ASSESSMENT OF MENTAL HEALTH STATUS

DEFINITION OF ASSESSMENT

- It is defined as a systematic and continuous collection of data on the health status with the patient.

TECHNIQUES AND ELEMENTS

- Psychiatric nursing history.
- Mental status examination.
- Psychological test.

MENTAL STATUS EXAMINATION

DEFINITION

It is a standardised format in which the clinician records the psychiatric signs and symptoms present at the time of interview.

Purpose:

The purpose is to evaluate, quantitatively and qualitatively, a range of mental functions and behaviors at a specific point in time.

Components of MSE

- General appearance
- Psychomotor activity
- Mood & affect
- Speech
- Thought
- Perception
- Cognitive function

I. GENERAL APPEARANCE AND BEHAVIOUR (GAAB):

a) Facial expression (Eg. Anxiety, pleasure, confidence, blunted, pleasant)
b) Posture (stooped, stiff, guarded, normal)
c) Mannerisms (stereotype, negativism, tics, normal)
d) Eye to eye contact (maintained or not)
e) Rapport (build easily or not built or built with difficulty)
f) Consciousness (conscious or drowsy or unconscious)
g) Behaviour (include social behaviour. Eg. Overfriendly, disinhibited, preoccupied, aggressive, normal)
h) Dressing and grooming – well dressed / appropriate (to season and situation) / neat and tidy / dirty.
i) Physical features:- look older / younger than his or her age / underweight / overweight / physical deformity.

II. PSYCHOMOTOR ACTIVITY:

(Increased / Decreased), Compulsive / echopraxia, Stereotype, negativism, Automatic obedience

MOTOR ACTIVITY

- Psychomotor activity: ex. retardation or agitation
- Movements: tremor(Drug side effects), abnormal movements i.e.. Stereotypes, gait ,freedom of movement
- Apparent restlessness , lip smacking , tongue protrusion- Drug Side effects
- Difficulty in initiation of movement or slow, stiff movement- Parkinsonism
- Waxy Flexibility: patient's movement having the feeling of a plastic resistance e.g. in catatonic schizophrenia
- Negativism: patient resist attempts to move him and does opposite to what is asked. A sign of Catatonia.

SPEECH

Speech

Rate: normal, very slow, rapid, pressure of speech

Flow: spontaneous, hesitant, slurring, stuttering, speaks only on question, muttering, mute

Volume: audible, excessive loud, abnormally soft

Amount: Normal, abundant, scanty

Tone: normal fluctuations, monotonous

Coherence: coherent, incoherent

Relevance: relevant, irrelevant

Disorders of Speech:-

Aphonia: fails to produce any vol. of sound, e.g. in laryngeal or vocal cord disorder. If despite this he/she is able to cough normally, probably hysterical.

Slow speech: may be a feature of psychomotor retardation.

Fast speech: normal anxiety but may indicate Mania or Schizophrenia

Pressure of speech: rapid speech that is increased in amount and difficult to interrupt. Seen in Mania

Poverty of speech: restriction in amount of speech, replies may be monosyllabic

Poverty of content of speech: speech is adequate in amount but covers little information due to vagueness, emptiness

stereotyped phrases.

Echolalia: repetition of sentence just uttered by the examiner.

Palilalia: repetition of only last uttered word or phrase said by the

examiner.

IV. THOUGHT:

a) Form of Thought / formal thought disorder – (not understandable / normal / circumstantiality / tangentiality / neologism / word salad / perseveration / ambivalence)

b)Stream of thought / flow of thought – (pressure of speech / flight of ideas / thought retardation / mutism / aphnoia / thought block / clang association.)

c) Content of thought

a) delusion – specify type and give example – Persecutory / delusion of reference / delusions of influence or passivity / hypochondracal delusions / delusions of grandeur / nihilistic- Derealization / depersonalization / delusions of infidelity.

b) Obsession

c) Phobia

d) Preoccupation

e) Fantasy – Creative day dreaming.

THOUGHT PROCESS

- Describes the rate of thoughts, how they flow and are connected.

1. Stream of thought : Quote from the patient

a).Productivity – abnormalities seen are

1.Overabundance of idea. e.g. Mania

2.Paucity. e.g. depression

3.Flight of Ideas;- In FOI there are rapid shifts in the frame of reference and there associations are incoherent. e.g. Mania

4.Rapid thinking

5.Slow thinking or hesitant e.g. depression and rare condition of manic stupor

5.Spontaneous or only when questioned

b). Continuity of thoughts – abnormalities seen are

1. Circumstantial: When thinking proceeds slowly with many unnecessary detail but eventually get to the point. Goal is never completely lost. It can occur in context of learning disability and in individual with obsessional personality traits,schizophrenia, dementia, and anxiety disorders.

2. Tangential: Move from thought to thought that relate in some way but never get to the point.e.g. In Psychosis and Dementia

3. Thought blocking: Sudden arrest of the train of thought, leaving a blank, then entirely a new thought may begin. May be seen in exhausted or very anxious state. When clearly present, it highly suggests Schizophrenia.

4. Perseveration: Inappropriate repetition of words or phrases. It is common in generalized & local disorders of brain, when present provide strong support for such a diagnosis. Also seen in OCD & Psychosis.

Thought Possession/alienation : abnormalities seen are

1. Thought Echo : Hearing one's own thought being spoken aloud
2. Thought Insertion: Other person or forces are implanting thoughts in a person's mind
3. Thought Withdrawal: Other person or forces are removing thoughts from a person's mind
4. Thought Broadcasting: One's own thoughts experienced as being transmitted to another person or agency

- All are features of Schizophrenia.

Formal thought disorder - abnormalities seen are

1. Loosening of association: Illogical shifting between unrelated topics. It is a hallmark feature of Schizophrenia.
2. Derailment : Gradual or sudden deviation in train of thought without blocking.
3. Word Salad: Extreme version of LOA in which changes in topics are so extreme and the associations so loose that the resulting speech is completely incoherent.
4. Stereotypes: Constant repetition of a phrase(or behavior) in many different settings, irrespective of context.
3. Verbigeration: Disappearance of understandable speech replaced by strings of incoherent utterance

.

4. Metonyms: are word approximation e.g. paper skate for pen

5. Clang association: words are chosen or repeated based on similar sounds, instead of semantic meaning.

Seen in mania

6. Neologism : It refers to the new word formation by the patient or ordinary word that are used in new way.

Seen in Schizophrenia.

THOUGHT CONTENT

- Refers to the themes that occupy the patient's thoughts and perceptual disturbances.
- Abnormalities seen are -

1. Overvalued Ideas:- This is a thought, which because of associated feeling tone, take precedence over all other ideas and maintains this precedence permanently or for a long period of time. It tend to be less fixed than delusions and tend to have some degree of basis in reality. (McKenna, 1984).

2. Delusions: False, firm (fixed), unshakable belief that is out of keeping with the patient's social, cultural, and educational background. E.g.

- Control: outside forces are controlling actions
- Erotomanic: a person, usually of higher status, is in love with the patient
- Grandiose: inflated sense of self-worth, power or wealth
- Somatic: patient has a physical defect
- Reference: unrelated events apply to them
- Persecutory: others are trying to cause harm

CONTINUED....

3. Preoccupations

- About illness
- Obsessions(repetitive preoccupation with a thought, acknowledged by the patient to be irrational) or compulsions(repetitive acts based on obsession)
- Phobias(persistent and irrational fear of delineated aspects of nonhuman object or environment)
- Plans, intentions or recurrent ideas about suicide, homicide
- Hypochondriacal symptoms(excessive fear and anxiety of having a serious disease)
- Specific antisocial urges or impulse

4. Ideas of reference: The incorrect idea that words and actions of others refer to oneself or the projection of causes of one's own imaginary difficulties upon someone else.

- How ideas begin?
- Content and meaning patient attribute to them.

Perceptions:

Process of transferring physical stimulation into psychological information i.e. mental process by which sensory stimuli are brought to awareness.

VI. DISORDERS PERCEPTION:

a) Illusion
b) Hallucinations – (specify type and give example) – auditory / visual / olfactory / gustatory / tactile
c) Others – hypnogogic / hypnopombic / Lilliputian / kinesthetic / macropsia / micropsia.

PERCEPTUAL DISTURBANCES

- **Hallucinations**: A false perception which is not a sensory distortion or a misinterpretation, but which occurs at the same time as real perception.
- Can be auditory (AH), visual (VH), tactile or olfactory,hypnogogic or hypnopompic hallucinations
- **Illusion :** Misinterpretation of stimuli arising from an external object.

  types:- **1.**Visual(m.c.)- Delirium

  2.Complete – Due to inattention e.g. misreading in newspaper or missing misprints

  3.Affect Illusion- arise in context of particular mood state

  4.Pareidolia- vivid illusion without any effort by the patient.

