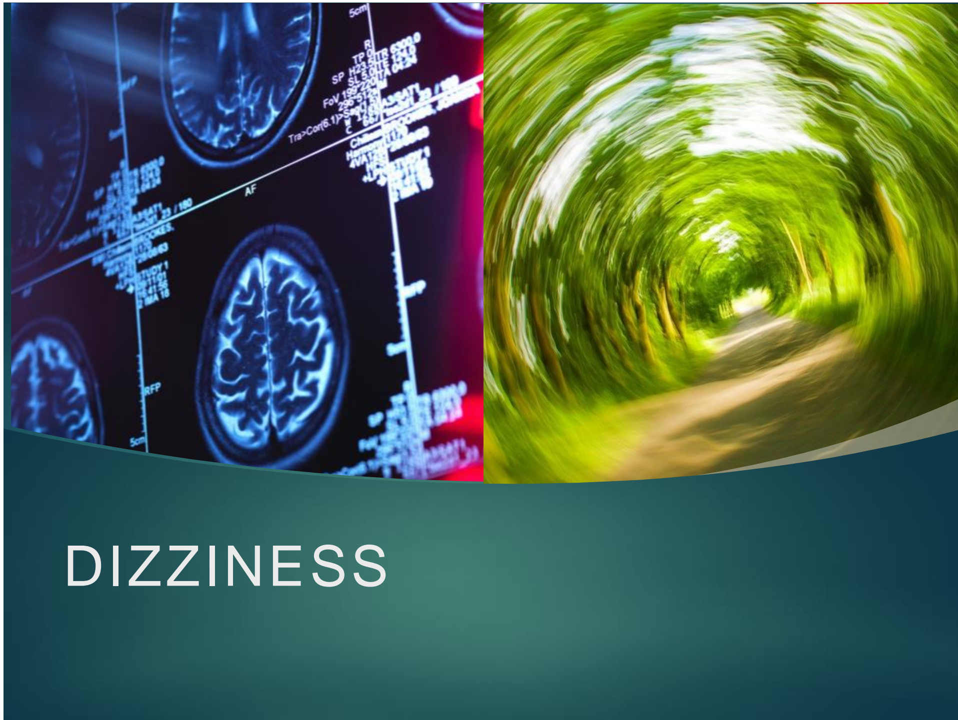

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OBJECTIVES

Be able to describe:

- Why dizziness occurs in older adults
- Evaluation of older adults with dizziness and syncope
- Treatment of dizziness

2

TOPICS COVERED

- Classification and Causes of Dizziness
- Evaluation and Management of Dizziness

3

IMPORTANCE AND COMPLEXITY OF DIZZINESS

Dizziness is common

- Prevalence in older adults of 4% – 30%
- Prevalence increases with age
- Women > men

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Challenges for clinicians

- Precise classification difficult
- Specific therapy not available for many
- ≥ 50% of cases multi-factorial

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Acute
- Vestibular neuritis
- Migraine
- Vascular event

Chronic
- Intermittent
- Multi-factorial
- Medication effects

6

- Vertigo is never continuous.
  - Adaptation / habituation occurs in weeks
- Persistent vertigo is psychogenic

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DIZZINESS: CLASSIFICATION BY SYMPTOMS

Vertigo — Episodic spinning or rotational sensation

Presyncope — Sensation of faintness or lightheadedness

Dysequilibrium — Feeling of imbalance on standing or walking

Other — Vague feeling, may be described as "floating", "lightheadedness", "wooziness", or other nonspecific sensations

Mixed — A combination of two or more of the above is the most common type

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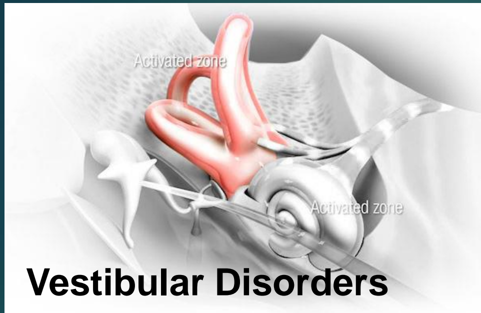

