

Overview of 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



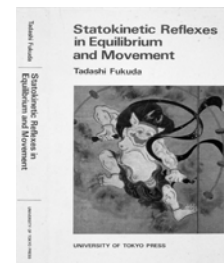
This is eyes-closed regular Romberg.

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

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

I don't do the Fukuda

- Fukuda stepping test or any vestibulospinal tests
 - Not reliable
 - Everybody fails TR
 - Uninterpretable



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
- Murmur
- Bruit



Essential Cranial Nerves

- Vision
- Oculomotor
- Hearing
- Rapid Dolls

Vision

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

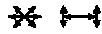


Oculomotor

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

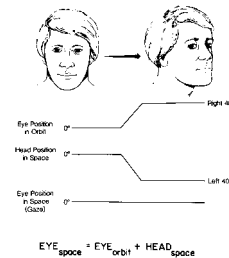
■ Screen Hearing

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



8th nerve: Rapid Dolls

- VOR: Vestibulo-ocular reflex



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



Look quickly in the throat

- Oculopalatal myoclonus
- Nystagmus and ataxias
- If you don't look you won't ever diagnose it



Motor Power

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

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



Babinski Sign



12.21. The Babinski sign

Coordination

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

Movement Examination

- Tremors
 - Resting (Parkinson's)
 - Postural (Essential tremor)
 - Intention (Cerebellar)
- Tone
 - lead pipe rigidity (Parkinsons)
 - spasticity (Upper motor neuron)

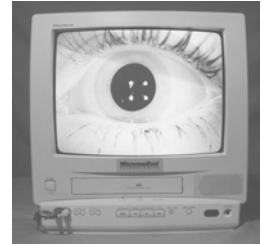
Sensory Examination

- Vibration sense (medial malleolus)
- Position sense (toes)



We neurologists do this but its not very productive of diagnoses in dizzy patients

Video Frenzel Goggles



Optical Frenzel Goggles

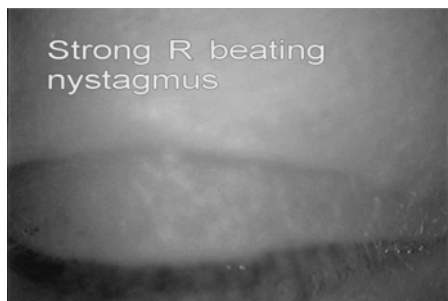


- Inexpensive (about \$500)
- Portable – take on the road
- A little limited – can't do vibration, head-forward or cross-cover
- Can get hot, bulbs burn out and break

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

NECK VIBRATION
MENIERES DISEASE
GENTAMICIN TO R SIDE

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 of horizontal head rotation
- Frenzel goggles to monitor nystagmus prior to and following head-shaking.
- Positive – substantial change in nystagmus following head-shaking. Usually beats away from bad ear.



HSN is not in my routine anymore – vibration is so much better

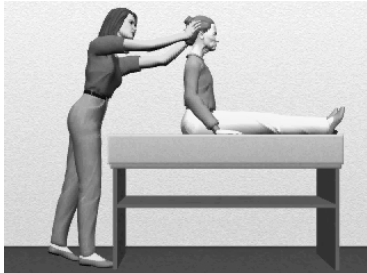
Head-shaking in person with left sided vestibulopathy



Positional Testing

- Dix-Hallpike testing (ALWAYS!)
- Situationally
 - Lateral canal
 - Head vs. Body position testing (prone)
 - » For cervical vertigo

Diagnosis: Dix-Hallpike Maneuver



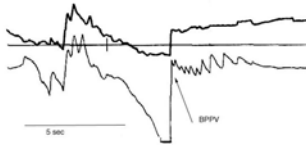
Positional Vertigo Dix-Hallpike Maneuver



BPPV nystagmus



C. Nystagmus of BPPV



- 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

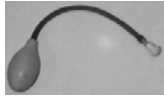
Situational Tests

- Fistula test and/or Valsalva (for pressure sensitivity)
- Tullio test (for sound sensitivity)
- Hyperventilation (for quick spins)
- Carotid sinus (for nonorthostatic fainters)

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



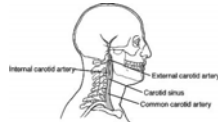
Situational Tests: Hyperventilation

Frenzel goggles

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

Situational Tests

- **Carotid sinus**
 - Listen first
 - Compress for 10 sec
 - Monitor pulse rate and amplitude with finger
- Would not do this in persons with carotid disease



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