

### Preperation and Equipment:

<b>W</b>	Wash Hands
<b>I</b>	Introduce Yourself + Patient's Identity
<b>P</b>	Permission
<b>P</b>	Patient Position + Pain
<b>E</b>	Explanation

**Patient must be placed at 45° and limbs exposed**

### Equipment:

Cotton Wool  
Neurotips  
Tendon Hammer  
128Hz Tuning Fork

### General Inspection:

- Postural abnormalities and deformities
- Leaning or facial asymmetry
- Muscle wasting, fasciculations, or tremor
- Abnormal movements
- Obvious discomfort or pain
- Medical paraphernalia: Walking aids, Calipers

### Tone:

#### Check for pain

<b>Check tone:</b>	Roll the relaxed leg from side to side and watch foot	Extra movement => Decreased tone Less movement => Rigidity
	Flex and extend knee	+ check for clonus at knee

**Check for clonus:** Rotate ankle

**Ensure no pain**

Relax foot

Hold lower leg with one hand and extend the ankle joint with the other

Suddenly dorsiflex ankle and hold in position

**Compare with other leg**

Clonus is seen in **upper motor neuron lesions**

### Power:

**Test both left and right limbs, directly comparing each movement in turn.**

**The patient should perform each movement on their own and then attempt with the examiner resisting the movement**

**Hips:**

- Flexion Patient straightens leg, raises leg off the bed, lowers it to the bed
- Abduction
- Adduction
- Extension

**Knee:**

- Flexion Patient flexes hip and knee, secure thigh with one hand, ask patient to kick out towards the end of the bed, pull in heel towards bum
- Extension

**Ankle:**

- Dorsiflexion Leg flat on bed, secure leg, dorsiflex foot, plantarflex foot
- Plantarflexion

**Big Toe:**

- Flexion Hold foot secure, flex big toe (towards patient), extend (away from patient)
- Extension

### Coordination:

**Heel-shin test:** Place heel on one knee and run up and down the shin

**Toe Tapping:** Patient taps floor/your hand with their foot

**Must be completed for both sides** and the patient should be asked to **perform the actions as quickly as possible**

### Tendon Reflexes:

**Limb must be totally relaxed**

<b>Knee:</b>	Support the leg above the knee, with the knee flexed, strike directly below the patella	<b>L3/4</b>
<b>Ankle:</b>	Leg flat on the bed, laterally rotate leg, flex knee, hold the foot dorsiflexed. Strike Achilles Tendon	<b>S1/2</b>

### Tendon Reflexes: (cont)

<b>Plantar</b>	<b>Hold ankle with one hand.</b>	<b>Must be first</b>
<b>Response:</b>	Warn the patient this may tickle. Scratch the sole of the foot with a tongue depressor, starting at the lateral side of the heel, up lateral sole, across base of toes.	<b>movement of the big toe</b>  Negative Babinski sign (normal except in the case of LMN disease): <b>Flexion of the toes and pull away</b>  Positive Babinski sign: <b>Extension (upwards movement) of the toes</b> <i>Indicates UMN damage</i>

Muscle may just contract, **may not be an obvious movement**

Reflex may be **present/absent**, or **reduced/brisk**

### Sensation:

<b>Light Touch:</b>	<i>Important to touch rather than stroke</i>  Lightly <b>touch sternum</b> first using cotton wool. <b>Ask patient to close eyes</b> and tell you when they feel the touch. <b>Ask if touch feels the same on both sides</b>
	Proximal anterior upper thigh <i>L1</i>
	Proximal anterior upper leg, between thigh and knee <i>L2</i>
	Anterior surface of knee <i>L3</i>
	Medial aspect of lower leg <i>L4</i>
	Lateral aspect of lower leg <i>L5</i>
	Lateral side of foot/small toe <i>S1</i>
	Posterior vertical midline of leg <i>S2</i>

### Sensation: (cont)

<b>Pain:</b>	Repeat same process as for light touch.  Tested using a <b>new</b> neurotip. <b>Must be disposed of in the sharps bin.</b>
<b>Temperature:</b>	Tested the same way as pain/light touch, rarely done.  Tested using a <i>cold tuning fork</i> .
<b>Vibration Sense:</b> (128Hz)	Strike tuning fork and hold to patient's sternum. Ask patient to close eyes.  Begin on most distal bony prominence ( <b>Big toe of each foot</b> )
<b>Proprioception:</b>	Ask patient to close eyes. Hold big toe at the sides, distal to the DIP joint. Stabilise the toe proximal to the tested joint.  Demonstrate up/down for the patient, then repeat in a random direction, asking the patient to say which direction the toe is moving.  Repeat 3 times
	If normal, end here. If patient is unable to feel, move proximally up the joints.  PIP, Ankle, Knee, etc.

### Gait and Balance:

<b>Examine Gait:</b>	
<b>Examine Balance:</b>	Romberg's Test: Patient stands with their feet together and close their eyes.  If they become unsteady -> Positive test

### Completing the Examination:

#### Thank the Patient

- Consider Upper Limbs Examination
- Consider Cranial Nerves Examination
- Consider Examining Anal Tone

#### Wash Hands

### Common Disorders

**B12 deficiency:** Commonest cause of **dorsal column problems** - sub acute combined degeneration of the spinal cord

**Cerebellar disease is ipsilateral** and causes horizontal nystagmus - Fast phase towards the side of the lesion

### MRC Muscle Power Scale:

#### MRC Muscle Power Scale

Score	Description
0	No contraction
1	Flicker or trace of contraction
2	Active movement, with gravity eliminated
3	Active movement against gravity
4	Active movement against gravity and resistance
5	Normal power

### Lower Limbs Dermatome Map:

