

Vestibular Disease in Dogs and Cats

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Vestibular disease is a common and oftentimes dramatic neurological condition. Knowing how aggressive to get with diagnostic testing can be a little challenging – this decision hinges on making a good differential diagnosis list. To make a differential diagnosis list, one must be able to determine whether the signs being displayed are most consistent with central or peripheral disease. Furthermore, the history plays a big role in narrowing down the potential diagnoses.

Central Vestibular Disease is due to a lesion in the medulla or cerebellum. The following are clinical features which make central disease more likely than peripheral disease:

- Long-tract signs (paresis/CP deficits)
- Vertical nystagmus (but the nystagmus could be horizontal or rotary)
- Dysconjugate nystagmus (eyes moving in different directions)
- Cranial nerve signs other than facial palsy

If the signs came on acutely, a vascular accident or head trauma are more likely. These differentials are even more likely if there is some degree of spontaneous improvement over 48 hours. If the signs have been progressive for more than 24 hours, one would have more suspicion for neoplasia, GME, infectious encephalitis, etc. With all of these conditions, spontaneous improvement would be very unlikely.

Peripheral Vestibular Disease is due to a lesion in the semicircular canals or eighth cranial nerve. Animals with this type of lesion typically have *either horizontal or rotary nystagmus*, but not vertical nystagmus. The nystagmus may be only positional in the early phase of the disease or during recovery from the disease. Sometimes facial palsy and/or Horner's syndrome occur concurrently; however, there are *usually no hemiparesis or CP deficits* with peripheral vestibular disease. The most common acute peripheral vestibular condition is idiopathic benign vestibular disease, or "old dog vestibular disease." The most common chronic/progressive peripheral vestibular condition is otitis interna.

	Peripheral	Central
Nystagmus Direction	horizontal or rotary	horizontal, rotary or vertical
Nystagmus – difference between eyes	conjugate	conjugate or dysconjugate
CP deficits/ hemiparesis	no	maybe
Other cranial nerves signs	maybe (facial palsy)	maybe

	Peripheral	Central
Non-progressive	Idiopathic benign vestibular disease	Vascular accident (eg. Cerebellar infarct), trauma
Progressive	Otitis interna	Neoplasia, GME, infectious encephalitis, etc.

Diagnostic work-up for vestibular disease often entails MRI and CSF analysis. The need for this advanced testing, however, should be determined based on the clinical scenario. Not every dog with the history and clinical signs consistent with idiopathic benign vestibular disease needs a full CNS work-up. If the signs indicate a central lesion, or if there is progression of the signs, however, further work-up is probably indicated.

It is important to keep in mind that *the severity of the vestibular signs does not necessarily correlate with the severity of the disease*. Oftentimes, dogs with idiopathic benign vestibular disease or head trauma present with severe nystagmus, rolling, etc., but are significantly better within days if treated supportively and with appropriate sedation/antiemetics. Conversely, mild vestibular signs can be the first sign of a condition that is ultimately life-threatening.