Syncope and Altered Consciousness

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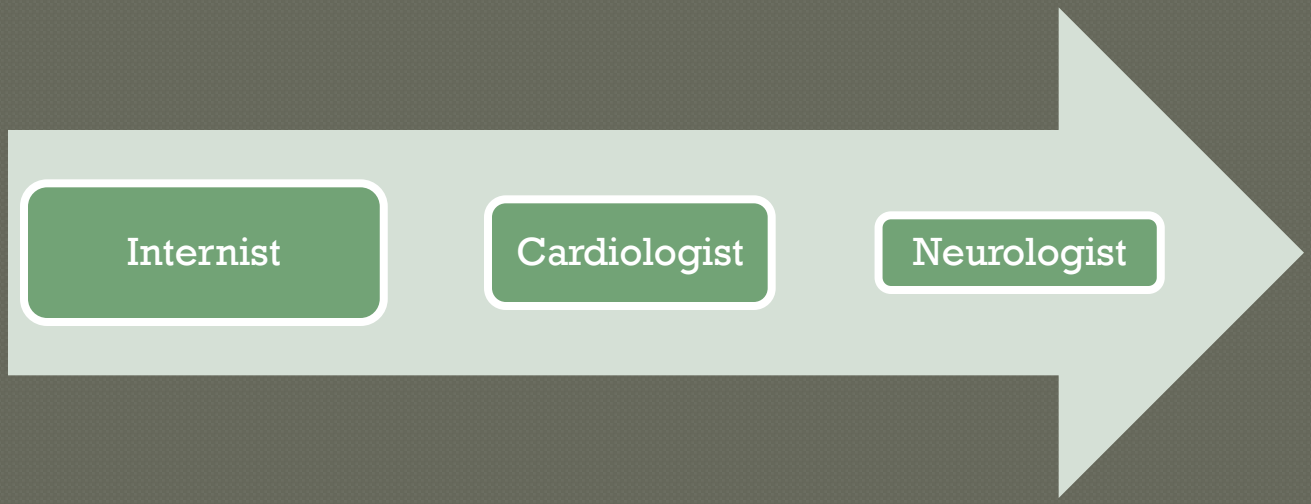
Cases

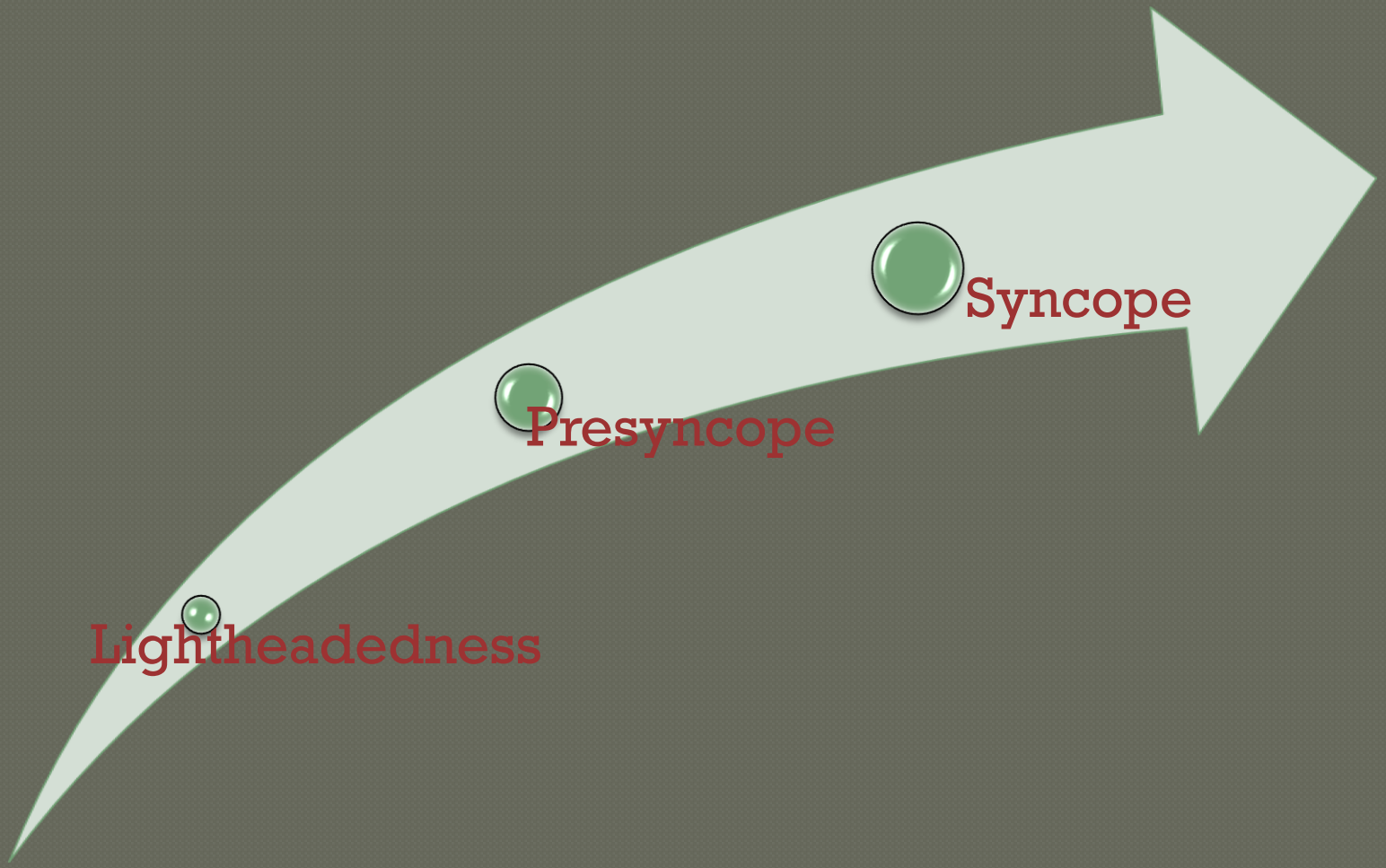
- 18 yo WF passed out while leaving a concert at 1:00 am
- 81 yo AAF passed out while singing in a church choir
- 45 yo obese WM passed out in a weight loss program while working out really hard
- 65 yo grandmother of 4 fainted on a toilet seat at 5:00 am

