

**American College of Physicians - Internal Medicine Meeting 2024  
Boston, MA**

**The Dizzy Patient**

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## The Dizzy Patient

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# Examining The Dizzy Patient

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ACP Annual Meeting, 2024



1

## Disclosure of Financial Relationships

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2

## Faculty

- Josune Iglesias, MD FACP
- Pooja Dhir, MD
- Kelly Stein, MD
- Suchita Kishore, MD
- Sara Marin, MD
- Octavio Vega, MD



3

## Objectives

- Differentiate Central from Peripheral Nystagmus
- Perform Physical Exam Maneuvers to Differentiate Central from Peripheral Vertigo
- Treat BPPV with the Epley Maneuver



4

## History: Dizzy

- Lightheaded/Presyncope
- Dysequilibrium
- Vertigo (sensation of movement)
- Vague/Dissociative symptoms

## History

- Better dx specificity when don't just rely on pt symptom description....
- Timing (onset, frequency, duration)
- Triggers
- Associated Symptoms

## Physical Examination




- General Medical Exam
- General Neurologic Exam
- Neuro-otologic Exam

## Physical Examination

- Orthostatic Pulse and BP if suggested by history
- External ear exam, otoscopy
- Differentiate CNS from PNS by “the company they keep:
- CNS: bulbar sx (dysarthria, dysphagia), eye findings (diplopia, ptosis, gaze palsy), VF defect, limb ataxia, focal weakness/numbness
- Recall: ataxia does not equal cerebellar lesion!  
Describes a physical exam finding

- ① Have the patient lie down for 5 minutes.
- ② Measure blood pressure and pulse rate.
- ③ Have the patient stand.
- ④ Repeat blood pressure and pulse rate measurements after standing 1 and 3 minutes.

A drop in BP of  $\geq 20$  mm Hg, or in diastolic BP of  $\geq 10$  mm Hg, or experiencing lightheadedness or dizziness is considered abnormal.

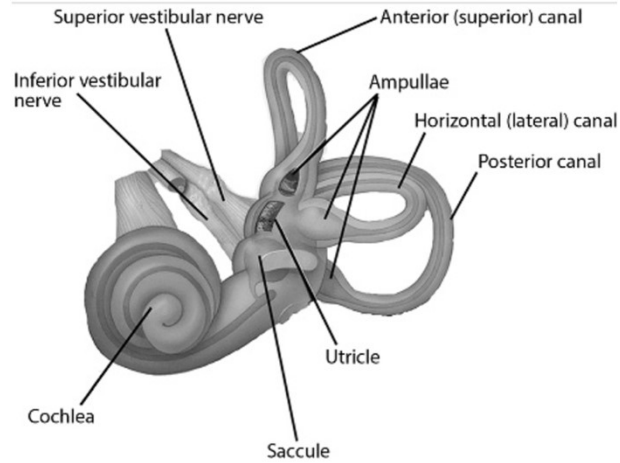
| POSITION  | TIME    | BP                         | ASSOCIATED SYMPTOMS |
|---|---------|----------------------------|---------------------|
| Lying Down<br> | 5 Mins. | BP ____ / ____<br>HR _____ |                     |
| Standing<br>   | 1 Min.  | BP ____ / ____<br>HR _____ |                     |
| Standing<br>   | 3 Mins. | BP ____ / ____<br>HR _____ |                     |

CDC's STEADI tools and resources can help you screen, assess, and intervene to reduce your patient's fall risk. For more information, visit [www.cdc.gov/steadi](http://www.cdc.gov/steadi).

## Neuro exam High Yield

- Eye movements, Nystagmus
- Coordination of limbs
- Gait, stance
- Romberg
- Eyes closed tandem Romberg

# Vestibular apparatus



Continuum (Minneapolis Minn) 2017;23(2):359-395.



