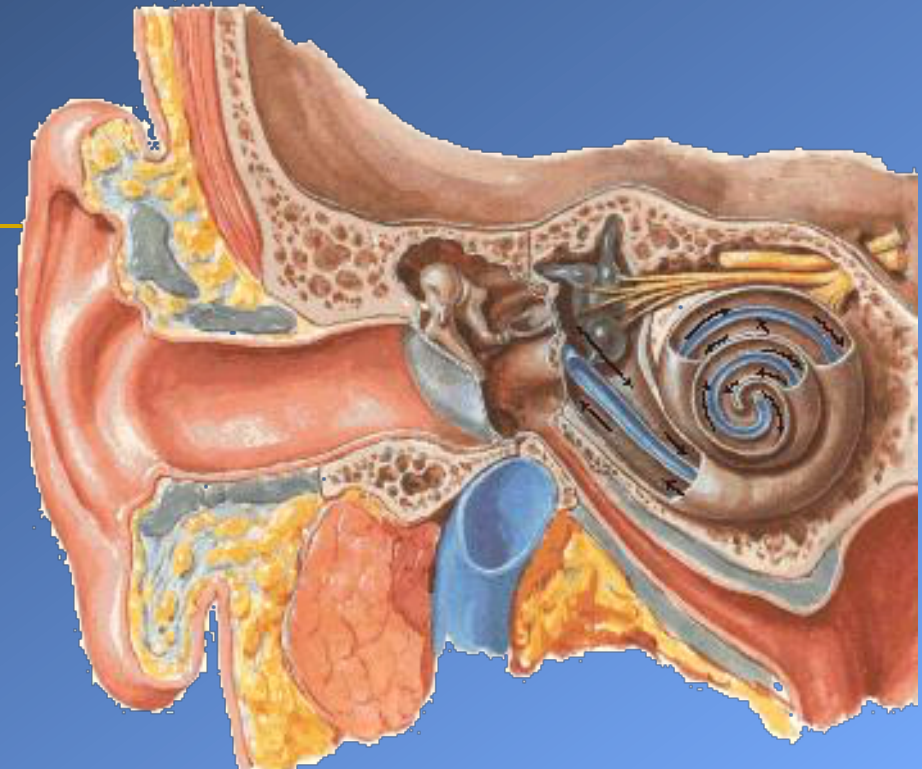


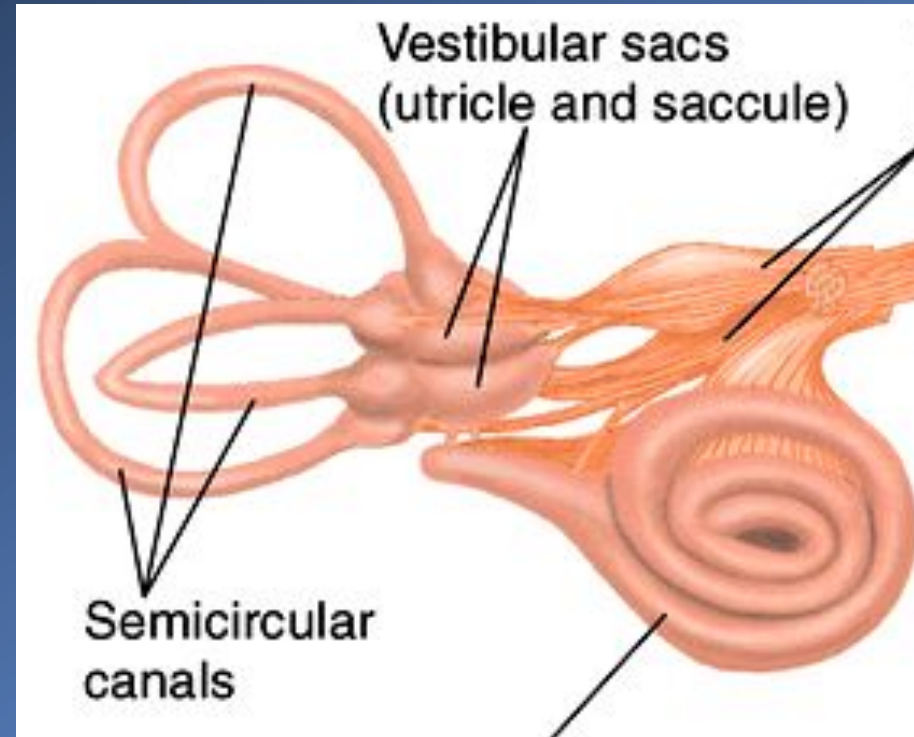
VERTIGO

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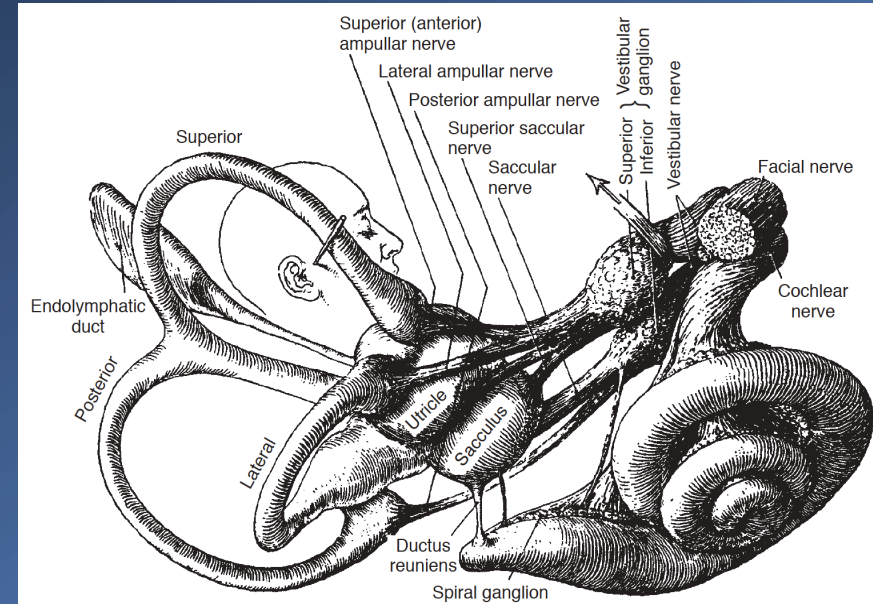
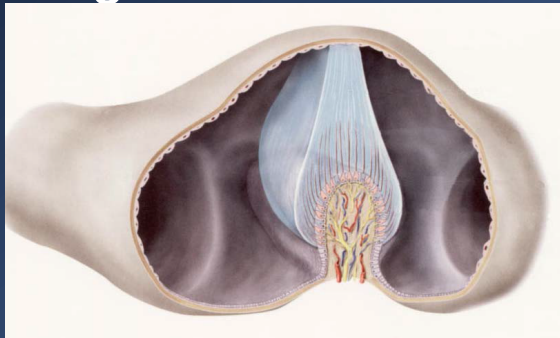
Introduction

The vestibular system: is the apparatus of the inner ear that provides stable vision during head movements.



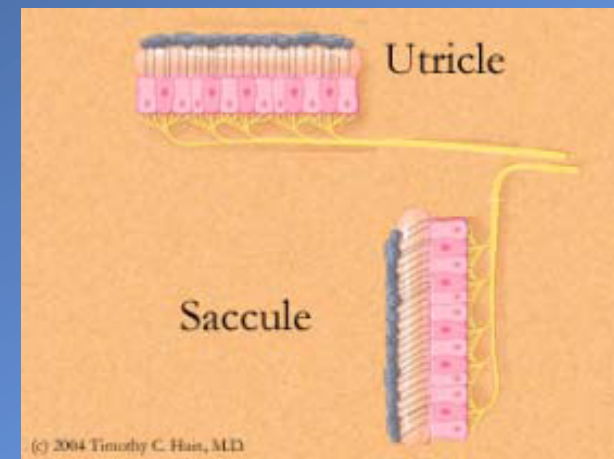
Vestibular System

■ Semi-circular Canals Angular Acceleration



■ Utricle & Saccule:

1. Macule of the utricle : plan horizontal
2. Macule of the saccule: plan vertical
3. Linear acceleration horizontal & Vertical (gravity)



What are the balance organs?

