

Typical findings of peripheral vestibular disorders



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Korean Neurological Association Assembly

VIDEO ROUND

: Typical Findings of Peripheral Vestibular Disorders

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1

Principles of the Vestibular Eye Movements

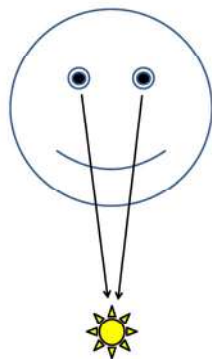
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Typical Findings of Benign Paroxysmal Positional Vertigo

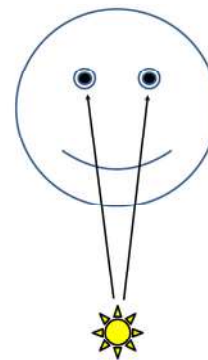
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Typical Findings of Unilateral Peripheral Vestibulopathy

"보다"?

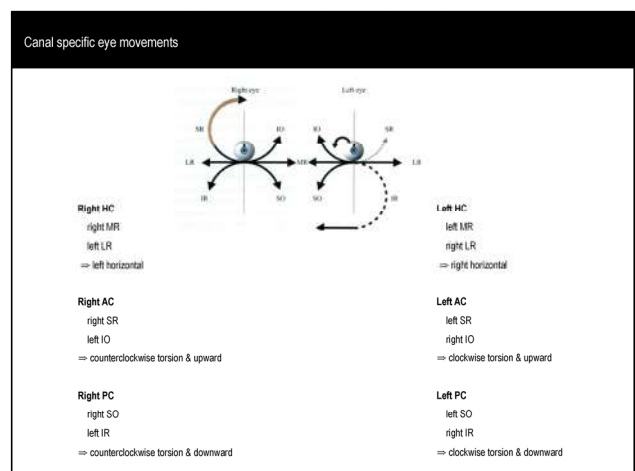
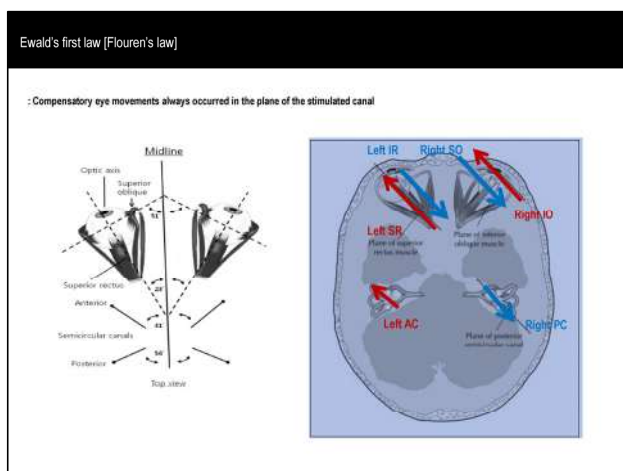
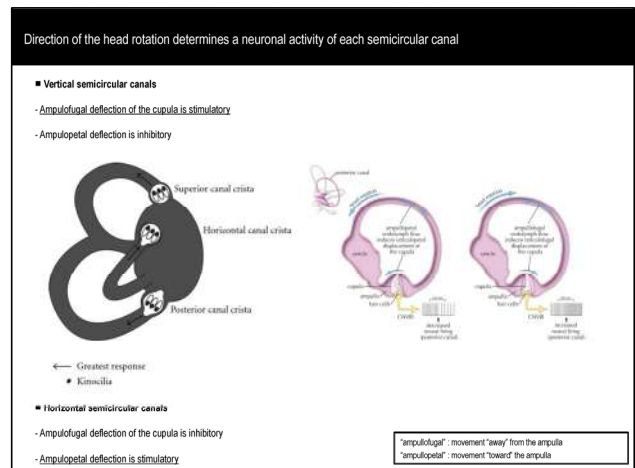
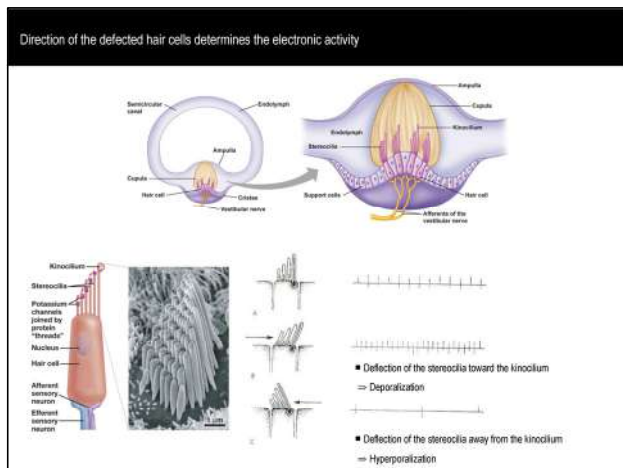
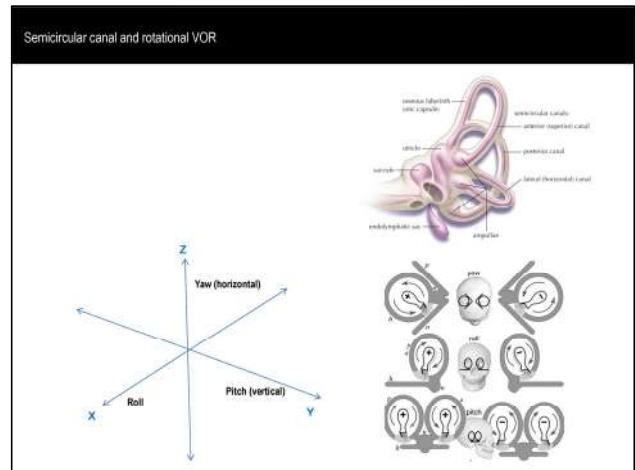
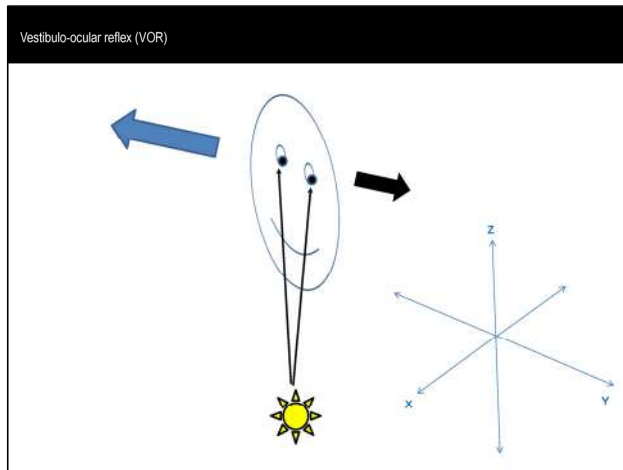