- **Derealization**: Feelings the outer environment feels unreal and detached from environment
- **Depersonalization**: Sensation of unreality concerning oneself or parts of oneself (detached from self)

- Distinction b/w illusion and Functional hallucination-

Although both occur in response to an environmental stimulus but in a functional hallucination both the stimulus and the hallucination are perceived by the patient simultaneously and can be identified as separate and not as a transformation of the stimulus, this contrast with the illusion in which the stimulus from the environment changes but forms an essential and integral part of the new perception.

V. MOOD (Subjective) AND AFFECT (Objective):-

a) Appropriate / inappropriate (Relevance to situation and thought congruent).
b) Pleasurable affect – Euphoria / Elation / Exaltation / Ecstasy
c) Unpleasurable affect – Grief / mourning / depression.
d) Other affects – Anxiety / fear / panic / free floating anxiety / apathy / aggression / moods swing / emotional liability.

VII.COGNITIVE FUNCTION:

a) **Attention and Concentration:**
   - Method of testing (asking to list the months of the year forward and backward)

b) Memory :

a. Immediate (Teach an address & after 5 mts. Asking for recall)
b. Recent memory – 24 hrs recall
c. Remote – asking for dates of birth or events which are occurred long back

i) Amnesia / paramnesia / retrograde amnesia / anterograde amnesia
ii) Confabulation
iii) 'Déjà vu' / Jamaes Vu
iv) Hypermnesia

Count...

c) Orientation:

1. Time - approximately without looking at the watch, what time is it?
2. Place – where he / she is now?
3. Person – who has accompanied him or her

d) Abstraction: Give a proverb and ask the inner meaning (Eg. Feathers of a bird flock together / rolling stones gather no mass)

e) Intelligence & General Information: Test by carry over sums / similarities and differences / and general information / digit score test.

concentration and calculations:

digit repetition test: repeat digit at a rate of one per second, like

3-7 ; 7-4-9 ; 8-5-2-7 ; 2-9-6-8-3 ; 5-7-2-9-4-6

a patient of av. Intelligence can repeat 5 to 7 digits without difficulty

serial subtractions like 100-7=?-7=?-7=?-7=?-7=?-7

tasks like 5 multiplied by 4=?

whether anxiety or some disturbance of mood or concentration seems to be responsible for difficulty

Count...

f) Judgment :-

-Personal (future plans)

-Social (Perception of the society)

-Test (presents a situation and ask their response to the situation)

g) Insight

I. Complete denial of illness.
II. Slight awareness of being sick.
III. Awareness of being sick attributes it to external / physical factor.
IV. Awareness of being sick, but due to something unknown in himself.
V. Intellectual insight
VI. True emotional insight

VIII.General Observation:

a) Sleep
   i. Insomnia – temporary / persistent
   ii. Hypersomnia – temporary / persistent
   iii. Non-organic sleep –wake cycle disturbance
   iv. EMA – Early Morning Awakening

b) Episodic disturbances – epilepsy / hysterical / impulsive behaviour / aggressive behaviour / destructive behaviour.

IX. SUMMARY:

MINI MENTAL STATUS EXAMINATION

- The **Mini–Mental State Examination** (**MMSE**) or **Folstein test** is a 30-point questionnaire that is used extensively in clinical and research settings to measure cognitive impairment

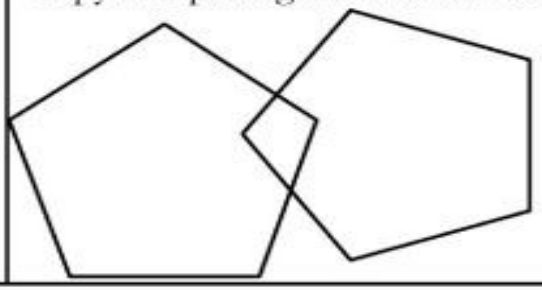
Mini-Mental State Examination

- **Orientation**
- **Registration**
- **Attention and Calculation**
- **Recall**
- **Language**

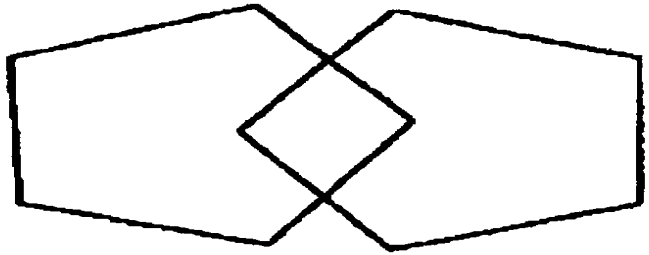
Indication

- It is commonly used in medicine and allied health to screen for dementia

Picture 1 – Mini mental state examination (MMSE)

Temporal orientation (5 points)	What is the approximate time?
	What day of the week is it?
	What is the date today?
	What is the month?
	What is the year?
Spatial orientation (5 points)	Where are we now?
	What is this place?
	In what district are we or what is the address here?
	In which town are we?
	In which state are we?
Registration (3 points)	Repeat the following words: CAR, VASE, BRICK
Attention and calculation (5 points)	Subtract: 100-7 = 93-7 = 86-7 = 79-7 = 72-7 = 65
Remote memory (3 points)	Can you remember the 3 words you have just said?
Naming 2 objects (2 points)	Watch and pen
REPEAT (1 point)	"NO IFS, ANDS OR BUTS"
Stage command (3 points)	"Take this piece of paper with your right hand, fold it in half, and put it on the floor"
Writing a complete sentence (1 point)	Write a sentence that makes sense
Reading and obey (1 point)	Close your eyes
Copy the diagram (1 point)	Copy two pentagons with an intersection 

Fonte: Brucki SMD, Nitrini R, Caramelli P, Bertolucci PHF, Okamoto IH. Sugestões para o uso do mini-exame do estado mental no Brasil. Arq Neuropsiquiatr. 2003; 61(3B):777-81.

Section	Questions	Max Points	Score
1) Orientation	a) Can you tell me today's (date)/(month)/(year)? Which day is it today? Can you tell me which (season) it is?	5	
	b) What town/city are we in? What is the (county)/(country)? What (building) are we in and on what (floor)?	5	
2) Registration	I should like to test your memory. (*name three common objects*: "ball, car, man") Can you repeat the words I said? *(1 point per word)* (repeat up to 6 trials until all three are remembered)	3	
3) Attention and Calculation	a) From 100 keep subtracting 7 and give each answer. Stop after 5 answers. (93-86-79-72-65) Alternatively: b) Spell the word "World" backwards. (D_L_R_O_W)	5	
4) Recall	What were the three words I asked you to say *earlier*? *(skip this test if all of these objects were not remembered during the registration test)*	3	
5) Language Naming Repeating	Name the following objects (show a watch) and (show a pencil)	2	
	Repeat the following: "No ifs, ands or buts"	1	
6) Reading Writing	(show card or write: "Close your Eyes") Read this sentence and do what is says	1	
	Now can you write a short sentence for me?	1	
7) Three stage command	(present paper) Take this paper in your left (or right) hand, fold it in half, and place it on the floor	3	
8) Construction	Will you copy this drawing please? 	1	
Total score		30	

Mini Mental State Examination (MMSE)

Mini Mental State Exam

Please name the:
Year?
Season?
Date?
Day of Week?
Month?

Orientation to time /5

Where are we?
State?
City?
Suburb?
Hospital?
Floor/Ward?

Orientation to place /5

"I am now going to test your memory"
Name 3 objects. Ask them to repeat all 3.
1 Point for each object remembered. Repeat until learnt all 3 so that recall can be tested.

Registration /3
# of trials

Serial 7s
"please count backwards from 100 in sevens"
93, 86, 79, 72, 65

alternatively

Spell WORLD backwards
D L R O W

Attention and Calculation /5

"Please repeat the 3 objects I asked you to remember"

Recall /3

"Please name these objects"
Point to a wristwatch and a pencil

Naming /2

"Please repeat the following phrase"
"No ifs, ands or buts"

Repetition /1

"Please follow this command"
"Take this paper in your right hand, fold it in half and place it in your lap"

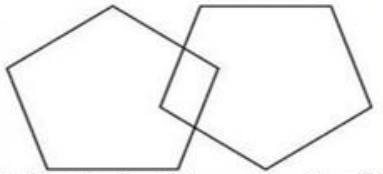
Complex command /3

Please read and obey the following command

CLOSE YOUR EYES

"Please write a sentence"
Must have a noun, verb and make sense

"Please copy the following drawing"



1 point each for the last 3 commands /3

24-30-normal range
18-23-moderate cognitive impairment
0-17 -marked congnitive impairment

TOTAL /30

Interpretations

- Any score greater than or equal to 24 points (out of 30) indicates a normal cognition.
- Below this, scores can indicate
- severe (≤9 points),
- moderate (10–18 points)
- mild (19–23 points) cognitive impairment


THANK YOU

Neurological examination

INTRODUCTION…

- The purpose of neurological examination is to determine the presence or absence of disease in the nervous system.
- Nurses are involve in examining the neurological & physical status of the patient as part of the total physical assessment.

