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### Did you know?

The [Animal Emergency & Referral Center of West Houston](#) is now open 24-hours a day for Emergency and Critical Care! Please call before referring.

## Vestibular Disease

By Jennifer Clegg, DVM

The body's positioning and perception of orientation relative to the ground is controlled by the vestibular apparatus. The vestibular apparatus informs the eyes and extremities about how to move in accordance to the body's location/orientation.

Without information from this apparatus people and pets would be unable to run, walk, or right themselves. The vestibular apparatus is located in the middle ear and the vestibular portion of cranial nerve 8 carries this signal to the brain for interpretation.

When a pet has a disturbance in any portion of the vestibular system, associated nerves or brain several clinical signs can be seen. Signs typically including ataxia, nausea/motion sickness, nystagmus, walking in circles, head tilt, and falling.

There are a number of diseases which can affect the vestibular system and generally they are classified anatomically into either peripheral, central or idiopathic form. Central lesions are found within the brain and peripheral lesions are found outside of the brain. In general peripheral lesions carry a better prognosis for recovery.

Sometimes it can be challenging to determine between central and peripheral lesions but there are some subtle differences in clinical signs. By determining the direction of nystagmus this can sometimes help distinguish between central and peripheral lesions. Horizontal and rotatory nystagmus can be seen with disease anywhere within the vestibular system and are not specific for peripheral disease but are compatible with it.

Vertical and positional nystagmus are almost exclusively seen with central vestibular diseases. The best way to determine if positional nystagmus is present is to place the patient on their back. If a patient's nystagmus changes direction while placed on their back then positional nystagmus is present. Additional cranial nerve deficits, proprioceptive deficits and motor deficits are consistent with central lesions. When Horner's syndrome is seen in combination with vestibular disease and facial nerve disease, the location must be in the peripheral vestibular system.

Peripheral vestibular disease is usually caused by an inner ear infection but otitis interna may also occur secondary to trauma, migration of foreign bodies, polyps and neoplasia. Sometimes imaging (X-rays, CAT scan or MRI) is needed to make this diagnosis.



# Vestibular Disease Cont...



Inner and middle ear infections can sometimes be very difficult to treat and clear. Most pets need to stay on systemic antibiotics for many weeks to clear a inner ear infection. Antibiotics should be administered for 4-6 weeks and should be bactericidal and have good penetration into bone. An antibiotic choice is best chosen based on cultures. Empirically either enrofloxacin or a cephalosporin combined with a sulfa drug has good penetration to the area of interest.

Central lesions of the brain can include masses, infection, and vascular accidents aka "stroke." Although common in people, vascular accidents aka "strokes" are a rare cause of vestibular disease in pets. Imaging of the brain by either a CAT scan or MRI is the best way to look for lesions in the brain. Spinal fluid analysis is needed to diagnose most infectious or inflammatory processes affecting brain tissue.

Pets that are diagnosed with masses in the brain have varying treatment options including administering steroids to brain surgery. Steroids can be a palliative treatment to reduce inflammation and provide anti-tumor effects.

Vascular accidents can include a small area of bleeding in the brain, a small blood vessel tumor interfering with circulation, a temporary blood vessel spasm, or even an area of inflammation which alters blood flow. The end result is still the same in that an area of the brain gets deprived of circulation and therefore oxygen, the neurons can be injured or killed and function

can be lost. Depending on the location of damage the functional loss can look different.

There are several conditions and circumstances that can increase the risk for vascular disturbances including Cushing's disease, kidney disease, heartworm disease and the drug phenylpropanolamine. Pets that are diagnosed with vascular diseases/accidents usually require time and supportive care to recover. Brain oxygenation should be maximized and oxygen supplementation may be needed. Blood pressure and blood clotting times should be monitored and corrected as needed. Further specific treatments are considered experimental. The drug amlodipine which is used to treat systemic hypertension has shown to be protective to neurologic tissues when administered in the first six hours after the event. In human medicine low doses of aspirin have proven to be protective against stroke recurrence but research in the animal field is lacking.

The degree and speed of recovery depend on several factors including the size of the brain area involved, location of the brain area involved, cause of the vascular accident, and progression of the clinical signs after the initial event. Recovery

can take days to months and owners should be prepared to need special care at home including help with mobility.

Idiopathic vestibular disease is commonly referred to old dog vestibular disease; this condition can also occur in cats although it is less commonly seen in felines. Old dog vestibular disease is seen in older pets as the name would suggest. When associated with the idiopathic form clinical signs usually come on very quickly and resolve quickly as well. Typically improvement is seen within 72 hours of the onset and complete resolution is seen by 14 days. Some patients will have a residual head tilt and if this persists longer than 6 months it is likely to be permanent. There are no treatments which will hasten the recovery from idiopathic vestibular disease. While waiting for improvement most patients do benefit from treatment for nausea (Cerenia

1 mg/kg q 24h) and possibly supportive care including IV fluids if the pet is not eating or drinking. Typically most patients are placed on oral Meclizine as well.

In general pets should be allowed time to show clinical improvements as many will respond well to time alone especially when associated with the idiopathic form. Prognosis for central vestibular disease is typically more guarded and generally requires more specially tailored treatments as determined by advanced testing. While waiting for improvement some pets will require hospitalization and others just good nursing care at home. Diagnostic imaging is required in order to obtain a definitive diagnosis and can sometimes make a great difference in a patient's short and long term prognosis.

Beginning in November the Animal Emergency & Referral Center of West Houston in Conjunction with Eye Care for Animals will begin offering board certified ophthalmology services. Additional information will be sent to you regarding this new service and the preferred referral process.

