

Sample Level 2 Material/Content Breakdown

Subject to Change

Specific Agenda with Instructors/Timelines will be provided closer to the course date.

Content Covered

Persistent Post Concussion Symptoms (PPCS)

- Concussion Pathophysiology Review (neurometabolic cascade)
- Physiological Resolution and Acute Recovery Timeframes
- Guidelines for acute management (review from Level 1)
- Risk Factors for Symptom Persistence
- Persistent Post Concussion Symptoms and pathophysiological considerations
- Concussion Clinical Trajectories and Subtypes

Cervical Assessment in Concussion and Post-Concussion Syndrome

- Cervicogenic contributions to concussion symptomatology
 - o Research review
 - o Pathophysiology/Anatomy (upper/lower cervical spine)
 - o Trigeminal Nerve Complex
 - o Links to vestibular, visual, and sensorimotor control systems (altered cervical afferent information)
 - o Cervicogenic headache and Tension-Type Headache presentations post-concussion
 - o Whiplash and cervicogenic post-concussion disorder
 - o Assessment Techniques
 - o

Treatment and Rehabilitation Methods for the Cervical Spine Post-Concussion

- Literature Review: Efficacy of cervical interventions in concussion management
- Anatomical review (for treatment applications)
- Manual Therapy: indications, efficacy
- Active Exercise (with video example): Postural education, ROM, Motor control/stability, strength and endurance, kinesthetic awareness and proprioception, balance training, aerobic exercise
- Case Review

Physiologic Post Concussion Disorder – Introduction

- Review of the autonomic nervous system and regulatory processes
- Physiological Considerations in concussion with research summary
 - o Heart rate variability
 - o cerebrovascular regulation
- Influence of subthreshold aerobic exercise on recovery – research review
- Buffalo Concussion Treadmill/Bike Test review (indications, contraindications, procedure)

- BCTT/BCBT interpretation, prognostic utility
- Subthreshold aerobic exercise prescription guidelines
- Physiological benefits of exercise post-concussion
- Additional autonomic modulation techniques
 - o Paced breathing techniques with research review
 - o Mindfulness based yoga applications
- Exertion testing for return to sport in athletes
 - o Energy systems review
 - o Consensus guidelines review (Berlin)
 - o Testing protocols with video example
- Returning athletes to resistance training post-concussion
 - o Preliminary research
 - o Applications and process
- Sample case data

Vestibular and Ocular Management

- Vestibular-Ocular impairment in concussion – what the research tells us:
 - o Clinical Features
 - o Prevalence
 - o Impact on Recovery/Prognosis
- Risk factors for PCS
- Clinical Relevance
- Video case example (introduction)
- Vestibular system: Anatomical Review
 - o Bony/Membranous Labyrinths
 - o Otoliths, Semi-circular canals
 - o Hair Cells, neural excitation/inhibition
- Vascular Supply
- Neural/Processing Pathways
- Vestibular (and associated) Reflexes
- Post-traumatic peripheral vestibular disorders
- Central/Cortical vestibular impairment (sensory integration)
- Visual system: post-traumatic susceptibility
- Symptoms and clinical features of post-traumatic visual dysfunction
- Functional considerations (visual efficiency)
- Visual information processing and sensory integration
- Light sensitivity in concussion (features, natural history, mitigation)
- Locating and working with a neuro-optometrist / eye care specialist for mTBI

Vestibular-Ocular Assessment Considerations

- Multifactorial nature of dizziness
- Historical/subjective considerations
- Red Flags
- Gross neurological screening
- Outcome measures and assessment tools
- Clinical Evaluation with interpretation
 - o Balance/postural stability
 - o Vestibular-Oculomotor Screening (review)
 - o BPPV evaluation
 - o Vestibular special tests

- Testing for other sources of dizziness
- Importance of neuro-optometric referrals and interdisciplinary collaboration

Vestibular-Ocular Rehabilitation – Concepts and Research

- Prioritizing treatment based on assessment results
- When to initiate, goals of treatment
- Mechanism of recovery: compensation, neuroplasticity
- Managing peripheral traumatic vestibular disorders: BPPV
- Managing symptom severity
- Nocebo effects
- Adaptation, Habituation, Substitution
- The importance of an integrated approach
- Acute vs. Chronic
- Level 1 course: Rehabilitation concepts brief review
- Stages of progression: Isolation, Integration, Loading
- Input vs Output
- Stabilization: Spatial Awareness, oculomotor skills, early vestibular progressions, adaptation (with video example)
- Integration: Dynamic advancements, motion and optokinetic hypersensitivity, habituation (with video example)
- Loading: Sensory, Cognitive, Exertional
- Interdisciplinary collaboration

Complex Case Considerations: Persistent Post-Traumatic Headache, Sleep, and Mood Disorders

- Impact, prevalence, implications for recovery/prognosis
- Red Flags in post-traumatic headache
- Post-traumatic headache: pathophysiological considerations, ICHD-3 criteria
- Post-traumatic headache sub-classifications (emphasis on migraine, tension-type, cervicogenic)
- Medication overuse headache
- Historical considerations and symptom survey's when assessing persistent post-traumatic headache
- Comorbidities: Mood, cognition and sleep disorders
- Presentation, Prevalence, Evaluation Considerations (sleep and mood disorders)
- Conservative Management Considerations
- Medical Referral and treatment options
- Case Examples

Complex Case Considerations Cognition and Fatigue

- Research Review:
 - Concussion and attention: attention span, divided attention, information processing speed
 - Influence of ADHD/LD
 - Executive function post-concussion
 - Memory processes
 - Inhibitory control
 - Fatigue
- Assessing Cognitive Function:
 - Subjective/objective considerations
 - Screening and standardized testing available
 - Subjective scales (fatigue, executive function, memory and cognition)
- Mental Health considerations and impact on cognition and quality of life
 - Somatic symptoms

- Screening tools
- Functional scales
- Treatment considerations
 - Psychoeducation
 - Energy conservation and pacing
 - Compensatory training
 - Mindfulness based programs
 - Coping strategies
- Mental health referrals: how, when

Case Presentation/Discussions

- clinical cases presented with discussion
- Discussion considerations:
 - Key points from case history
 - Identifying each patient's "clinical trajectory"/systems affected
 - Significance of assessment findings
 - Recommended rehabilitation interventions
 - Referral considerations