Aspects of Neurological Examination…

1. Levels of consciousness
2. Mental status examination
3. Special cerebral functions
4. Cranial nerve function
5. Motor function
6. Sensory function
7. Cerebellar function
8. Reflexes

Equipment Needed

- BIG TRAY WITH COVER
- SHEET FOR COVER PATIENT
- GLOVES
- Reflex Hammer
- 128 and 512 (or 1024) Hz Tuning Forks
- A Snellen Eye Chart or Pocket Vision Card
- Pen Light or Otoscope
- Cotton Swabs
- BOWL

- B P APPERATUS
- STETHOSCOPE
- STEEL KIDNEYMTRAY
- TEST TUBE-2(ONE FOR COLD WATER AND ONE FOR HOT WATER)
- TOURCH
- COMMON PIN OR NEEDLE

INDICATION

- PATIENT SUFFERING UNDER DISEASE SUCH AS
- MENNINGITIS
- HEAD INJURY
- BRAIN TUMOR
- UNCONSCIOUS PATIENT
- HIGH GREAD FEVER
- TETANUS
- COMA

1. Levels of consciousness:

Assessment of levels of consciousness includes following categories:

a. ***Alertness:*** Patient is awake, responds immediately & appropriately to all verbal stimuli.

b. ***Lethargic:*** Patient is drowsy & inattentive but arouses easily, frequently off to sleep.

c. ***Stuporous:*** He arouses with great difficulty & co-operates minimally when stimulated.

Count...

d. ***Semi-comatose:*** The patient has lost his ability to respond to verbal stimuli. There is some response to painful stimuli. Little motor function is seen.

e. ***Comatose:*** When the patient is stimulated there is no response to verbal or painful stimuli, no motor activity is seen. The Glasgow coma scale is widely used to measure the patient's level of consciousness.

2. *Mental status examination:*

- The components of mental status examination include the assessment for following categories; General appearance, speech, thought process, mood, cognitive functions, attention, concentration, orientation, memory, general knowledge, abstract reasoning, judgment & insight.

3. *Special cerebral functions:*

- Assess for agnosia, apraxia & aphasia.
- Agnosia – inability to recognize common objects through the senses
- Apraxia – patient cannot carry out skilled act in the absence of paralysis.
- Aphasia – inability to communicate.

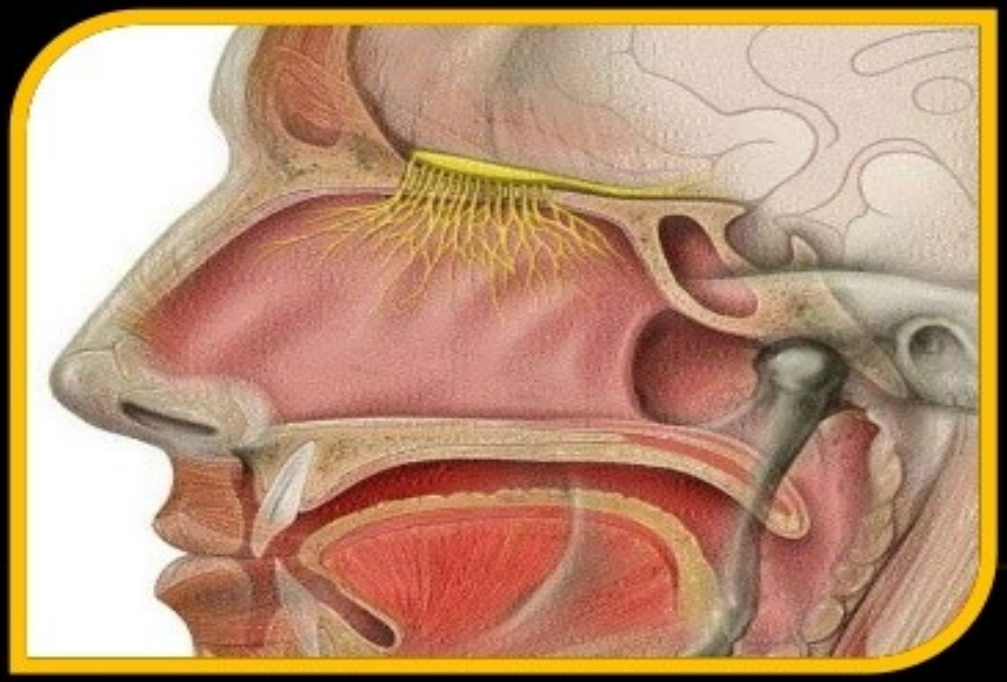
4. Cranial nerve examination

Cranial nerve (CN) examination provides information about the brainstem & related pathways.

- Olfactory nerve (CN I)
- Optic nerve (CN II)
- Oculomotor (CN III)
- Trochlear (CN IV)
- Trigeminal (CN V)
- Abducens (CN VI)
- Facial nerve (VII)
- Vestibulocochlear or Acoustic nerve (CN VIII)
- Glossopharyngeal (CN IX)
- Vagus (CN X)
- Spinal accessory nerve (CN XI)
- Hypoglossal nerve (CN XII)

The Neurological Examination
Cranial Nerves

Olfactory Nerve - I



The Neurological Examination
Cranial Nerves

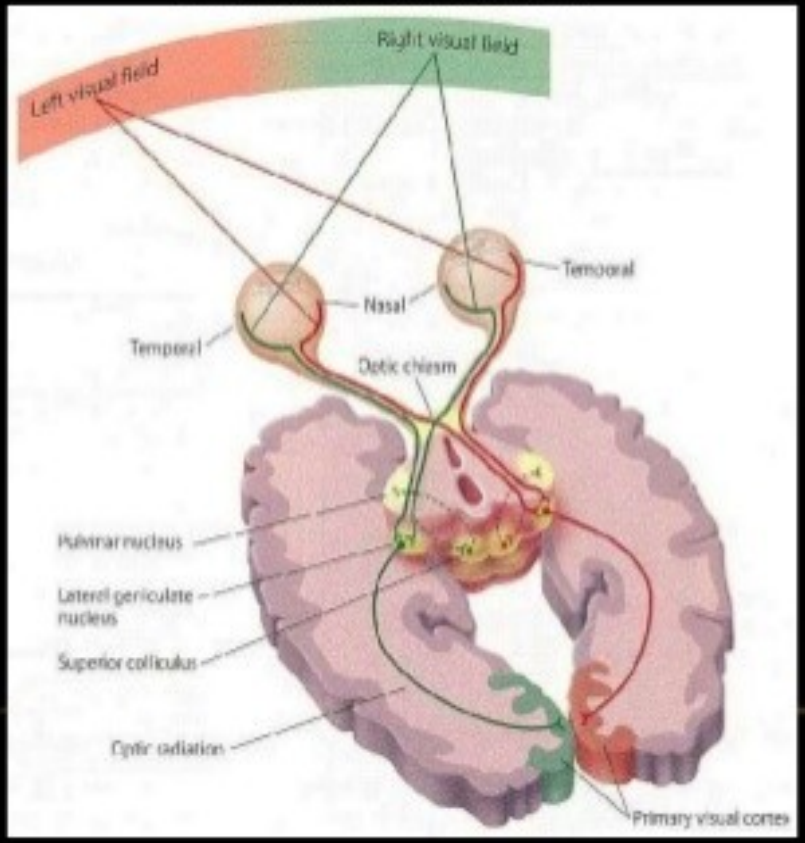
Olfactory Nerve

- Distinguish Coffee from Cinnamon
- Smelling Salts irritate nasal mucosa and test V2 Trigemminal Sense
- Disorders of Smell result from closed head injuries

