Dizzies, Tinglies and Fainties

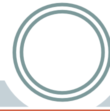
A practical approach

The Dizzies in 10 Slides

1. Characterize
   - What do you mean when you say “Dizzy”
2. Time Course
   - Acute/Chronic; Monophasic/Recurrent
3. Associated Symptoms / Triggers
   - Differential Based Focused Inquiry
4. Focused Examination:
   - Positively diagnose the common causes
   - Raise suspicion for serious causes
5. Investigations

1. **Vertigo** = illusion of motion (20-50%)
   - Spinning, rocking, sliding, standing on deck of a boat
2. **Dysequilibrium** = off-balance (1-15%)
   - Only present when standing
3. **Presycope** = feeling faint (2-16%)
   - Usually present when standing, especially when sit to stand
4. **Ill-defined Dizziness** (10-25%)
   - Anxiety, depression, medical illness, medications

Time Course + Associated Sx = Etiology



Etiology	Time Course	Associated Symptoms / Triggers
BPPV	Seconds, Recurrent	Trigger – positional change
Meniere's Disease	Min to hours, recurrent	Tinnitus, aural fullness, HL
Vestibular Neuritis	Days, monophasic	Mild imbalance, N/V
Labyrinthitis	Days, monophasic	HL, fever, otalgia

Etiology	Time Course	Associated Symptoms / Triggers
Migraine	Min to hours, recurrent	H/A, N/V, photo, phono
MS	Subacute, monophasic	Focal neurology
Stroke	Acute, monophasic	Focal neurology