# Neuroanatomy

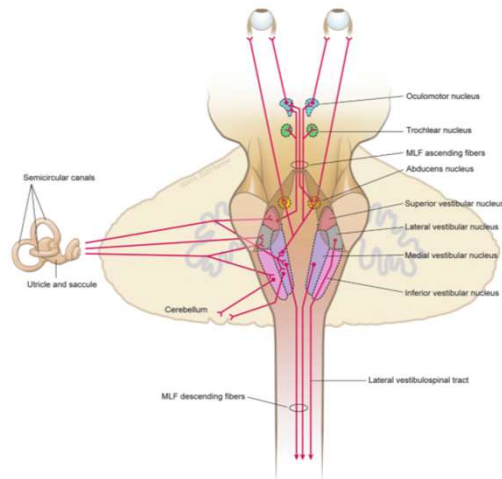


FIGURE 3-1 Structures of the central nervous system vestibular system. MLF = medial longitudinal fasciculus. Reprinted with permission from Barrow Neurological Institute. © 2020 Barrow Neurological Institute, Phoenix, Arizona.



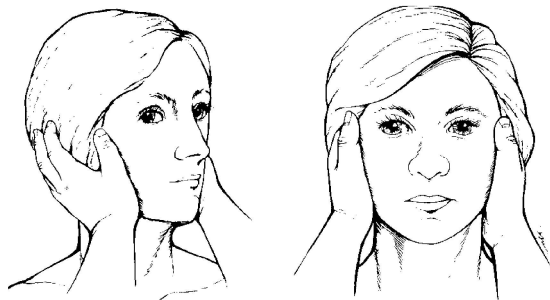
CONTINUUM (MINNEAP MINN) 2021;27(2, NEURO-OTOLOGY): 447-467.



## Acute Vestibular Syndrome

- A sudden onset of continuous vertigo, lasting >24 hours, associated with nausea, head motion intolerance and imbalance
- Mostly peripheral, ~10% central causes
- HINTS test more sensitive than MRI
- HINTS: Head Impulse Test, Nystagmus and Test of Skew. (ALL 3 must point to peripheral cause to be confident not CNS etiology)

## Head Impulse Test



**Figure 2** The head impulse test. The patient views a fixed tar-

## Head Impulse Test



Gold, D. in NOVEL available at <https://collections.lib.utah.edu/ark:/87278/s6x398q2>



15

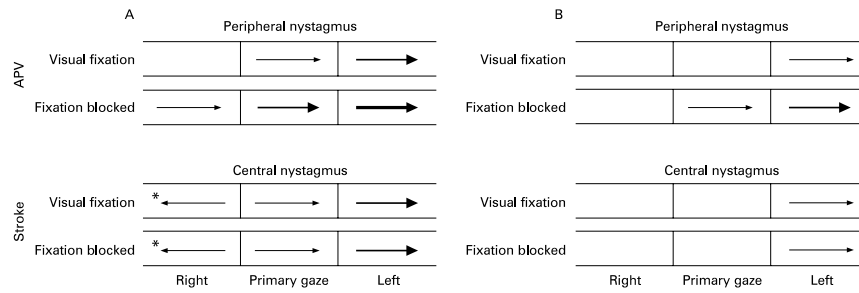
## Central vs Peripheral Nystagmus

|                            | Peripheral     | Central         |
|----------------------------|----------------|-----------------|
| Features                   | Unidirectional | Gaze evoked     |
| Effect of visual fixation  | Suppressed     | Not suppressed  |
| Other neuro signs&symptoms | Absent         | Usually Present |
|                            |                |                 |



16

## Effect of Visual Fixation

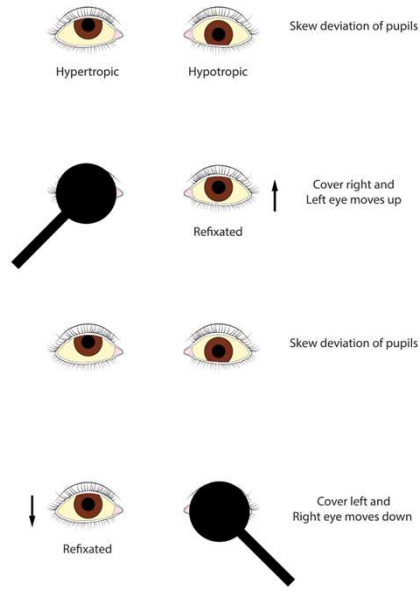


## Penlight Cover Test

**David E. Newman-Toker, MD, PhD**  
 Associate Professor  
 Departments of Neurology,  
 Ophthalmology, & Otolaryngology  
 The Johns Hopkins University School of Medicine