The Neurological Examination
Cranial Nerves

Optic Nerve

Cranial nerve II



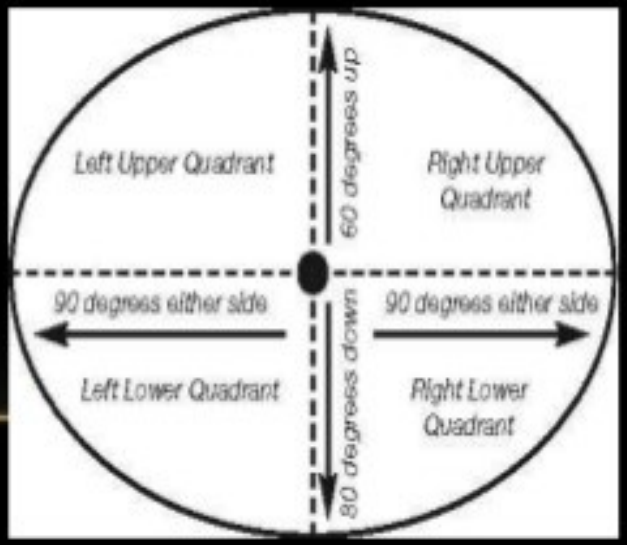
The Neurological Examination
Cranial Nerves

Optic Nerve

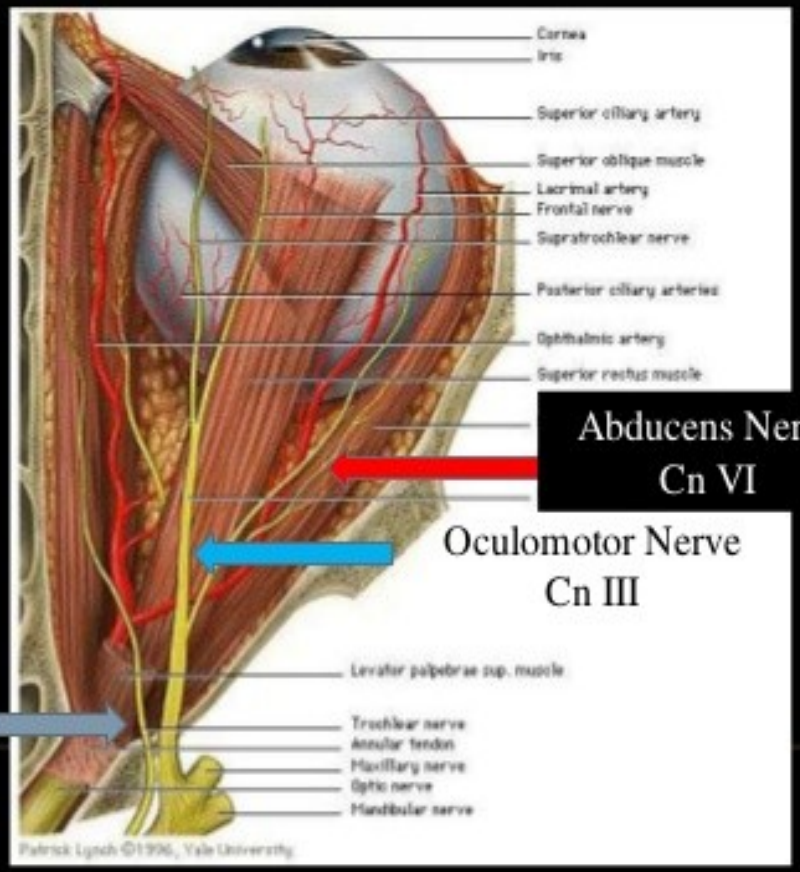
- Visual Acuity
- Visual Fields
- Afferent input to Pupillary Light Reflex
  - APD
- Look at the Nerve (Fundoscopic Exam)

"VA equals 20/20 OU at near"

"PERRLA"



The Neurological Examination
Cranial Nerves



Abducens Nerve
Cn VI

Oculomotor Nerve
Cn III

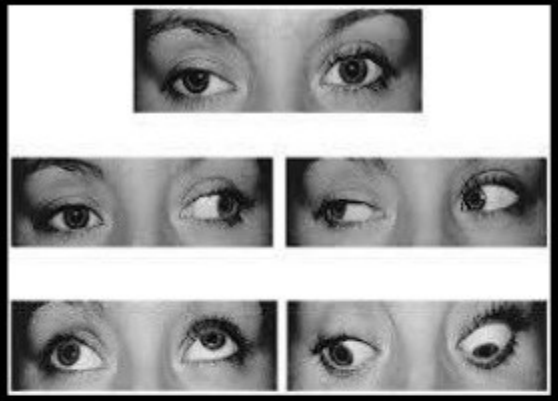
Trochlear Nerve
c.n. IV

Cranial Nerve II (Optic)

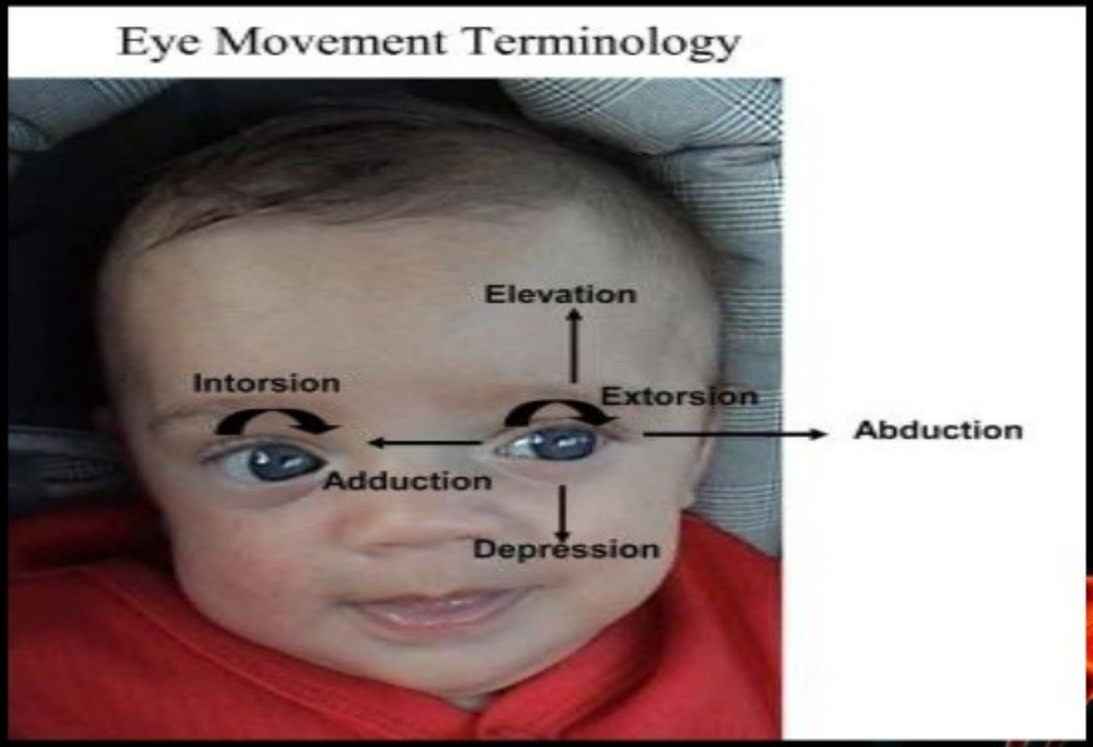
CN III Oculomotor: moves eyes in all directions except outward and down & in; opens eyelid; constricts pupil

CN IV Trochlear:

moves eyes down and in…..



Cranial Nerve IV (Trochlear) and Cranial Nerve VI (Abducens)