- Inner ear
 - 3 semicircular canals
 - Otolith organ
 - Cerebellum
 - Vision (VOR)
 - Proprioception
-

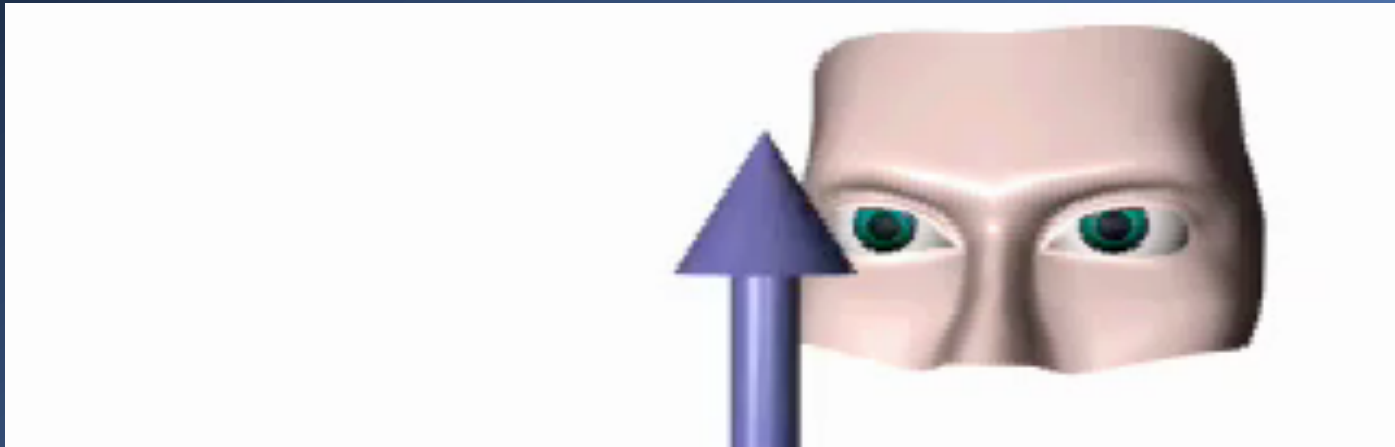
Vestibulo-ocular reflex (VOR)

- **VOR Function:** is to stabilize images on the retina during head movement by moving the eye in direction opposite to the direction of the head, thus keeping image on the center of the visual field.
- **The anatomical component of VOR are:**
 - Semicircular canals.
 - Vestibular and ocular motor nuclei in the brainstem
 - Extra-ocular muscles.

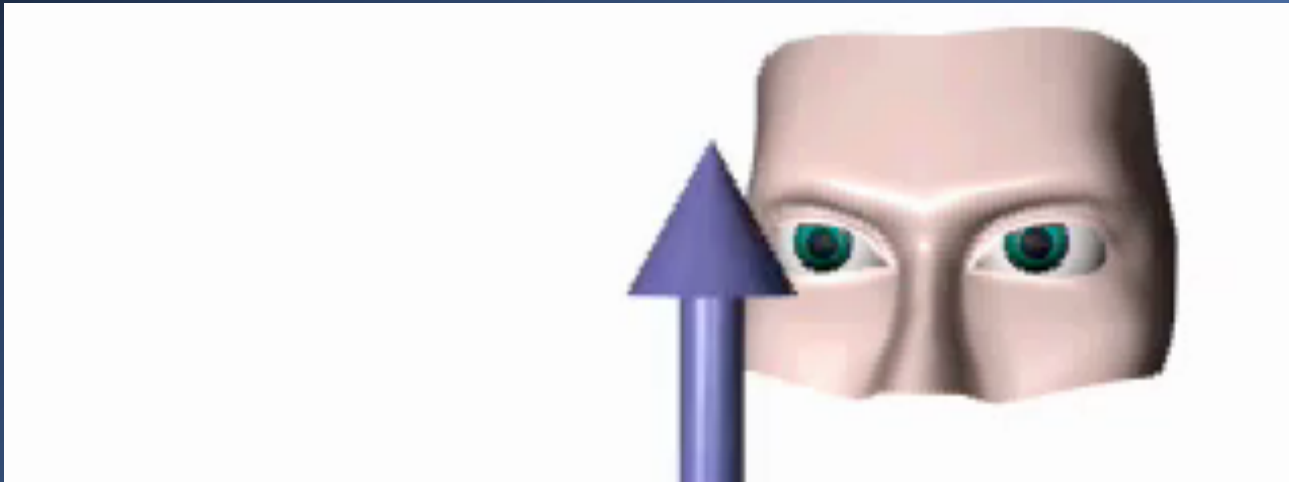
Definition

- **Vertigo**: It is an illusion of rotary moving.
- **Instability** : impossibility to maintain one's body in desire position
- **Nystagmus** : Is an involuntary conjugated rapid repetitive eye movement.
 - Side to side (horizontal)
 - Up and down (vertical)
 - In a circle (torsional)

Horizontal Nystagmus



Vertical Nystagmus



What type of Nystagmus??



