

**CLINICAL
EXAMINATION
OF A
BALANCE DISORDER
PATIENT**



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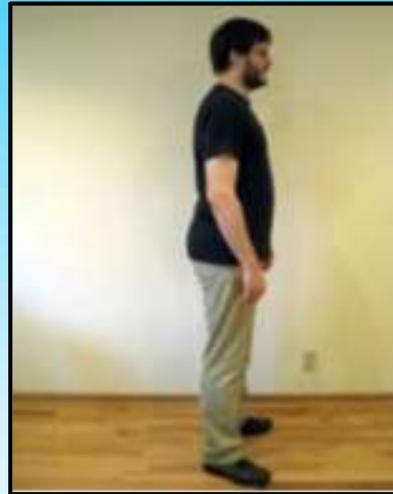
INDIA

What do we need to find out?

Is the balance system serving the functions of :-



Gaze Stabilisation



Postural Stabilisation



Perfect perception of the vertical

Are the sensory system (inputs to the balance system) and the motor output systems in perfect order structurally and functionally?

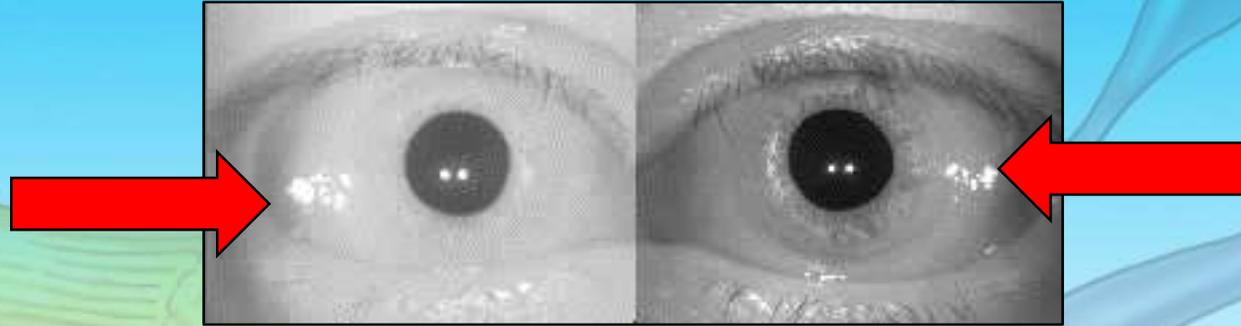
Are the neural pathways that connect the different structures of the convoluted anatomy in order?

Physiological processes that need to be tested:-

- VESTIBULO OCULAR reflex system (VOR)
- VESTIBULO SPINAL reflex system (VSR)
- Perception of VERTICALITY (SVV)
- CEREBELLAR system
- Central and peripheral nervous systems
- COGNITIVE & PSYCHIC systems

The perfect functioning of all these systems and the structural / functional integrity of the neural pathways that connect these systems have to be ascertained