Focused Exam for Common Etiologies

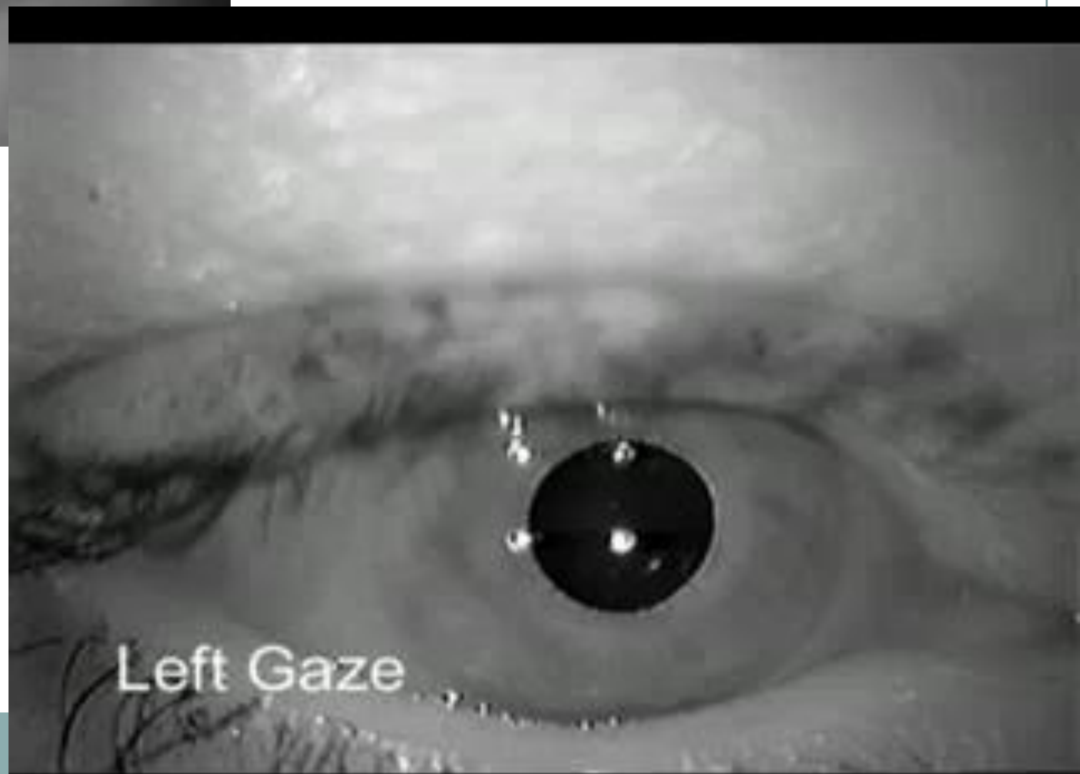
- BPPV: Dix Hallpike Maneuver

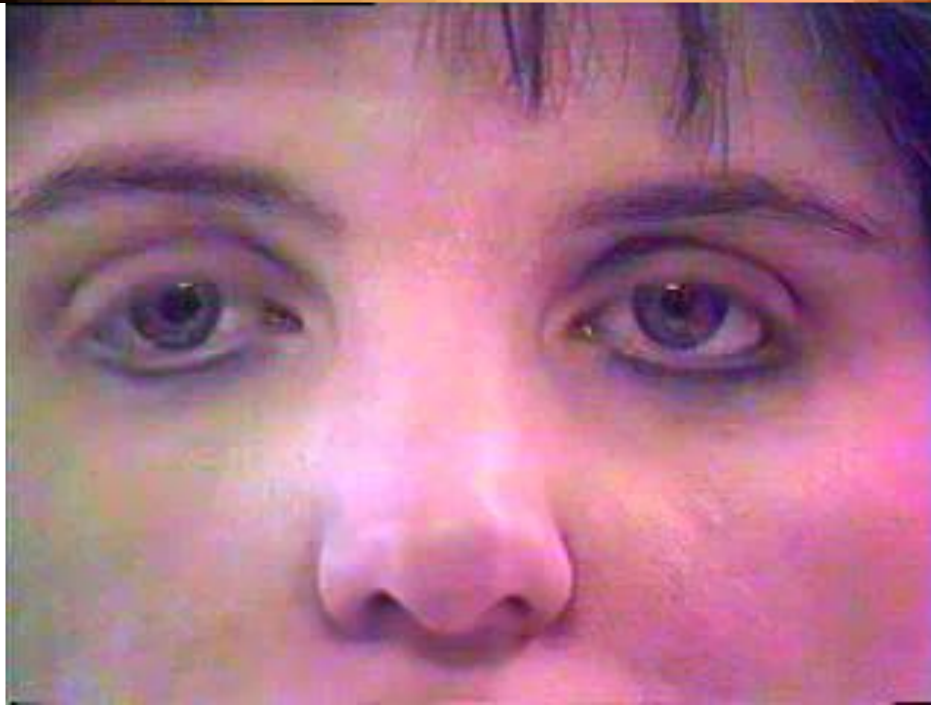
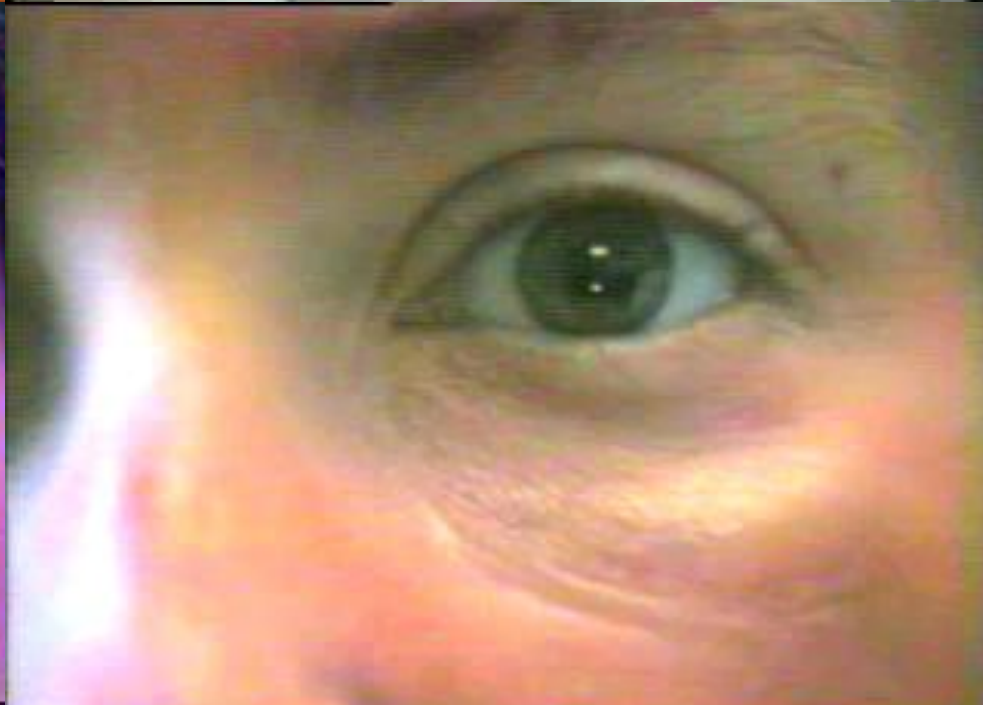
Frenzel Goggles