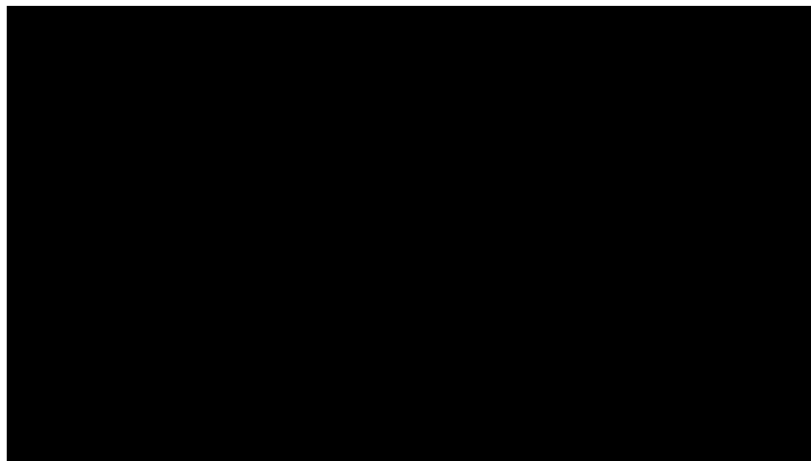


# Skew deviation: schematic



<https://www.enteducationswansea.org/acute-vestibular-syndrome>

## Skew deviation in Central AVS



### Truncal Ataxia Gradations Used to Distinguish Peripheral Versus Central Causes of Acute Vestibular Syndrome<sup>a</sup>

| Ataxia grade | Definition  |
|--------------|---|
| 1            | Mild to moderate imbalance with walking independently           |
| 2            | Severe imbalance with standing, but cannot walk without support |
| 3            | Falling at upright posture                                      |

<sup>a</sup> In a study evaluating acute vestibular syndrome presentations of posterior circulation stroke, all patients at grade 3 had stroke, and all at grade 1 had peripheral causes.<sup>27</sup>

CONTINUUM (MINNEAP MINN) 2021;27(2, NEURO-OTOLOGY): 402–419.



### Episodic Positional Dizziness

- BPPV
- Migrainous vertigo
- Central Causes (10%)
- Light Cupula Syndrome (rare)



## History: BPPV

- Vertigo ppt by head movements (bend over, turn, roll over in bed etc)
- Last seconds to 1 minute
- No tinnitus, hearing loss
- Everyone says “dizzy all day” ....need to tease this out.

## Dix Hallpike



Dix Hallpike is Gold Standard Test for dx of BPPV.

Positive if **both** a) vertigo and b) **triggered** and **transient** nystagmus



Nystagmus of BPPV has a **latency** of 1-2 seconds before onset, and it **fatigues**.

## R Posterior Canal BPPV Pre & Post Epley



Gold, D. NOVEL collection <https://collections.lib.utah.edu/ark:/87278/s6s79d1w>



25

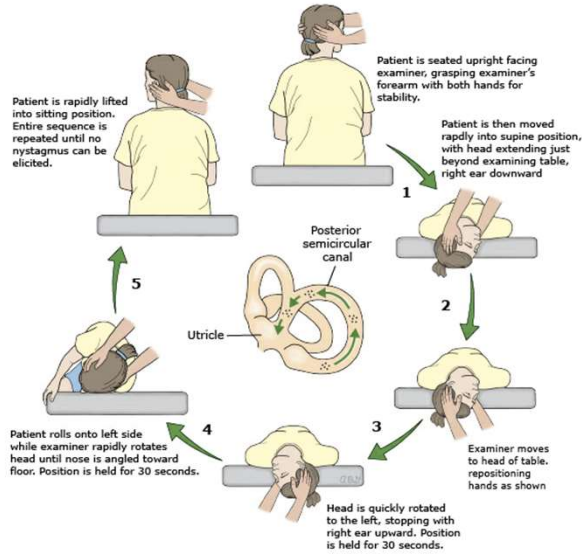
## Treatment of Posterior Canal BPPV: Canalith Repositioning maneuvers

