



U of M Horse Newsletter

Providing research-based information to Minnesota Horse Owners

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EXTENSION

Tying-Up in Horses

By: Stephanie Valberg, DVM, U of M

Tying-up is the most common muscle problem in horses. Clinical signs include sweating, stiffness and reluctance to move forward. Specific causes for tying-up have been identified at the University of Minnesota.

Sporadic tying-up is seen in horses that have always exercised normally, but suddenly exhibit signs of tying-up. It can be due to: exercise in excess of training level, exhaustive exercise, respiratory infections, lack of dietary selenium/vitamin E, or lack of dietary electrolytes and minerals. These horses usually recover with rest, adjustment of the diet treatment, and gradual return to exercise.

Other horses have a chronic form of tying-up that stems from a very young age. A thorough investigation into their cause of tying-up is necessary and requires the cooperation of the horse owner/trainer, their veterinarian and often consultation with a medical specialist.

A "work-up" for tying-up involves evaluation of urine and serum electrolytes and minerals, and evaluation of muscle biopsies. These are commonly performed at the U of M Veterinary Medical Clinic. One cause of chronic tying-up in Quarter Horse-related breeds, Draft horses and Warmbloods is a

metabolic defect called polysaccharide storage myopathy (PSSM) and appears to be inherited.

Horses with PSSM store an excess of glycogen in their muscle. Treatment of horses with PSSM involves supplying them with feed that maintains low blood sugar and low blood insulin concentrations (no grain and a fat source such as corn oil or rice bran) combined with regular daily exercise. Over 90% of horses will improve dramatically and return to full athletic performance by following the recommended changes in diet and exercise.

Research indicates another cause of tying-up exists in Arabian, Standardbred and Thoroughbred horses, called recurrent exertional rhabdomyolysis (RER). Muscle stiffness usually occurs when exercise and excitement combine, such as at a horse show or when being held back to a slower pace than they desire. The approach to treating these horses is to minimize excitement and stress, and substitute part of the grain ration with fat supplements containing rice bran.

Specialized diets have been formulated for this purpose by the U of M (www.ReLeve.com). More information is available at <http://academic-server.cvm.umn.edu/neuromuscularlab/>

Ask the Expert

By: Krishona Martinson, PhD, U of M

Q: I have areas of my pasture that remain quite wet for an extended period of time after it rains. Would reed canarygrass work well in these types of areas?

A: Reed canarygrass (see photo) is one of the best species for poorly drained soils and tolerates flooding better than other cool season grasses. Reed canarygrass seed tends to be more expensive and more difficult to establish than other grass species, but is suited



for the situation described. Reed canarygrass can also be invasive, but newer varieties tend to be less invasive. This means it might be difficult to remove reed canarygrass from your pastures once it's established or to keep it from invading native wetlands. Be sure to keep horses out of the wet areas until the area has dried. If the horses are allowed to graze when wet, it can result in soil compaction, destruction of plant material, hoof problems, and other potential injuries.

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Up Coming Events

Equine Center Update

To view the latest Equine Center Newsletter, *Equine Connection*, go to www.cvm.umn.edu/umec/news

Open Clinical Trails

Have you ever wanted to participate in a research trial with your horse (or other pet)? Visit the U of M's Clinic Investigation website at: www.cvm.umn.edu/cic

Fact Sheets Available

The following fact sheets are now available for viewing and purchase on our website:

www/extension.umn.edu/horse

- Common Minnesota Horse Pasture Grass and Legume Species
- The 11 Primary Noxious Weeds of Minnesota
- Care of the Broodmare
- Equine First Aid
- Pasture Management
- Top Ten Things Every Horse Owner Should Know About Nutrition
- Nutrition for Weanlings and Yearlings
- Care of Elderly Horses
- Hoof Care
- Buying and Storing Horse Hay
- NAIS - Equine



MRI Soon Available At The U of M

By: A. McCoy, DVM & T. Severaid, DVM, U of M

The University of Minnesota Veterinary Medical Center (VMC) is looking ahead to some exciting changes. One of these changes is the opening of a newly-expanded imaging center in Fall 2007, to be located on the west end of the current large animal hospital. In addition to computed radiography, ultrasound, nuclear scintigraphy ("bone scanning"), and the existing computed tomography (CT) unit, the expanded imaging center will include a state-of-the-art Magnetic Resonance Imaging (MRI) machine, the strongest magnet available for veterinary use.