Focused Exam for Common Etiologies

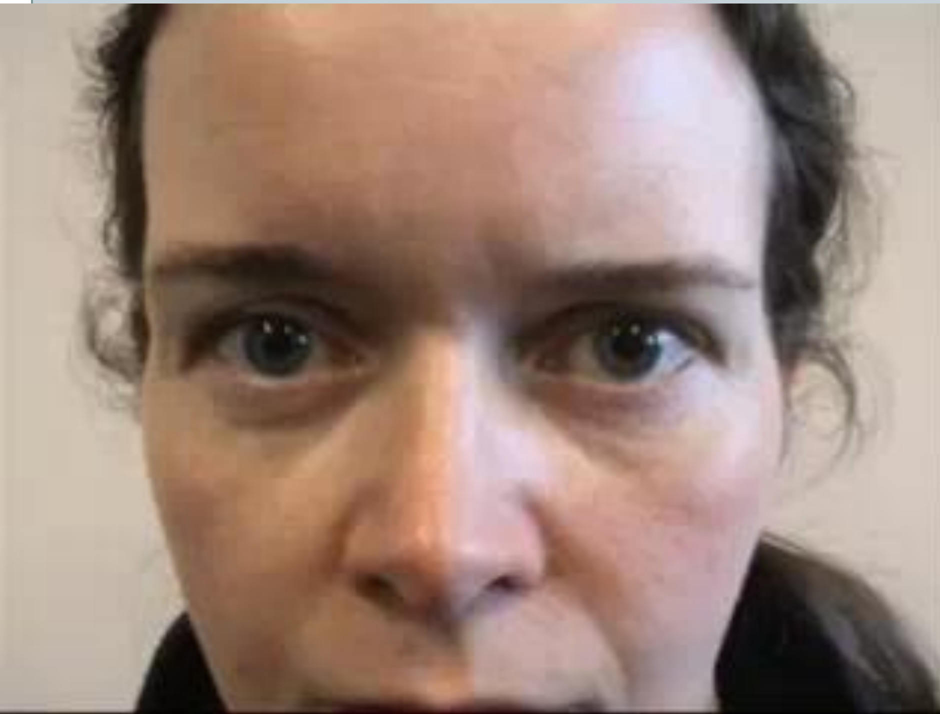
- BPPV:
  - Dix Hallpike Maneuver
- Vestibulopathy (e.g. vestibular neuritis):
  - Nystagmus
  - Head Thrust test

LINE1


Left Gaze

Head Impulse Test



Dysequilibrium = Balance Impairment

Neurologic Causes	Non-Neurological Causes

• Vestibular disease
• CNS disease:
  ○ Parkinson's disease
  ○ NPH
  ○ Cerebellar degeneration
  ○ "Vascular Parkinsonism"
  ○ Myelopathy
• Peripheral Neuropathy
• Myopathy
	• Visual impairment
	• Postural hypotension
	• Arthritis
	• Sedating medications
	• Alcohol Use

Most elderly patients with dysequilibrium have multiple causes

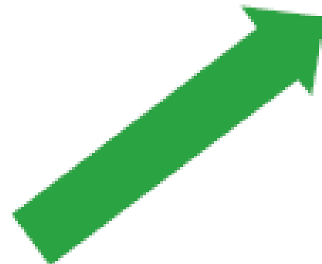
The anatomy of balance

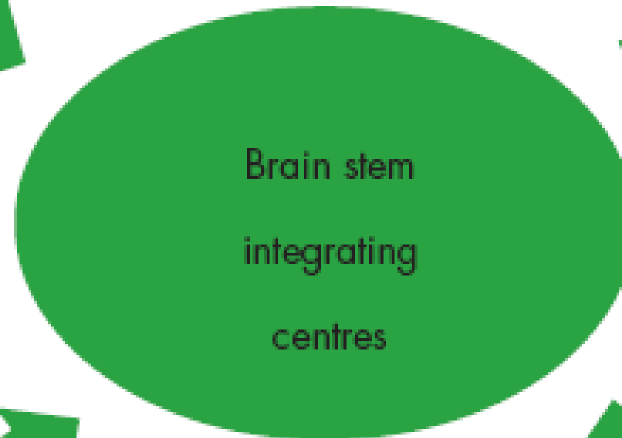
Higher centres
- Extrapyramidal system
- Cerebellum
- Reticular formation

