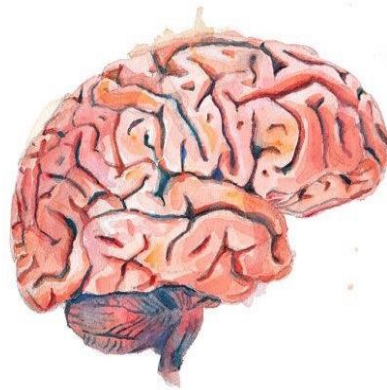


# *Clinical Skills*

## *CNS*



Neurological Examination  
Examination of Cranial Nerves



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# Objectives and materials:

**OBJECTIVE:** To conduct a complete Examination of Cranial Nerves as a part of Neurological Examination.

**MATERIALS:** Well illuminated examination room, examination table and scent stimuli. (the rest are going to be explained with pics)

Tendon hammer



Penlight



Ophthalmoscope



Tuning fork



Snellen chart/near vision card



Pins and needles



Piece of cotton wool



## Preparation

Important

- 1- Introduce yourself to the patient.
- 2- Confirm patient's ID.
- 3- Explain the procedure and reassure the patient.
- 4- Get patient's consent.
- 5- Wash hands.
- 6- Prepare the necessary materials.
- 7- Show the patient each object and allow him/her to touch them prior to beginning the exam to reduce any fear of being hurt during the examination.
- 8- Position the patient in a **sitting position**.

Good morning I'm ...(your name)... I'm a second year medical student<sup>1</sup>. Can you tell me your name and give me your ID please<sup>2</sup>?.Okay ...(patient name)... today I'm here to examine your cranial nerves<sup>3</sup> "that may include ....." , is that okay with you<sup>4</sup> ? Before I start I should wash my hands<sup>5</sup> and prepare the materials <sup>6</sup> if you want you can see the materials <sup>7</sup>. I just want you to sit to begin the examination<sup>8</sup>..

## Examination

### The olfactory nerve (CN I): [\(Video\)](#)

- 9- Ask the patient if she/he has noticed a change in his sense of smell or taste.  
(If yes, perform an olfactory examination: test each nostril separately)  
(Ask the patient to close his/her eyes and block one nostril.)  
(Take one of the scent stimuli and ask patient to sniff and describe the scent.)

Do you notice any change in your sense of smell or taste.? "If it YES" .Okay i will perform an olfactory examination, I will test each nostril separately. Can you please close your eyes and block one of your nostril ?Then I will take one of scent stimuli can you smell it and describe the scent please **[repeat the same test with the other nostril]**<sup>9</sup>.

## The optic nerve (CN II): (examine each eye separately) [\(Video\)](#)

10- Test visual acuity on a Snellen chart or using a near vision card (or a page in a book).

- Test the visual fields by confrontation.
- Examine the retina and optic nerve by direct fundoscopy.

Now I'll examine your visual acuity by using "say what you will use", then I'll test your visual fields by using confrontation, the last thing I'll examine the retina and optic nerves by direct fundoscopy.<sup>10</sup>

## The oculomotor, trochlear, and abducens nerves (CN III, IV, and VI): [\(Video\)](#)

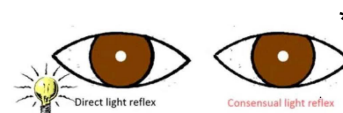
### 11- Inspect the eyes:

- Look for the size, shape, equality and regularity of the pupils.
- Look for a visible ptosis (**Horner's syndrome**) or squint.
- Test the direct and consensual pupillary light reflexes.
- Test accommodation by asking patient to look into the distance and then focus his/her eyes on an object (finger or pen) brought to a point about 30 cm in front of the nose.

### 12- Examine eye movements:

- Ask the patient to keep his/her head still and to follow your finger with his/her eyes and to tell you if he sees double at any point (move your fingers laterally-left to right- and vertically -up and down-).
- Look for **nystagmus** at the extremes of gaze.

By inspecting your eyes, you have .....size,.....shape and .....pupils, there's no any visible ptosis or squint, then I will test pupillary light reflexes direct and consensual\*. Now I will test your accommodation, can you please focus on my finger ([see this video](#)).<sup>11</sup>



Now I will examine your eye movements please don't move your head keep it still and follow my finger with your eyes and tell me if you see double at any point ([see this video](#)) and last thing i will see if there **nystagmus** (something abnormal usually you will don't see it just mention it).<sup>12</sup>

Comment on what you find in the exam.....

**Nystagmus**: involuntary usually rapid movement of eyeballs occurring normally with dizziness during and after bodily rotation or abnormality following head injury or as a symptom of disease.

**Horner's syndrome**: is a **medical condition that is considered rare** and basically affects a person's eye and face, specifically the person's nervous system. It is considered as a syndrome for it includes several or a collection of symptoms.

## The trigeminal nerve (CN V): The most important! [\(Video\)](#)

13- **Sensory Part** (Ask patient to close his/her eyes).

• Test light touch, pain and temperature senses in the three branches of the trigeminal nerve. Compare both sides.

• Test the corneal reflex (Inform patient that this is likely to cause some discomfort).

### Motor Part

Test the muscles of mastication by asking the patient to:

• Clench his/her teeth (palpate his temporal and masseter muscles bilaterally).

• Open and close his/her mouth against resistance (place your fist under his chin).

(Inform patient that you would hold his/her chin and test the jaw jerk).

• Ask the patient to let his mouth fall open slightly.

• Place your index finger on his/her chin and hold chin with your middle finger

• Gently tap on your index finger with a tendon hammer and observe jaw jerk.

