Pediatric Vestibular Assessment & (Re)habilitation Certification Workshop

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Day 1  8:00 am – 5:30 pm

Morning Session: (3.75 hrs)
8am – 12pm (Break 10:30am – 10:45am)
- Welcome and Introductions
- Phylogenic development and anatomy and physiology of peripheral and central vestibular mechanisms
  - Vestibular Ocular Reflex (VOR)
  - Vestibular Spinal Reflex (VSR)
  - Vestibular Collic Reflex (VCR)
  - Cervical-Vestibular Reflexes
- Review of the theory of human equilibrium: Integration of vestibular, vision and somatosensory modalities and central processing

Lunch: 12 Noon – 1pm

Afternoon Session: (4.25 hrs)
1pm – 5:30 pm (Break 3:00pm – 3:15pm)
- Pathophysiology of common pediatric vestibular and balance disorders
  - Otologic
  - Syndrome and mitochondrial disorders with and without Audiovestibular expressivity
  - BPPV in children with and without head trauma
  - Labyrinthine concussion
- Non-otologic
  - BPV of Infancy
  - Vestibular Migraine – puberty onset
  - Cortical concussion
- Questions – Summary
Pediatric Balance Evaluation & Management (Continued)

Day 2  8:00 am – 5:30 pm

Morning Session: (3.75 hrs)
8am – 12pm (Break 10:30am – 10:45am)

- Clinical Pathways: Using a decision tree- what, when and how to test/evaluate- functional impairment
- Behavioral assessment –
  - Age appropriate motor milestone protocols and techniques for infants and young children ages 3months +
  - Optokinetic Pursuit and ocular motility
  - Clinical Test of Sensory Integration (CTSIB)
  - Dynamic Visual Acuity Test
  - Head Impulse

Lunch: 12 Noon – 1pm

Afternoon Session: (4.25 hrs)
1pm – 5:30 pm (Break 3:00pm – 3:15pm)

- Electrophysiology Testing Protocols and Interpretation
  - VEMP
    - Cervical
    - Ocular
    - Best protocols for infants and young children
  - VHIT
    - Theory
    - Practical application with “hands-on”
  - Rotation Testing
    - Active - VORTEQ
    - Passive- Rotary Chair
  - VideoNystagmography (VNG) with pediatric modifications

- Questions- Summary
Day 3  8:00 am – 5:30 pm

Morning Session:  (3.75 hrs)
8am – 12pm (Break 10:30am – 10:45am)

1. Development of gaze stability and postural control
   - Vestibular system
   - Vision
   - Sensory organization
2. Patient History
   - Symptoms
   - Self-report measures of dizziness
3. Systems Review: Oculomotor Screening Exam
   - Eye alignment
   - Smooth pursuit
   - Saccades
   - Near Point of Convergence
   - Static Visual Acuity
   - VORCancellation
4. Age-appropriate Clinical Tests of Vestibular Function and Balance
   Clinical Tests of Canal Function (VOR)
   - HIT
   - Emory Clinical Vestibular Chair Test
   - Clinical Tests of Gaze Stability
     - DVA

Lunch: 12 Noon – 1pm

Afternoon Session:  (4.25 hrs)
1pm – 5:30 pm (Break 3:00pm – 3:15pm)

5. Clinical Tests of Otolith Function and Balance
   - SVV app
   - BOT-2 Balance Subtest
   - Pediatric Balance Scale
   - PDMS-2 objective manipulation, stationary, locomotion subtests
Pediatric Balance Evaluation & Management (Continued)

- Dynamic Gait Index
- Modified CTSIB

6. Interventions for Vestibular Dysfunction in the Pediatric Population

Recovery mechanisms for vestibular hypofunction
- Adaptation
- Substitution
- Habituation

Decreased Gaze Stability
- Gaze Stabilization Exercises (X1, X2)

Decreased Postural Control
- Balance exercises to drive use of vestibular, vision, or somatosensory
- Dynamic balance exercises with head movement

Motion Sensitivity
- Habituation

Day 4 8:00 am – 5:30 pm

Morning Session: (3.75 hrs)
8am – 12pm (Break 10:30am – 10:45am)

7. Epidemiology of pediatric related concussion
   - The concussion continuum
   - The concussion team

8. Concussion Terminology
   - Classification Approach
   - Position statements
   - Facts vs. Myths

9. Brain physiology post-concussion
   - Structural vs metabolic
   - Chemical cascade

10. Acute assessment techniques
    - SCAT5 pediatric
Pediatric Balance Evaluation & Management (Continued)

- Office-based examination
- Post-Concussion Symptom Scale

11. Rehabilitation interventions
- Exercise vs. rest
- Return to activity
- Return to school

Lunch: 12 Noon – 1pm

Afternoon Session: (4.25 hrs)
1pm – 5:30 pm (Break 3:00pm – 3:15pm)

- The 6th and 7th sense: Vestibular & Proprioception
  - Influence on development
  - Ayers Sensory Integration Theory
  - Dunn’s Model of Sensory Processing
- Evaluating the whole child
  - Child Occupations
    - School, play, self-care, development, and exploration
    - Context and occupations
    - Family centered evaluations
  - Sensory Processing Evaluation
    - Sensory Profile 2 (Infant, Toddler, Child, School Companion)
    - Short Sensory Profile 2 (3-14 years old)
  - Routine Inventory
  - Developmental Milestones Assessments
    - Batelle Developmental Inventory II (BDI-II)
    - Peabody Developmental Motor Scales, Second Edition (PDMS-2)
    - The Hawaii Early Learning Profile (the HELP)
  - Incorporation of vestibular special tests
  - Parent, caregiver, and family concerns

(Break 3:00pm – 3:15pm)
- Managing the whole child
  - Ecology of Human Performance
    - Interaction of demands of the environment, task (occupation), and person and how they affect performance
  - Age and Stages of development
  - Caregiver education and empowerment
    - developing competency within the family unit
Pediatric Balance Evaluation & Management (Continued)

- coaching model
  - Interventions
    - Establish/restore
    - Modify
    - Create/Promote
    - Maintain
    - Prevent
  - Incorporation of vestibular rehabilitation protocols into child’s play and occupation
  - Outcomes
    - Family based
    - Measurable

- Questions
- Summary and Conclusions