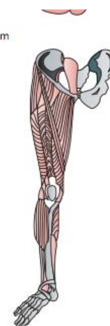
Vision

Proprioception

Vestibular labyrinths

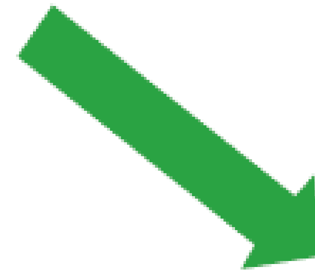






Perception of orientation

Oculomotor system



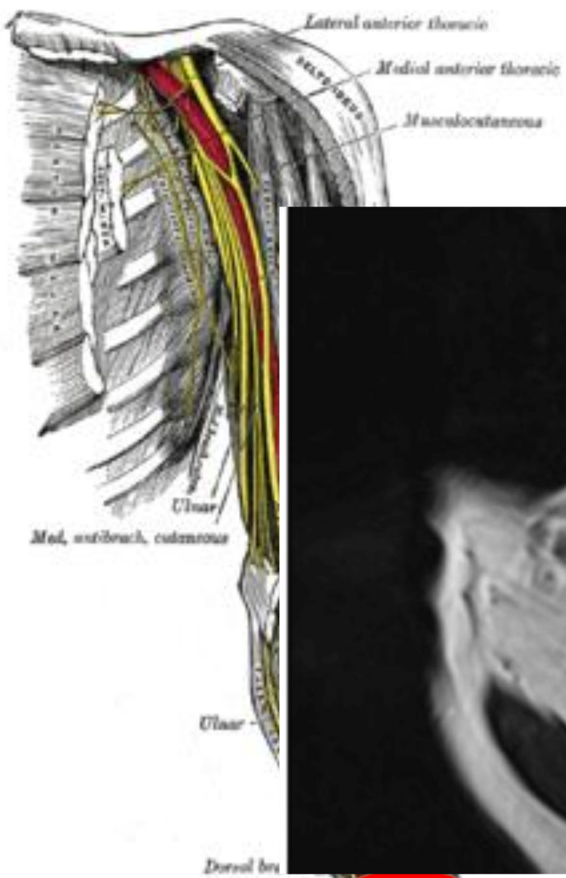
Antigravity muscles of posture

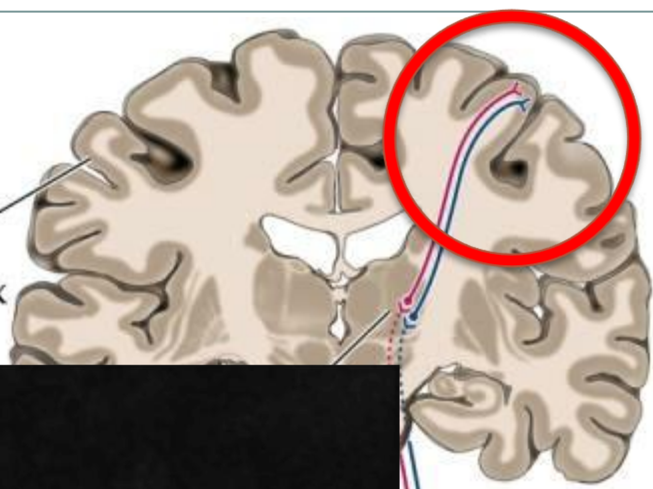
1. **Vertigo**: Not BPPV?
   - Audiology, Vestibular studies, Brain imaging, Neurology/ENT
2. **Dysequilibrium**: CNS/PNS signs?
   - Brain and spine imaging, EMG/NCS, Neurology
3. **Presycope:**
   - Ortho Vitals, Tilt table, Holter, Echo, Cardiology/Neurology
4. **Ill-defined Dizziness**
   - Screen for Ψ disease, general medical assessment, Rx review

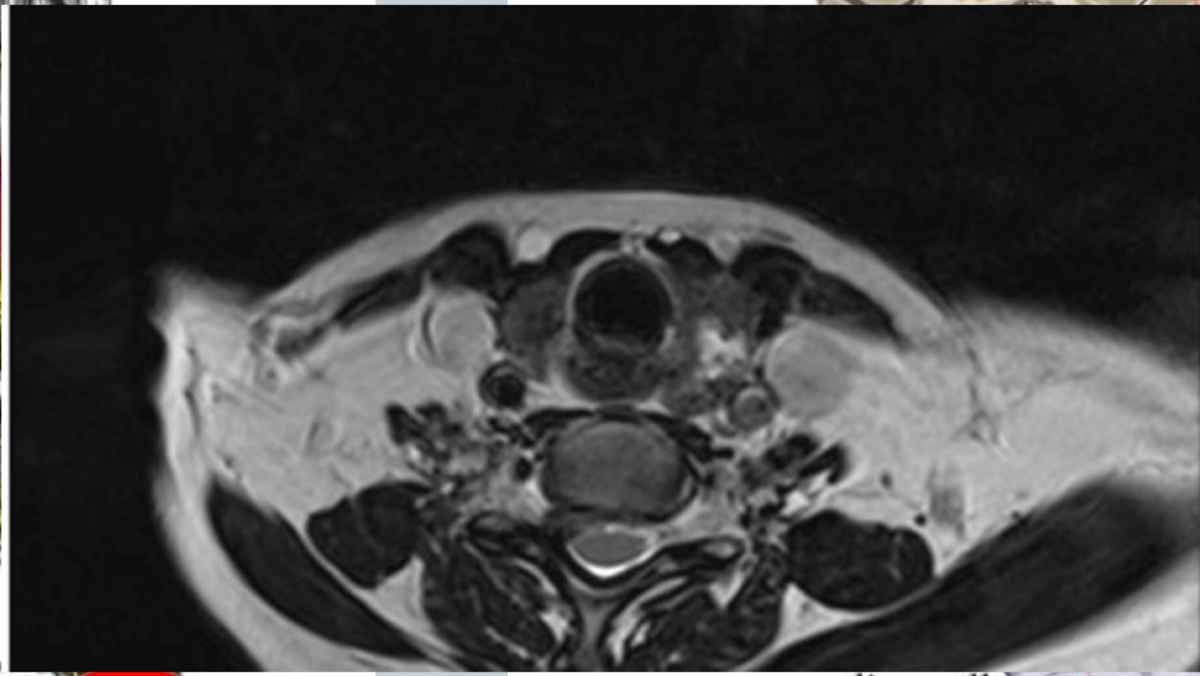
The Tinglies in 10 Slides

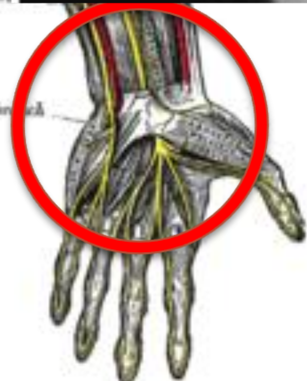
1. Localize
   - Where do you feel the tingling
2. Time Course and Evolution
   - Intermittent or persistent; Evolving
3. Associated Symptoms / Triggers
   - Differential Based Focused Inquiry
4. Focused Examination:
   - Positively diagnose the common causes
   - Raise suspicion for serious causes
5. Investigations

