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Assessing the Dizzy Patient

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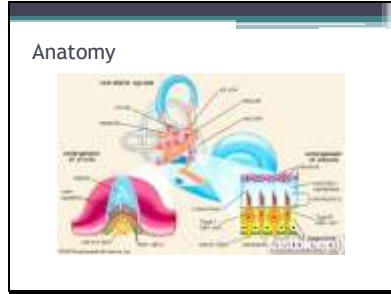
We have nothing to disclose

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Objectives

- Be able to describe the anatomy and physiology of the vestibular system in general terms
- Be able to take an accurate, meaningful history from the patient
- Be able to identify and correctly name nystagmus
- Indentify peripheral vs central signs in the dizzy patient

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Characteristics of Peripheral Nystagmus

- **Jerk Nystagmus**
 - Named for the fast phase
 - Slow phase is vestibular driven
 - Fast phase is central reset
- **Follows 3 Laws**
 - Alexander's Law
 - Ewald's Law
 - Flourens's Law

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Alexander's Law

- **Gaze toward the fast phase of nystagmus intensifies the nystagmus but direction is FIXED**
 - 1st Degree: Nystagmus is present looking toward the fast phase
 - 2nd Degree: Nystagmus is present in center and in the direction of the fast phase
 - 3rd Degree: Nystagmus is present in center, looking toward the fast phase, and looking away from the fast phase

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Ewald's Law

- Stimulation of the semicircular canal will cause eye movements in the plane of that canal
- Eye movements from excitation are greater than inhibition

Flouren's Law

- Eyes move predominantly in the direction of the canal being stimulated

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Characteristics of Central Nystagmus

- Direction changing with gaze
- Pure vertical nystagmus
 - Down beating (most common)
 - Up beating (most common in brainstem lesions)
- Pure torsional nystagmus
- Direction changing positional nystagmus that is asymptomatic

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Warning!!!

- Before your history and exam **DO NOT** give CNS acting medications
 - These may skew your results, or make you miss nystagmus that was present prior to medicating
- OK to medicate for nausea

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Observation/Exam Continued

- **HINTS (Head impulse—nystagmus—Test of Skew)**
 - Head impulse test: Do eyes stay on target or is there a saccadic correction
 - If correction: indicates hypofunction
 - Nystagmus: Is direction fixed, changing, purely torsional or purely vertical?
 - Test of skew: cover cross cover test
 - Does the covered eye move back down to match the other eye when uncovered? If so = central dysfunction
- **Neuro Screen**
 - The D's: diplopia, dysphagia, dysarthria, dysmetria, disconjugate gaze
 - Vertebral artery screen

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- **Peripheral**
 - Sudden onset
 - True vertigo
 - Events <24hours
 - Slowly improving from continuous to vertigo with head movements
 - If head movement provoked: <2min
 - Can have auditory involvement
 - Unsteady but can ambulate with assist
- **Central Lesion**
 - Sudden onset
 - Slower onset of imbalance with standing and walking
 - Vertigo, lightheadedness, imbalance, vague sensation of motion in the head
 - One of the D's

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Central Dysfunction

- **Presentation**
 - Variable depending on which part of the brain is affected
 - Gradual or sudden onset of vertigo or world being tilted to one side
 - Inability to ambulate even with assist or falling to one side
 - May have nausea and vomiting
 - Diplopia, dysphagia, dysarthria
- **Exam**
 - Positive HINTS
 - Negative head impulse
 - Pure torsional, vertical, or direction changing nystagmus
 - Positive for skew with cover cross cover test
 - Truncal ataxia with sitting EOB or pt is unable to stand/ambulate even with assist
 - Corrective saccades and impaired smooth pursuits
 - Impaired coordination
 - Disconjugate gaze

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Other Causes of Dizziness

- Migraines
- Cervicogenic
- Multiple Sclerosis
- Psychiatric
- Pre-syncope

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Case Study 1

- **History/presentation**
 - 68yo female presents to ED with sudden onset of dizziness at 9am
 - Pt was leaving for MD appointment to address recent increased BP's
 - Characterized as continuous and room spinning
 - Denies fullness/tinnitus
 - Nothing makes it feel better, but best position is lying still with eyes closed
 - Felt unable to ambulate but was able to take steps to gurney for ambulance transport
 - Nausea and vomiting
 - Several BP's in 150's/70's on admission
 - No history of migraines
 - Never had an episode like this before

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Case Study 1 continued

- **Exam**
 - At rest has L.beating horizontal nystagmus
 - Has L.beating horizontal nystagmus with up, middle, and L.gaze
 - No nystagmus with R.gaze
 - Smooth pursuits and saccades: normal
 - Coordination testing: normal
 - Strength testing: WNL and equal bilaterally
 - No sensation or speech changes
 - No hearing loss
 - Unable to perform head impulse and head shake test due to severe motion sensitivity

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Case Study 2

- **Exam continued**
 - Tests for BPPV
 - Horizontal: negative
 - R Dix Hallpike: negative
 - L Dix Hallpike: positive for severe vertigo with concurrent L torsional up beating nystagmus lasting 20sec
- **Diagnosis**
 - L posterior canalithiasis
- **Treatment**
 - Canalith repositioning maneuver/Epley maneuver
 - Negative on re-test

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Questions?

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