COURSE NAME : CLINICAL NEUROLOGY

COURSE CODE : 746285

TITLE : NEUROLOGY ASSESSMENT – PART II

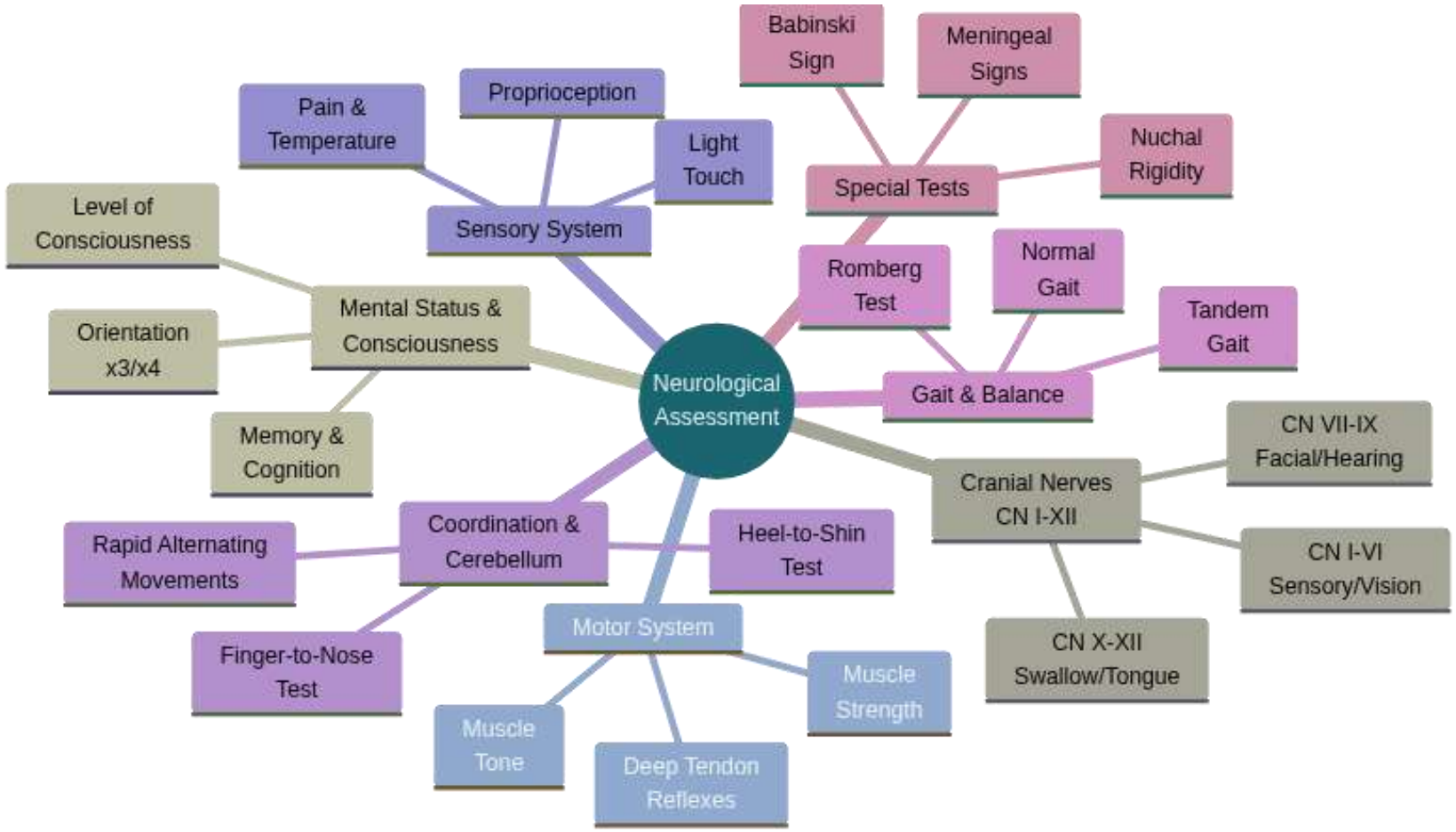
NAME : EZHILARASU T

DESIGNATION : ASSOCIATE PROFESSOR

NEUROLOGICAL ASSESSMENT

Clinical Examination & Diagnosis

NEUROLOGICAL ASSESSMENT COMPONENTS

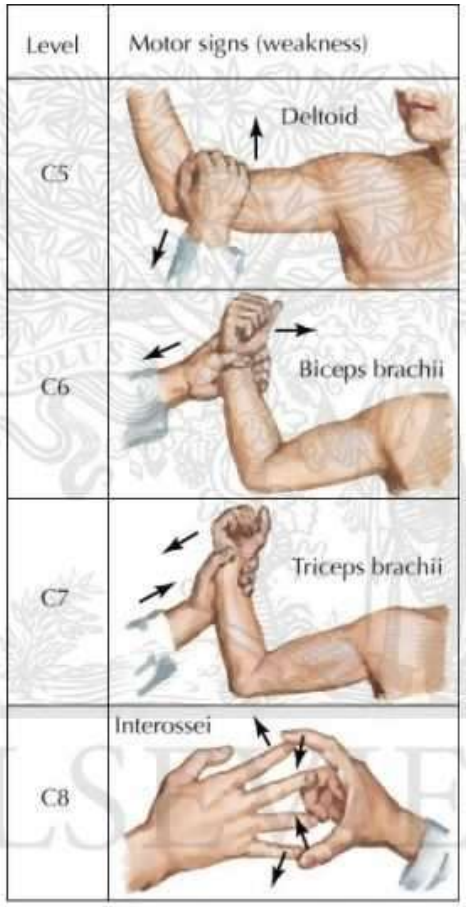


MOTOR SYSTEM ASSESSMENT

STRENGTH • TONE • REFLEXES • COORDINATION • GAIT

MANUAL MUSCLE TESTING (MMT)

GRADES 0-5 • UPPER & LOWER LIMB ASSESSMENT



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MMT UPPER LIMB TESTING

SHOULDER • ELBOW • WRIST • HAND ASSESSMENT

MANUAL MUSCLE TESTING PROCEDURES

Key to Muscle Grading

	Function of the Muscle	Grade		
No Movement	No contractions felt in the muscle	0	0	Zero
	Tendon becomes prominent or feeble contraction felt in the muscle, but no visible movement of the part	T	1	Trace
Test Movement	**MOVEMENT IN HORIZONTAL PLANE**			
	Moves through partial range of motion	1	2-	Poor-
	Moves through complete range of motion	2	2	Poor
