



U of M Horse Newsletter

Providing research-based information to Minnesota Horse Owners

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Research Update: Selenium Toxicity

Horses are very susceptible to chronic selenium toxicity (selenosis) if grazed on forages grown on high selenium soils for prolonged periods. Selenium toxicity from soils is mostly an issue in the Western U.S.; however, horses on multiple supplements containing selenium can be affected by selenium toxicity. Clinical signs of selenium toxicity include dysplastic or corrugated hoof lesions (see photo), dull hair coat, mane and tail alopecia, and varying lameness with severe cases resulting in untreatable hoof



necrosis and sloughing resulting in euthanasia. In this study, conducted by researchers in Utah, mane and tail samples from horses that exhibited classical hoof lesions of chronic selenosis were analyzed.

The horses had grazed for 6 months, from approximately May 15 until November 15, each year for three grazing seasons in a pasture containing forage and water sources with elevated selenium concentrations.

The segmented hair samples showed a cyclic pattern in selenium concentrations in the mane and tail, which corresponded to entering and exiting the contaminated pasture. The selenium concentration in the tail of one horse could be traced for three grazing seasons.

These results demonstrate that in some cases, hair samples can be used to determine selenium exposure in horses for up to 3 years post-exposure. For more information, click [here](#). Summarized by *Krishona Martinson, PhD, Univ. of Minn.*

Ask the Expert: Red Horse Urine in Snow

Question: My horse's urine appears red in the snow. My horse seems healthy, but should I be concerned (see photo)?

Response: Horse urine can change color after being voided due to the presence of plant metabolites (pyrocatechines) in the urine that turn a red or orange color when mixed with oxygen. This can happen year around, but is especially noticeable in snow.

Normal horse urine appears colorless to yellow to dark yellow when voided. If the urine appears red, brown, or orange as it is being voided that can indicate a serious problem.

Bottom line, if horse urine is an abnormal color as it is being voided or you

observe frequent urination or straining to urinate call your veterinarian immediately. If your horse is passing normal colored urine that turns red or orange in the snow, that is normal.

By: Julie Wilson, DVM, MN Board of Veterinary Medicine



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Upcoming Events

Small Farms Day

March 7, 2015

9:00 am to 4:00 pm

Sherburne History Center
Becker, MN

Details available soon

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 upcoming educational programs.

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



Equine Herpesvirus (EHV) and Myeloencephalopathy (EHM)

In March and April 2014, Minnesota dealt with several cases of equine herpesvirus myeloencephalopathy (EHM). EHM is a neurologic disease that develops as a result of equine herpesvirus (EHV) infection. Though EHV is not uncommon, it was unusual to see multiple cases of horses with neurologic disease develop even though the animals had the non-neuropathogenic strain of EHV.

At a quarterly meeting of the Board of Animal Health held in April 2014, many representatives of the equine community requested that the Board make EHM a reportable disease and create a response protocol for future cases. The Board members voted unanimously to make EHM a reportable disease during that meeting.

At a Board meeting held on December 3, 2014, our board

members unanimously voted to approve the proposed EHM control plan. The plan includes quarantine, testing and notification protocols that will be implemented by the Board for all future cases of EHM in Minnesota animals.

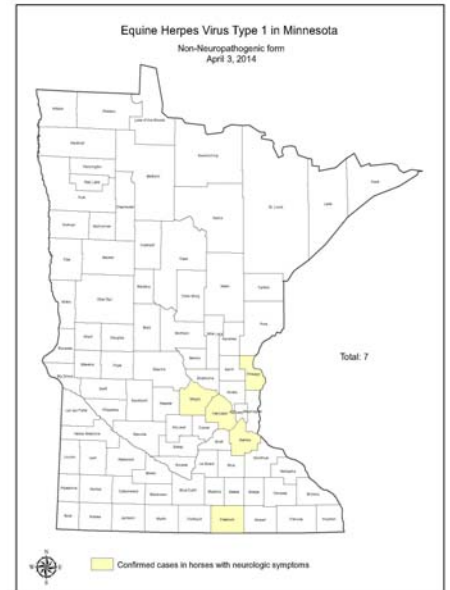
Equine herpesvirus is usually spread in nasal secretions between horses that are in close contact with each other or that share water or feed pails. The virus does not typically survive very long in the environment or on people or equipment. This virus is killed readily by most disinfectants, ultraviolet light and by drying. Horse owners should continually practice biosecurity and consult their veterinarians on other ways to protect their animals.

Equine herpesvirus has no effect on people. The virus has been associated with neurologic cases in

llamas and alpacas but has no effect on other types of livestock.

For more information on EHM and EHV, click [here](#).

Author: Minnesota Board of Animal Health.



Joint Supplements

Due to the great variety of joint supplements on the market, this discussion will be limited to the various ingredients commonly used in joint supplement, not brand names. The purpose of joint supplements are to provide building blocks for cartilage and synovial fluid, and to reduce inflammation and cartilage degradation. Most oral joint supplements contain varying amounts of glucosamine, chondroitin sulfate, Methylsulfonylmethane, and minerals, or a combination of these.

Glucosamine is a building block for cartilage and joint fluid and has been shown to stimulate the building of cartilage and inhibit inflammation. Glucosamine is well absorbed in the horse gut and is

accepted as a valid therapeutic approach for the management of degenerative joint disease in horses and as an alternative to injectable therapies where cost is an issue.

Chondroitin sulfate inhibits inflammation and tissue destruction. However, absorption of chondroitin sulfate has been reported for man, dogs, and rats at less than 15%. Absorption in horses has not been studied.

Methylsulfonylmethane is a source of bioavailable sulfur and is believed to have anti-inflammatory effects, but these effects have not yet been proven.

Minerals are important constituents of enzymes that control cartilage synthesis. They are included in many joint nutraceuticals

By: Florian Jenner DVM, University of Minnesota

(non-regulated products) to insure against dietary deficiencies. Sulphur plays a part in the biosynthesis of glucosamine and collagen, manganese is an essential part of the enzyme involved in the synthesis of chondroitin sulfate, zinc is a component of the enzyme that controls the production of collagen in cartilage, and copper is also involved in collagen production.

Because of the wide variability and amount of active ingredient of minerals, their purity and availability after oral administration is sometimes unknown.

When using joint supplements, it is important to consult with your veterinarian and to rely on trusted, proven brands.