I'll examine your trigeminal nerve, can you please close your eyes? (Test light touch, pain and temperature senses in the three branches of the trigeminal nerves. Don't forget to compare both sides!) tell the patient that he's gonna feel a little discomfort before you examine the corneal reflex, tell the doctor that his trigeminal nerves are normal because the light touch and temperature are normal and there's no tenderness. Can you please clench your teeth? "Palpate his temporal and masseter in both sides" I'll hold your chin to test the jaw jerk so can you please open and close your mouth against resistance? (While you're doing this place your fist under his chin) then place your index finger on his/her chin and hold chin with your middle finger. Now tap on your index finger with a tendon hammer and observe jaw jerk. Tell the doctor that his motor part of his trigeminal nerve is normal.

## The facial nerve (CN VII): Important [\(Video\)](#)

14- Look for facial asymmetry. (Note that the nasolabial folds and the angle of the mouth are especially indicative of facial asymmetry).



### Sensory Part

• Test the anterior two-thirds of the tongue for taste sensation by applying either/or salty, bitter sour, sweet solutions on the tongue.

### Motor Part

Test the muscles of facial expression by asking the patient to:

• Lift his/her eyebrows as far as they will go.

• Close his/her eyes as tightly as possible. (Try to open them.)

• Blowout his/her cheeks. • Purse his/her lips or whistle. • Show his/her teeth.

I'll examine your facial nerve, look for any facial asymmetry focus on the nasolabial folds and the angle of the mouth because they are specially indicative of facial asymmetry "tell the doctor that there's no facial asymmetry". Apply either salty, bitter sour or sweet solutions on the tongue to test the anterior two thirds of the tongue "tell the doctor that the sensory part of his facial nerve is normal" **in the exam you will not feed the patient but you have to mention it.** Okay can you please lift your eyebrows as far as you can? "after doing this" can you please close your eyes as tightly as possible? Try to open them "after doing this" can you please blowout your cheeks? "After doing this" Can you please purse your lips or whistle? "After doing this" can you please show me your teeth? or can you please smile? **Tell the doctor that his motor part of his facial nerve is normal.**

## The acoustic nerve (CN VIII): (remove patient's hearing devices) **Important** ([Video](#))

15- Test hearing sensitivity in each ear by occluding one ear and rubbing your thumb and fingers together in front of the other.

- Apply Rinne and Weber tests and examine the ears by auroscopy.

I'll examine your acoustic nerve (while you're doing the examination ask the patient about her/his hearing sensitivity) for example you can ask "do you hear well? or are there any problems while you're hearing? Do you feel pain?" After this examination tell the doctor that he's hearing well and there's no tenderness so his acoustic nerve is normal (if their answers to the previous questions are all normal).

## The glossopharyngeal nerve (CN IX): ([Video](#))

16- Test the gag reflex by touching the tonsillar fossae on both sides.  
(Inform patient that this is likely to cause some discomfort).

I'll examine your glossopharyngeal nerve, that may cause some discomfort (while your doing the examination notice any abnormality "there's no abnormalities the patient will be normal") tell the doctor that his glossopharyngeal nerve is normal.

## The vagus nerve (CN X): ([Video](#))

17- Ask the patient to phonate (say aaah~) and look for deviation of the uvula with a pen light.

I'll examine your vagus nerve, can you please say aaah (phonation) (while your doing the examination look for the deviation of the uvula with you penlight) tell the doctor that his vagus nerve is normal. **In abnormal conditions the uvula will be on the right/left side.**

## The hypoglossal nerve (CN XII): ([Video](#))

18- Aided by a pen light, inspect the tongue for wasting and fasciculation.  
Ask the patient to stick out his tongue and to wiggle it from side to side.

I'll examine your hypoglossal nerve, can you please stick out your tongue and wiggle it from side to side? Use the pen light while you're doing the examination and inspect for wasting and **fasciculation** tell the doctor that his hypoglossal nerve is normal and there's no wasting and **fasciculation**.



**Fasciculation:** muscular twisting involving the simultaneous contraction of contiguous groups of muscle fibers.

## The accessory nerve (CN XI): [\(Video\)](#)

19- Look for wasting of the sternocleidomastoid and trapezius muscles.

Ask the patient to:

- **Shrug** his shoulders against resistance.
- Turn his/her head to either side against resistance.

I'll examine your accessory nerve, can you please **shrug** your shoulders against resistance? To remember it doctor said: (Do you know the function of accessory nerve? "I don't know.")



After doing this, can you please turn your head to either side against resistance? Tell the doctor that his accessory nerve is normal and there's no wasting of the sternocleidomastoid and trapezius muscles.

## After the examination

20- Ensure that the patient is comfortable.

21- Make explanations to the patient, answer his/her questions and discuss management plan.

22- Dispose of sharps and waste material according to infection control standards.

23- Wash hands.

24- Document the procedure.

After finishing the examination,

Okay are you comfortable?

Do you have any questions?

"Dispose the wastes" (or just mention it "I should dispose the wastes")

I'll wash my hands.

I'll document the procedure, thank you.

**Shrug:** to rise or draw in the shoulders especially to express aloofness, indifference or uncertainty.

## Videos, pictures and notes:

- After you finish from each test or step inform the doctor about what you notice but usually you're gonna say "normal or the test is negative" bc he's not a real patient
- Don't forget to compare both sides
- Smile, don't stress
- Cut your nails
- Don't forget your stickers and your ID
- [Video of Cranial nerve examination - Geeky Medics](#)
- [Video of Cranial nerve examination](#)

[Here is a video for the whole presecure:](#)

<https://www.youtube.com/playlist?list=PLbBPCoeAkoZrh8oydqTbYwA4m8Tkg3xMf>



# Hope you guys loved our new team

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- Dimah Alaraifi
- Gharam Julaidan
- Leena Alrahmah
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