Preperation and Equipment:

W	Wash Hands
I	Introduce Yourself + Patient's Identity
P	Permission
P	Patient Position + Pain
E	Explaination

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

Check tone:	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 •Abduction •Adduction •Extension	Patient straightens leg, raises leg off the bed, lowers it to the bed
Knee:	•Flexion •Extension	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
Ankle:	•Dorsiflexion •Plantarflexion	Leg flat on bed, secure leg, dorsiflex foot, plantarflex foot
Big Toe:	•Flexion •Extension	Hold foot secure, flex big toe (towards patient), extend (away from patient)

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

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

Tendon Reflexes: (cont)

Plantar Response:	***Hold ankle with one hand***. 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.	**Must be first movement of the big toe** Negative Babinski sign (normal except in the case of LMN disease): ***Flexion of the toes and pull away*** Positive Babinski sign: ***Extension (upwards movement) of the toes*** *Indicates UMN damage*

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

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

Sensation:

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

Sensation: (cont)

Pain:	Repeat same process as for light touch. Tested using a **new** neurotip. **Must be disposed of in the *sharps bin***.	
Temperature:	Tested the same way as pain/light touch, rarely done. Tested using a *cold tuning fork*.	
Vibration Sense: (128Hz)	Strike tuning fork and hold to patient's sternum. Ask patient to close eyes.	
	Begin on most distal bony prominance **(Big toe of each foot)**	
Proprioception:	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:

Examine Gait:	
Examine Balance:	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 Examinaiton
- 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: