

## Abnormal Eye Movements Associated with Unilateral Loss of Vestibular Function



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**A**CUTE UNILATERAL LOSS OF PERIPHERAL VESTIBULAR FUNCTION CAUSES spontaneous nystagmus that is horizontal and torsional, with slow phases directed toward the abnormal ear. The nystagmus results from an imbalance in tonic activity between the two vestibular nerves. Initially, nystagmus is present during visual fixation (Video Clip 1), but after several days, visual mechanisms suppress the nystagmus and it is evident only if fixation is eliminated. After several weeks, adaptation leads to a rebalancing of central vestibular tone, and spontaneous nystagmus resolves. In the chronic state, the vestibular deficit is observed only when the labyrinth is activated with head motion. Horizontal head shaking causes an asymmetric “storage” of vestibular signals in the brain, resulting in transient nystagmus when the head shaking ends. The head-thrust test assesses the vestibulo-ocular reflex (Video Clip 2), which normally keeps the eyes still during head movement. The response to this test also remains chronically abnormal with the loss of peripheral vestibular function, as evidenced by corrective eye movements when the head is rotated toward the abnormal ear.

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