

Hands on Workshop Sports and Performance Vision Outline

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2 hours

Description:

This workshop serves to provide hands-on training in sports and performance vision. This course will cover topics pertaining to sports and performance evaluations and additional aspects to consider when evaluating a concussed athlete. Furthermore, the course will cover treatment and therapy options for acquiring peak sports performance as well as rehabilitation for the concussed athlete.

Learning Objectives:

- Understand the role of vision for optimal athletic performance
- Review and conduct pertinent components of a sports vision evaluation
- Review and conduct therapy and training strategies for peak vision performance of the athlete
- Review and conduct assessment strategies that may differ amongst youth athletes
- Review and conduct assessment strategies and testing for the concussed athlete
- Review and conduct therapy strategies for the concussed athlete

Introduction:

Define Sports Vision

- Definition
 - Refractive considerations
 - Eyewear
 - Contact lenses
 - Tints
 - Vision training
 - Vision rehabilitation
- Background considerations
 - Age
 - Sport
 - Competition level
 - In-season versus off-season

Sports Vision Testing:

Station 1: Chair tests

- Case history
 - Convergence Insufficiency Symptom Survey
 - Concussion history?
 - Screen-time at near?
 - Do you notice changes in performance in the following conditions
 - Day versus night

- Practice versus games
 - Early in games versus late in games
 - In pressure situations (runners in scoring position)
 - Indoors versus outdoors
 - Home games versus road games
 - Full arenas versus empty arenas
 - Variability in certain gazes or visual angles during sports or competition
- Visual acuity
 - Static visual acuity
 - Monocular
 - Binocular
 - Dynamic visual acuity
 - Projector system
 - Rotator
- Contrast sensitivity
 - Monocular
 - Binocular
- Distance stereopsis
- Refractive status
 - Special considerations for low refractive status
 - Myopia
 - Astigmatism
 - Hyperopia
 - Anisometropia
- Retinoscopy
 - Near retinoscopy
 - Distance retinoscopy
- Eye/hand/foot preference
 - Dominant eye testing
 - Sighting
 - Triangle test/Diamond test
 - Sensory
 - +1.50
 - Dominant hand testing
 - Writing hand
 - Throwing hand
 - Dominant foot testing
 - Kicking foot
 - Which foot do you step on first on stairs or steps
- Cover test
 - Ocular posture
 - Exophoria
 - Esophoria
 - Orthophoria

- Base out and base in vergences
 - Distance
 - Near
 - Phoropter vs step vergences
 - Impact of stress
- Amplitude of accommodation
 - Push up
 - Pull away
 - Minus lens
- Facility
 - Binocular
 - Suppression check
 - +2.00/-2.00
 - Rock card
 - Accommodative
 - Monocular
 - Vergence
 - 12BO/3BI near
- Eye movements
 - Developmental Eye Movement Test
 - Vertical
 - Horizontal
 - Errors
 - Ratio
 - King-Devick test
 - Tablet based
 - NSUCO
 - Saccades
 - Pursuits
 - Head movements
 - Body movements
 - Portable gaze tracker
 - ReadAlyzer

Station 2: Performance tests

- Brock string
 - Localization
 - Suppression
 - Feedback
 - Correlate test to what may be occurring on field or court
- Stereoscope
 - Van Orden Star
 - Cheirosopic tracing
 - Correlate test to what may be occurring on field or court
- Visual spatial

- Space board
- Correlate test to what may be occurring on field or court
- Worth 4 Dot
 - Suppression
 - Diplopia
 - Luster
 - Repeat to simulate stress
 - +2.00/-2.00
 - Correlate test to what may be occurring on field or court
- Visualization
 - Probe visualization
 - Train visualization
- Testing which is impacted by stress
 - Physiological
 - Psychological
 - Correlate to what may be occurring on field or court
- Visual processing/perceptual testing
 - Visual spatial skills
 - Gardner Execution, Reversal Recognition and Matching Tests
 - Jordan Left-Right Reversal Test
 - Piaget Left-Right Reversal Test
 - Visual motor integration
 - Beery Visual Motor Integration
 - Wold Sentence Copy Test
 - Visual analysis
 - Test of Visual Perceptual Skills (TVPS)
 - Motor Free Test of Visual Perceptual Skills (MVPT)
 - Auditory memory
 - Test of Auditory Perceptual Skills (TAPS)
 - Auditory Visual Integration Test (AVIT)
 - Test of Auditory Analysis Skills (TAAS)
 - Executive functioning
 - Children's Color Trails Test (CCTT)
 - Symbol Digit Test
- Visual motor reaction time
 - Anticipation timing
 - Synchrony pro
- Eye-hand motor coordination
- Sport-specific gazes

