N.B. Another way to remember this is:
“1, 2 buckle my shoe
3, 4, kick the door
5, 6, pick up the sticks
7, 8 close the gate”

**Quick upper limb nerve root test**

- Elbow flexion: C5
- Wrist extension: C6
- Elbow extension: C7
- Finger flexion: C8
- Finger abduction: T1

**Lower limb nerve root test**

- Hip flexion: L1-L2
- Knee extension: L3-L4
- Knee flexion: L5-S1
- Plantar flexion: S1-S2

**Ptosis (MITCH)**

- Myasthenia gravis
- Idiopathic
- Third nerve palsy
- Congenital
- Horner's syndrome

**Pathology**

**Headache**
- Classification
- Migraine
- Cluster headache
- Trigeminal Neuralgia
- Cavernous sinus thrombosis

**Cerebrovascular disease**
- TIA’s/Stroke
- Carotid artery disease
- Subarachnoid haemorrhage
Subdural haemorrhage
Extradural haemorrhage

**CNS tumours**
Classification
Acoustic Neuroma
Neurofibromatosis
Tuberous sclerosis

**Dementia**
Classification
Alzheimers
Vascular
Pick’s
Lewy body
CJD

**CNS infections**
Meningitis
Encephalitis

**Epilepsy**
Classification
Status epilepticus

**Movement disorders**
Symptoms
Parkinson’s disease
Huntington’s chorea
Hemiballismus

**Spinal cord diseases**
Cervical spondylosis
Brown-sequard syndrome
Tabes dorsalis
Friedreich’s ataxia

**Inflammatory myopathies**
Dermatomyositis
Polymyositis

**Diseases affecting anterior horn cell**
Myasthenia gravis
Eaton-Lambert syndrome

**Peripheral nerve disease**
Bell’s palsy
Carpal tunnel syndrome
Guillian Barre syndrome

**Hydrocephalus**
Cerebral palsy
Motor neurone disease
Multiple sclerosis
Headache

Classification according to onset

- Acute new headache
  - 1. Meningitis (fever, neck stiffness, photophobia, rash)
  - 2. Encephalitis (fever, reduced conscious level)
  - 3. Subarachnoid haemorrhage (Thunder clap +/- stiff neck)
  - 4. Head injury
  - 5. Sinusitis (tender over sinuses, +/- URTI)

- Acute recurrent headache
  - 1. Migraine (aura, visual disturbance, n&v, triggers)
  - 2. Cluster headache (unilateral eye pain for 2-3 months then pain free for >1 year)
  - 3. Exertional/coital headache (association)
  - 4. Trigeminal neuralgia (intense stabbing pain in trigeminal nerve distribution)
  - 5. Glaucoma (red eye, haloes, decreased visual acuity, pupil abnormality)

- Subacute headache
  - Temporal (giant cell) arteritis (>50, scalp tenderness, increased ESR, rarely decreased visual acuity)

- Chronic headache
  - Tension headache (band around the head, stress)
  - Raised ICP (HTN, bradycardia, early morning headache, worse on leaning forward, vomiting)
  - Medication headache (rebound headache on stopping meds)

Migraine

- Epid:
  - Affects 15% of UK population

- Pathogenesis
  - Caused by disturbance of cerebral blood flow under the influence of 5-HT (serotonin)

- Triggers “CHOCOLATE”
  - Ch – Cheese
  - O - OCP
  - C – Caffeine
  - OL – Alcohol
  - A – Anxiety
  - T – Travel
  - E - Exercise

- 3 clinical pictures
Based on Sx control

Dementia

Def: “an acquired, progressive loss of cognitive function that is not a normal feature of ageing”

Dementia differential diagnosis “DEMENTIAS”
- neuroDegenerative diseases
- Endocrine
- Metabolic
- Exogenous
- Neoplasm
- Trauma
- Infection
- Affective disorders
- Stroke/Structural

Subtypes:

1. Alzheimer’s disease (60%)
   - Def: “Dementia characterised by extracellular deposition of beta amyloid protein and intracellular neurofibrillary tangles”
   - Epid
     - Incidence increases with age
     - Affects 5% of >65
   - Neuropathology
     - Macroscopic changes
       - Brain is atrophied (particularly at hippocampus) with enlarged ventricles
     - Microscopic changes
       - Widespread neuronal loss and 2 distinct pathological features
         - 1. Beta-amyloid plaques
         - 2. Neuro-fibrillary tangles
     - Neurotransmitter changes
       - Loss of cholinergic neurones
   - Cause: unknown

Sx
- 5 A’s of dementia
  - Amnesia (short term)
  - Aphasia
• 1. Progressive muscular atrophy
  ▶ Typically presents with LMN signs affecting single limb that then progresses
• 2. Amyotrophic lateral sclerosis (Lou Gehrig's disease)
  ▶ Both UMN and LMN involved
• 3. Progressive bulbar palsy
  ▶ Affects bulbar musculature
  ▶ Poorest prognosis

◆ Clinical features
  ◦ UMN: Spasticity, weakness, hypereflexia, extensor plantars
  ◦ LMN: Muscle wasting, fasciculations, weakness, hyporeflexia

◆ Ix
  ◦ Nerve conduction studies and EMG

◆ Rx
  ◦ Riluzole (affects glutamate transmission)
    ▪ Provides modest improvement in survival (2-3 months)

◆ Px
  ◦ 5 year life expectancy

Coma

◆ Def: “A state of unconsciousness marked by a profound suppression of responses to external and internal stimuli”

◆ Causes
  ◦ Brain herniation, infarction, haemorrhage
  ◦ Electrolyte disturbances
  ◦ Endocrine dysfunction
  ◦ Exogenous toxins (medications, ETOH)
  ◦ Infectious/inflammatory disease

◆ N.B. Locked in syndrome is where patients are awake and alert but can move only their eyes and eyelids. Associated with central pontine myelinolysis, brainstem stroke, advanced ALS

◆ N.B. Persistent vegetative state is characterised by normal wake-sleep cycles but lack of awareness of self or environment. Most commonly caused by trauma or infarction

Myotonic dystrophy

◆ Def: “Autosomal dominant condition characterised by:
  ◦ 1. Muscle wasting
  ◦ 2. Weakness