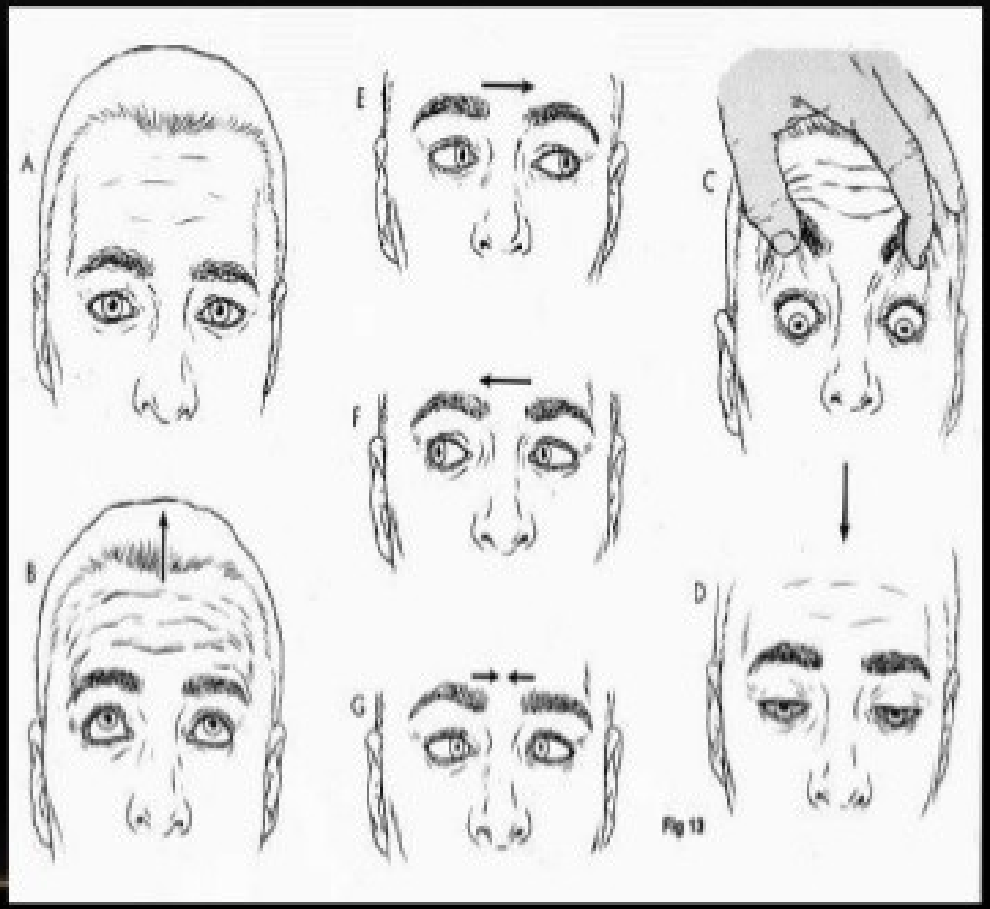


CN VI Abducens: moves eyes outward

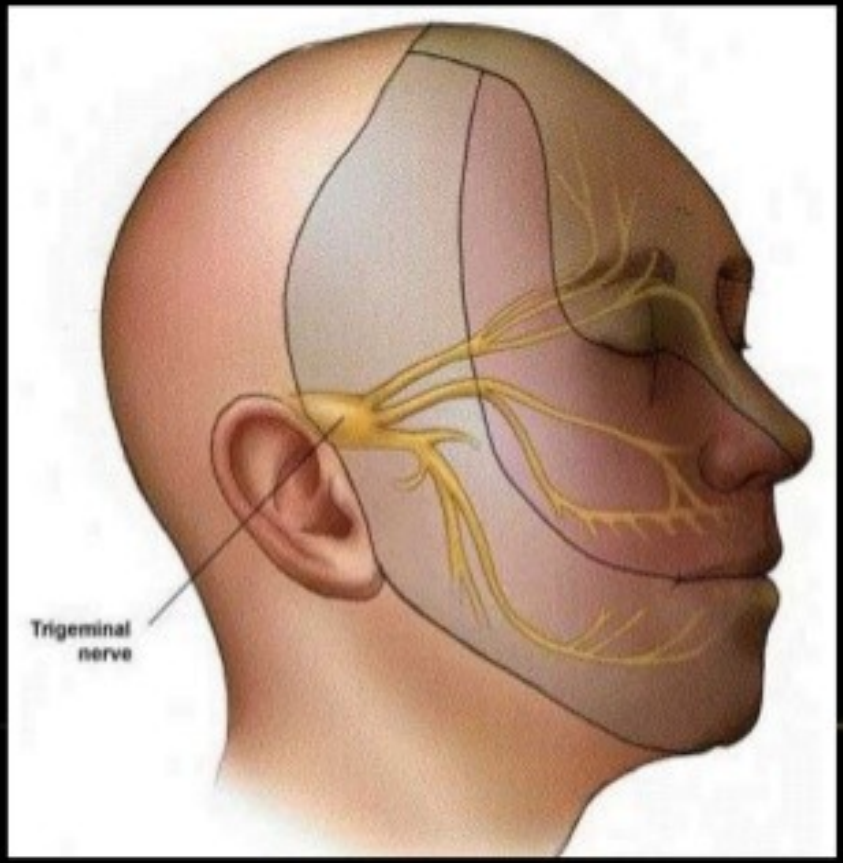
EOM's:

(extraoccular movement)

assessment of eye movement in all directions (III, IV VI)



The Neurological Examination
Cranial Nerves
Trigeminal Nerve - V



CN V Trigeminal:

3 branches;

sensation to the face,

cornea and scalp;

opens jaw against resistance

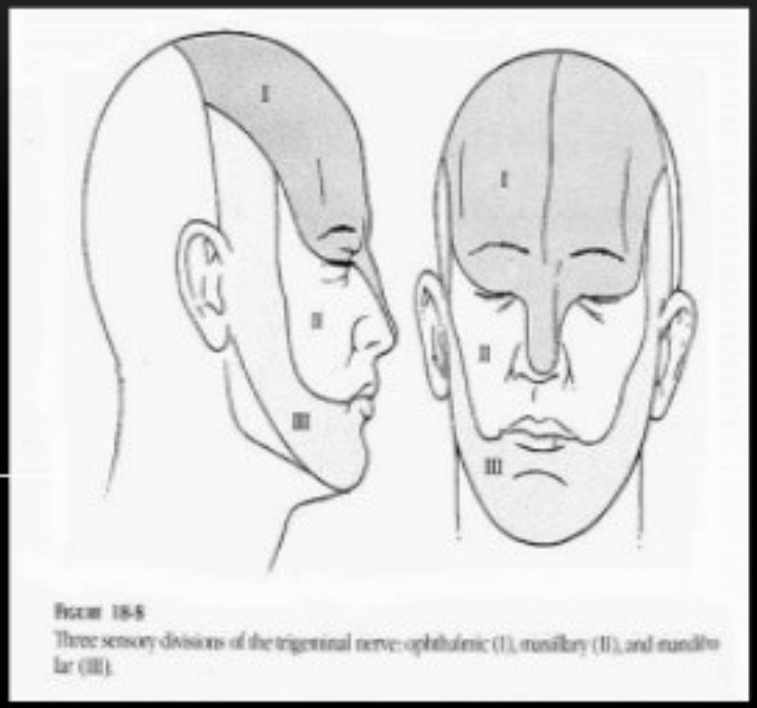
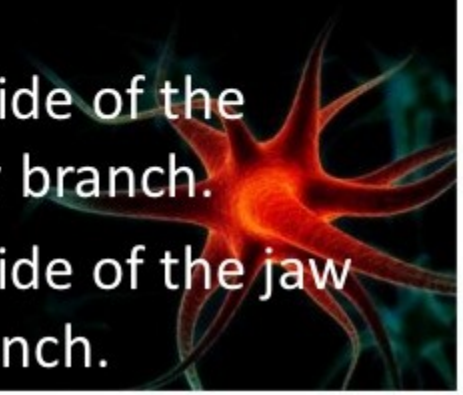


FIGURE 18-8
Three sensory divisions of the trigeminal nerve: ophthalmic (I), maxillary (II), and mandibular (III).

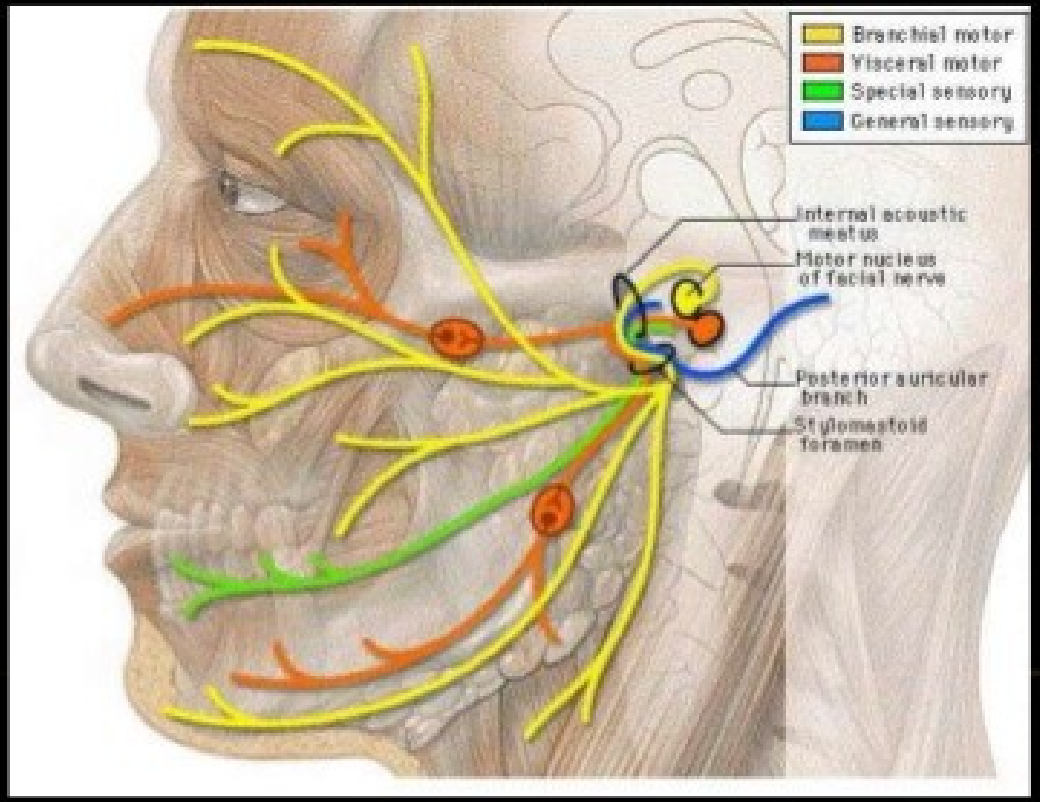
Cranial Nerve V (Trigeminal)

- Use a sharp implement.
- Ask the patient to close their eyes so that they receive no visual cues.
- Touch the sharp tip of the stick to the right and left side of the forehead, assessing the Ophthalmic branch.
- Touch the tip to the right and left side of the cheek area, assessing the Maxillary branch.
- Touch the tip to the right and left side of the jaw area, assessing the Mandibular branch.