- Epley
  - Semont
  - Semont-plus
  - Half somersault
  - Brandt-Daroff exercises\* - not curative
- } Similar efficacy, both have self-maneuvers

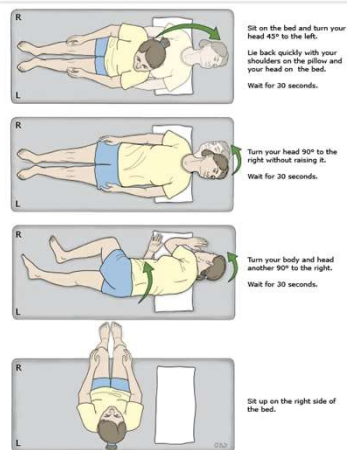


26

# Epley Maneuver



# Modified Epley for Home Treatment (Left side symptomatic)





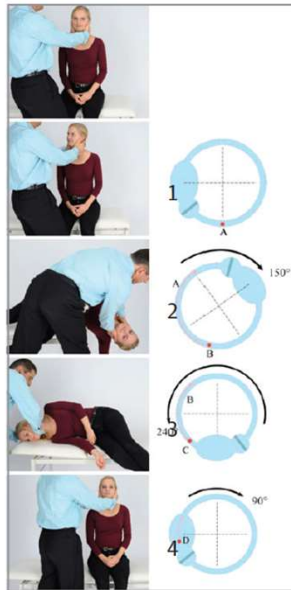
# Semont plus

Left ear is the affected ear

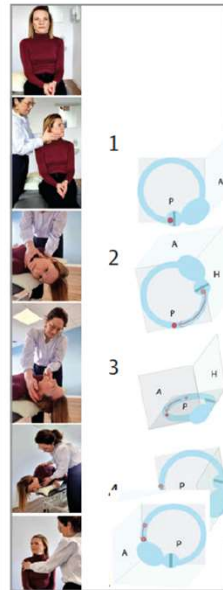
60 seconds in each position for semont-plus, 30 for Epley

Semont plus shown superior to Epley in 1 recent Class II RCT

**A** Semont-plus maneuver



**B** Epley maneuver

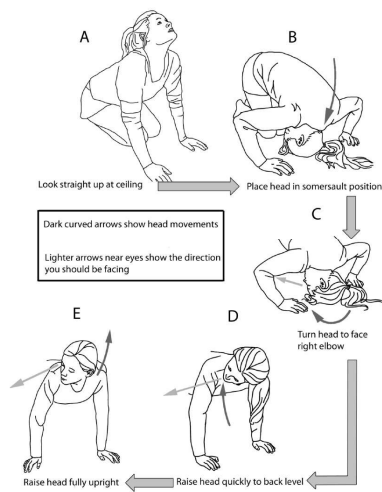


## Videos of self-maneuvers

- <https://jamanetwork.com/journals/jamaneurology/fullarticle/2806601>

### Half Somersault Right ear

#### Patient Instructions for Half Somersault for right-sided BPPV



## Brandt-Daroff

### Brandt-Daroff maneuver



## Special situations

- Vertigo and nystagmus triggered by Valsalva or pressure to external ear/tragus: Superior Semicircular Canal Dehiscence or Perilymphatic fistula
- Autophony/Conductive hyperacusis: pt hears own body sounds (voice, eye movements, stomach sounds) --> SCC Dehiscence
- Tullio Phenomenon: Vertigo ppt by loud sounds → SCC Dehiscence

Questions???