"보다" : Stable visual fixation



- For stable fixation in this unstable world,
- Smooth pursuit
- Vestibulo-ocular reflex






Ewald's second and third laws

■ **Ewald's second law**
When the horizontal canal was stimulated, ampulopetal flow (stimulatory) produced a better response than did ampulofugal flow (inhibitory)

■ **Ewald's third law**
When the anterior and posterior canals were stimulated, ampulofugal flow (stimulatory) produced a better response than did ampulopetal flow (inhibitory)




Stimulatory response >> Inhibitory response

J. Richard Ewald, 1855-1921

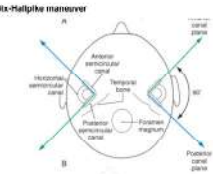
Canal specific eye movements = slow phase component of VOR
Nystagmus = quick phase

	Right	Left
HC		
AC		
PC		

Posterior canal BPPV

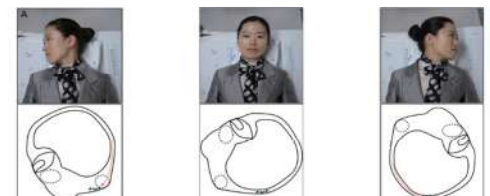


■ **Dix-Hallpike maneuver**



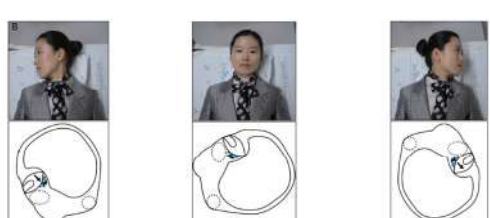
Slow phase
Fast phase

Horizontal Canal BPPV 1 right canalolithiasis



Fast phase <-- >> Fast phase


Horizontal canal BPPV 2 right cupulolithiasis



Fast phase <-- >> Fast phase

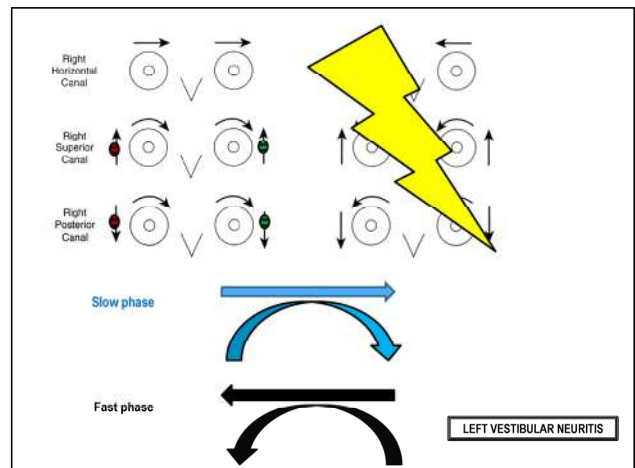
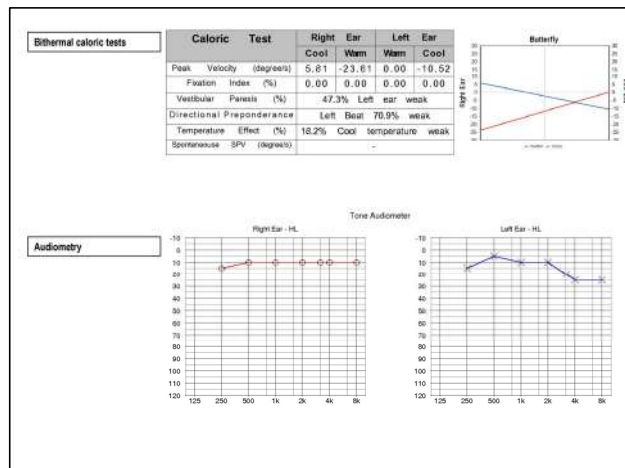
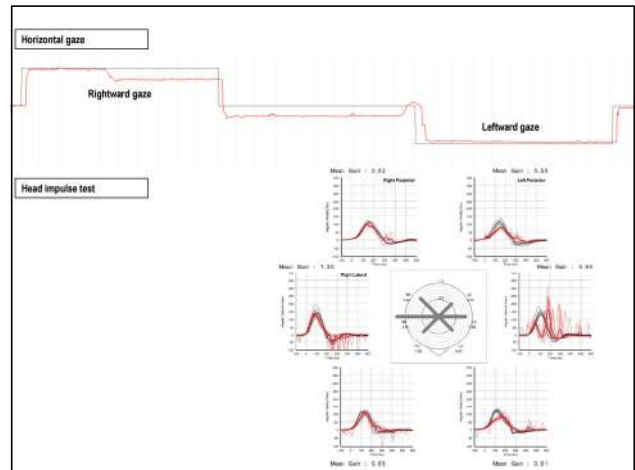
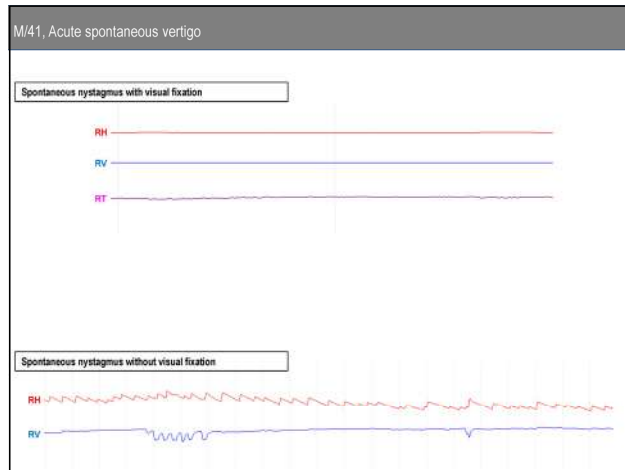
	Lateration of the lesion side of HC-BPPV	