MRI uses a magnetic field to image parts of the body. There are a total of six high-field magnets capable of imaging MRIs in North America, but none are in the Midwest. MRI can provide information that cannot be obtained by any other imaging technique. Unlike radiography and CT scans, MRI does not use potentially harmful radiation. Using MRI will allow veterinarians to make diagnoses in horses that were previously difficult or impossible to confirm, enhancing their ability to recommend appropriate treatment options.

MRI has begun to sort out many poorly understood syndromes, such

as those grouped as heel pain or navicular syndrome. MRI is the best imaging tool for evaluating injuries to all joint structures and soft tissue structures such as tendons and ligaments. Chronic lameness that has been localized to a general area, but for which an underlying cause cannot be determined using traditional methods, can often be diagnosed using MRI. MRI can also be used to diagnose diseases of the brain, nasal sinuses, and guttural pouch. It has been invaluable for evaluating pain in the foot previously hidden from diagnostic imaging by the hoof wall.

Photo 1. MRI of Hoof.



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There are no known side-effects of MRI in horses. MRI units do

require that horses are lying down, which means that horses will need to be placed under general anesthesia for the procedure. As with any procedure requiring general anesthesia, there are risks associated with the drugs and with the recovery period. However, VMC board certified anesthesiologists have extensive experience with equine anesthesia and do everything possible to minimize the risks.

The length of time it takes to perform an MRI depends on the body part(s) being examined and the strength of the MRI system used. The average time for the total procedure, including preparation, imaging, and recovery, generally lasts 2-3 hours. At the VMC, MRI exams will be monitored by board-certified radiologists, and the images are interpreted on-site within hours. Fortunately, the VMC has one of the few equine radiologists trained explicitly in this area.

Cost for a high-field MRI exam at the VMC will depend largely on the body part(s) being imaged. The total price, including anesthesia, will likely be close to \$2,000. The use of MRI represents a modest investment, but the diagnostic value of the results cannot be matched by other techniques.

Pasture Seeding Recommendations

By: K. Martinson, PhD, & P. Peterson, PhD, U of M

Fall (August 15 to September 1) is a good time to seed a pasture (usually more rain fall, cooler temperatures, and less weed pressure). There is no single "silver bullet" plant species that is ideal for every horse pasture.

A soil sample will help you determine if a fertilizer is needed prior to planting. Make sure to keep horses off newly seeded pastures until the grasses are well established and have been mowed a few times.

See the fact sheet "Common MN Pasture Species" for additional information.

Example of a Grass Pasture Mix for Heavy (Clay) Soils: Kentucky Bluegrass (8- 10 lb/ac) + Orchardgrass (8-10 lb/ac) + Perennial Ryegrass (3-5 lb/ac) + Timothy (3-5 lb/ac).

Example of a Grass Pasture Mix for Well-Drained or Sandy Soils: Kentucky Bluegrass (8-10 lb) + Orchardgrass (3-5 lb/a) + Timothy (2-3 lb/ac) + Perennial Ryegrass (2-3 lb/ac) + Smooth Bromegrass (2-3

lb/ac) + Crested Wheatgrass (2-3 lb/ac).

Example of a Legume/Grass Pasture Mix for Heavy (Clay) or Wet Soils: Low-alkaloid Reed Canarygrass (6-8 lb/ac) + Timothy (3-5 lb/ac) + Birdsfoot Trefoil (3-5 lb/ac) + Red Clover (2-4 lb/ac).

Example of a Legume/Grass Pasture Mix for Well-Drained or Sandy Soils: Smooth bromegrass (8-10 lb/ac) + Orchardgrass or Ryegrass (3-5 lb/ac) + Alfalfa (3-5 lb/ac) + Red clover (2-3 lb/ac).