If you have any questions before then please call and speak with Dr. McCauley at 832-593-8387 or email your questions to [aecwh.aecwh@hoffice.net](mailto:aecwh.aecwh@hoffice.net).

If you have a patient that needs the services of a board certified surgeon, please call 832-593-8387. Our staff will help coordinate these services with Dr. Nancy Leveque, DACVS.

Medical records should be emailed to [aecwh@yahoo.com](mailto:aecwh@yahoo.com) or faxed to 832-593-8387. If possible, email digital radiographs in DICOM format.

## STAFF BIOGRAPHIES

### Dr. Victoria Kuzara Emergency Doctor

Dr. Kuzara is a native of Western New York and is excited to now be practicing veterinary medicine in Texas! She graduated from Tufts Cummings School of Veterinary Medicine in 2010. She then went on to pursue a rotating internship in small animal medicine and surgery at the Veterinary Specialty and Emergency Service in Rochester, New York. Dr. Kuzara has always had an interest in Emergency medicine and has been a member of VECCS since veterinary school. She also has a special interest in Ophthalmology.

In her free time, she enjoys running, leisure horse-back riding and indoor rock-climbing, as well as spending time with her rescue dog, "Kramer".

### Dr. Rachel Brown Emergency Doctor

Dr. Brown graduated with her veterinary degree from Kansas State University in 2010. She practiced emergency medicine in Tulsa, Oklahoma for over 1 year before moving to Houston. Emergency medicine is one of her passions, and she is happy to be practicing in Houston.

In her time away from work, Dr. Brown can be found outdoors biking, running, walking with her trusty sidekick (Dante - a corgi), or exploring new restaurants.

## Xylitol Toxicity

By Tiffany Rowland

To better understand Xylitol toxicosis it is best to know the facts about Xylitol. Xylitol is a sugar alcohol used in baking goods, human health products, pharmaceuticals, many sugar-free chewing gums, some breath mints, and candies. After the dog ingests a product containing Xylitol, it can cause a sudden release of insulin which in turn causes the dogs' glucose level to significantly drop. The Xylitol also will cause elevated liver enzymes and in turn causes acute liver failure.

It is very important once a dog has ingested Xylitol to have that dog seen by a veterinarian and have the dog started on supportive therapy. When a dog that has ingested Xylitol comes into the hospital some of the signs exhibited may include:

- Weakness and lethargy
- Vomiting
- Ataxia
- Seizures
- Arrhythmia
- Diarrhea, and
- Icterus.

At our hospital, vomiting is induced with Apomorphine at 0.03mg/kg IV to help prevent

any further Xylitol absorption. Giving the dog activated charcoal is not usually given because it does not bind to Xylitol. Blood work will also be performed to screen for overall organ and function and screen for hypoglycemia. Patients are placed on IV fluids that contain dextrose. Anzemet, Famotidine, Ampicillin, Metronidazole, and Acetylcysteine are sometimes used depending on the severity of the dogs' clinical signs and laboratory findings.

Due to the fact that Xylitol can cause acute liver failure, as a technician, we would monitor for any signs of disseminated intravascular coagulation (DIC). The visual signs a technician can watch for include petechial bruising (small pinpoint bruising) and ecchymoses bruising (larger bruising). These types of bruising will appear on the dogs' skin or on the dogs' gums.

Because the effects of Xylitol toxicity can be delayed, our hospital recommends hospitalization for a minimum of 48 hours. If after 48 hours of hospitalized care patients are no longer showing clinical signs and blood work is normal the patient is discharged from the hospital.



### Miss a Newsletter?

You can download and read all past issues on our website at [www.aecwh.com](http://www.aecwh.com)

You can also request to be added to our electronic mailing list by sending an email to [newsletter.aecwh@hotoffice.net](mailto:newsletter.aecwh@hotoffice.net)

Please include your name, position and clinic at which you work.



Use your smart-phone QT reader to scan the above code to visit the rDVM page on our website.

## Interested in CE for Your Staff?

As part of our ongoing commitment to veterinary education, the Animal Emergency Center of West Houston conducts [RACE Approved](#). Continuing Education courses for the local veterinary community. If you are interested, please contact us at [aecwh@yahoo.com](mailto:aecwh@yahoo.com) or visit our website at [http://www.aecwh.com/CE\\_Opportunities.html](http://www.aecwh.com/CE_Opportunities.html) so we can coordinate a time that works for you to provide your staff with Continuing Education in one of the following areas:

- The Art of Handling Emergencies
- CPR
- Blood Draw & IV Catheter Wetlab
- Radiology and Ultrasound Rounds
- Discussing Finances with Clients



## Friends of Moose

On January 1, 2008, Moose, a seven-year-old male Rottweiler mix, rescued at 6 months, was euthanized at the Texas A & M Small Animal Clinic in College Station, Texas.

Moose's owner established a nonprofit organization, Friends of Moose, to financially assist pet owners, who have fallen on hard times, seeking emergency treatment for their animal. One by one, friends have joined in to assist.

The Animal Emergency & Referral Center of West Houston is working closely with Friends of Moose to help others in our community.

To see more on some of the pets we've helped, "like" us on Facebook ([www.facebook.com/aecwh](http://www.facebook.com/aecwh)).

If you would like to help, please visit the Friends of Moose website ([www.friendsofmoose.org](http://www.friendsofmoose.org)) to make a donation.



The Animal Emergency & Referral Center of West Houston has put together an easy-to-use **CRI Calculator** and we are offering it to you for use in your practice. The cost of this Excel Workbook is **\$25.00** and all proceeds will benefit [Friends of Moose](#), a non-profit organization which offers financial assistance to those in need of emergency services.

Visit our website at [www.aercwh.com](http://www.aercwh.com) to request your copy today.

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