

VESTIBULAR AND OCULAR REHABILITATION METHODS FOR CONCUSSION

Day 1: 9am – 5:30pm (1HR LUNCH)

Introduction

Vestibular and Oculomotor Impairment in Concussion and Post Concussion Syndrome: Review of the Research

- Concussion Pathophysiology Review (neurometabolic cascade)
- Physiological Resolution and Acute Recovery Timeframes
- Post-Concussion Syndrome and pathophysiological considerations
- Vestibular-Ocular impairment in concussion:
 - o Symptoms
 - o Clinical Features
 - o Prevalence
 - o Impact on Recovery
- Risk factors for PCS
- Clinical Relevance

The Vestibular System: Anatomy and Post Traumatic Pathophysiology

- 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
- Nystagmus
- Post-traumatic peripheral vestibular disorders
- Central/Cortical vestibular impairment (sensory integration)

Clinical Assessment Considerations: Dizzy Patients

- 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
 - o Testing for other sources of dizziness

Practical Breakaway

Ocular Considerations in Concussion for the Rehab Professional

- Visual system: post-traumatic susceptibility
- Symptoms and clinical features
- Functional considerations (visual efficiency)
- Visual information processing and sensory integration
- Light sensitivity
- Other ocular considerations

Clinical Screening Considerations for the Oculomotor System

- Historical/Subjective considerations
- Outcome measures and assessment tools
- Clinical screening tests for the medical-rehab professional
- Importance of neuro-optometric referrals and interdisciplinary collaboration

Practical Breakaway

Group Case Discussion

- Identifying key case points
- Clinical evaluation and test interpretation considerations
- Review of energy management principles, patient education, return to learn/work
- Formulating a generalized clinical rehabilitation strategy

Adjournment

VESTIBULAR AND OCULAR REHABILITATION METHODS FOR CONCUSSION

Day 2: 9am – 5:00pm (1HR LUNCH)

Vestibular-Ocular Rehabilitation Concepts in Concussion

- 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
- Adaptation, Habituation, Substitution
- Rehab strategies: Early, Intermediate, Advanced

Vestibular-Ocular Rehabilitation Concepts Continued

- The importance of an integrated approach
- Acute vs. Chronic
- Level 1 Rehab concepts brief review
- Stages of progression: Isolation, Integration, Loading
- Input vs Output
- Stabilization: Spatial Awareness, oculomotor skills, early vestibular progressions, adaptation
- Integration: Dynamic advancements, motion and optokinetic hypersensitivity, habituation
- Loading: Sensory, Cognitive, Exertional
- Interdisciplinary collaboration

Practical Breakaway

Exercise and Autonomic Dysregulation

- Anatomical Review
- Physiological Considerations in concussion
- Heart rate variability, cerebrovascular regulation and concussion
- Exercise applications in concussion and PCS: research update
- Buffalo Concussion Treadmill Test review
- Exercise prescription strategies
- Sample case data

Group Case Discussion

- Building a specific rehabilitation plan based on clinical assessment results (return to Day 1 cases)
- Rehab progressions (how, when)
- Interdisciplinary collaboration, referral considerations

Adjournment