	ANTIGRAVITY POSITION	3	2+	
	Moves through partial range of motion			
Test Position	*Gradual* release from test position	4	3-	Fair-
	Holds test position (no added pressure)	5	3	Fair
	Holds test position against slight pressure	6	3+	Fair+
	Holds test position against slight to moderate pressure	7	4-	Good-
	Holds test position against moderate pressure	8	4	Good
	Holds test position against moderate to strong pressure	9	4+	Good+
	Holds test position against strong pressure	10	5	Normal

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DEEP TENDON REFLEX TESTING

PATELLAR • ACHILLES • BICEPS • GRADING 0-4+

Reflex Testing

Deep tendon reflex testing (DTRs), myotatic reflexes, provide information about the integrity of the cervical and lumbar nerve roots and their afferent (from the periphery to the CNS) and efferent (from the CNS to the periphery) pathways.

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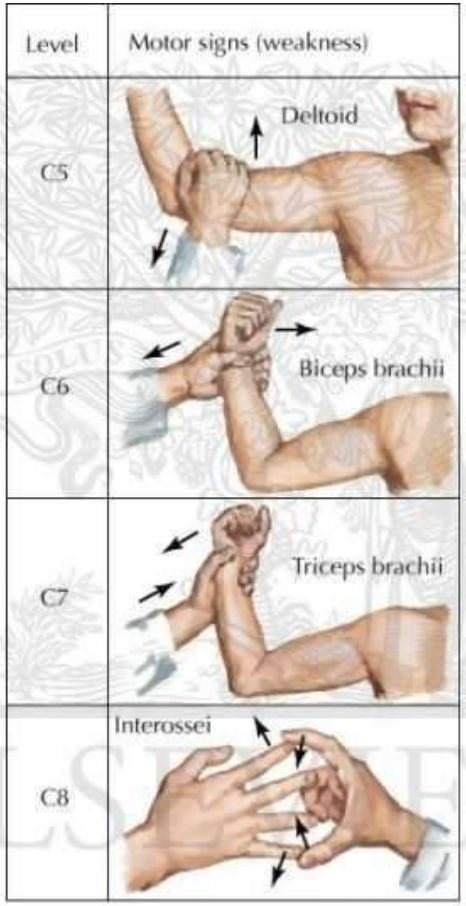
REFLEX ARC & CLINICAL GRADING