Sports Vision Training/Therapy:

Station 1: Review of sports vision training activities working on visual process and human performance

- Near far chart

- Near far quickness
- Visual tracking
- Accommodation
- Soft focus
- Hart chart
 - Visual tracking
 - Soft focus
 - Body synchronization
- Kirschner arrows
 - Visual tracking
 - Soft focus
 - Visual spatial skills
 - Body coordination
 - Body synchronization
- Square balance board
 - Body coordination
- Lens work
 - Visual discrimination
 - Contrast sensitivity
 - Just noticeable differences
 - Perceptual cues
- Estimating distances
 - Visual spatial skills
 - Visualization
 - Body coordination
- Monocular accommodative rock
 - Accommodation
 - Visual tracking
- Binocular accommodative rock
 - Anti-suppression
 - Stereopsis
 - Visual tracking
- Brock string
 - Fixation
 - Spatial localization
 - Anti-suppression
 - Vergence
 - Smooth voluntary vergence
 - Divergence
 - Convergence
- Bug on a string
 - Smooth voluntary eye movements
 - Divergence
 - Convergence
- Slap tap
 - Visual spatial skills

- Visual tracking
- Visual motor integration
- Body synchronization
- Visualization
 - Ability to form a mental image
 - Use all senses
 - Eyes closed
 - Reduce anxiety
 - Activates same neurons as performing the actual activity one is visualizing
- Movable forest
 - Spatial localization
 - Estimating distances
 - Visual motor integration
- Parquetry
 - Visual discrimination
 - Visual spatial skills
 - Visual memory
 - Visual closure
- Yoked prism
 - Visual spatial integration
 - Visual motor integration
 - Spatial localization
- Lifesaver cards
 - Vergence eye movements
 - Anti-suppression
 - Just noticeable differences
 - Stereopsis

Station 2: Review of sports vision training activities incorporating technology and visual process and human performance

- Stroboscopic training
 - HECostix
 - Flying rings
 - Ball games
 - Outline studies and drills utilizing stroboscopic training\
 - Visual motor integration
 - Visual spatial skills
 - Visual tracking
 - Eye-hand motor coordination
 - Anticipation timing
 - Reaction time
- FITLIGHT
 - Visual motor integration
 - Visual spatial skills
 - Visual tracking
 - Eye-hand motor coordination

- Anticipation timing
- Reaction time
- Peripheral awareness

Modifications for the concussed athlete:

Station 1: Testing Modifications

- Vestibular Ocular Motor Screening (VOMS)
 - Pursuits
 - Saccades
 - Near Point of Convergence (NPC)
 - Vestibular Ocular Reflex (VOR)
 - Visual Motion Sensitivity (VMS)

- Balance Error Scoring System (BESS)
 - Double-leg stance – feet together
 - Single-leg – standing on non-dominant leg
 - Tandem – heel to toe (non-dominant foot in-front)

- Visual spatial
 - Altered egocentric localization (AEL) testing
 - Using Wolff wands

Station 2: Training/Therapy Modifications

Additional considerations for managing the concussed athlete

- Yoked prism trial
 - Spatial orientation
 - Useful for balance and posture
- Tints
 - Tint trials
 - Chadwick Optical tints
 - Altius contact lens trials
- Binasal Occlusion
 - Improves reading
 - Improves visual motion sensitivity
- Accommodations
 - Sample accommodations
 - Return to school protocol
 - Return to play protocol
 - Interdisciplinary team
- Mindfulness
 - Breathing
 - Meditation
 - Stress management

Conclusion:

- **Review and Q&A**