Vestibular Disorders

- Benign paroxysmal positional vertigo (BPPV)
- Ménière disease
- Idiopathic recurrent vestibulopathy
- Acoustic neuroma
- Cerebrovascular disease

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BENIGN PAROXYSMAL POSITIONAL VERTIGO (BPPV)

- Episodic
- Occurs by head positions (eg, rolling over, gazing up or down)
- Sudden, seconds-long bouts of vertigo
- Probably resulting from dislodged otoconia in semicircular canal

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MÉNIÈRE DISEASE

Prosper Meniere, MD

worked with Guilliaume Dupeytren

- Idiopathic inner ear disorder
- Repeated episodes of tinnitus
- Fluctuating hearing loss with sensation of fullness in inner ear
- Severe vertigo

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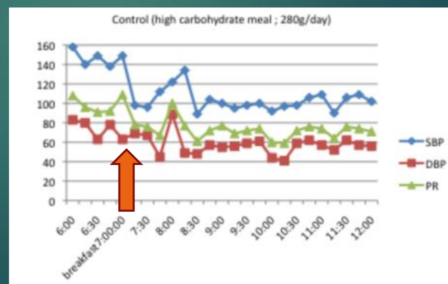
PRESYNCOPE

- Sensation of faintness or lightheadedness
- Sign of decreased cerebral perfusion
- Postural change – dizziness on standing from a supine position (with or without orthostatic hypotension)
- Postprandial hypotension



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DYSEQUILIBRIUM

- Sensation of imbalance or unsteadiness
- Many factors can contribute to imbalance:
  - Vision problems
  - Proprioceptive disorders
  - Musculoskeletal disorders
  - Gait disorders

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OTHER FORMS OF DIZZINESS

- Patient may describe “floating,” lightheadedness,” “wooziness,” “spaciness,” “whirling” or other nonspecific sensation
- **Psychiatric cause** (depression, anxiety)

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MIXED DIZZINESS

- A combination of two or more types of dizziness
- Most common type reported by older adults
- Likely results from combinations of diseases affecting the vestibular, CNS, visual or proprioceptive systems
- Systemic disorders (eg, anemia, heart failure, diabetes mellitus, and hypothyroidism) can contribute to instability or dizziness
- Consider carotid sinus hypersensitivity or carotid sinus syndrome in the differential

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MEDICATIONS AND DIZZINESS

- Anxiolytics
- Antihypertensives
- Antidepressants and antipsychotics
- Aminoglycosides
- NSAIDs
- Antihistamines and anticholinergics

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CHARACTERISTICS OF DIZZINESS IN OLDER PERSONS

- Usually resolves within days to several months
- Chronic or recurrent symptoms
- Multifactorial etiology common
- Commonly associated with postural hypotension, anxiety and depression, use of 5 or more medications, impaired gait and balance (SOE=B)

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EVALUATION OF DIZZINESS: HISTORY

- Allow patient to describe in own words
- Ask about timing, what provokes it, what aggravates it ?
- How are symptoms are affecting the patient's quality of life ?

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Evaluation: Timing

Prolong severe vertigo

Recurrent spontaneous attacks

Chronic persistent

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Evaluation: Provocation

Spontaneous

Positional

Postural

20

Evaluation: Aggravating factors

- Vertigo is made worse by head movement !

