VISION ASSESSMENT AND TREATMENT FOLLOWING CONCUSSIONS

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SEMINAR OBJECTIVES

- Understand the basic process and categories of vision
- Understand common visual deficits with concussions (mTBI)
- Implement at least two components of a Vision Assessment post concussion
  - CN Assessment
    - Acuity, PEARL, ROM & Tracking
  - Saccades using King Devick
  - Convergence Insufficiency
  - TBI Vision Questionnaire
- Understand the concepts Vision Treatment for the concussed athlete
Vision is our Dominant Sense
- 70-80% of how we learn and interact with our environment at least in part is mediated by our visual system

Three Categories of Vision
- Visual Acuity and Visual Fields
- Visual Motor Ability
  - Tracking
  - Fixations
  - Mechanics
- Visual Perception
  - Processing Information
COMMON VISUAL DEFICITS FOLLOWING CONCUSSION

- Binocular Disorders
  - Convergence Disorder
  - Accommodative Insufficiency
- Diplopia
- Photophobia
- Eye Movement Disorders
  - Tracking & Scanning
    - Fixation
    - Saccades
    - Pursuits
EFFECT OF NEUROLOGICAL INSULTS ON VISION

- Reduced Focusing
- Strabismus
- Binocular Anomalies
- Oculomotor Dysfunction
- Vestibular Effects on Eye Movement
- Abnormal Light Sensitivity (Photophobia)
- Reduced Blink Rate
- Visual “Overwhelming”
- Visual Perceptual Dysfunctions
POSSIBLE FUNCTIONAL AREAS AFFECTED AFTER CONCUSSION

- Ambulation
- Hand-Eye Coordination
- Perception
- Cognition
- Reading
- Using the Computer
- Balance
- Driving
- Sport
Symptom Assessment (Self-Report)
- Return to Play (Asymptomatic)
- Graded and Measurable Symptom Assessment (SCAT)
  - Variety, Severity, and Duration
  - Measure subjective responses as objectively as possible

History of Past Injuries
- Baseline
- Resolution timeline
- Therapy

Sideline vs. Clinical Evaluation
- NHL MODIFIED SCAT 3
- NFL SCAT 3 (SIDELINE CONCUSSION ASSESSMENT TOOL)
- King Devick
VISION ASSESSMENTS SIDELINES

- NFL (SCAT 3) & NHL MODIFIED SCAT 3
  - Symptom Evaluation for Vision (Subjective)
    - Blurred Vision
    - Sensitivity to Light
  - Coordination Examination (Objective)
    - FTN Task

- Suggestions for Advanced Testing
  - Cranial Nerve Assessment
    - Acuity - Distance and Near
    - Pupillary Signs (PEARL)
      - Size
      - Response to Light
    - ROM and Pursuits/Tracking
Assess ROM and Scanning (Objective)
  - Quality of Pursuits
  - Observation with eye movements

KING DEVICK (Objective)
  - Saccades Testing
  - Baseline and Concussion Screening
  - Easy to administer
  - Can manage multiple athletes with Online Version

Convergence Insufficiency (Subjective & Objective)
  - NPC (1-2” WNL)

TBI Vision Questionnaire (Subjective)
  - Can be measured based on scoring
  - Can be used for outside referral to OD
**VISION ASSESSMENT WHEN TO REFER?**

- **King Devick**
  - If the subject has a TOTAL TIME which is slower than the Baseline Time or has any ERRORS

- **TBI Questionnaire**
  - If score is $> 21$ points on the first 15 questions

- **ROM and TRACKING**
  - Poor Quality
  - Exacerbates Symptoms
Things to Consider
- Sensory Information = Motor Response
- Integrating vision, vestibular and somatosensory activities with cognitive tasks
- Low Tech equipment

Treatment Workshops
- Evaluations
  - Saccades (King Devick)
- Scanning (Marsden Ball)
- Kirschner Arrows (Eye Hand Coordination)
- Brock String (CI)
WORKSHOPS

Workshop #1
- Vision Assessments for “sideline” management
  - PEARL & CN Assessment
  - Saccades using King Devick
  - Range of Motion & Scanning
  - Convergence Insufficiency

Workshop #2
- Basic Vision Treatment Ideas
  - Eye Hand Coordination
  - Scanning & Saccades
  - Brock String
  - Adding Cognitive Components
THANKS

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