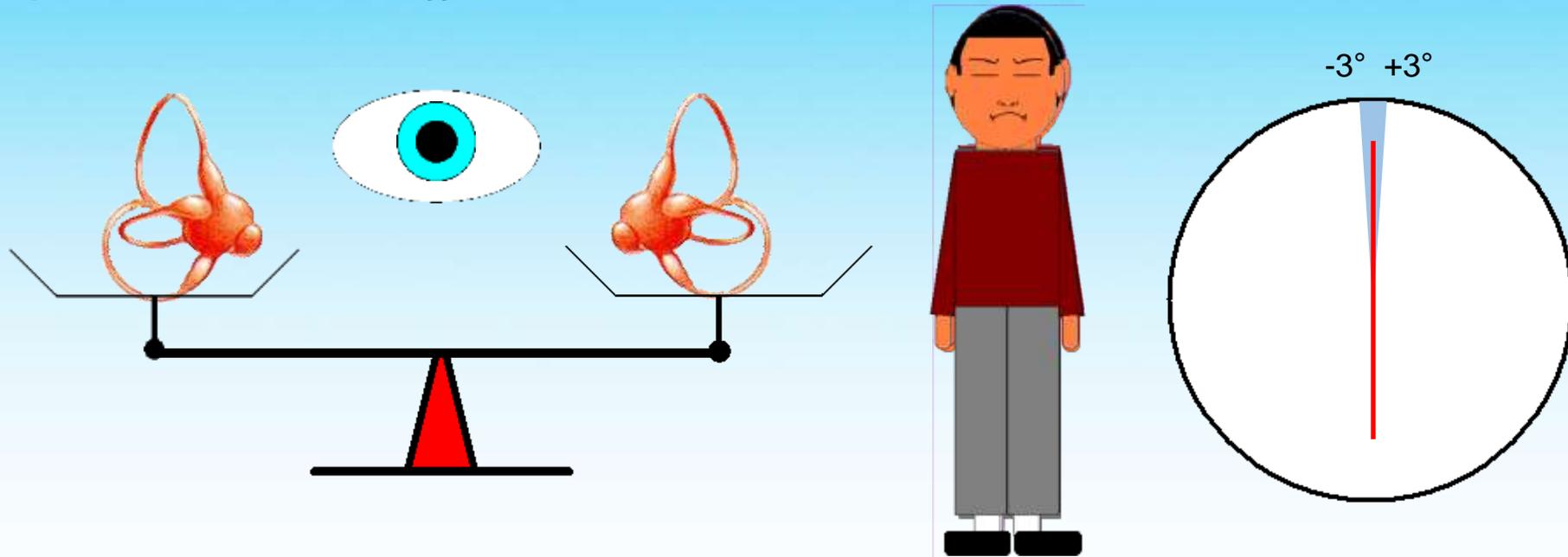
Vestibular labyrinth exerts a tonic contraction of the eye / body muscles by virtue of which eyes stay in the midline and body maintains erect posture; perception of verticality is a combined function of the otolith organs and cerebral cortex



In a Vestibular damage of the left side

i.e., unilateral peripheral vestibulopathy

- in case of sudden & uncompensated left vestibulopathy, the healthy right labyrinth takes the upperhand; *there is a RIGHT beating nystagmus, patient falls towards the LEFT, sense of verticality tilts toward this affected i.e., LEFT side..*



-in case of a compensated vestibular deficit and in slowly progressive vestibular deficit, *the nystagmus disappears or is absent, the patient gradually becomes steady & does not fall towards the affected side and sense of verticality returns*

In a Central vestibular damage

and also in bilateral peripheral vestibulopathy

Patients usually get

- an instability / unsteadiness
- difficulty in walking without support
- usually no spinning or rotating sensation



