U of M Horse Newsletter

Providing research-based information to Minnesota Horse Owners

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University of Minnesota Extension Service

Performance Evaluation

By: Florien Jenner, DVM U of M

Any horse that is performing with its rider or driver, competitively or recreationally is an athlete. The horse is naturally an elite athlete and in order to function as an athlete the horse needs to be sound, breathe efficiently and have a well functioning heart. Although it is relatively easy to diagnose a horse that is limping badly or coughing hard, identifying minor problems, which may cause your horse to be "off", can be a challenge. The U of M Vet Hospital offers performance evaluation of the athletic horse. The use of a high speed treadmill allows us to observe the horse dynamically and is essential in diagnosing respiratory and musculoskeletal problems that arise only during extreme activity. Performance evaluations start with an in depth physical exam to make sure the horse is in shape to run on the treadmill. A thorough lameness work – up is performed to rule out the presence of a subtle lameness as an underlying cause of the poor performance. Then, the horse will undergo a resting heart examination including cardiac auscultation, an electrocardiogram (ECG) and an echocardiogram (ultrasound) to look for murmurs, dysrhythmias, heart contractility and heart valve problems. The upper airway is also first examined at rest. An endoscopic exam allows evaluation of the nasal passages, the pharynx, larynx and trachea for any abnormalities in shape, position or movement. Some upper airway problems, such as severe left laryngeal paralysis (roarer) can be diagnosed at rest, others are better diagnosed during exercise. The horse is trained to run on the treadmill to become familiar with the sensation of the floor moving, most horses do adapt quickly. Once familiar with the treadmill, the horse is fitted with the videoendoscope camera and ECG. The upper airway is videotaped throughout the exercise to allow thorough evaluation of the airway dynamics and the horse is closely monitored for any signs of lameness, which might be evident only at higher speed. The combination of these tests give a good overview of the systems most important to the equine athlete and allows diagnosis of subtle poor performance problems, which would not be possible without observing the horse performing a controlled exercise test on the treadmill.

Ask The Expert

By: Florien Jenner, DVM, U of M

Q: What is osteoarthritis?

A: Osteoarthritis also known as degenerative joint disease (DJD) is a degenerative process affecting the cartilage of a joint. The cartilage breakdown is caused by a variety of factors; age, injury, or over-use. Addressing possible underlying causes like removing chips (cartilage covered bone fragments) from the joint or addressing conformational problems is the first step in the treatment of DJD. Because DJD is a degenerative process, the damage that has occurred to the cartilage cannot be reversed, so treatment relies on therapies designed to reduce inflammation and pain, and normalize the joint environment as best as possible. These medications include both systemic and local forms. Systemic joint medication can be administered orally, intravenously or intramuscularly, while local medications are injected into the affected joint directly. See more information on these therapies (in the form of joint supplements) in the next newsletter.

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Up Coming Events

October 28th.
Equine Reproduction
St. Paul Campus
Contact 612-624-2268.

November 1st, 2005
Horse Pasture Management
Watertown/Mayer HS
5:30 pm to 8:30 pm.
Contact 952-955-0214.

February 11th, 2006 Hands-on Horse Day at the U of M in St. Paul. Contact Jan at 612-624-3434.

February 18th, 2006
Horse Owner Education Day
Winona, MN
9:30 am -3:00 pm
Contact Kristi at
763-767-3837

February 25th, 2006
Horse Owner Education Day
Cambridge, MN
9:30 am -3:30 pm
Contact Kristi at
763-767-3837

March 11th, 2006
Horse Owner Education Day
Cologne, MN
9:30 am - 3:00 pm
Contact Laura at
952-442-4496

March 18th, 2006
Horse Owner Education Day
Fergus Falls, MN
9:30 am - 3:00 pm
Contact Kristi at
763-767-3837

Complications After Colic

By: Erin Malone, DVM, U of M

Most colic episodes will fully resolve with no long lasting consequences. However, if toxins are released into the abdominal cavity or bloodstream, or if colic surgery is required, the horse will be at risk for other problems. Certain bacteria carry toxins. Many of these are found in the gut normally. If the toxin load overwhelms the usual defense mechanisms or if the gut is damaged and lets the toxins leak out, the horse can become ill. These horses may become shocky (poor blood flow causing an elevated heart rate and cool limbs), have reddened or purplish gums or red lines around the teeth, and may seem very depressed. The toxins can cause laminitis, clotting problems, and damage to other organs (ie kidneys). When horses are stressed (eg colic surgery), their immune system can be weakened. Many horses carry organisms that can cause diarrhea, in particular *Salmonella*, but are usually unaffected. When stressed, the immune system can no longer keep these organisms under control and the horse develops diarrhea. This can be a severe complication of colic and can be difficult (and expensive) to treat. Many horses will have diarrhea following intestinal disturbances, so they will be closely monitored for salmonellosis. If a horse has colic surgery, he will also be watched for incisional infections, infections within the abdominal cavity, and motility disturbances. Some horses will get motility problems following small intestinal surgery that can significantly prolong nursing care and hospital stays. Performing surgery also places a horse at risk for developing intestinal adhesions. Adhesions may make the intestines stick to each other or the body wall in abnormal positions. Some adhesions can cause repeated bouts of colic. In general, surgery for large colon problems has a greater success rate than surgery for small intestinal problems. Luckily the odds for both are improving all the time.

Mineral Nutrition

By: Marcia Hathaway, PhD, U of M

Minerals are organic nutrients that are needed in relatively small quantities by the horse, and can be divided into two groups based on the levels required; major (macro) and minor (trace). The major minerals are calcium, phosphorus, magnesium, sodium, chloride, potassium and sulfur. With the exception of sodium and chloride (salt), forages provide most major minerals required by the adult horse. However, mineral content drops dramatically in poor quality forage. The trace minerals needed are iron, zinc, copper, selenium, manganese, iodine, and cobalt. The quantity of minerals in common feedstuffs can vary significantly with soil mineral content, plant species, stage of maturity at harvest, and harvest conditions. Consequently hay and pasture cannot be counted on as an adequate source of trace minerals and since grains are not a good source, trace minerals should be supplemented. Many commercial grain mixes supply adequate trace minerals, but only if the feeding directions are followed precisely. Alternatively, there are commercially available mineral supplements, typically in pellet form that can meet the horse's trace mineral requirements without the extra energy found in a commercial grain mix. The quantity of supplement fed can be adjusted to match the horse's specific requirements. A trace mineral salt block may be used but a disadvantage of trace mineral salt blocks is that the amount of salt consumed per day is quite variable; so one horse might get enough and another may not. Additionally, care should be exercised since the compositions of different trace mineral salt blocks can vary significantly. It is best to insure trace minerals are provided in the daily feeding program. A horse's mineral requirements are based on body weight, age, physiological condition, growth and activity level. That information, as well as the bioavailability of the mineral content of common feedstuffs can be found in the National Research Councils publication, *Nutrient Requirement of Horses* (http://www.nap.edu/books/0309039894/html/R1.html). The current publication was published in 1989, but an updated version is planned for release in late 2005. Basic principles of mineral nutrition for horses include: 1. providing minerals at less than recommended quantities can result in a dietary deficiency whereas providing minerals in excessive quantities can result in toxicity. 2. a horse should have free access to salt. 3. the calcium to phosphorus ratio in the diet should be about 2:1. 4. late gestation, lactating mares and young, rapidly growing horses have a greater requirement for some minerals. (i.e., calcium, phosphorus, and iron).