



# U of M Horse Newsletter

Providing research-based information to Minnesota Horse Owners

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## Research Update: Magnetic Blankets

Static magnetic blankets often claim to increase blood flow, reduce muscle tension and tenderness, and be beneficial in both prevention and treatment of musculoskeletal injuries in horses. However, there are no studies that confirm the beneficial effects of magnets on muscles of the back in healthy horses.

Research in Sweden set out to investigate whether static magnets sewn into a blanket affect back muscle blood flow, skin temperature, mechanical nociceptive threshold and behavior in healthy horses.

Ten healthy adult horses were evaluated for blood flow by photoplethysmography, skin temperature by use of thermistors in conjunction with digital infrared thermography, and mechanical nociceptive threshold by algometry. Horse behavior was filmed during the procedure and scored on an ethogram. Measurements were performed repeatedly for 30 minutes to

establish a baseline. Thereafter, a blanket with active, static magnets (900 gauss) or placebo magnets was placed on the horse and measurements were performed for a 60 minute treatment period and a 30 minute post treatment period.

Blood flow in muscle, skin temperatures, mechanical nociceptive thresholds and behavioral traits did not differ between active and placebo magnetic blankets. Skin temperature increased similarly during both active and placebo blanket treatment.

In healthy horses, magnetic blankets did not induce additional effects on muscle blood flow, skin temperature, mechanical nociceptive threshold and behavior when compared with nonmagnetic blankets.

For more information on this research, click [here](#).

*Summarized by: Krishona Martinson, PhD, University of Minnesota*

## Winter Hoof Care

By: Mary Boyce, DVM, PhD, Crossroads Vet Clinic

In the winter, special care should be taken if your horse lives outside or is turned out. Snow can ball up under the sole and cause bruising or imbalance.

Horses usually slip less when barefoot or not shod. If your horse is shod through the winter, have snow pads placed under the shoes and small cogs, borium, or nails placed at the heels. Snow pads will prevent snow and ice from building up under the shoe and the cogs or nails will allow for better traction.

Maintaining your horse's nutrition and farrier schedule throughout winter can help alleviate some hoof problems. It is critical to keep your horse on a regular trim schedule throughout winter. Feeding good quality hay, supplementing the appropriate amount of vitamins and

trace minerals, and making sure your horse has constant access to fresh, clean water is important for hoof health and overall horse health. Poor nutrition can lead to future hoof problems, and correcting a horse's nutrition can gradually improve hoof health over time.

Research has shown that horses with poor quality hooves can benefit from commercially available hoof care products that contain Biotin (20 mg/day), Iodine (1 mg/day), Methionine (2500 mg/day) and Zinc (175 to 250 mg/day). Cooperation between horse owners, veterinarians, and nutritionists, and farriers are necessary to ensure horse and hoof health.

For more information on hoof care, visit the [U of M Horse Extension Website](http://www.extension.umn.edu/horse).

### Inside This Issue

Research Update: Magnetic Blankets	1
Winter Hoof Care	1
Ask the Expert: Carrots as a Source of Vitamin A	2
Preparing Broodmares for Breeding Season	2

### Upcoming Events

#### Minnesota Horse Expo

April 24-26, 2015  
State Fairgrounds  
St. Paul, MN

<http://www.mnhorseexpo.org/>

Visit our [Facebook](#) page for "Research Update Monday", "Tip of the Week Wednesday", "Friday Funny" and information on upcoming educational programs and events.

### Looking for a "speaker" for your next equine function?

Use our free, recorded webinar library.

[www.extension.umn.edu/horse/webinars](http://www.extension.umn.edu/horse/webinars)

### Check out our Apps!

"Hay Price Calculator" converts price per bale to price per ton. "Healthy Horse" estimates a horse's body weight, ideal body weight, and body weight score. Both are available for Apple and Android devices for a small fee.