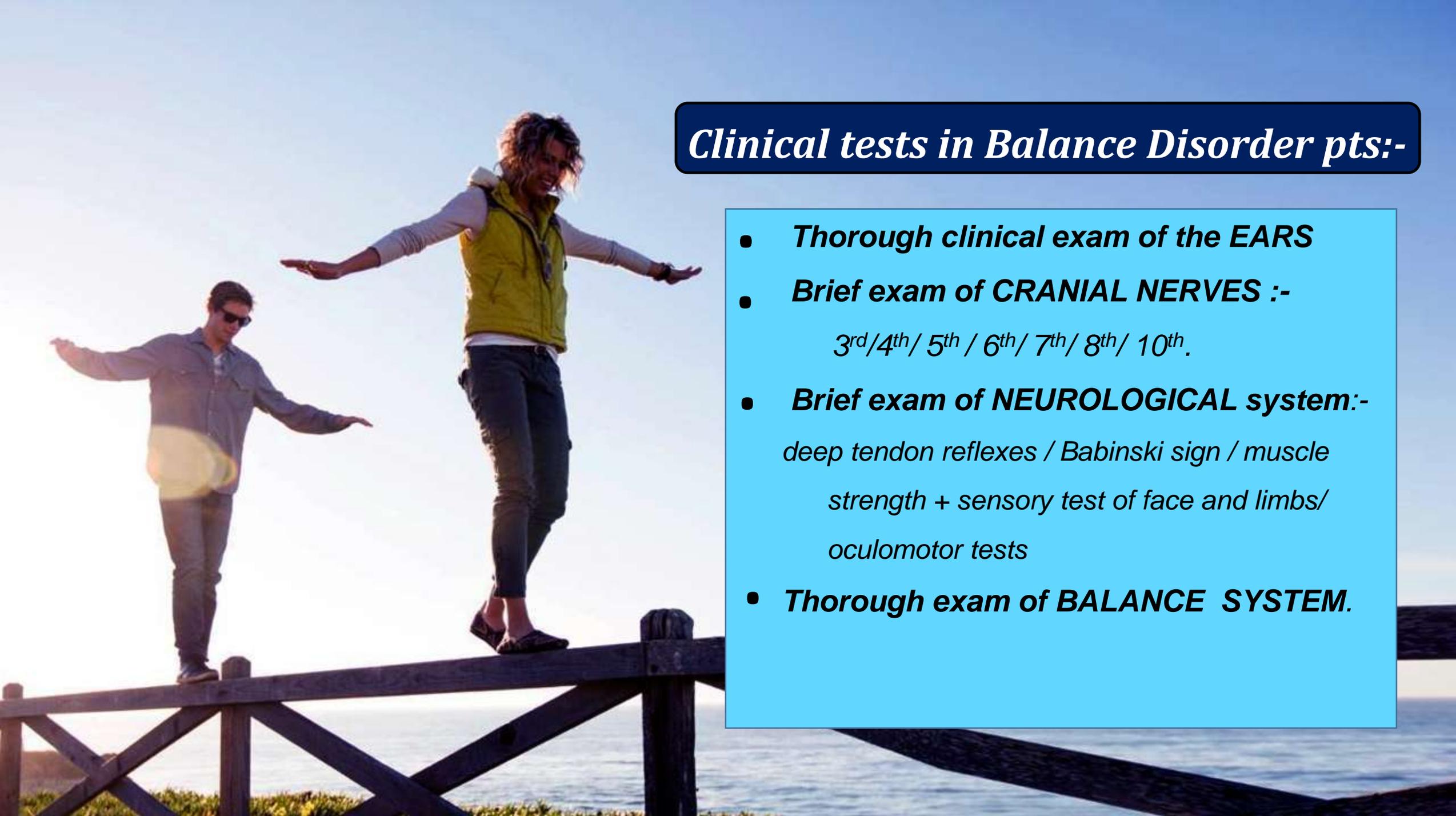
Evaluation of a patient of vertigo / imbalance is done by a 3 pronged approach