Fainting / Passing Out / Syncope

- It is a symptom complex and not a disease
- Brief loss of consciousness caused by sudden reduction in cerebral blood flow

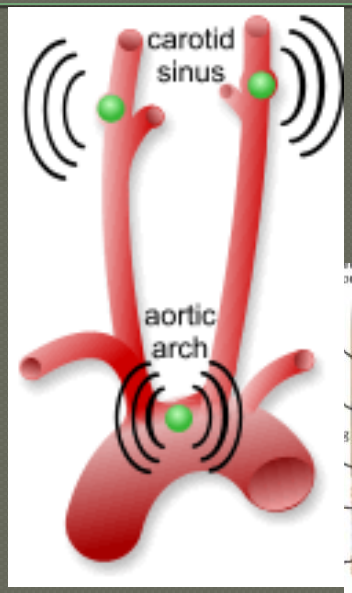


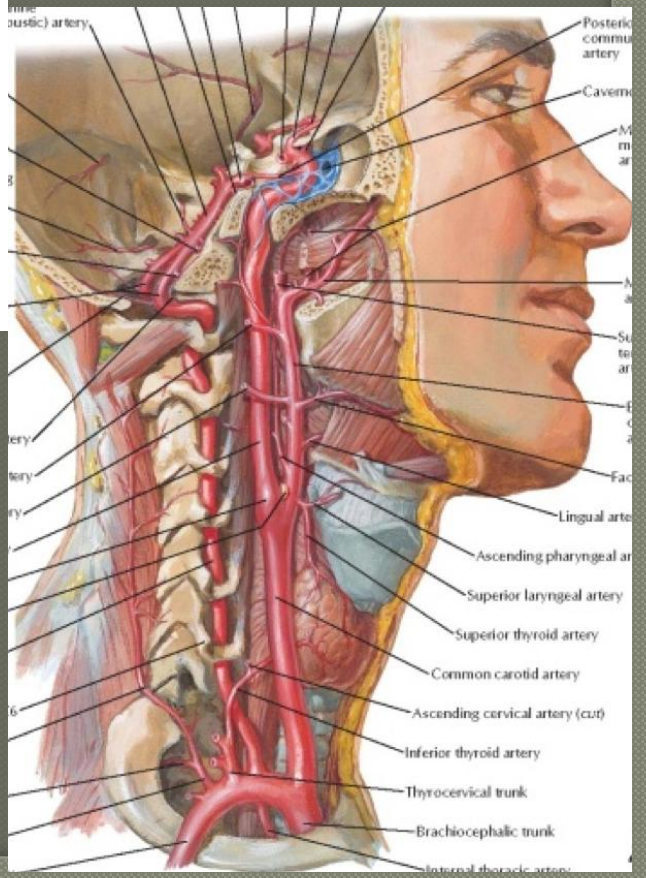
Spectrum



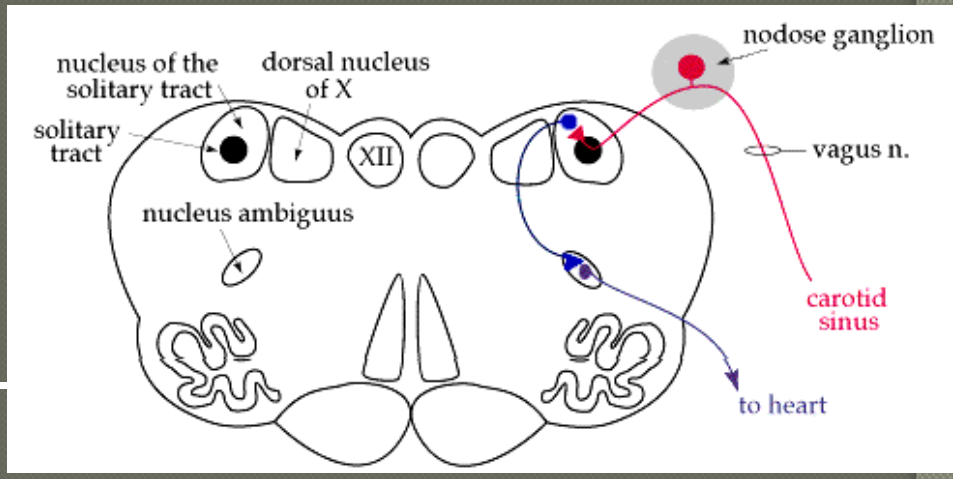
Rapid Autoregulation of BP

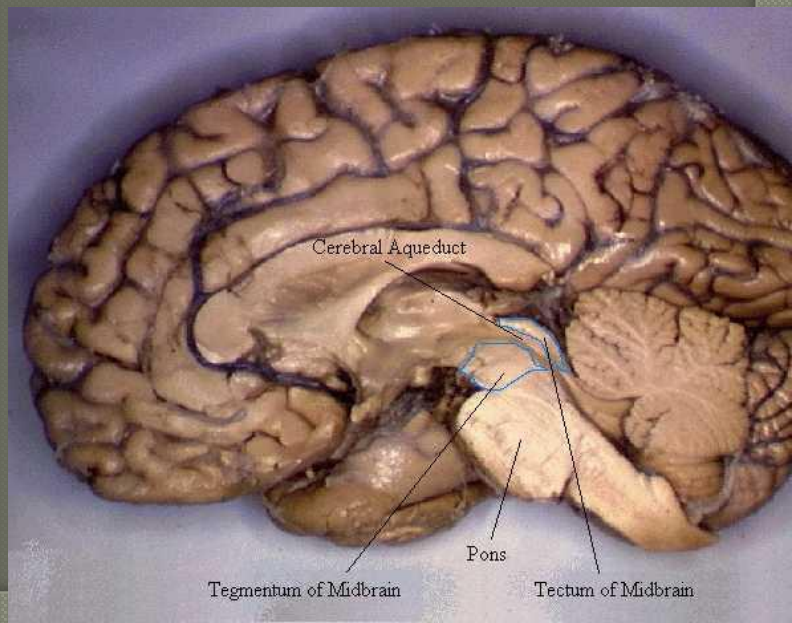
- Carotid Sinus and aortic baro-receptor
- Stretch reflex
- Nerves tells brain how much stretch