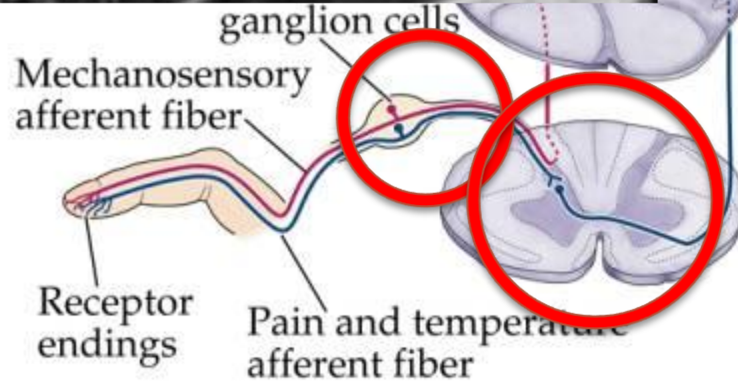
The sensory system











Patterns of Tingling of Localizing Significance

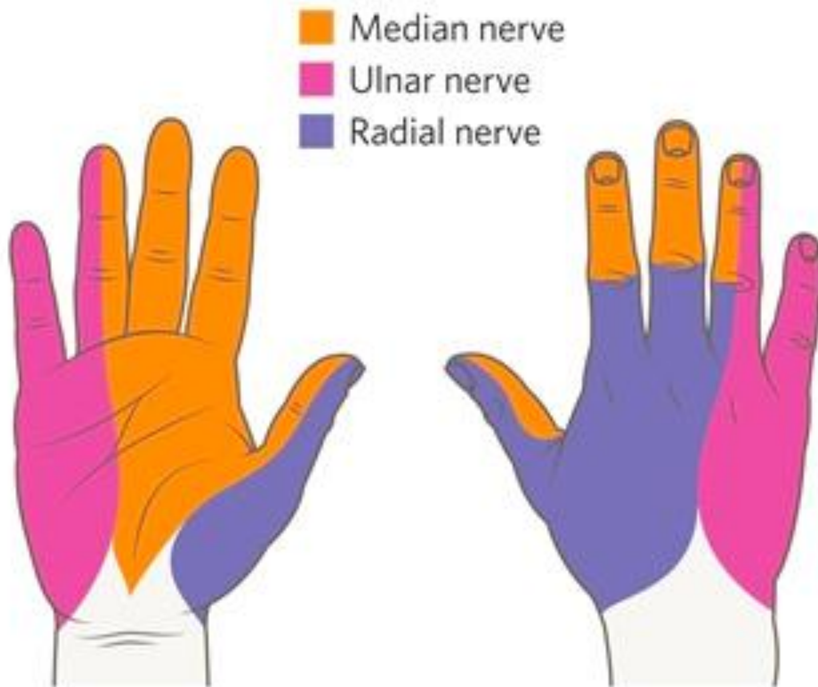
Peripheral Patterns

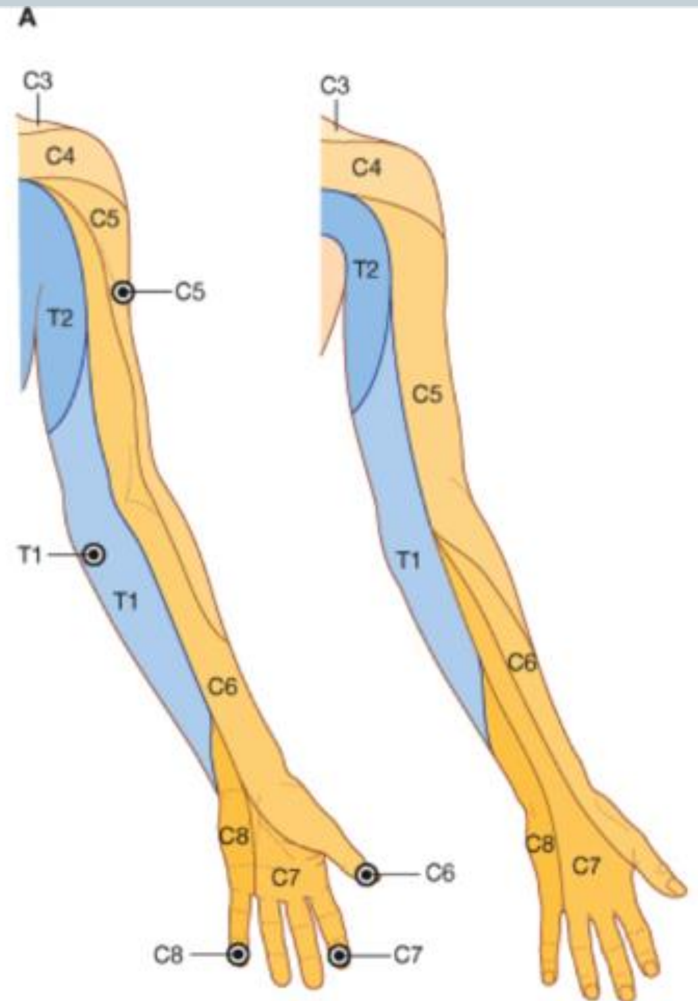
- Single Limb
    - Peripheral nerve disorder
    - (CNS disease)
- Bilateral Limbs
    - Bilateral Lower Extremity
        - Polyneuropathy
        - (Myelopathy)
    - Bilateral Upper Extremity
        - Bilateral mononeuropathy
        - (Cervical myelopathy)