-History Taking

-Clinical examination

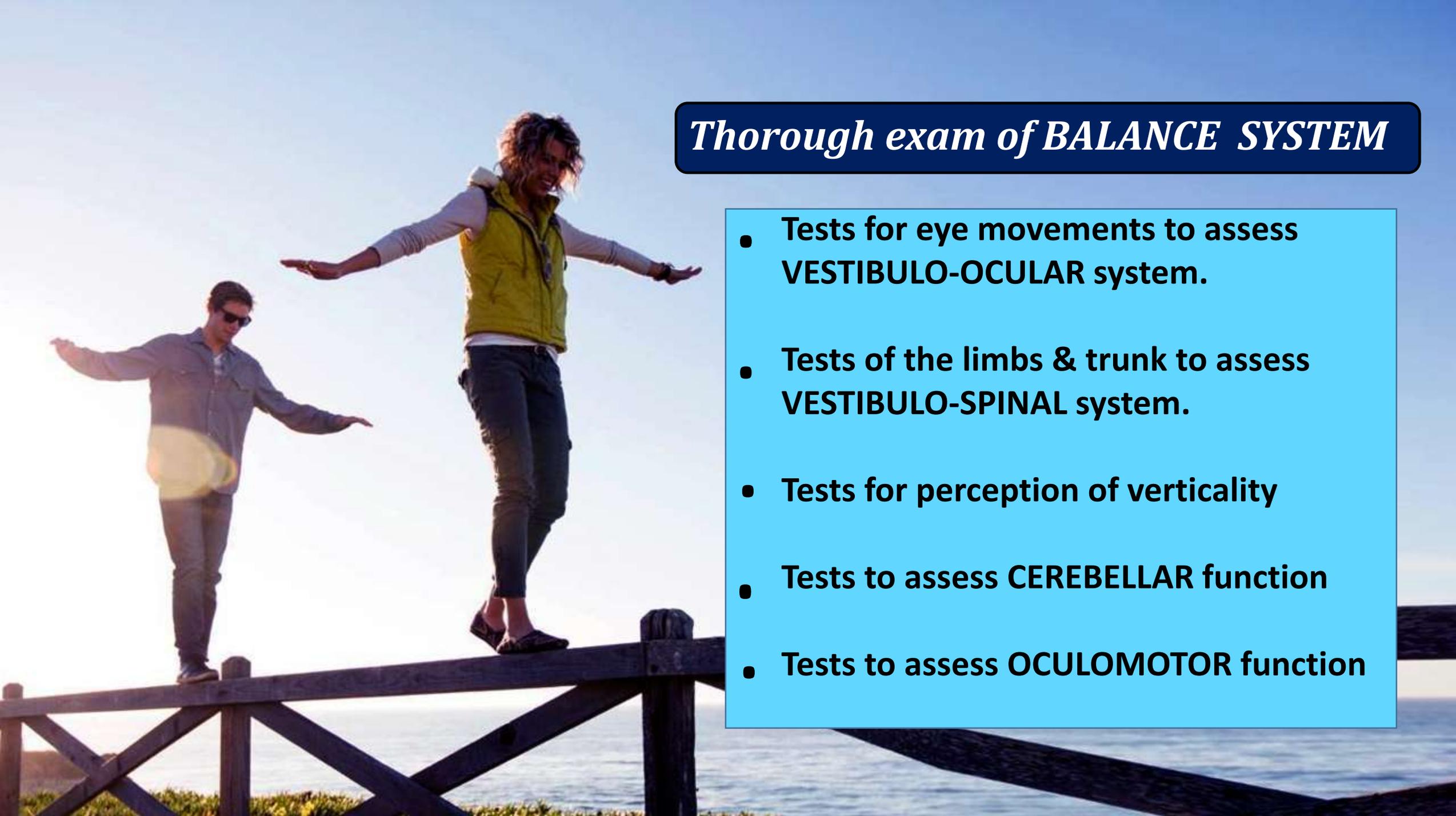
-Investigations



A man and a woman are balancing on a wooden fence. The man is on the left, wearing a grey jacket and sunglasses, with his arms outstretched. The woman is on the right, wearing a yellow vest and dark pants, also with her arms outstretched. They are both smiling and appear to be enjoying the activity. The background shows a clear blue sky and a body of water in the distance.

Clinical tests in Balance Disorder pts:-

- ***Thorough clinical exam of the EARS***
- ***Brief exam of CRANIAL NERVES :-***
3rd/4th/ 5th / 6th/ 7th/ 8th/ 10th.
- ***Brief exam of NEUROLOGICAL system:-***
deep tendon reflexes / Babinski sign / muscle strength + sensory test of face and limbs/ oculomotor tests
- ***Thorough exam of BALANCE SYSTEM.***

A photograph of two people balancing on a wooden fence. The person on the left is a man wearing sunglasses and a grey jacket, with his arms outstretched. The person on the right is a woman wearing a yellow vest and dark pants, also with her arms outstretched. They are standing on a wooden fence that runs across the frame. The background shows a clear blue sky and a body of water in the distance.

Thorough exam of BALANCE SYSTEM

- Tests for eye movements to assess VESTIBULO-OCULAR system.
- Tests of the limbs & trunk to assess VESTIBULO-SPINAL system.
- Tests for perception of verticality
- Tests to assess CEREBELLAR function
- Tests to assess OCULOMOTOR function

Clinical Tests *in* Neurotology starts with the eye tests



**LOOKING AT THE EYE FOR ABNORMAL SPONTANEOUS NYSTAGMUS
AND FOR ANY SKEW DEVIATION**



TESTS for eye movements

(VESTIBULO-OCULAR & OCULOMOTOR tests)

- 1. Abnormal *spontaneous* eye movements**
- 2. Abnormal *provoked* eye movements.**
- 3. Oculomotor tests**

VESTIBUL-OCULAR TESTS

Types of abnormal spontaneous eye movements

- Nystagmus ——— [Horizontal
Vertical
Rotatory
- Ocular bobbing
- Ocular flutter
- Ocular myoclonus
- Opsoclonus
- Dysconjugate nystagmus
- Circumduction nystagmus
- Seesaw nystagmus
- Periodic alternating nystagmus
- Rebound nystagmus



Nystagmus

Horizontal nystagmus

Left bt.

Right bt.

Vertical nystagmus

Up bt.

Down bt.

Rotatory nystagmus

Clockwise

Anti-clockwise