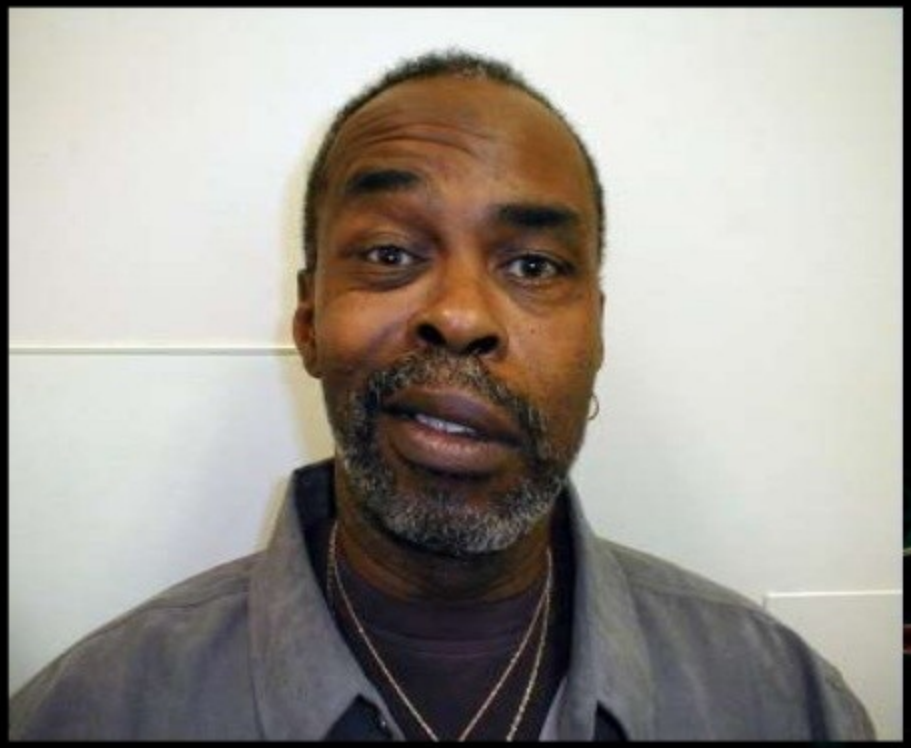


The Neurological Examination
Cranial Nerves

Facial Nerve-VII



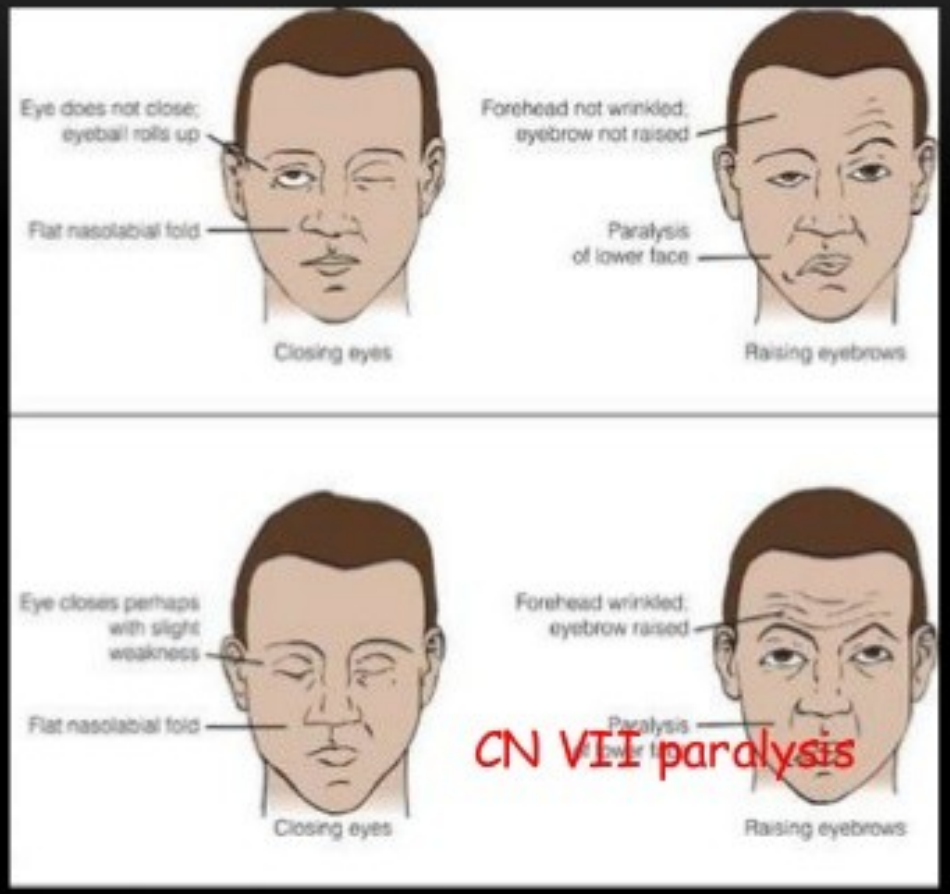
Cranial Nerve VII (Facial)



CN VII Facial:

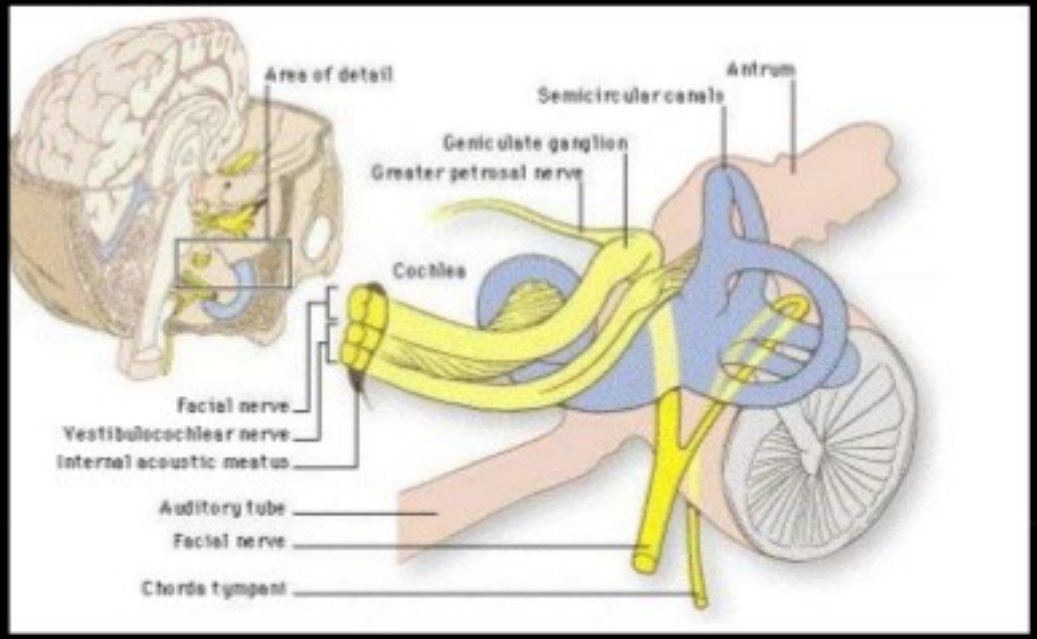
moves the face;

taste.