Benign Paroxysmal Positional Vertigo (BPPV)

- BPPV is the most common cause of vertigo seen by otolaryngologists.
 - Represent 20% to 40% of patients with peripheral vestibular disease.
 - **Posterior semicircular canal** (Post SCC) is mostly affected in BPPV.
 - Vertigo of post SCC initiated with:
 - Change in head position;
 - Rolling over or getting into bed,
 - Looking up to take an object off a shelf,
 - Tilting the head back to shave,
 - Getting a haircut.
 - Symptoms occur suddenly and last in the order of seconds
-

Benign Paroxysmal Positional Vertigo (BPPV)

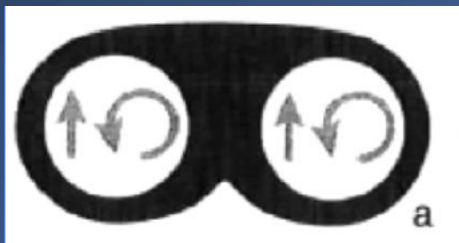
- Etiology: Most cases of BPPV have no identifiable etiology (48%).
- The most common known cause was thought to be :
 - closed head injury
 - followed by vestibular neuronitis.
 - Post ear surgery
- Diagnosis
 - History
 - Dix-Halpike maneuver

Dix-Halpike Maneuver

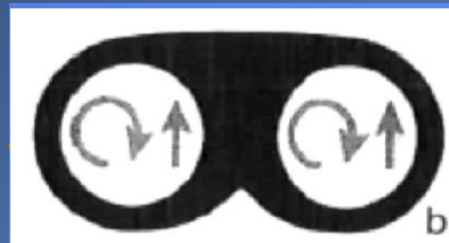


Nystagmus in BPPV

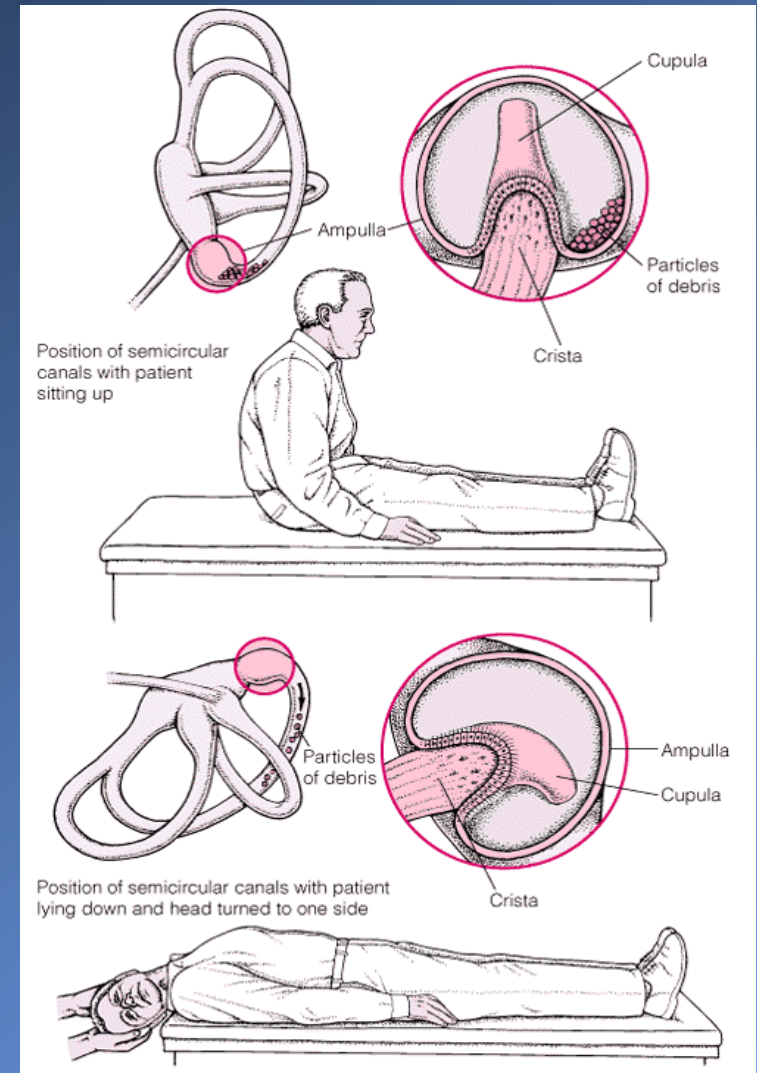
- The nystagmus is a combined vertical upbeating and rotary (torsional) component beating toward the downward eye.
- There is often a latency of onset of nystagmus (seconds).
- Duration of nystagmus is short (<1 minute).
- The nystagmus disappears with repeated testing (fatigable).