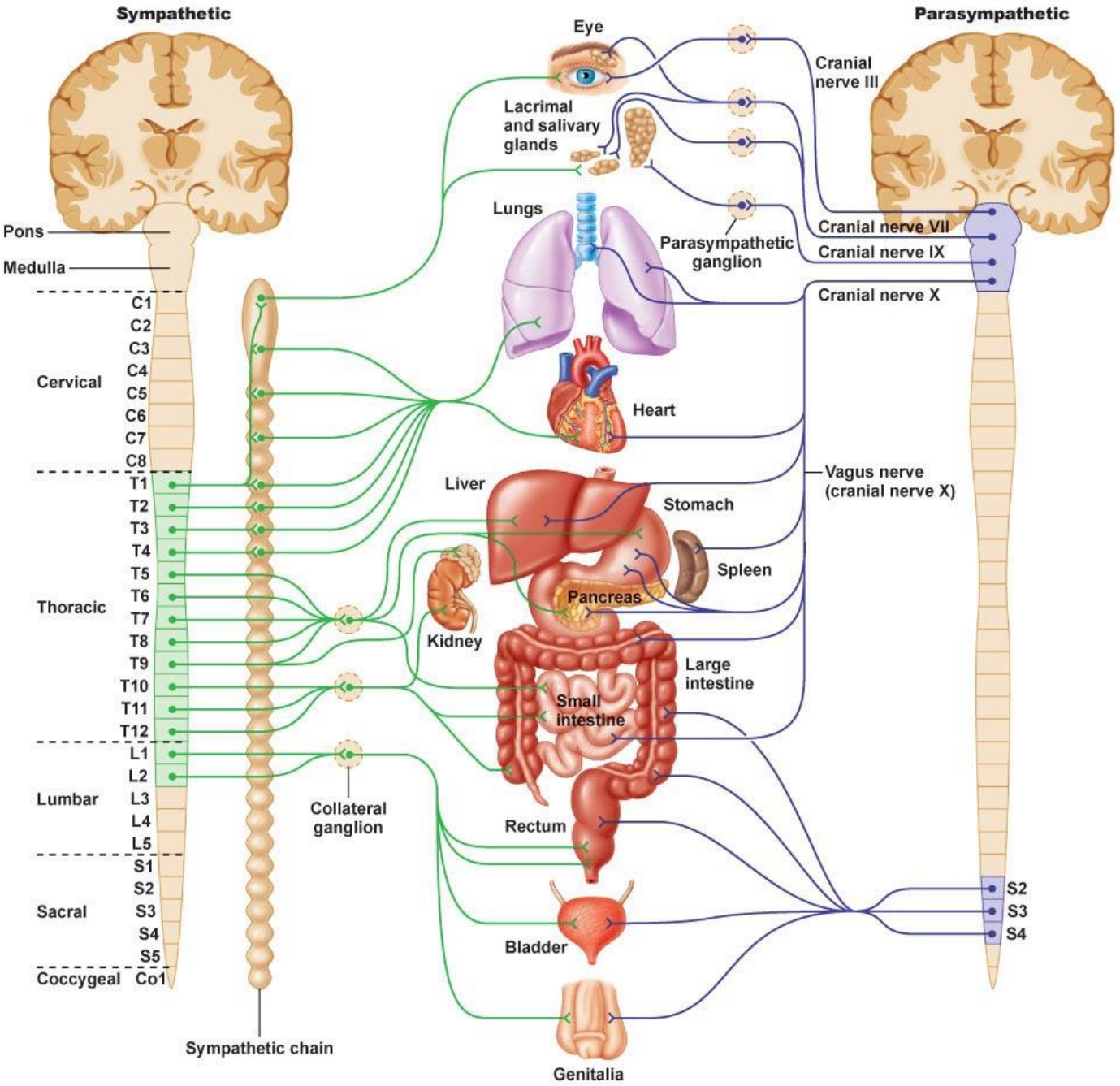




- Brain has normal set point
- If increase pressure – increase stretch
- If decrease pressure – less stretch
- Autonomic response
- Pressure = flow x resistance
- Flow = stroke volume x heart rate







Autonomic Nervous System

SYMPATHETIC

- Heart (increase HR, Stroke Volume)
- Vasoconstriction (increased resistance)
- Responds to decrease BP

PARASYMPATHETIC

- Decrease HR and stroke volume
- Vasodilation (decreased resistance)
- Responds to increased BP

Symptoms of Autonomic Dysfunction

- Visual blurring – pupils can't react to light properly
- Lightheadedness and fainting (orthostatic hypotension)
- Exercise intolerance (can't change HR with exercise – RR interval study)
- Difficulty with sweating
- Gastro paresis and other GI symptoms
- Urinary incontinence
- Sexual dysfunction

Lets get back to real life scenario

- How do I need to think when I get asked to see patient with syncope
- (I will think through this as IM intern – not neurologist)