The Neurological Examination
Cranial Nerves

Vestibulocochlear Nerve-VIII



Vestibulocochlear Nerve

- Hearing and Balance
  - Patients will complain of tinnitis, hearing loss, and/or vertigo
- Weber and Renee Test
  - Differentiates Conductive vs Sensorineural hearing loss
- ephalic Reflex

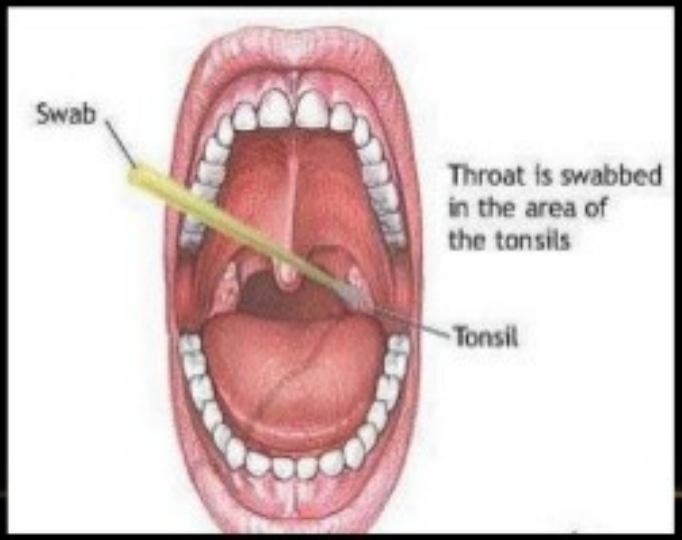
Cranial Nerve VIII (Acoustic or Vestibulocochlear)

- **Weber Test:**

Rinne Test:

The Neurological Examination
Cranial Nerves

Glossopharyngeal and Vagus Nerves
c.n.'s IX and X



CN IX Glossopharyngeal:
moves the pharynx (swallow, speech & gag)

CN X Vagus:
voice quality

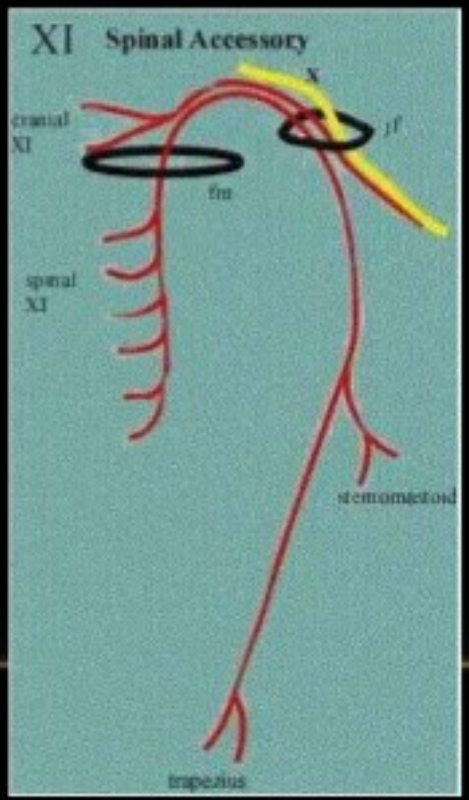
CN9 (Glosopharyngeal) and CN 10 (Vagus):

The Neurological Examination
Cranial Nerves

Spinal Accessory Nerve

c.n. XI

Sternocleido-
Mastoid
strength

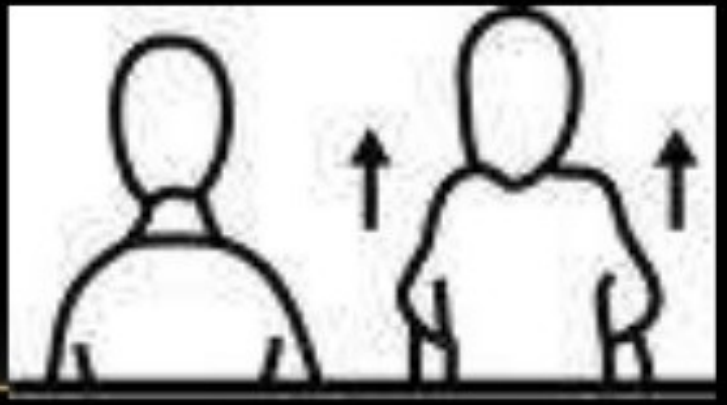


Trapezius
strength

CN XI **Spinal Accessory**:

turns head and elevates shoulders

Shoulder Shrug

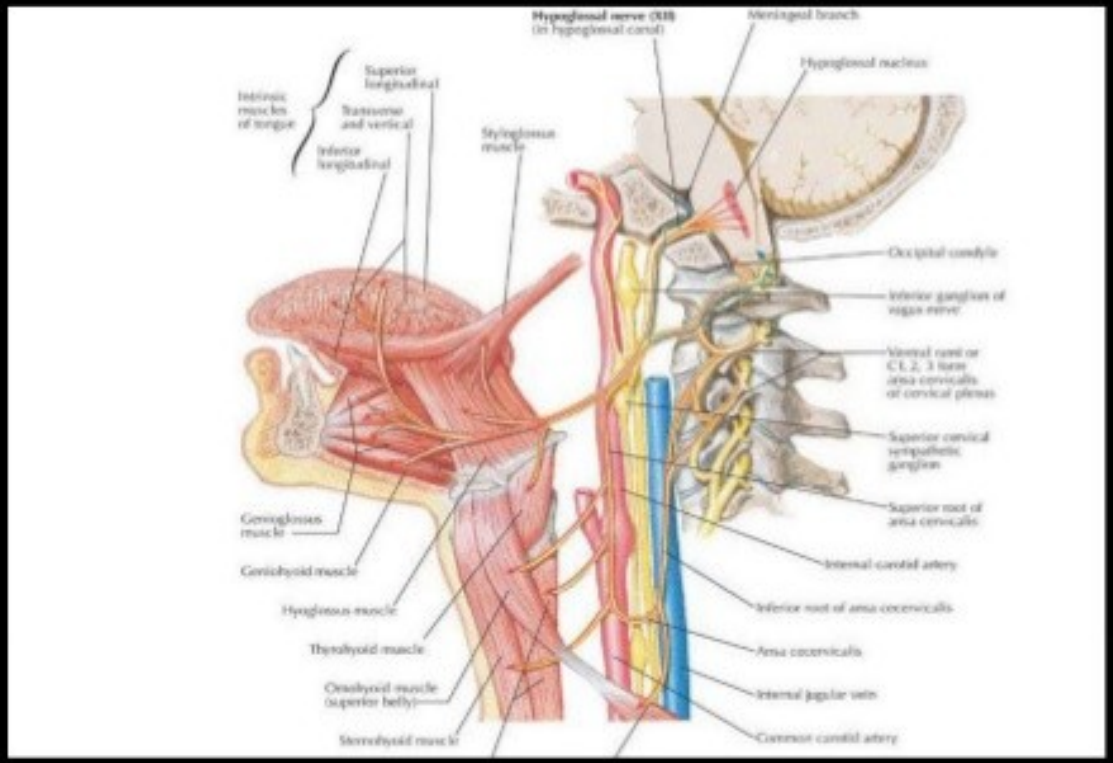


Cranial Nerve XI (Spinal Accessory)

The Neurological Examination
Cranial Nerves

Hypoglossal Nerve

c.n. XII



Cranial Nerve XII (Hypoglossal)

- Ask the patient to stick their tongue straight out of their mouth.
- If there is any suggestion of deviation to one side/weakness, direct them to push the tip of their tongue into either cheek while you provide counter pressure from the outside

Hypoglossal Nerve

Protrudes the tongue to the opposite side
Tongue in cheek (strength)
Hemi-atrophy and fasiculations (LMN)

5. *Motor function:*

- Assessment of motor function involves assessing for muscle size, muscle strength, muscle tone, muscle co-ordination, gait & movement.

✓ ***Muscle size:*** Inspect all major muscle groups bilaterally for symmetry, hypertrophy, & atrophy.

✓ ***Muscle Strength:*** Assess the power in major muscle groups against resistance. Assess & rate muscle strength on a 5-point scale in all four extremities, comparing one side with other.

Muscle Strength

Grade	Description
0/5	No muscle movement
1/5	Visible muscle movement, but no movement at the joint
2/5	Movement at the joint, but not against gravity
3/5	Movement against gravity, but not against added resistance
4/5	Movement against resistance, but less than normal
5/5	Normal strength

Count…

- ✓ ***Muscle tone:*** Assess muscle tone while moving each extremity through its range of passive motion. When tone is decreased (hypotonicity), the muscle are soft, flabby, or flaccid; when tone is increased (hypertonicity), the muscles are resistant to movement, rigid, or spastic. Note the presence of abnormal flexion or extension posture.
- ✓ ***Muscle coordination:*** Disorders related to coordination indicate Cerebellar or posterior column lesions.