Right Ear

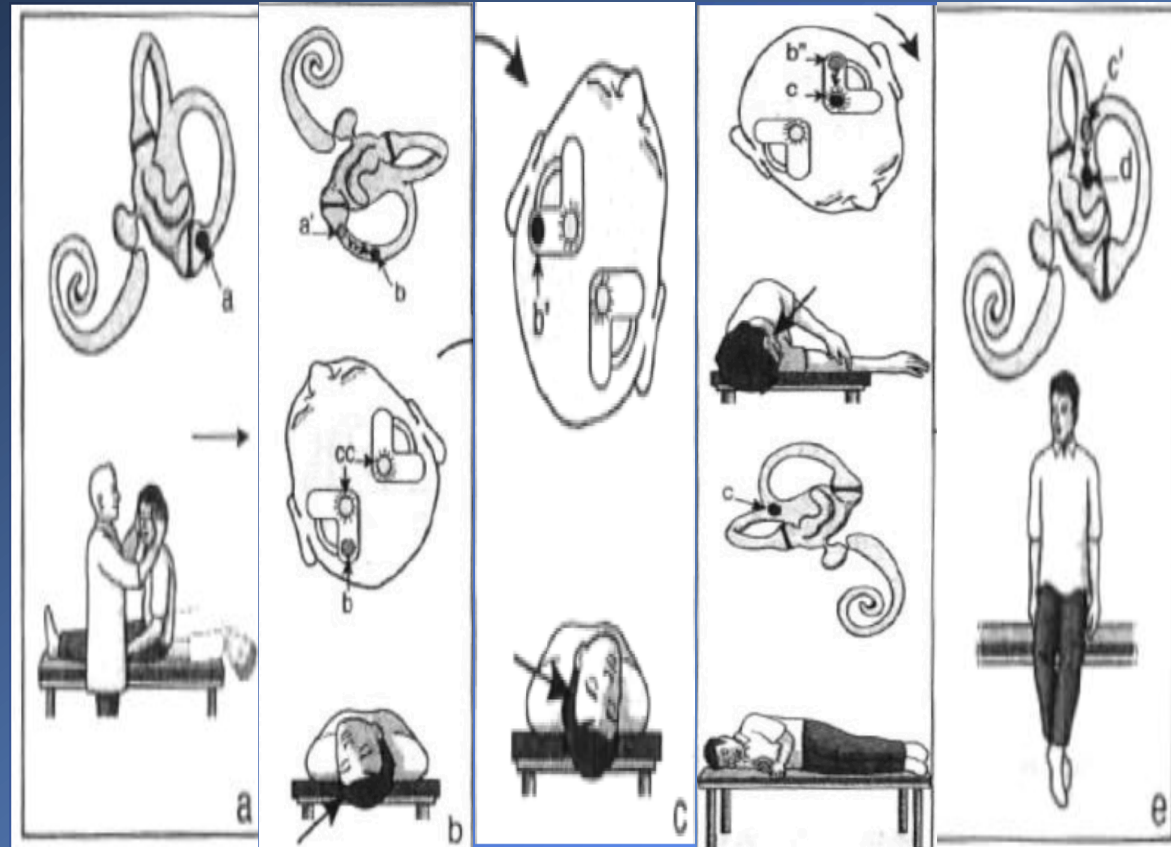


Left Ear



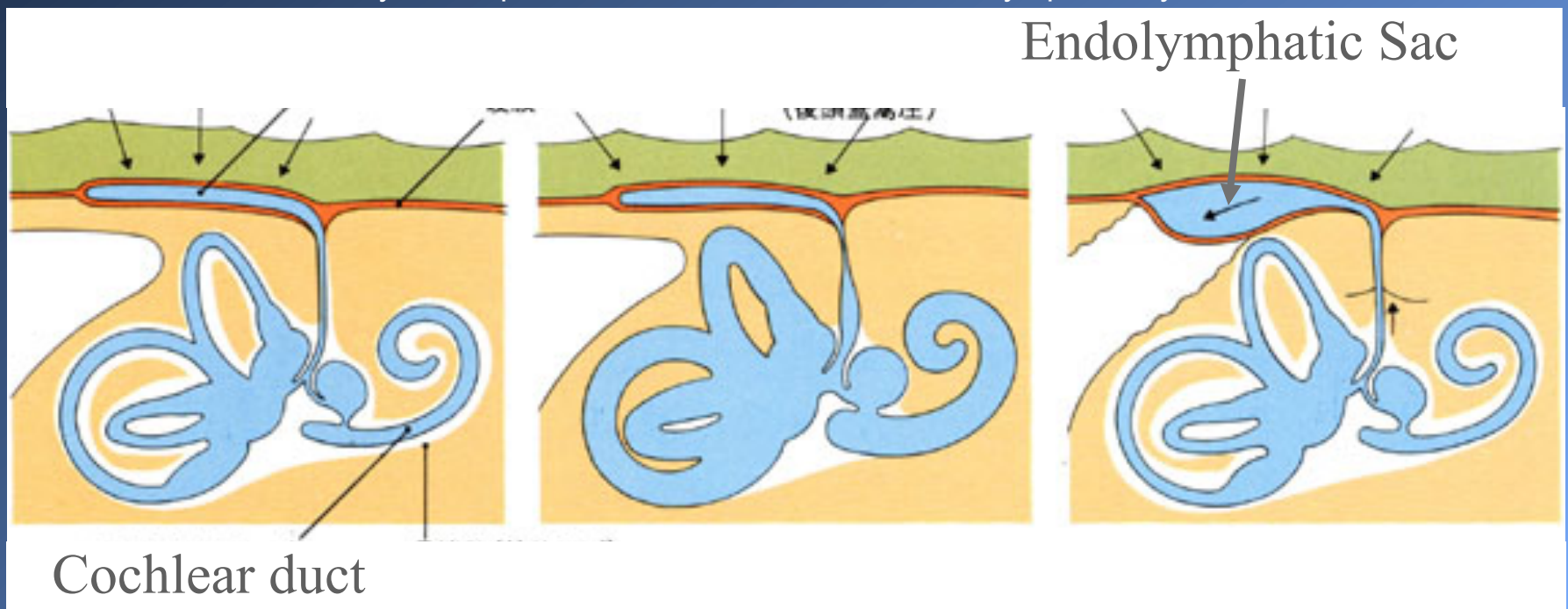
Treatment BPPV

- BPPV posterior canal : **Epley maneuvers**.
- Aim of the treatment is to move the debris (otoconia) out of the affected semicircular canal back into the vestibule.
- **Epley maneuvers:**
 - Placement of the head into the Dix-Hallpike position
 - there is a 180-degree roll of the head to the position in which the offending ear is up.
 - patient is then brought to the sitting upright position.



Meniere's disease

- **Idiopathic** endolymphatic hydrops
- symptoms:
 - Fluctuating hearing loss (**low** frequency first)
 - Episodic vertigo (usually spinning sensation; lasts 20 minutes - 5hours)
 - Tinnitus (usually low-tone roaring)
 - Aural fullness
- Due to increased hydraulic pressure within the inner ear endolymphatic system



Meniere's disease

■ Treatments:

□ Decrease intake of CATS:

- C: chocolate
- A: alcohol
- T: tea
- S: salts

□ Medical treatments (diuretics, trans-tympanic injection)

□ Surgeries

Vestibular Neuritis

- Viral infection of vestibular organ
- Affect all ages
- patient presents acutely with
 - Spontaneous eye movement (nystagmus) ,
 - Vertigo
 - Nausea & vomiting
 - Patient is fully awake
- Patient requires only symptomatic treatment
- Neurological origin (stroke....) Should be eliminated.
- Recovery from vestibular neuritis depend on the age of the patient

Para-clinique

- Audiogramme
- VNG
- v-HIT
- CT Scan
- MRI

Thank you

