

Nervous System



Cerebellar Examination

Chief Complain:

The patient may come complaining of clumsiness or problems with coordination of movements.

-First: Always remember to **WIPE**. Then:

1- Assess the eye movements.

Look for:

-Nystagmus:

Involuntary rapid phase movements. Usually jerky **horizontal nystagmus** with increased amplitude on looking towards the side of the lesion.

How?

- Ask the patient to follow your finger with their eyes. Move your finger horizontally from one side to another.

- **Horizontal Nystagmus:**

<https://youtu.be/YntJiBCz3pA>

2-Assess the speech.

-Dysarthria:

Difficult or unclear articulation of speech. It will be jerky, explosive and loud speech with irregular separation of syllables.

-Ask the patient to say:
British Constitution or West Register Street.

3- Assess the patient posture.

-Truncal ataxia:

The patient's trunk will keep on swinging and s/he will not be able to sit straight.

-Ask the patient to fold his or her arms and set up.

4- Assess the upper limb:

A- Assess the tone.

-Hypotonia:

A state of low muscle tone.

-Check the tone at the shoulder, elbow and wrist.

- ✓ Always remember to ask the patient if s/he has any pain before starting to move any of their joints.

B- Assess the coordination.

With **finger nose test** look for:

-Dysmetria:

Overshooting or undershooting of the patient finger.

-Intention tremor:

A tremor that increases as the target is approached.

- Ask the patient to touches his/her nose, then rotates the finger and touches your finger while you keep on moving it after each time.

- ✓ Make sure the patient fully extend her or his elbow during the test.

With **rapid alternating movement test** look for:

Dysdiadochocinesia

(dis'dī-ad'ō-kō-ki-nē'zē-ă)

Impairment of the ability to perform rapidly alternating movements

-Ask the patient to tap alternately the palm and back of one hand on the other hand or thigh.

- ✓ Make sure the patient takes full range of movement while doing the test.
- ✓ The sound that the patient's hands make alone can help you detect any abnormalities.

<https://youtu.be/2EZqnmXWyAY>

With **the rebound test** look for:

- Rebound phenomenon AKA Holmes rebound phenomenon.

Incoordination of antagonist and agonist action causes the patient to be unable to stop the arms.

-Flex the patients elbow. Ask the patient to keep their arm in that position as you pull away, when you release the arm.

Normally: The patient can stop his arm.

Rebound phenomenon: the arm will hit the patient's body.

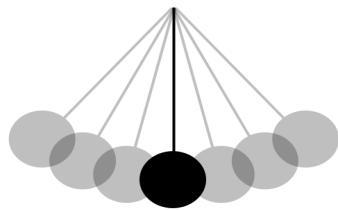
- ✓ Make sure you protect the patient's face with one of your hands. Therefore, he would not hurt himself.

5- Assess the lower limb:

A- Assess the tone.

B- Assess the knee reflex.

- **Penduler knee jerk.** It is a sign of lower limb **hypotonia.**



Pendulum Swing

-With the help of a hammer, tap the knee to induce knee reflex.

Normal knee reflex:

The knee will extend then stop after a few seconds.

Penduler knee reflex:

The knee will keep on swinging more than 4 times resembling the movement of pendulum.

<https://youtu.be/jaDQ9EUntVM>

C- Assess the coordination.

-**Inability to perform the heel-shin test**

-Ask the patient while lying down to run the heel of one foot over the shin of the other foot.



With the **Toe finger test** look for: **Dysmetria or intention tremors.**

Not practical.

-Ask the patient to lift the foot and touch your finger with his/her big toe.

-**Foot tapping test** (Rapid alternating movements of the feet)
Not usually done.

-Ask the patient to tap the sole of foot quickly on your hand or tap the heel on the opposite shin.

6- Assess the Gait.

-Wide base, drunken gait.

-Ask the patient to walk normally a few meters, then turn around quickly and walk back.

- ✓ Remember to comment on: stance, posture, stability, how high the feet are raised off the floor, degree of knee bending, arm swing, tendency to fall or swerve in any particular direction, rate and speed, difficulty initiating or stopping gait, and any involuntary movements that are brought out by walking. Turns should also be observed closely.

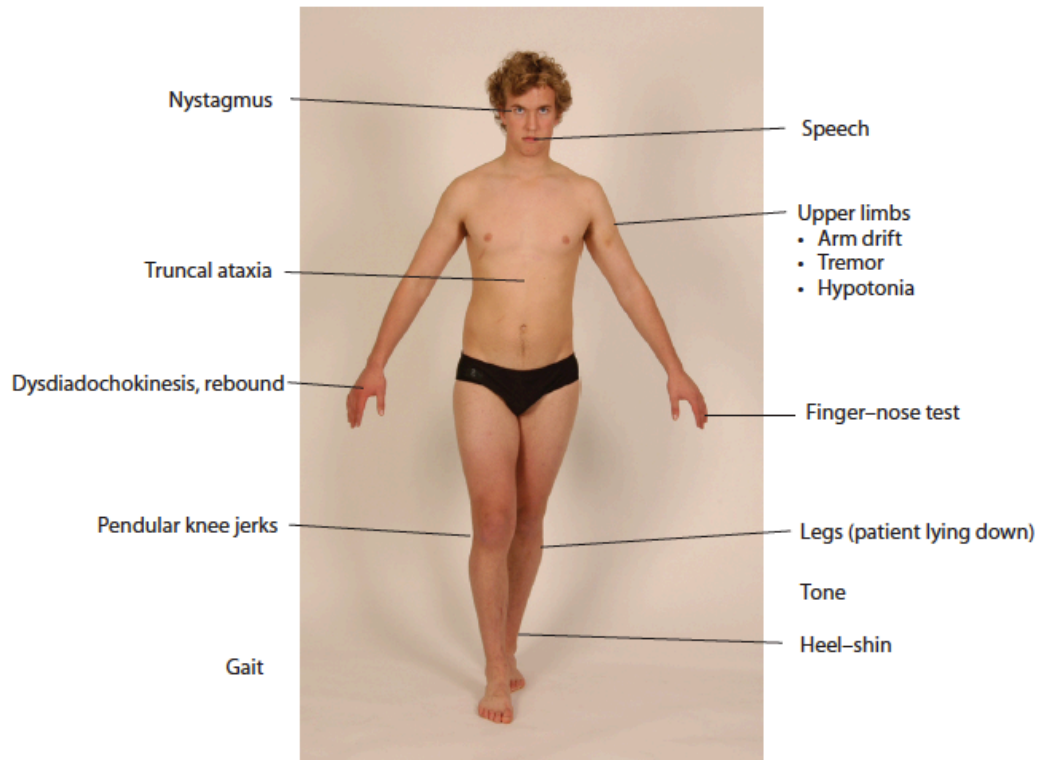
-Impaired tandem gait AKA heel-toe walking.

Inability to walk heel to toe.

-Ask the patient to walk a straight line while touching the heel of one foot to the toe of the other with each step.

- ✓ The patient will stagger towards the affected side if there is a unilateral cerebellar hemisphere lesion.

-At the end of your examination, do not forget to Thank the patient.



A common misperception = Romberg test is used to detect cerebellar abnormalities. **Romberg's test is not a test of cerebellar function**, as it is commonly misconstrued. Patients with cerebellar ataxia, generally will be unable to balance even with the eyes open. Therefore, the test cannot proceed beyond the first step and no patient with cerebellar ataxia can correctly be described as Romberg's positive. Rather, Romberg's test is a test of the **proprioception** and usually **positive in posterior column lesions**.

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