The Vestibular System
Session Overview

- What is the vestibular system?
- How can a TBI affect the vestibular system?
- How do we assess vestibular function?
- What should you do if you suspect you have vestibular dysfunction?
What is the vestibular system?
The vestibular system is in the inner ear.
The vestibular system includes peripheral end organs, central processors, and motor output.
The vestibular system coordinates eye and head movement, keeps you upright and stable, and maintains your sense of equilibrium, among other things.
The vestibular system detects angular and linear acceleration.
The 3 semicircular canals detect angular acceleration.
The 2 otoliths detect linear acceleration.
Hair cells convert information about head acceleration into neurologic signals.
The vestibular nerve sends signals to the brainstem and cerebellum, where information is combined with other systems.
The vestibuloocular reflex (VOR) is responsible for gaze stabilization during head movements.
The vestibulospinal reflex (VSR) stabilizes the body in response to perturbations.
The vestibulocollic reflex (VCR) acts on the neck musculature in order to stabilize the head.
The vestibular system also helps regulate the autonomic nervous system.
How can TBI affect the vestibular system?
TBI can damage peripheral and central vestibular processing.
Symptoms of vestibular function may include...

- Dizziness
- Nausea/vomiting
- Imbalance
- Headache/migraine
- Blurred vision

- Sensitivity to noise/tinnitus/hearing loss
- Depression
- Anxiety
Symptoms of vestibular function may lead to...

- Falls
- Disruption of work/daily activities of living
- Disability
- Vertigo
- Autonomic dysfunction
- Among other things...
How do we assess vestibular function?
Vestibular Ocular Motor Screening (VOMS)

- Horizontal & Vertical Pursuits
- Horizontal & Vertical Saccades
- Near Point Convergence
- Horizontal & Vertical VOR
- Visual Motion Sensitivity
Videonystagmography (VNG), Vestibular Evoked Myogenic Potential (VEMP), & Video Head Impulse Testing (VHIT)
Rotary Chair & Vestibular Perception
Computerized Dynamic Posturography (CDP)
What should you do if you suspect you have vestibular dysfunction?
ASK QUESTIONS – GET HELP

• Vestibular therapy can be effective!
• Vestibular therapy is implemented by physical therapists.
• Physical therapists (and ENTs) are trained in identifying & treating vestibular dysfunction.
• More next time...
THANK YOU!
QUESTIONS?
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