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EVALUATION OF DIZZINESS: PHYSICAL EXAMINATION

- Orthostatic BP and HR
- Observe eyes for nystagmus
- Check ears for fluid
- Auscultate bruits, Ao stenosis murmur
- Shoulder shrug and cogwheel test
- Observe for balance and gait difficulties

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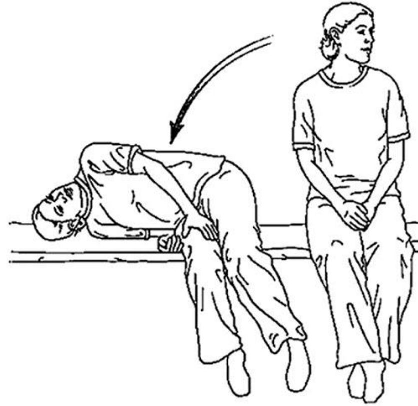
Perform a provocative test of vestibular system:

- Dix-Hallpike maneuver
- Head-thrust test
- Side-lying test



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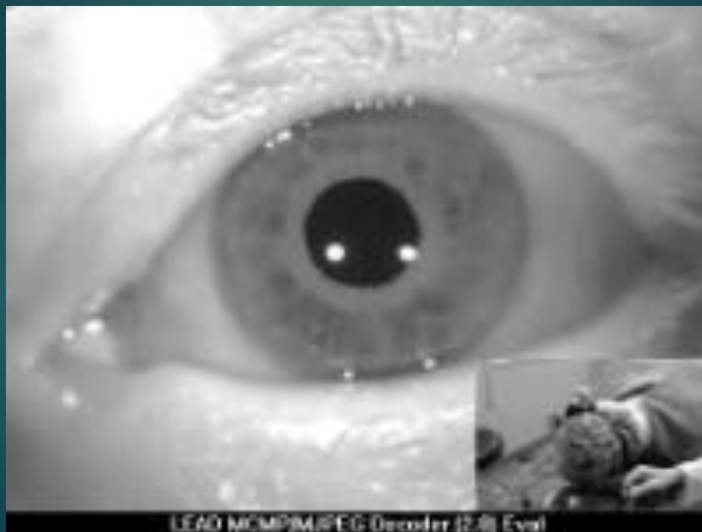
Horizontal canal lithiasis



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Rotatory nystagma

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Dix Halpike test

First rotate head to the side then start to lie down

Extend head over the edge of the couch

www.clinicalexams.co.uk

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EVALUATION OF DIZZINESS: DIAGNOSTIC TESTING

- Laboratory
  - CBC, Chem panel, vitamin B_{12}, folic acid, TSH
- Audiometry
  - May help if cochlear symptoms are present (tinnitus, asymmetric hearing loss)
  - Helps differentiate between acoustic neuroma and Meniere disease

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Videonystamography (VNG)

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EVALUATION OF DIZZINESS: DIAGNOSTIC TESTING

- **ECG** if cardiac cause suspected
- **Holter and Event monitor** only if suspicion of arrhythmia
- **Tilt-table testing** only in select patients with postural hypotension or syncope
- **Neuroimaging** (CT, MRI) occasionally warranted

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Colorado University: summersault maneuver

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MANAGEMENT OF DIZZINESS: VERTIGO

Common causes or coexisting conditions	Treatment
Benign paroxysmal positional vertigo	Epley maneuver, Vestibular Rehab Therapy
Ménière disease	Salt restriction, diuretics; vestibular suppressant Severe cases: surgery, including endolymphatic decompression, vestibular nerve resection, and labyrinthectomy
Ototoxic medications, eg, aminoglycosides, diuretics, NSAIDs	Discontinue

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MANAGEMENT OF DIZZINESS: PRESYNCOPE

Common causes or coexisting conditions	Treatment
Cerebral ischemia secondary to orthostatic hypotension, cardiac causes, dehydration, medications, vasovagal attack, autonomic dysfunction secondary to diabetes, parkinsonism	Hydration); removal of offending medications (avoid dual alpha and beta blockade) slow rising from sitting or lying down; support stockings; PT and/or OT; medications (eg, fludrocortisone, midodrine) as needed
Postprandial hypotension	Frequent small meals; avoid exertion after meals; slow rising from sitting position; avoid antihypertensive drugs at or near meal time

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MANAGEMENT OF DIZZINESS: DYSEQUILIBRIUM