Central Patterns

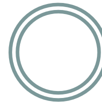
- Sensory level on trunk
    - Myelopathy
- Dissociated hemibody
    - Hemi-cord
- Hemibody
    - CNS disease
- Crossed Face and Body
    - Brainstem

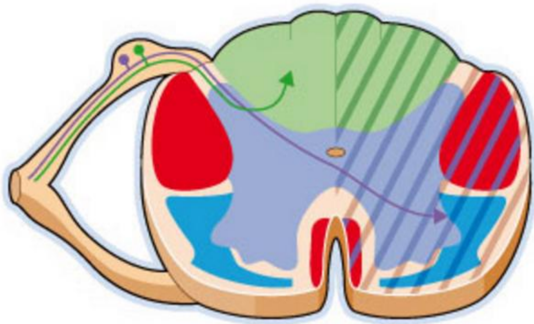
Mononeuropathy vs Radiculopathy

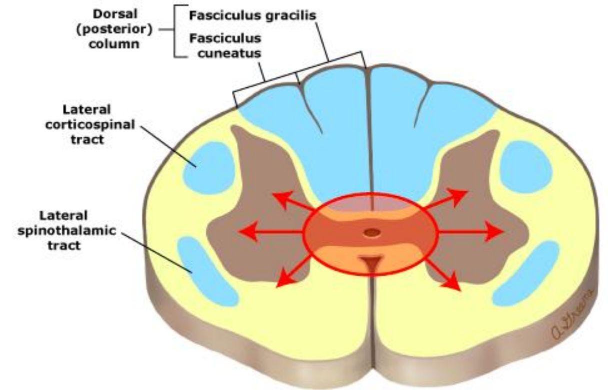


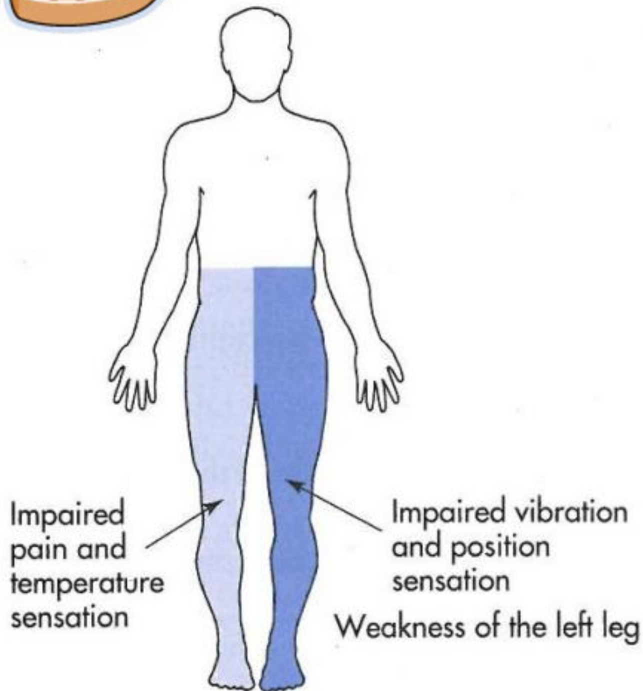


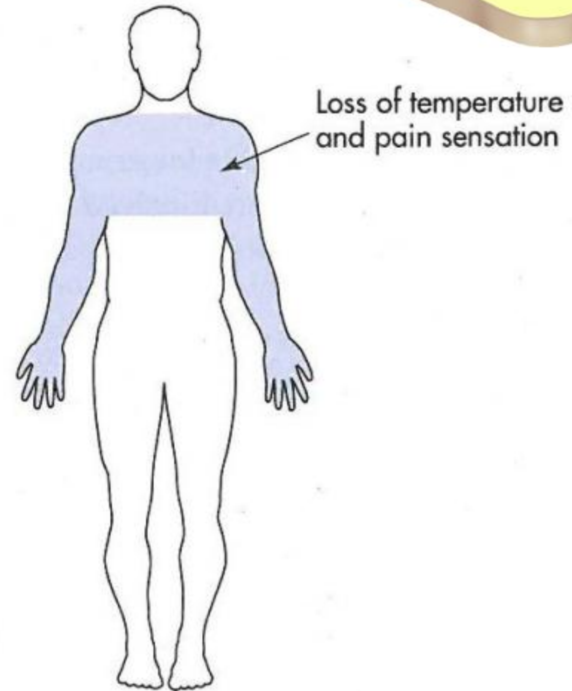
Central Patterns











Time Course is Critical

Intermittent

- Single Limb
  - CTS (nocturnal, triggers)
  - Radiculopathy (pain, triggers)
  - Migraine (slow evolution)
  - Seizure (fast evolution)
  - TIA (max at onset)
- Bilateral Limbs
  - Anxiety