0 = ABSENT • 1 = HYPOACTIVE • 2 = NORMAL • 3 = BRISK • 4 = HYPERACTIVE WITH CLONUS

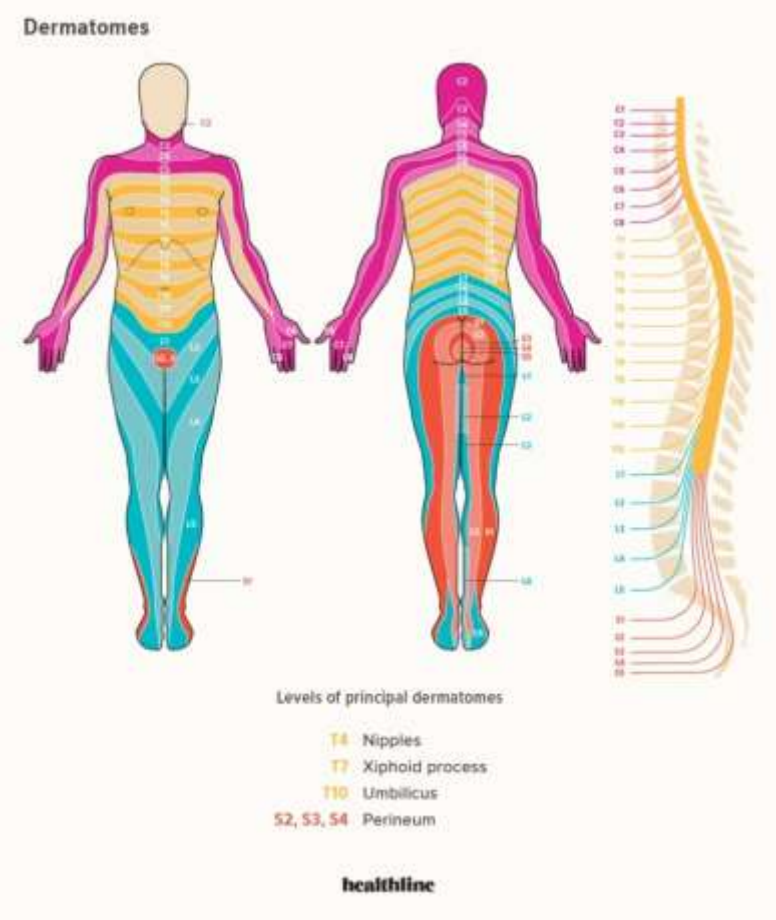
SENSORY SYSTEM ASSESSMENT

TOUCH • PAIN • TEMPERATURE • PROPRIOCEPTION • VIBRATION



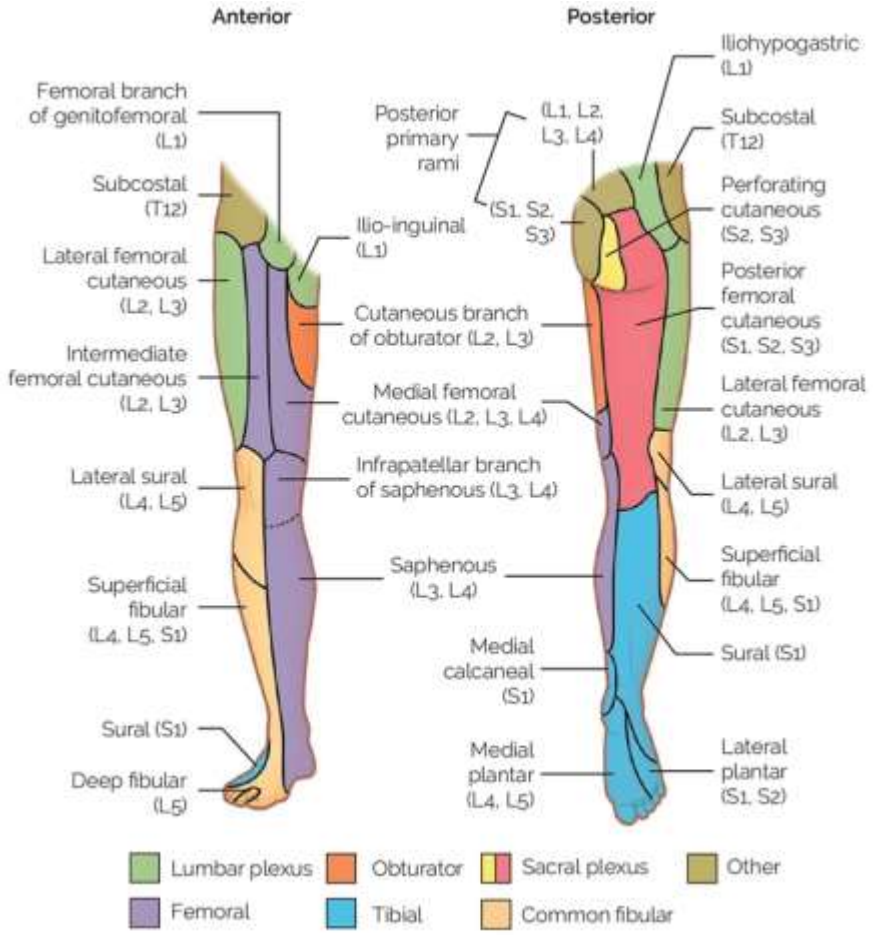
DERMATOMES & SENSORY DISTRIBUTION

SPINAL NERVE TERRITORIES • C, T, L, S REGIONS



ANTERIOR DERMATOME DISTRIBUTION

FRONT BODY • SENSORY TESTING LANDMARKS



INCLASS ASSESSMENT

1. **In the standard Medical Research Council (MRC) grading of muscle power, a grade of 3/5 indicates:**
   A. No visible or palpable contraction
   B. Contraction without movement of the limb
   C. Movement possible only with gravity eliminated
   D. Movement against gravity but not against any resistance

2. **During sensory examination for TOUCH, the MOST appropriate method is:**
   A. Use a tuning fork over bony prominences
   B. Use a cotton wisp or soft brush and ask the patient to say when and where they feel it
   C. Use a pin and ask the patient to distinguish sharp and dull
   D. Move the distal phalanx up or down with eyes closed

3. **Pain and temperature sensations from the body are carried primarily by which ascending pathway, important for lesion localization during sensory testing?**
   A. Dorsal column–medial lemniscus pathway
   B. Spinothalamic tract
   C. Corticospinal tract
   D. Vestibulospinal tract

INCLASS ASSESSMENT

4. **While assessing joint POSITION sense (proprioception) in the great toe, the correct technique is to:**
   A. Stroke the skin lightly and ask if the patient feels it
   B. Apply a warm and cold object and ask the patient to differentiate
