



U of M Horse Newsletter

Providing research-based information to Minnesota Horse Owners

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Volume 4, Issue 2

February 2008

UNIVERSITY OF MINNESOTA
EXTENSION

MRI Now Available at VMC

By: Travis Saveraid, DVM, U of M

The College of Veterinary Medicine is proud to announce the installation of a new 3T MRI system. The MRI system is the most powerful, advanced MRI in any veterinary hospital in the world.

The finishing modifications for the specially designed equine anesthetic induction and recovery room were completed in January. MRI scanning of equine patients will begin in February 2008. All horses will be under general anesthesia and will be placed on a specially designed, non-magnetic table for the MRI examination.

The MRI system will be able to image the feet and fetlock regions of horses, yielding over 1,000 images per scan. The

system gives unparalleled image resolution of the complex soft tissue and bone structures of a horse's foot. Many of the confounding causes of equine lameness, such as palmar heel pain, can be identified with MRI. The new MRI system is another exciting addition to the College of Veterinary Medicine.

The MRI will cost approximately \$1,600 to examine the feet or lower limbs (both legs are done for comparison purposes and to catch early problems). This does not include anesthesia (cost of \$590) and other charges related to the horse's care. Additional information on MRI can be found in the August 2007 e-Newsletter (www.extension.umn.edu/horse).

Alternative Feed Options

By: Betsy Gilkerson Wieland, U of M

The 2007 drought has left many horse owners looking for quality hay, and considering alternative feedstuffs for their horses. A large portion of a horse's diet should be forage of some sort, and horses eat roughly 2% of their body weight in dry matter each day. Below is a list of common forage alternatives:

1. Hay cubes- Pros- little waste, easily handled and transported, good baled hay extender or replacement. Cons- can be expensive and the horse may tend to over eat.

2. Older hay, if stored properly- Pros- can meet the horse's energy, protein and fiber requirements. Cons- vitamins in the hay can break down with time so vitamin supplementation would be necessary.

3. Beet pulp- Pros- Good source of energy and protein, you can feed 5 to 10 pounds a day. Cons- may need to supplement vitamins and minerals in order to achieve the necessary calcium and phosphorus ratio of 2:1.

4. Complete feeds- Pros- nutrients are balanced, good hay extender (some are meant to be fed with forage and some can substitute for forage). Cons- may not be enough total fiber, can be eaten quickly leaving the horse with "idle" time, needs to be divided up into small meals.

5. Miscellaneous - Occasionally you hear of people feeding straw or corn stalks to horses, these are not recommended for horse feed as they have very little nutritional value and can have adverse affects on horse health. Haylage has been fed to horses, but caution should be exercised to avoid mold and botulism contamination which could be very harmful or deadly.

We've recently been asked if feeding whole roasted soybeans is acceptable. Whole roasted soybean would most likely result in excess protein in the diet and may not be very palatable.

Before feeding an "alternative" feed to your horse, consult your veterinarian and equine nutritionist.

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Up Coming Events

2008 Regional Horse Owner Programs

St. Paul, MN
Session Full
Equine Center
February 2

North Mankato, MN
South Central College
February 9

Morris, MN
UM - Morris Science Bld.
March 1

Bemidji, MN
Northwest Tech. College
March 8

St. Paul, MN
Advanced Program
Equine Center
March 15

On-line Registration Available:
[www.cvm.umn.edu/outreach/](http://www.cvm.umn.edu/outreach/events/horseowner)
[events/horseowner](http://www.cvm.umn.edu/outreach/events/horseowner)

Questions? 888-241-0719

Pasture Management Class

Clearwater Saddle & Tack
Saturday, Feb. 2 at 1:00 pm
Questions?: 763-682-7381

Managing Horse Pastures

Tuesday, Feb. 26 from 6 - 9 pm
Cambridge Int. School
To Register: 763-689-6189

U of M Vet Meet and Greet

Tuesday, Feb. 26 from 7-9 pm
Hamel Community Building
Topics: EHV1 & Eye Care
Questions? 763-479-2932



Research Update: Cribbing

Cribbing is a repetitive behavior where the horse places its upper incisors against a horizontal surface, arches its neck, pulls backwards with its body and may produce a characteristic grunting sound. The digestive process of cribbing horses may differ from horses that do not crib because cribbing horses have lower gastric pH than normal horses, produce less saliva, have slower orocecal transit times and greater incidence of stomach ulcers and particular types of colic than non-cribbing horses.

Cribbing frequency also increases around concentrate meal feeding times. It is not known if this increase

in cribbing behavior is due to the ingestion of the feed itself or whether factors, such as activity levels, diurnal rhythms or digestive physiology might be involved. A recent study at Auburn University was initiated to determine if cribbing activity was correlated to concentrate intake.

Initial analysis indicated that the majority of cribbing activity in this study occurred around the feeding times as previously reported, and higher values were observed during the time period corresponding more closely to concentrate feeding times.

There are many theories as to the cause of cribbing behavior. Stress

reduction, isolation or lack of social interaction, genetics, altered digestive or neural physiology have been hypothesized as origins of this behavior. Though the present results do not eliminate these possible causes, they may direct further study around theories that highlight feeding or digestive causes of cribbing. The current study showed that the highest frequency of cribbing behavior followed times of concentrate feeding.

These data suggest that the function of cribbing does not lie in stress reduction or easing boredom, but support the claim that the behavior may be tied to feeding or digestion.

Ask the Expert

By: Martinson, PhD, & Malone, DVM, U of M

Q: Does hay give horses colic?

A: Hay diets (horses should receive at least 2/3 of their nutrition from forage, i.e. hay or pasture) tend to lower the risk of colic (horse on

pasture pose the lowest risk). Good quality hay (free of dust, mold, weeds, and other foreign matter) should not give horses colic.

However, quickly changing hay

types or qualities (i.e. changing quickly from a grass hay to an alfalfa hay) can induce colic, along with hay that is weedy, dusty or moldy. Several things can induce colic in horses, but quality hay is not usually one of them.

Human Bone Cement Works with Horses

This article has been edited from a National Institute for Animal Agriculture Publication.

The fate of Barbaro has intensified the interest in identifying a bone cement that would help the equine community and potentially accelerate bone repair

A biodegradable magnesium phosphate bone cement that is being investigated to repair human fractures may be a valuable veterinary tool for equine bone fractures. A recent study at The Ohio State University (OSU) compared two bone repair cements, the new magnesium cement and a calcium phosphate cement currently used in humans. The magnesium product is currently under FDA review as a bone void filler for use in people.

The OSU study involved replicating a wedge fracture in the second and fourth metatarsal bones of clinically normal horses, and then replacing the triangular fragments using the magnesium cement, the calcium cement or nothing. Radiographs were taken at regular intervals during the seven-week healing period. The metatarsal bones were examined using computed tomography (CT) and bone histology for adverse reactions, and for signs of healing and callus formation.

Study results showed that when compared to either calcium cement or no treatment, fragments affixed with the magnesium cement were significantly closer to the parent bone during all stages of healing. Mature woven bone and fibrous

tissue were also more abundant in the sites treated with magnesium, indicating that healing was occurring.

Additionally, the magnesium cement outperformed the calcium cement when it came to remaining at the fracture site. Magnesium cement stayed at the site 94 percent of the time while calcium cement persisted in only 25 percent of the treated fractures.

While both cements were similar in handling characteristics, the researchers found that immediate adhesion was not a shared characteristic. Magnesium cement provided immediate adhesion while calcium cement did not. The calcium cement was biocompatible and provided some cementing once hardened.

Previously reported in the *American Journal of Veterinary Research*.