What is Myasthenia Gravis?
Myasthenia gravis (MG) is a disease that alters the communication of muscles and nerves. MG can affect dogs and occasionally cats. There are two forms of this disease, congenital and acquired.

- Congenital Myasthenia gravis occurs when the animal is born with insufficient Acetylcholine (ACh) receptors. The lack of ACh receptors causes the muscles inability to contract appropriately.

- Acquired Myasthenia gravis is when there is no obvious cause for the disease; this is also called Idiopathic Myasthenia gravis. With acquired Myasthenia gravis there is potential for spontaneous recovery in 6-18 months. The acquired form of this disease can also be correlated with an array of tumors such as a thymoma, cholangiosarcoma, or osteosarcoma.

What clinical signs are seen with Myasthenia Gravis?
Often the most representative sign of MG is the classic exercise-induced muscle weakness. This weakness is usually more pronounced in the hind limbs with a short strided and shuffling gait. Regurgitation and facial drooping are also common symptoms. Regurgitation occurs because of decreased motility and dilation of the esophagus resulting in megaesophagus. In some cases megaesophagus may be the only manifestation of the disease. Unfortunately the regurgitation can lead to serious complications such as aspiration pneumonia.

How is Myasthenia Gravis diagnosed?
A definitive diagnosis of congenital Myasthenia gravis requires a muscle biopsy indicating a lack of ACh receptors. Acquired Myasthenia gravis is diagnosed with an ACh antibody titer which measures the amount of ACh receptors in the blood. A Tensilon test is also used to help diagnose MG. The Tensilon test is an intravenous injection of edrophonium chloride, a significant increase in muscle strength immediately after administration is considered a positive result. Unfortunately false positive or negative results can take place with the Tensilon test. Radiographs are recommended to determine the presence of megaesophagus.
How is Myasthenia Gravis treated?
Treatment of acquired Myasthenia gravis may depend on eliminating any underlying disease. If MG is the result of a tumor, surgical removal of the tumor may remedy the clinical symptoms. If the Myasthenia gravis is either idiopathic or congenital then a medication called Pyridostigmine (Mestinon) can be used. Side effects of Mestinon include diarrhea, weakness, salivation, and excessive urination and defecation. Unfortunately these are also symptoms of the disease itself; therefore the side effects may be from either too little or too much of the medication. Due to the nature of the side effects, Mestinon usually requires frequent dose adjustments. In addition immunosuppressive therapy with a corticosteroid may be necessary. Often basic treatment for megaesophagus is needed which includes feeding in an elevated position, soft or liquid diet and Metoclopramide.

What is the prognosis for Myasthenia Gravis?
The prognosis of MG depends on many different factors. The weakness may resolve, however the megaesophagus may not improve therefore aspiration pneumonia is usually a life-long concern. Treatment of congenital MG can be challenging and will depend on the progression of the disease. Due to the possible complicating factors including severe weakness, respiratory compromise, aspiration pneumonia, or laryngeal paralysis, recovery can be very difficult. For some animals with idiopathic Myasthenia gravis the prognosis is good and can lead to occasional spontaneous remission, although recurrences are still possible.
Traveling with your pet can be fun and relaxing. Or, it can be a disaster. Here are a few things to remember when getting your furry friend ready for the road:

**Safety**
- The ability to confine your pet to one area of your vehicle could save their life.

**Comfort**
- Is my pet comfortable in a harness? Would they do better in a crate? Should I get a barrier to keep them in one spot? Does the harness or carrier allow for some movement of their limbs?
- Ventilation: Do they have appropriate ventilation? Is the area able to be heated or cooled, dependent on the outside weather?
- Positioning in the vehicle: Airbags can pose a threat to pets who ride in the front seat.

A pet that is loose in a vehicle is at an increased risk for injury in a crash, just like a person who is not using a seatbelt.

**Travel supplies**
- All pets need a few basic things: food, water and shelter.
- *Food & Water*: Bring enough food for the duration of your trip and a little extra in case of emergency. Bring two bowls (collapsible or otherwise) and offer food and water breaks as needed.
- When traveling your pet will also need to be wearing their collar/tags and any other accessories that are routinely used (leash, harness) toys or treats should be packed as well, for safe entertainment.
- Any medications that your pet may need.

**Paperwork**
- When traveling with your pet, it is a good idea to bring along copies of vaccinations and any pertinent medical history. For example: recent blood work, history of a recent or current 4dx can help quicken a diagnosis and also may prevent tests needing to be repeated in an emergency.

*Please note: Most emergency hospitals will not have access to your regular veterinarian’s records, unless they are able to get in touch with them during their normal business hours.*

- It is also a good idea to have a valid rabies license and current certification of rabies vaccine administration.
- If you have pet insurance, bringing along your policy may also be helpful.
Plan your route

- Knowing where the nearest emergency hospital can help. Check in with your final destination for places nearby where you will be staying and also along your route for hospitals that you may pass.
Cranial Cruciate Ligament Disease

Written by: Jaime Green, VMD, DACVS (Surgery Department)

Anatomy and Disease:
The cranial cruciate ligament (CrCL) is one of the most important stabilizers of the canine knee (stifle) joint. The CrCL is called the anterior cruciate ligament (ACL) in humans. The “shock absorbing” meniscus is another important part of the knee joint. It can be damaged along with the CrCL, acting as an additional source of pain.

Rupture of the CrCL is the most common cause for hind limb lameness, pain, and knee arthritis in dogs. Ligament rupture can be partial or complete and is typically the result of degeneration over time. Many factors can contribute to ligament disease in addition to degeneration, such as breed, body condition, body size, and obesity.

