a closer look at what this means for you and your concussion patients

- Physical exercise and concussion: A review of the research
- Buffalo Concussion Treadmill test and interpretation considerations
- Prescribing subthreshold aerobic exercise
- Physical Exertion Testing and Return-to-Play Preparation in athletes (video demonstration of sample protocols)
- Return to Sport Guidelines

Sideline Assessment & Concussion Baseline Testing

A review on the topic of baseline testing and the recent controversies surrounding the practice. We'll explore important questions such as: when might baseline testing may be indicated? Under what conditions? What tools/measures should I consider? How can I offer support both pre-season and on the sideline?

- Current controversies and important considerations
- Baseline testing: what is the value?
- Considerations for age groups, test stability, reliability, and sensitivity



- Using a comprehensive approach: testing recommendations and methods
- The importance of player education, seasonal and side-line support
- Sideline assessment tools

Perceptual-Cognitive Training: NeuroTracker (12:58)

Special interest segment: exploring NeuroTracker, a cognitive training program designed to improve mental health performance

- Enhancement of attention, peripheral awareness and working memory

Interdisciplinary Care Pathways

Course summary and decision-making framework for approaching your concussion patients (for the introductory provider). Establishing your multidisciplinary network

- A Guide to Start-to-Finish Patient Management (working with the Medical Physician and others involved in patient care “team”)
- When/where/how when seeking additional support or making external referral recommendations
- Clinical considerations for complex patient presentations – post-traumatic migraine, mood disorders, and cognitive-fatigue presentations

Closing Remarks

Following completion of the course you will be provided with a certificate of completion.

Practical sessions, group breakaway and interactive case discussions will be interspersed throughout the 1.5 days.