	Canalolithiasis nystagmus	Cupulolithiasis nystagmus
Intensity of nystagmus (Ewald's second law)	Stronger side	Weaker side
Lying-down nystagmus (lifting to supine position)	Usually contralateral	Usually ipsilateral
Head-bending nystagmus (bending the head forward)	Usually ipsilateral	Usually contralateral
Reversal of initial nystagmus	Possibly occurs ipsilaterally*	Uncommon
Null point (during head turning, 10-20°)	Uncommon,** but laterality is uncertain	Usually present on lesion side

*The maximal slow phase velocity of the initial geotropic nystagmus is usually greater than 100°/second.



■ **Canalolithiasis**
Delayed onset
Short duration
Fatigue

■ **Cupulolithiasis**
Typically not delayed onset
Long duration
Rare fatigue



"갑자기 빙빙 돌면서 어지럽고 메스꺼워요." : AVS (Acute Vestibular Syndrome)

Spontaneous nystagmus	Not compatible with the typical findings of peripheral vestibulopathy
Gaze-evoked nystagmus	Present
Head impulse tests	Normal, or Not compatible with the typical findings of peripheral vestibulopathy
Skew deviation	Present
Body balance	Impaired
Other focal neurologic deficit	Present

→ Vertigo from brainstem or cerebellar origin

Peripheral nystagmus : horizontal + torsional (+ vertical), following Alexander's law, suppressed by visual fixation

감사합니다