Common causes or coexisting conditions	Treatment
Vertebrobasilar ischemia and/or cerebellar infarcts/hemorrhages	• Low-dose aspirin, clopidogrel, or extended-release dipyridamole/aspirin; • rehabilitation
Cerebellopontine angle tumor, eg, acoustic neuroma	• Surgery
Parkinson disease	• Drug therapy, rehabilitation therapy
Peripheral neuropathy secondary to diabetes; vitamin B_{12} deficiency; idiopathic, etc.	• Treat underlying disease
Cervical spine degenerative arthritis, spondylosis	• Cervical or vestibular rehabilitation; • surgery if needed

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MANAGEMENT OF DIZZINESS: OTHER

Common causes or coexisting conditions	Treatment
Anxiety, depression, or psychosomatic disorders	• Psychotherapy • Antidepressant therapy

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MANAGEMENT OF DIZZINESS: MIXED

Common causes or coexisting conditions	Treatment
Medications: antianxiety drugs, antidepressants, anticonvulsants, antipsychotics, antihypertensives, anticholinergics	Discontinue, substitute, or reduce the dosage of offending medication
Combination of causes	Multifactorial intervention

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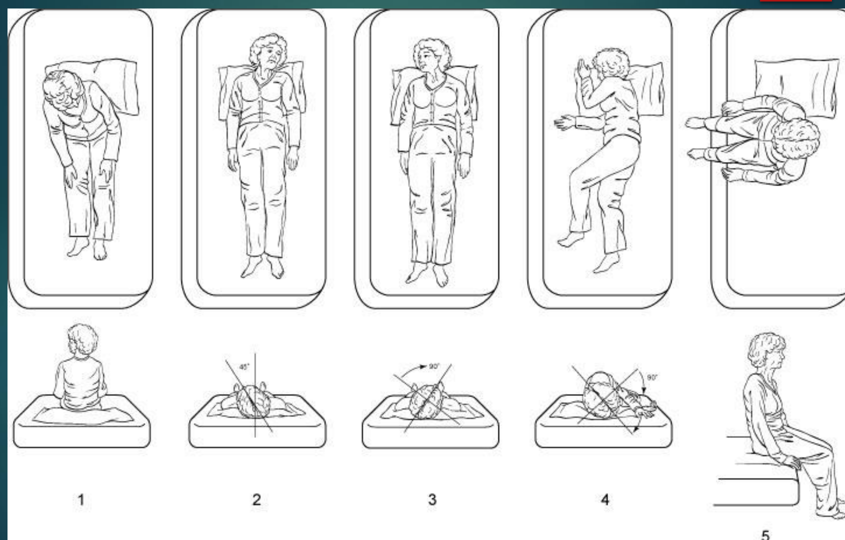
EPLEY'S MANEUVER



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Research

- Italian study using polyphenol (Veritgoval) reduces subjective but not objective post BPPV symptoms after 60 days Clin Pharmacol. 2019; 11: 117–125.
- REVERT vertigo registry. 91 % improved. Front Neurol 2013. 10(4):48
- Ginkgo used but not substantiated.

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SUMMARY

- Precise classifications of dizziness into vertigo, presyncope, dysequilibrium, and lightheadedness is challenging
- Most dizziness resolves within days to several months
- Get a good history from the patient including a medications (e.g., 50 % don't report OTC or supplementals)

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SUMMARY

- Key physical exam steps include checking for orthostatic hypotension, performing the head-hanging (Dix-Hallpike) test, and observing gait
- Treatment of dizziness focuses on treating the underlying disorder

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CASE STUDIES

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A 74F was given meclizine for vertigo in the emergency room two months ago and she complains that it does not help. In fact, she is getting more anxious that something is seriously wrong with her like a stroke or brain tumor. The symptoms are floating or swimming while she walks, especially at night. Lying down makes it better. Screening GAD7 is positive. Hall Pike and physical exam is negative. You conclude that the patient has:

A. Vertigo
B. Disequilibrium
C. Pre-syncope
D. Chronic subjective dizziness

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Your initial prescription for chronic subjective dizziness is:

A. Cognitive – behavioral therapy
B. SSRI
C. Vestibular and Balance Rehabilitation Therapy
D. Bright light therapy

43

Your initial prescription for chronic subjective dizziness is:

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44

KEY POINTS

- Chronic Subjective Dizziness is nearly daily and worse in the upright position, made worse with darkness or moving objects (TV, movies, cars)
- CSD is reduced with lying down.
- CSD is refractory to meclizine.
- Treatment is multi-modality: vestibular therapy, CBT, and low dose SSRI (even if no psychiatric symptoms).