Looking inside intern's brain

- Responding to phone call (ER / floor):
  - Was there loss of consciousness?
  - Is the patient still unconscious?
  - Vitals?
  - What was pt's position (supine – cardiac, immediately after standing up - orthostatic)
  - Seizure? (post syncopal myoclonus)
  - Injury?
- Appropriate Orders: ABC, glucose, position, EKG, orthostatic

Elevator Thoughts
Pre-interview preparation

- Cause of syncope (__% of ER pts)
  - Reflex Vasodilation (60%)
  - Heart (25%)
  - Orthostatic (postural) hypotension (10%)
  - Neurological (5%)
  - Psychiatric (1%)

Reflex Vasodilation (60% of ER pts)

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  - Neurocardiogenic syncope
  - Carotid sinus syncope
  - Situational syncope
    - micturition,
    - defecation,
    - cough

Cardiac Causes (25% of ER pts)

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  - Arrythmias
    - VT, SVT,
    - heart blocks, sick sinus syndrome, pacemaker malfuction
  - Flow failure
    - AS, HOCM,
    - A. dissection,
    - PE,
    - MI

Orthostatic (postural) hypotension 10%

- Volume depletion
  - Anemia
  - Dehydration
  - Blood loss
- Drug induced
- Autonomic Dysfucntion
  - Central – Shy-Drager Syndrome, PD, lewy body dementia
  - Peripheral – Autonomic neuropathy

Neurological Causes (5%)

- Seizure
  - Unwitnessed generalized seizure with amnesia
  - Atonic Seizure (drop attack)
- TIA (Transient Ischemic Attack)
  - Vertebrobasilar stenosis / occlusion
  - Subclavian steal syndrome
  - Bil carotid stenosis (?)
- ICP (Intra Cranial Pressure)
  - SAH (sub arachnoid hemorrhage)
  - Space-occupying lesion (tumor)

Psychiatric and others (1%)

- Hyperventilation
  - Anxiety attack
- Conversion disorder

Intern: 30-40 % ppl were "crazy" – their symptoms did not make sense.
Resident: 20%
Fellow: 10%
Attending: 2%
Nobel Laureate: No body is "crazy"

Selective History

- Describe me the "spell" (get a witness)
- Tell me what happened just before the spell
  - Presyncopal description, position change, activity
- Tell me what you felt when you woke up
  - Amnesia, hurting all over, B/B loss, tongue bite
- Medications

Selective Exam points

- Vitals – orthostatic
- HEENT – palpate, tongue, fundoscopy
- Heart – murmur
- Palpate – where it hurts
- Watch them walk
- Observe them when they are not aware

Work up

- Labs: CBC (anemia, coagulation issues), CMP (renal function), ABG, UDS, serum alcohol level
- EKG, telemetry monitoring, ECHO, holter, tilt table testing, EP studies, stress test, angio
- Neuro: hyperventilate, CT/MRI head, EEG, Carotid Dopplar

Treatment

- First aid (avoid trauma, lie down)
- Treat the cause
- Remove offending medication
- Stay well hydrated
- Exercise (improve vascular tone)
- Frequent change in posture
- Liberal Salt (if not HTN or other restriction)

Good Old STRETCH

Altered Consciousness

"Spells"

Believe or not – it's a frequent consult

- Seizure (neonatal seizure?)
- Syncope
- Migraine (Aura, Complicated Migraine, hemiplegic migraine)
- TIA (limb shaking, drop attack)
- Sleep disorder (RBD, sleep walking, Night terrors, Night mares)
- Episodic movement disorder (palatal myoclonus, dyskinesia)
- Pseudo seizure
- Vestibulopathy (BPPV, vestibular neuritis)
- Transient Global Amnesia

How to differentiate major ones?

Features	Sz	Syncp	Mgrin	TIA	Sleep Dsrdr	Mvmt Dsrdr	Psdo Sz
Aura							
Onset / Tempo							
Duration							
Movements							
Pattern							
Impaired awareness / LOC							
Postictal							
Appearance							
Trauma, Tongue bite, incontinence							
Vitals							

