# Bedside Examination of the Dizzy Patient

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## Goals of the Exam

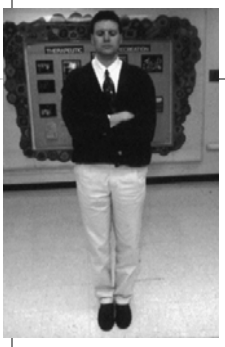
- Identify medical problems
- Quantify vestibular deficit
- Quantify neurological deficit
- Identify psychological problems
- Quantify functional status

## Strategy of the exam

- Order for your convenience
  I. Standing
  II. Sitting
  III. Frenzels
  IV. Special
- Save potentially disturbing tests (e.g. vestibular testing) for the end
- Expand exam as needed based on history or previous examination

## I. Standing

- Gait and Romberg
- Motor power in lower extremities
- Blood pressure/Pulse standing



This is eyes-closed regular Romberg.

Normal persons should be able to stand in ECTR for 6 sec.

Head extended ECTR for 6 seconds is in upper 25th percentile

## Motor power

- Is patient's unsteadiness due to weakness ?
  – Stand on heels and toes
  – Deep knee bend

## Blood pressure / Pulse

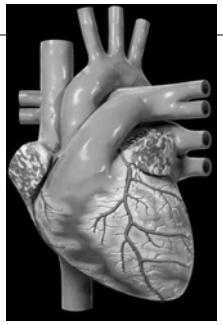
- Measure BP/pulse standing


## II. Sitting exam (without goggles)

- Cardiac
- Cranial Nerve exam
- Upper ext. Neurological, DTR, Toe signs
- Vibration at Ankle

## Cardiac

- Pulse
- Murmer
- Bruit



## Essential Cranial Nerves

- Vision
- Oculomotor
- Hearing
- Rapid Dolls

## Vision

- Visual acuity
  - Is patient (nearly) blind ?
  - Can patient see with both eyes ?


## Oculomotor

Does patient have double vision, nystagmus ?

Can patient track ?

- Range
- Saccades
- Pursuit
- Gaze →

## Gaze Testing

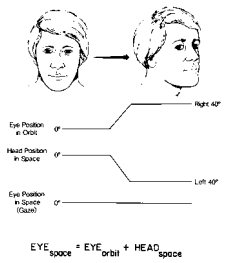
- Move finger to the limits of lateral gaze (bury sclera) – if can't bury, may have oculomotor palsy
- Move finger to limits of vertical gaze
- Do eyes reach end-gaze ?
- Is there end-gaze nystagmus ?
- Is there rebound nystagmus ?

## 8th nerve

- Screen Hearing
  - Rubbed fingers (high frequencies)
  - Whisper test
  - Watch test 

## 8th nerve: Rapid Dolls

- VOR: Vestibulo-ocular reflex




$EYE_{space} = EYE_{orbit} + HEAD_{space}$

## 8th nerve: Dynamic Illegible 'E' test( DIE test)

- Distance vision with head still
- Distance vision with head moving
- Normal: 0-2 lines change.
- Abnormal: 4-7 lines change


## Motor Power

- Motor power
  - Cortical pattern (hemi-face, hand)
  - Neuropathy pattern (distal)
- Deep tendon reflexes

## Motor Power

- Hand grip, biceps, triceps, deltoids
- Pronator sign
- Drift of extended arms

## Deep Tendon Reflexes

Does patient have cortical signs ?

Does patient have neuropathy ?

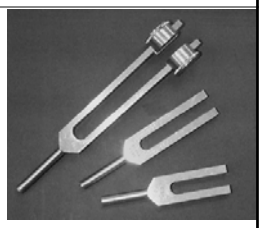
- Biceps
- Knee
- Ankle

## Coordination

- Finger to nose, fine finger movements
- Rapid alternating movements

## Sensory Examination

- Vibration sense (ankles)
- Position sense (ankles)



## Video Frenzel Goggles

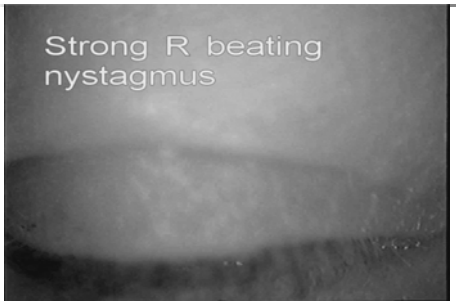

## Optical Frenzel Goggles

- Inexpensive (about $500)
- Portable – take on the road
- A little limited – can't do vibration, head-forward or cross-cover
- Can get hot, bulbs burn out and break

## Spontaneous Nystagmus Test

- Observe nystagmus in light and dark
  - Acute vestibular disorders have strong horizontal "jerk" nystagmus.
  - Normal people and chronic vestibular disorders have little or no nystagmus. Neural compensation for vestibular tone asymmetry is fast and effective. Most people can't "fake" nystagmus.
  - Almost everything unusual is central.