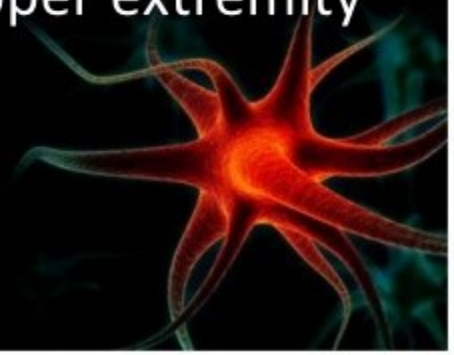
Count…

- ✓ ***Gait & station:*** Assess gait station by having the patient stand still, walk & in tandem (one foot in front of the other in a straight line). Walking involves the functions of motor power, sensation & coordination. The ability to stand quietly with the feet together requires coordination & intact proprioception (sense of body position).
- ✓ ***Movement:*** Examine the muscles for fine & gross abnormal movements. Move all the points through a full range of passive motion. Abnormal findings include pain, joint contractures, & muscle resistance.

- Starting with the deltoids, ask the patient to raise both their arms in front of them simultaneously as strongly as then can while the examiner provides resistance to this movement. Compare the strength of each arm.

  The deltoid muscle is innervated by the C5 nerve root via the axillary nerve.

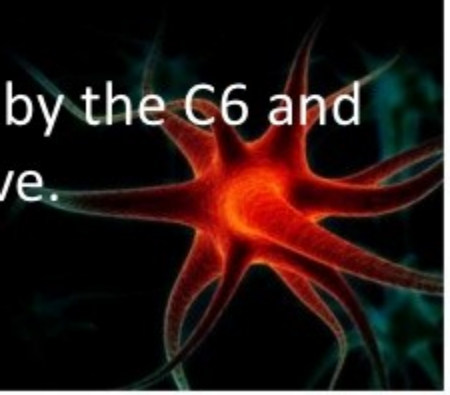
- Ask the patient to extend and raise both arms in front of them as if they were carrying a pizza. Ask the patient to keep their arms in place while they close their eyes and count to 10. Normally their arms will remain in place. If there is upper extremity weakness there will be a positive pronator drift, in which the affected arm will pronate and fall. This is one of the most sensitive tests for upper extremity weakness.



- Test the strength of lower arm flexion by holding the patient's wrist from above and instructing them to "flex their hand up to their shoulder". Provide resistance at the wrist. Repeat and compare to the opposite arm. This tests the biceps muscle.
  The biceps muscle is innervated by the C5 and C6 nerve roots via the musculocutaneous nerve

- Now have the patient extend their forearm against the examiner's resistance. Make certain that the patient begins their extension from a fully flexed position because this part of the movement is most sensitive to a loss in strength. This tests the triceps. Note any asymmetry in the other arm.

  The triceps muscle is innervated by the C6 and C7 nerve roots via the radial nerve.



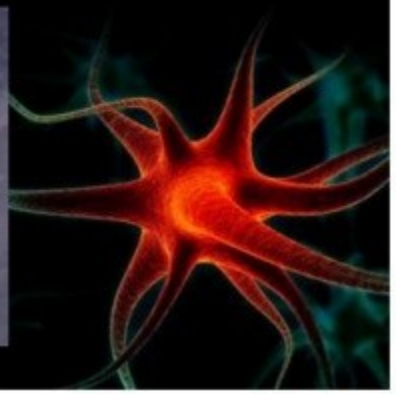
- Test the intrinsic hand muscles once again by having the patient abduct or "fan out" all of their fingers. Instruct the patient to not allow the examiner to compress them back in. Normally, one can resist the examiner from replacing the fingers.
  Finger abduction or "fanning" is innervated by the T1 nerve root via the ulnar nerve.

- To complete the motor examination of the upper extremities, test the strength of the thumb opposition by telling the patient to touch the tip of their thumb to the tip of their pinky finger. Apply resistance to the thumb with your index finger. Repeat with the other thumb and compare.
  Thumb opposition is innervated by the C8 and T1 nerve roots via the median nerve

- Test the adduction of the legs by placing your hands on the inner thighs of the patient and asking them to bring both legs together. This tests the adductors of the medial thigh. Adduction of the hip is mediated by the L2, L3 and L4 nerve roots.

- Test the abduction of the legs by placing your hands on the outer thighs and asking the patient to move their legs apart. This tests the gluteus maximus and gteus minimus. Abduction of the hip is mediated by the L4, L5 and S1 nerve roots

- Holding the bottom of the foot, ask the patient to "press down on the gas pedal" as hard as possible. Repeat with the other foot and compare. This tests the gastrocnemius and soleus muscles in the posterior compartment of the lower leg.
  Ankle plantar flexion is innervated by the S1 and S2 nerve roots via the tibial nerve.



- To complete the motor exam of the lower extremity ask the patient to move the large toe against the examiner's resistance "up towards the patient's face". The extensor halucis longus muscle is almost completely innervated by the L5 nerve root. This tests the extensor halucis longus muscle.

6. *Sensory function:*

- Sensory assessment involves testing for touch, pain, vibration & discrimination.
- A complete sensory examination is possible only on a conscious & co-operative patient.
- Always test sensation with patient's eye closed.
- Help the patient relax & keep warm.
- Conduct sensory assessment systematically.
- Test a particular area of the body, & then test the corresponding are on the other side.

The Sensory System Examination

The sensory exam includes testing for: pain sensation (pin prick), light touch sensation (brush), position sense, stereognosia, graphesthesia, and extinction. Diabetes mellitus, thiamine deficiency and neurotoxin damage (e.g. insecticides) are the most common causes of sensory disturbances

Pain and Light Touch Sensation:

Stereognosia

- Test stereognosis by asking the patient to close their eyes and identify the object you place in their hand. Place a coin or pen in their hand. Repeat this with the other hand using a different object

- Astereognosis refers to the inability to recognize objects placed in the hand. Without a corresponding dorsal column system lesion, these abnormalities suggest a lesion in the sensory cortex of the parietal lobe.

Graphesthesia

- Test graphesthesia by asking the patient to close their eyes and identify the number or letter you will write with the back of a pen on their palm. Repeat on the other hand with a different letter or number

- Apraxias are problems with executing movements despite intact strength, coordination, position sense and comprehension. This finding is a defect in higher intell-ectual functioning and associated with cortical damage

7. *Assessment of cerebellar function:*

- For evaluation of balance & co-ordination the tests used are:

a. ***Finger to finger test:*** It is performed by instructing the patient to place her index finger on the nurse's index finder. He is asked to repeat this for several times in succession on both sides.

b. ***Finger to nose test:*** Tell the patient to extend his index finger & then touch the tip of his nose several times in rapid succession. This test is done with patient's eyes both open & closed.

Count…

c. ***Romberg test:*** Here the nurse instructs the patient to stand with his feet together with arms positioned at his sides. He is told to close his eyes. This position is maintained for 10 seconds. This test is considered positive only if there is actual loss of balance.

d. ***Tandom walking test:*** This is tested by having the patient assume a normal standing position. He is then instructed to walk over heel on a straight line. Any unsteadiness, lurching or broadening of the gait base is noted.

Gait:

Ask the patient to:

- Walk across the room, turn and come back
- Walk heel-to-toe in a straight line
- Walk on their toes in a straight line
- Walk on their heels in a straight line
- Hop in place on each foot
- Do a shallow knee bend
- Rise from a sitting position

Reflex Testing:

- Reflexes should be graded on a 0 to 4 "plus" scale:

Grade	Description
0	Absent
1+ or +	Hypoactive
2+ or ++	"Normal"
3+ or +++	Hyperactive without clonus
4+ or ++++	Hyperactive with clonus

Achilles: (S1, S2)

Patellar: (L3, L4)

Biceps: (C5, C6)

Triceps: (C6, C7)

Brachioradialis (C5, C6) :

Babinski reflex:

Nurses role in neurological examination…

- Provide a clam, suitable environment
- Collect the personal data with patient & family members
- Set the equipment needed for neurological examination
- Assess the current level of consciousness, monitor vital parameters – temperature, pulse, respiration, blood pressure, pupillary reaction, whether decerebrating or decorticating.
- Thorough mental status examination should be done & recorded accurately.

Count…

- Assessment of cranial nerves should be done correctly & recorded.
- Assessment of motor, sensory & cerebellar functions should be done & be recorded accurately.
- During the examination, she should maintain a good support with patient & family members
- She should instruct the procedure correctly & then they should be asked to do it.
- Should be informed to the concerned unit doctors if there is any change.

THANK YOU