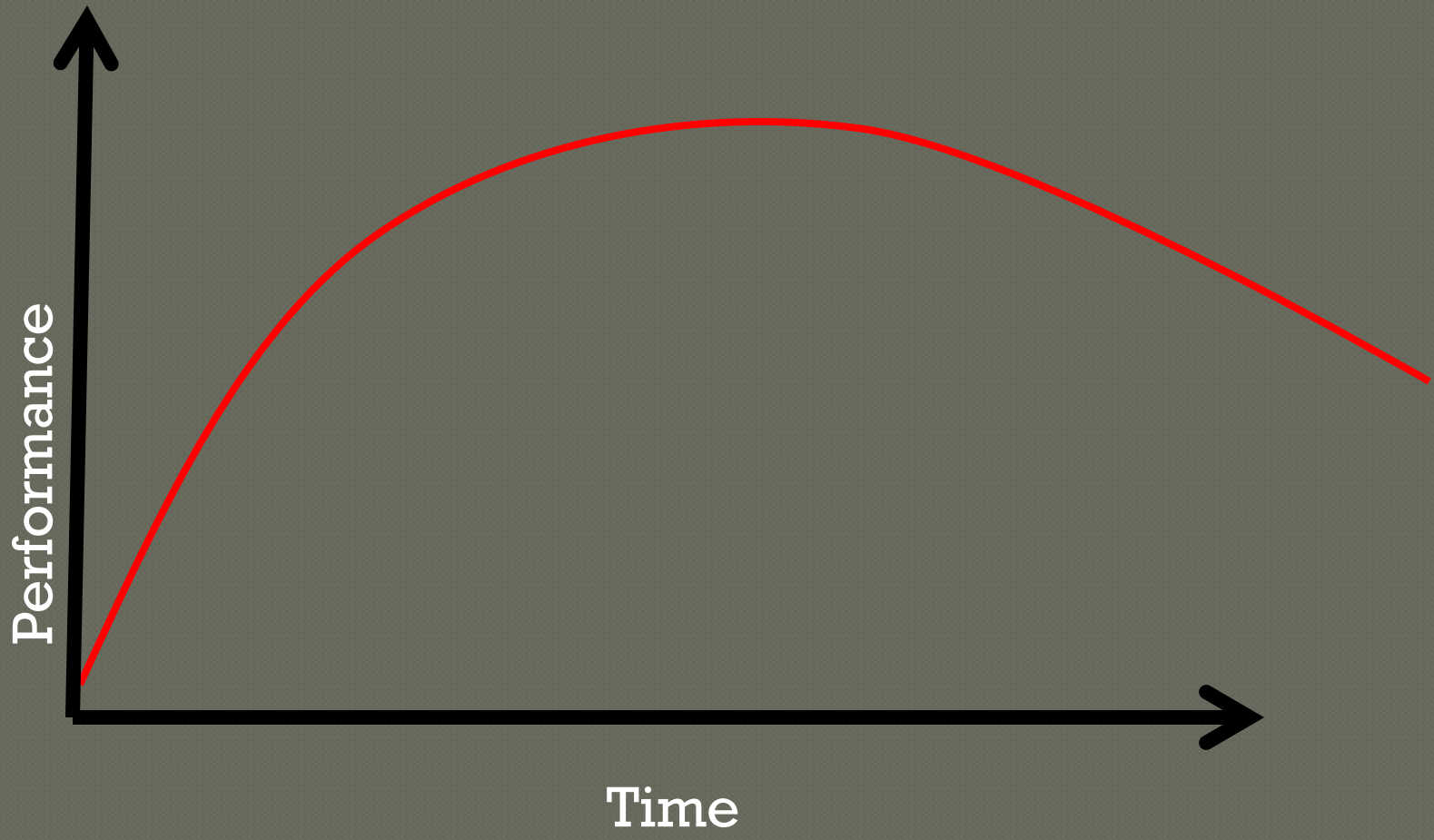
Pearls

- Reading pearls
  - Visualization
  - Acting out – make up hypothetical pts
  - Different brains learn things differently (find out how you learn the best)
  - If you read it online – somehow keep track of it – you will need to revise it

Pearls conti.

- Test taking pearls
  - Sleep well the night before
  - Organize your time (calculate back from day of exam)
  - Do questions from day 1.
  - Read the topic you don't like
  - Learn common disease over rare ones
  - For long vignette read the last line first and look at your answers
  - Always give exam – you will never feel fully prepared

Time and performance cure



Pearls Conti…

- History taking pearls
  - Let the patient talk
  - Chief Complaint
  - HPI, history of etiology, neg history of differential, history of work up and treatment.
  - Ask caregiver
  - Look into their eyes (computer screen)
  - Redirect talkative patients