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CASE 1 (1 of 3)

- A 72-year-old man comes to the emergency department because he had sudden onset of vertigo, nausea, blurry vision, and left facial numbness while watching TV.
- The symptoms lasted a few minutes before resolving completely.
- He had 2 similar episodes over the previous 3 days.
- History: hypertension, hyperlipidemia; 50 pack-year history of cigarette smoking
- Examination:
  - Blood pressure 153/90 mmHg, heart rate 78 beats per minute and regular, respiratory rate 14 breaths per minute, O_2 saturation 98% on room air
  - Neurologic and all other findings are normal.
  - CT of the head is normal

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CASE 1 (2 of 3)

Which one of the following would most likely establish the diagnosis for this patient?

A. Dix-Hallpike test
B. CT angiography of the head and neck
C. Doppler ultrasonography of the carotid arteries
D. Magnetic resonance imaging (MRI) of the brain

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CASE 1 (3 of 3)

Which one of the following would most likely establish the diagnosis for this patient?

A. Dix-Hallpike test
B. CT angiography of the head and neck
C. Doppler ultrasonography of the carotid arteries
D. Magnetic resonance imaging (MRI) of the brain

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CASE 2 (1 of 3)

- A 75-year-old man is brought to the emergency department because he had an episode in which he lost consciousness.
- He recalls standing 45 minutes after dinner and suddenly feeling dizzy or lightheaded, with generalized weakness.
- He next remembers being on the floor, incontinent of urine; 3 minutes had passed since he had last checked the clock. He immediately laid down and called 911.
- When the ambulance arrived, blood pressure was 90/60 mmHg.
- He does not recall any focal neurologic symptoms.
- History: hyperlipidemia, gout, myocardial infarction 10 years ago

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CASE 2 (2 of 3)

Which one of the following is the most likely diagnosis?

A. Vasovagal syncope
B. Generalized tonic-clonic seizure
C. Postprandial hypotension
D. Basilar transient ischemic attack (TIA)

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CASE 2 (3 of 3)

Which one of the following is the most likely diagnosis?

A. Vasovagal syncope
B. Generalized tonic-clonic seizure
C. ***Postprandial hypotension***
D. Basilar transient ischemic attack (TIA)

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CASE 3 (1 of 4)

- An 83-year-old woman comes to the office because she has had episodes of dizziness in the past month. Her husband died 1 year ago.
- She has continual unsteadiness that is unchanged by position.
- There is no new numbness or weakness.
- She has not fallen, but the unsteadiness has caused her to turn down invitations and stop going to her weekly bridge game.
- She has not been sleeping well.
- History: hypertension, osteoarthritis, glaucoma

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CASE 3 (2 of 4)

- Examination:
  - She appears thin but in no distress; she has lost 2.3 kg (5 lb) since her last visit.
  - Normal orthostatic vital signs
  - Grossly intact visual acuity and hearing
  - She has full strength.
  - Sensory examination is normal to pinprick and vibratory sensation in all extremities.
  - 2+ reflexes throughout
  - Gait is slow and hesitant but narrow based and steady.

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CASE 3 (2 of 3)

Which one of the following is the best next step?

A. Obtain magnetic resonance imaging (MRI) of the cervical spine.
B. Perform Dix-Hallpike test.
C. Screen for depression.
D. Conduct tilt-table test.

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CASE 3 (3 of 3)

Which one of the following is the best next step?

A. Obtain magnetic resonance imaging (MRI) of the cervical spine.
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C. ***Screen for depression.***
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