Persistent

- Single Limb
  - Mononeuropathy
  - Plexopathy
  - Radiculopathy
  - CNS lesions (MS, Stroke)
- Bilateral Limbs
  - Polyneuropathy
  - Myelopathy

An Illustrative Case

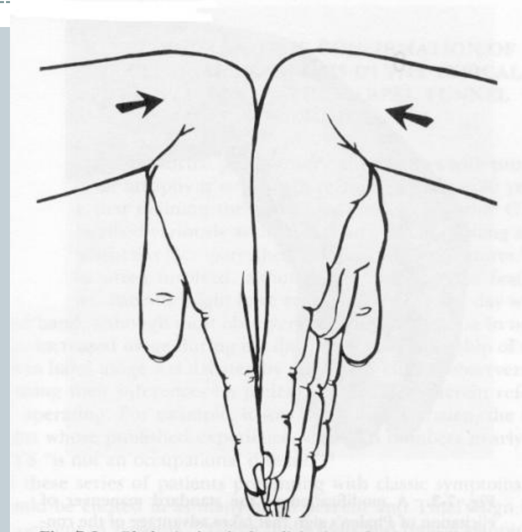
- A 63M mechanic presents with a history of tingling hands.
  - Localize:
    - All fingers, palms and distal forearms
  - Define Time Course:
    - Began 3 months ago
    - Progressed slowly since onset
    - Persistent symptoms
    - No nocturnal worsening

Differential Based Focused History

- Diagnosis A: Bilateral CTS
  - Nocturnal symptoms at any point? No
  - Nocturnal hand and arm pain? No
  - Triggers: holding phone, book, bags, driving? No
- Diagnosis B: Cervical myelopathy
  - Neck pain? Yes
  - Radicular pain? No
  - L'Hermittes sign? No
  - Bowel or bladder dysfunction? Yes
  - Gait impairment? Yes
  - Leg weakness, stiffness? Yes

Useful Examination Findings

- CTS
  - Phalen's (Sn 68%, Sp 73%)
  - Tinel's (Sn 50%, Sp 77%)
- Radiculopathy
  - Spurling's (Sn 30%, Sp 93%)
  - SLR (Sn 91%, Sp 32%)
  - Crossed SLR (Sn 32%, Sp 98%)
- Myelopathy signs
  - Spastic catch
  - Clonus at ankles
  - Extensor plantars
  - Crossed adductors



Investigations

- History and Exam support CTS, ulnar?
  - No investigations are required – try conservative Rx
  - EMG/NCS – confirm diagnosis and rate severity
- History and exam support radiculopathy?
  - No investigations are required – try conservative Rx
  - EMG/NCS – confirm diagnosis and localize level
  - MRI – indicated for persistent, progressive, red flags
- Persistent numbness
  - Consider pattern to localize
  - Could start with NCS/EMG if peripheral localization possible
  - MRI usually indicated in cases with CNS pattern of symptoms and signs, negative EMG/NCS

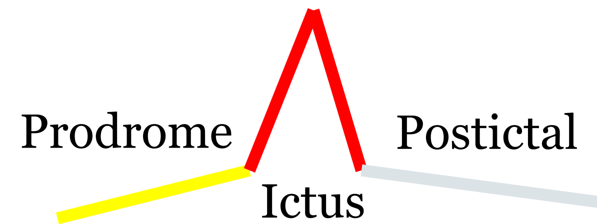
The Fainties in 10 slides

1. Fainty = Transient altered mental status
   - What is the differential?
2. Seizure versus Syncope
   - The history of a "Spell"
3. Pre-syncope and Orthostatic Intolerance
   - Differential Based Focused Inquiry
4. Focused Examination:
   - Positively diagnose the common causes
   - Raise suspicion for serious causes
5. Investigations

Fainty = Transient Δ Mental Status

- T-LOC
  - Non- traumatic
    - Syncope
    - Epileptic seizure
    - Psychogenic
    - Rare causes
  - Traumatic

Taking a "Spell" History



Seizure	Syncope
Prodrome: Aura	**Prodrome:** Nausea, cold, sweating, pale, lightheaded, blurred vision
Ictus: Automatisms, prolonged tonic-clonic movements, tongue biting	**Ictus:** Immobile, brief myoclonic jerks
Postictal: Prolonged confusion; Aching muscles, dislocated shoulder	**Postictal:** Very short duration; Nausea, vomiting, palor