   C. Move the distal phalanx slightly up or down and ask the patient (eyes closed) to report the direction
   D. Ask the patient to actively flex and extend the toe against resistance

5. **Which of the following BEST differentiates SPASTICITY from RIGIDITY on clinical examination of tone?**
   A. Spasticity is velocity-dependent increase in resistance with a “clasp-knife” feel; rigidity shows uniform resistance throughout range and is less velocity-dependent
   B. Spasticity affects agonist and antagonist muscles equally; rigidity affects only agonists
   C. Spasticity is seen mainly in basal ganglia lesions; rigidity is seen mainly in corticospinal lesions
   D. Spasticity presents with normal reflexes; rigidity presents with absent reflexes

INCLASS ASSESSMENT

ANSWERS

1. D. Movement against gravity but not against any resistance.
2. B. Use a cotton wisp or soft brush and ask the patient to say when and where they feel it.
3. B. Spinothalamic tract.
4. C. Move the distal phalanx slightly up or down and ask the patient (eyes closed) to report the direction.
5. A. Spasticity is velocity-dependent increase in resistance with a “clasp-knife” feel; rigidity shows uniform resistance throughout range and is less velocity-dependent.

THANK YOU!!!!

References Books:

- Hankey Greame - Clinical Neurology
- Bickerstaff - Clinical Neurological Examination
- Dejongs - Neurological Examination
- Demyers - The Neurologic Examination
- Snell - Clinical Neuroanatomy - 7th Ed
- Satish Khadilker - Neuromuscular Disorders
- Vishram Singh - Texbook of Clinical Neuro Anatomy 2nd edition
- Kenneth W. Lindsay - Neurology and Neurosurgery Illustrated