Vestibular Spontaneous Nystagmus




## Vibration test

## Vibration test

- Method: Apply 60-120 hz vibration to SCM, first one side, then the other. Shower massagers work well for this and are inexpensive.
- Video frenzel goggles – optical frenzels don't work very well
- Compare nystagmus before and during

## Vibration Induced Nystagmus

[redacted]

NECK VIBRATION
MENIERES DISEASE
GENTAMICIN TO R SIDE

[redacted]

## Vibration Induced Nystagmus

- Unidirectional horizontal nystagmus strongly suggests contralateral vestibular lesion.
- Direction changing nystagmus is a normal variant.
- Vertical or torsional nystagmus is of uncertain meaning. Seems more common in BPPV.

## Head-shaking test

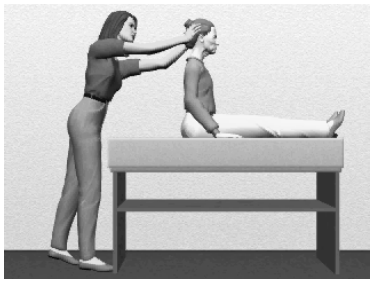
- Method: 20 cycles o horizontal head rotation
- Frenzel goggles to monitor nystagmus prior to and followin head-shaking.
- Positive – substantial change in nystagmus following head-shaking. Usually beats away from bad ear.

## Head-shaking in person with left sided vestibulopathy


## Positional Testing

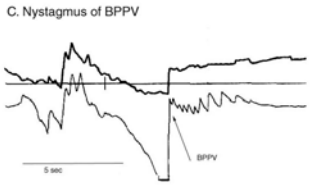
- Dix-Hallpike testing
- Situationally
  - Lateral canal
  - Head vs. Body position testing (prone)
  - Vertebral artery test (VAT)

## Diagnosis: Dix-Hallpike Maneuver



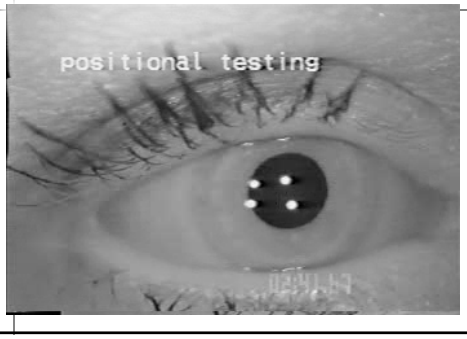
## Positional Vertigo Dix-Hallpike Maneuver


## BPPV nystagmus




- Latency (0-20sec)
- Burst (< 60 sec)
- Upbeating/Torsion vector
- Reversal on sitting
- Fatigue with repetition

## Posterior Canal BPPV



## Posterior Canal BPPV

- Upbeating/Torsional nystagmus (or at least torsional, top of eye beats toward ground)
- Latency: 0 to 30 sec
- Burst: up to 1 min
- Unwinds when sit up

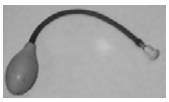
## Situational Tests

- Fistula test and/or Valsalva
- Hyperventilation

## Situational Tests: Fistula/SCD

**Frenzel goggles**

- Fistula test
  - Apply pulse of pressure (carefully)
- Valsalva test
  - 10 seconds of exhale against closed glottus
- Tullio test
  - Brief loud noise



## Situational Tests: Hyperventilation

**Frenzel goggles**

- 30 seconds of brisk HVT
- Exam for change in nystagmus
  - Irritable vestibular nerve
  - Seizure (very rare)
  - Anxiety (dizzy, no nystagmus)

## More details

Hain, T.C. Approach to the patient with Dizziness and Vertigo. Practical Neurology (Ed. Biller), 2002. Lippincott-Raven

www.dizziness-and-balance.com