Presyncope and Syncope: Causes

- Reflex syncope
  - Vasovagal
  - Situational
- Orthostatic Intolerance
  - Volume depletion
  - Drug induced
  - 1° Autonomic Failure:
    - PD, LBD, MSA, GBS
  - 2° Autonomic Failure:
    - DM2, Amyloidosis, HIV
- Cardiac syncope
  - Bardycardia
  - Tachycardia
  - Structural heart disease

Drugs Causing Orthostatic Hypotension

- Cardiac:
  - Alpha-adrenergic blockers
  - Beta-blockers
  - Nitrates
  - CCBs
  - Diuretics
- GU:
  - Sildenafil
  - Oxybutynin
- Neuropsychiatric
  - Levodopa
  - Dopamine agonists
  - Tricyclic antidepressants
  - Antipsychotics
  - Muscle relaxants
- Other
  - Opioids

Presyncope and Syncope: Characteristics

- Reflex syncope (21%)
  - Upright, brief spell
  - Young, healthy, female
  - Typical triggers
  - Recurrent
  - Syncope always
- Orthostatic Intolerance (10%)
  - Upright, prolonged
  - Syncope less common
  - Older, medications
  - Comorbid disease
- Cardiac syncope (10%)
  - Sudden, no prodrome
  - Palpitations b/f syncope
  - Syncope during exertion
  - Upright or supine
  - Abnormal ECG
  - History of heart disease
- Unexplained (37%)
- Non-syncopal T-LOC (10%)

Orthostatic Intolerance: Symptoms

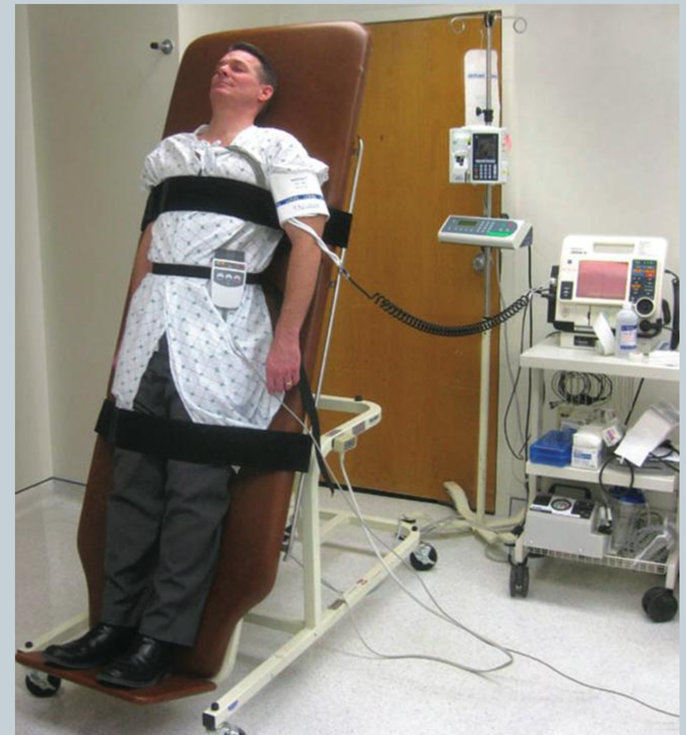
- Dizziness, lightheadedness, presycope
- Weakness, fatigue and lethargy
- Palpitations and sweating
- Blurred, tunneled vision, enhanced brightness
- Impaired hearing, crackles, tinnitus
- Pain in the neck, shoulders, occiput, lower back and chest

- Autonomic Dysfunction:
  - Urinary incontinence, retention, constipation, diarrhea, early satiety, bloating, nausea, erectile dysfunction, abnormal sweating

- Orthostatic Vitals:
  - Patient rests for at least 3 minutes prior to test
  - Supine or sitting BP, then stands for three minutes while BP is taken consecutively
  - Orthostatic Hypotension defined by:
    - SBP<20mmHg or DBP<10mmHb and symptomatic
  - POTS: Postural Orthostatic Tachycardia Syndrome
    - HR increased by >30bpm, or HR > 120bpm persistently
- Neurological Exam
  - Parkinsonism, polyneuropathy

Investigations

- No investigations necessary:
  - Young, healthy low risk, reflex syncope
  - Non-specific lightheadedness, normal orthostatic vitals
- Tilt-Table Testing
- ECG / Holter / Loop Recorder
- EEG / Sleep Deprived EEG
- Neurology / Cardiology Referral



Summary

- The Dizzies: Vertigo, Presyncope, Dysequilibrium
  - Perform a Dix-Hallpike to rule out BPPV
- The Tinglies: PNS, CNS, Psychiatric
  - CNS disease must be considered for persistent symptoms when a peripheral cause cannot be identified
- The Fainties: Presycope, Syncope versus Seizures
  - The history is the best tool to differentiate these
  - Orthostatic Vitals are vital

- Psychiatric Disease can cause the dizzies, the tinglies and the fainties, but should be a diagnosis of exclusion