

# NEUROLOGIC EXAMINATION

## I. MENTAL STATUS EXAMINATION

### A. General behavior and appearance

- is the px normal, hyperactive, agitated, quite or immobile?
- is the px neat or slovenly?
- does the px dress in accordance with age,sex and background?

### B. Stream of talk

- does the px converse normally?
- is the speech rapid, incessant, under great pressure?
- is it slow and lacking in inflection and spontaneity?
- is the px tangential, discursive, or unable to reach the conversational goal?

### C. Mood and affective response

- is the px euphoric, agitated, giggling or silent, weeping or angry?
- does the px's mood appropriately reflect the topic of the conversation?
- is the px emotionally labile, histrionic, expansive or overtly depressed?

### D. Content of thought

- does the px correctly perceive reality or have illusions, hallucinations, delusions, misinterpretations and obsessions?
- is the px preoccupied with bodily complaints, fears or phobias?
- does the px suffer delusions of persecution, surveillance and control by malicious persons or forces?

### E. Intellectual capacity

- is the px bright, average, dull, or obviously demented or mentally retarded?

### F. Sensorium

1. Consciousness
2. Attention span
3. Orientation for time,place,person
4. Memory, recent and, remote
5. Calculation
6. Fund of information
7. Insight, judgement and planning

## II. SPEECH

### A. Dysphonia

- difficulty in producing voice sounds

### B. Dysarthria

- difficulty in articulating the individual sounds or the units of speech

### C. Dysprosody

- difficulty with the melody and rhythm of speech

### D. Dysphasia

- difficulty in expressing or understanding words as the symbols of communication

## III. HEAD AND FACE

### A. Inspect

1. General appearance of the px's face
  - do the features suggest a diagnostic syndrome?
  - any abnormalities in motility and emotional expression?
2. Inspect the head for shape and symmetry
3. Inspect the hair of scalp, eyebrows and beard
4. Compare the palpebral fissures
5. Inspect contours and proportions of nose, mouth, chin and ears

### B. Palpate

- palpate the skull for lumps, depressions or tenderness and palpate the temporal arteries
- for infants look for asymmetries palpate the fontanelles and sutures and record the occipitofrontal circumference

### C. Percuss

- over the sinuses and mastoid processes for tenderness

### D. Auscultate

- for bruits over the neck vessels, eyes, temples and mastoid processes

### E. Transilluminate

- the sinuses

## IV. CRANIAL NERVES

### A. Olfaction (CN I)

- use aromatic, nonirritating substance, and test each nostril separately

**B. Optic (CN II)**

- test each eye separately for acuity (central fields) by      newsprint or the Snellen chart
- test peripheral fields by confrontation
- test for inattention to simultaneous visual stimuli
- do ophthalmoscopy

**C. Oculomotor (CN III)**

- test for ocular movements and smoothness of pursuit through all fields of gaze
- during convergence check for miosis
- do the cover and uncover test
- record size of pupils
- test pupillary light reflexes direct and consensual

**D. Trochlear (CN IV)**

- test for strength of superior oblique muscle

**E. Trigeminal (CN V)**

- test for corneal reflex (CN V-VII arc)
- test for light touch over the three divisions of CN V
- temperature discrimination over the three divisions of CN V
- pain perception over the three divisions of CN V
- test for buccal mucosal sensation in selected cases
  - test for muscles of mastication

**F. Abducens (CN VI)**

- test for strength of lateral rectus muscle

**G. Facial (CN VII)**

- test for forehead wrinkling, eyelid closure, mouth retraction, whistling or puffing out of cheeks, wrinkling of skin over the neck (platysma action)
- test for taste anterior 2/3 of the tongue (salt or sugar)
- test for efferent arc of corneal reflex

**H. Auditory (CN VIII)**

- do otoscopy
- assess threshold and acuity of px's ability to hear conversation,      tuning fork, watch tick or finger rustling
- perform air-bone conduction test of Rinne and the vertex lateralizing test of Weber
- test for the vestibulo-ocular reflex with the doll's eye maneuver or caloric irrigation
- test for positional nystagmus

**I. Glossopharyngeal and Vagus (CN IX,X)**

- listen for phonation, articulation (labial, lingual and palatal sounds)
- check for swallowing
- check for gag reflex
- check for palatal elevation

**J. Spinal accessory (CN XI)**

- inspect sternocleidomastoid and trapezius contours
- test for strength of head movements and shoulder shrugging

**K. Hypoglossal (CN XII)**

- inspect for lingual articulations, tongue protrusion, lateral movements
- inspect for any atrophy and fasciculations

**V. SOMATIC MOTOR SYSTEM**

**A. Inspection**

**1. Inspect the px's posture and general activity**

- look for tremors or other involuntary movements

**2. Gait testing**

- free walking, toe and heel walking and tandem walking, deep knee bend

**3. Assess the body built (somatotype)**

**4. observe the size and contour of the muscles**

- look for atrophy, fasciculations, hypertrophy, asymmetries and joint malalignments

**5. Search for skin surface lesions**

**B. Palpation**

- if on inspection they seem atrophic or hypertrophic or history suggests tenderness or spasms

**C. Strength Testing**

1. Shoulder girdle
2. Upper extremities
3. Abdominal muscles
4. Lower extremities

**D. Muscle tone and range of movements**

- test for spasticity, clonus, rigidity, hypotonia

### **E. Muscle stretch reflexes**

- 1. Jaw jerk (CN V afferent; CN V efferent)**
- 2. Biceps reflex (C5-C6)**
- 3. Triceps reflex (C7-C8)**
- 4. Finger flexion reflex (C7-T1)**
- 5. Quadriceps reflex (L2-L4)**
- 6. Hamstring reflex (L5-S1)**
- 7. Triceps surae reflex (L5-S1-S3)**
- 8. Toe flexion reflex (S1-S2)**

### **F. Superficial reflexes**

#### **1. Abdominal skin and muscle reflexes**

- upper quadrants T8-T9
- lower quadrants T11-T12
- look for Beevor's sign

#### **2. Cremasteric reflex**

- afferent L1; efferent L2

#### **3. Anal pucker reflex (S4-S5)**

- Bulbocavernosus reflex (S3-S4) in pxs suspected of having sacral or cauda equine lesions

#### **4. Elicit plantar reflex**

### **G. Cerebellar system**

- perform Finger to nose and rapid alternating movements
- Heel to knee movement
- inspect for gait, balance
- check for muscle tone

### **H. Nerve root stretching tests**

#### **1. Do leg raising tests in pts with low back or leg pain**

- a. Straight leg raising test (Lasegue's sign)**
- b. Bent-knee leg raising test (Kernig's sign)**

#### **2. Px's with suspected meningeal irritation, test for nuchal rigidity and concomitant leg flexion (Brudzinski's sign)**

## **VI. SOMATIC SENSORY SYSTEM**

### **A. Superficial sensory modalities**

1. Light touch over hands, trunk and feet
2. Temperature discrimination over hands, trunk and feet
3. Pain perception over hands, trunk and feet

**B. Deep sensory modalities**

1. Test vibration perception at fingers and toes
2. Test position sense of fingers and toes
3. Test for astereognosis
4. Do the directional scratch test
5. Romberg swaying test

**C. Determine the distribution pattern of any sensory loss:**

dermatomal, peripheral nerves, plexus, central pathway or nonorganic