Breeds:
Cranial cruciate ligament disease can occur in any dog. However, it is most common in larger dog breeds. Since it is a degenerative condition, dogs that have one knee affected are at risk for developing a problem in their other knee in the future.

Signs and Symptoms:
Dogs can show a variety of signs, depending on the degree and chronicity of the disease. Most will exhibit problems related to pain and weakness in their back leg. This could include decreased activity, trouble standing up, limping, and decreased muscle mass.

Diagnostics:
Veterinarians suspect CrCL disease through history, specific findings on physical examination like abnormal knee movement, and radiographs (x-rays).

Although the actual ligament cannot be visualized on x-rays, the images are used to look for joint effusion, rule out other disease (such as cancer), plan for surgery, and evaluate for arthritis.

Treatments:
There are many treatment options. In general, surgery is the best treatment because it alleviates pain and slows down the progression of osteoarthritis. Most surgical procedures aim to stabilize the knee but do not actually repair the ligament itself. During surgery, the meniscus is also evaluated for injury.

Many surgical procedures are available. The different surgical techniques can be divided into two groups. The osteotomy group requires a bone cut and includes procedures such as TPLO, TTA, and TTA2. These procedures stabilize the knee by changing the joint biomechanics. Most active dogs have with one of these techniques.

Figure 1. Illustration of the anatomy of the dog’s knee: **Blue = cranial cruciate ligament; Red = meniscus; Green = caudal cruciate**; the insert shows a ruptured cranial cruciate ligament (also note that the shinbone is displaced forward and is crushing the meniscus)
The suture group includes a common procedure called extra-capsular suture stabilization (“lateral suture”). This technique places suture material around the knee to mimic the CrCL. The lateral suture is usually indicated in less active dogs. You and your Veterinarian/Veterinary Surgeon will decide together what is best for you and your dog.

**Postoperative care:**
Postoperative care at home is very important. Regardless of the procedure, dogs typically need exercise restriction for 8-12 weeks. Also, physical rehabilitation is recommended to help optimize your dog’s outcome. Similar to people, part of rehabilitation involves at home exercises in addition to regular sessions at a rehabilitation facility such as MVMC.

**Prognosis and Long-term Treatment:**
The long-term prognosis for dogs undergoing surgery for cranial cruciate ligament disease is good. Since arthritis can progress regardless of treatment type, implementing lifestyle changes will help to give the best possible outcome. This includes weight loss and low-impact exercise (like swimming). Some dogs can also benefit from nutraceuticals (adequan glucosamine/chondroitin, fish oil), prescription diets, and/or appropriate medication during times of a “flare-up”.

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**MVMC WELCOMES**

**DR. DANI RONDEAU (INTERNAL MEDICINE)**

Dani Rondeau, DVM, DACVIM is a native of California and grew up in northern Virginia. She studied fine arts as an undergraduate, and earned a BFA from Virginia Commonwealth University. She discovered her love of science and veterinary medicine while an undergraduate, and she went on to pursue a career in Veterinary Medicine, graduating from the Virginia-Maryland Regional College of Veterinary Medicine in 2008. After completing a rotating internship in Small Animal Medicine and Surgery at Garden State Veterinary Specialists in New Jersey, she pursued a three-year residency in Small Animal Internal Medicine at the University of Pennsylvania and received board certification from the American College of Veterinary Internal Medicine in 2012. She worked at a specialty practice in Williston, Vermont before joining Maine Veterinary Medical Center to continue practicing internal medicine. Dr. Rondeau has participated in several clinical research projects, and has published in the Journal of the American Veterinary Medical Association and the Journal of Veterinary Emergency and Critical Care.

Her professional interests include gastroenterology, nephrology, urology, autoimmune disease, infectious disease, endoscopy, abdominal ultrasound, endocrine disease, hypertension, respiratory disease, and many other aspects of internal medicine. She is particularly fond of older cats. In her free time, Dr. Rondeau enjoys spending time in Vermont with her husband, Tom, and their two cats, Fox and Phoenix.

“Boober” Parker
Heartbreaker
Simple & Healthy Dog Treats

**Ingredients:**
- Sweet potatoes (and/or Zucchini)

**Directions:**
Wash the sweet potatoes and slice 1/4 to 3/8 inch thick. Place slices on a parchment lined baking sheet and place in the oven at 200 degrees. Turn the slices after 1 hour and bake another hour. Slices should no longer be moist but still pliable. Continue turning and baking until desired consistency is reached. Store in an air tight container for a week or refrigerate for extended use.

**ENJOY!**
In 1988, Dr. Alan Potthoff became the first board certified veterinary specialist in private practice in the state of Maine. Dr. Potthoff opened the Animal Neurological Clinic in Portland as a referral hospital dedicated to serving pets with neurological conditions. During the next 20 years, the facility expanded and included Maine’s first dedicated pet CT scanner in 1997 and an MRI in 2004.

In December 2007 the Animal Neurological Clinic was re-named the Maine Veterinary Referral Center and moved to Scarborough to a newly constructed 15,000 sq foot facility. Both the CT and MRI machines were replaced and new departments were added providing neurology/neurosurgery, internal medicine, orthopedic/soft tissue surgery, rehabilitation and 24 hour emergency and intensive care. We have recently changed our name to Maine Veterinary Medical Center.

Maine Veterinary Medical Center employs several veterinarians, six of which are board certified by Colleges of Internal Medicine, Critical Care and Surgery. We have over 20 full and part time licensed veterinary technicians, and many technician assistants and client specialists plus a management support team.