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## Ask the Expert: Carrots as a Source of Vitamin A

**Question:** How much benefit can carrots provide in the case of suspected equine vitamin A deficiency?

**Response:** Years ago, chopped carrots might have made up a significant portion of a work horse's diet. In Europe, root vegetables are more likely to be fed chopped or dried to compliment a horse's diet. However, carrots are 90% water which in today's world makes them better suited as treats than a major feed source for most US horse owners.

Vitamin A is a fat-soluble vitamin that is stored in the liver for three to six months. The fact that it is stored makes it less likely that a deficiency will occur. Vitamin A plays a role in night vision, reproduction, and a horse's immune response. It is also an antioxidant that helps protect cells from damage done by free radicals, which cause oxidation to occur. Free radicals are considered

the cause of many illnesses and diseases.

Vitamin A is also often referred to as retinol, retinal, and retinoic acid. Good sources of vitamin A are fresh, green forages and newly-stored alfalfa hay. These are high in beta-carotene, which is a precursor to vitamin A. The carotene is actually synthesized into vitamin A in a horse's intestinal wall. The levels of carotene tend to drop in stored feeds, drought-affected forages, and overly-mature grass forages.

An idle mature horse (1,100 lbs) has a Vitamin A requirement of 15,000 IU while a pregnant or lactating broodmare has about double that requirement. While carrots are high in vitamin A (about 2,000 IU per large carrot), they are also high in water content (90%). So it would take about 8 carrots to meet the daily requirement of Vitamin A for an adult horse at maintenance. If your horse has

access to pasture in the summer time, chances are it is more than meeting this requirement and the liver stores will see it through the winter months. If you have a broodmare with a higher requirement, the typical commercial horse feed designed for broodmares will also meet these requirements if supplemented according to feed bag directions. Most of the calories from carrots come from sugar, so if you have a horse where sugar in the diet can set off metabolic issues, then you should stay clear of feeding any treats like apples and carrots.

If you are feeding carrots, it is best to feed them finely chopped in a feeder, versus out of your hand. This will help prevent bad habits in your horse, avoid the risk of getting your fingers bitten, and decrease the risk of choke from large pieces of carrot.

*Author: Carey Williams, PhD, Rutgers University*

## Preparing Broodmares for Breeding Season

Not having your mare in optimal condition to conceive when breeding season begins can result in lower fertility, frustration, and financial losses that can extend into future seasons. The critical things to check for are: is she having regular heat cycles, does she have a uterine infection, and is she in good body condition?

To ensure she is having regular cycles and ovulating the mare needs to be exposed to increasing daylength starting 2 to 2.5 months before breeding. For example, for mare owners wanting to breed in February, the supplemental lighting program should have been started right after Thanksgiving or early in December. It isn't unusual for mares that have not received light

treatments to not cycle naturally until the early part of May.

The standard of 16 hours of continuous light a day is easy and highly effective. The supplemental light is added in the evening, and in winter, this generally means the lights need to be on until 11 pm.

The rule of thumb for supplemental light intensity is being able to read a newspaper comfortably anywhere in the stall, which translates to a 200-watt incandescent bulb or two 40-watt fluorescent tubes. Pregnant mares that are due to foal early in the season should also be put under lights as it isn't unusual for them to stop cycling for a while after their foal heat.

Many stud farms require a uterine culture (pre-breeding swab)

By: Scott Madill, DVM, Univ. of Minn.

on open mares before they will accept them for breeding to rule out infection. This can also benefit the mare owner as an undiagnosed infection can waste several heat cycles. A complete veterinary examination of the reproductive tract can check not just for infection, but also for injuries and anatomic defects that affect fertility and cycling.

From a nutrition stand point, the critical aspect is her body condition. Mares in moderate to moderately fleshy body condition (body condition score of 5 or 6) are more likely to cycle and conceive than those that are too thin or fat.

For more information on care of broodmares, visit the [U of M Horse Extension Website](#).