



U of M Horse Newsletter

Providing research-based information to Minnesota Horse Owners

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Ask the Expert: City Water for Horses

Question: Is it okay for horses to drink city water that has had fluorides added to it? We'll be attending a show soon and the show grounds are supplied by a city water source. Someone told us that city water could kill or poison our horses and we want to make sure it is okay, even for a short period of time.

Response: It is common for horses to be exposed to city water while at suburban show and event venues. We know that horses are less susceptible to fluoride toxicity than cattle or sheep. Maximum dietary allowance of fluoride for horses is believed to be 40 ppm (mg/kg) in dry matter intake and 4 to 8 mg/liter in drinking water. The suggested maximum dietary allowance is substantially higher than normal

fluoridation levels for municipal water supplies, which is 0.5 to 1.0 mg/liter of water. Cities monitor fluoride levels very closely in municipal water supplies. Most horses will drink approximately 40 liters of water (10 gallons) daily, or about 20 to 40 mg of fluoride. Keep in mind, horses can have up to 40 mg/kg of fluoride which translates into 18,000 mg of fluoride daily for a 450 kg (1,000 pound) horse.

There have been reported cases of fluoride toxicity; however, these cases have been from industrial pollution/contamination or from the use of rock phosphate sources that have not been de-fluorinated.

By: Roy Johnson, MS, Cargill Animal Nutrition

Research Update: Ideal Weight Load

Recently, there has been considerable discussion regarding the ideal weight load (rider and tack) of horses and ponies. In a recent study conducted at Kitasato University in Japan, researchers aimed to determine the load capacity of a trotting Taishuh pony by gait analysis using a motion analysis system.

Seven Taishuh ponies (5 mares and 2 geldings) and their rider were fitted with a marker and recorded by 2 high-resolution digital DVD cameras as they were trotting along a straight course. Each horse performed 7 tests: 2 tests with 154 pound loads and 5 tests with random weights between 176 and 265 pounds. Among ponies, symmetry in the 265 pound test was significantly lower than that in the 154 pound test, and stabilities during the 220 and 265 pound tests were significantly less than that in the 154 pound test. The time lag between the time series of horse and rider in the 265

pound test was significantly greater than that in the 154 pound test.

These results suggests that the maximum permissible load weight of the Taishuh pony at a trot over a short distance is less than 200 pounds, which is 43% of the bodyweight of the pony.

Although other research has shown that horse can safely carry up to 30% of their body weight, it is generally accepted that a horse can carry up to 20% of their body weight. However, there are other factors than just weight that impact how much weight a horse or pony can carry, including conformation of the horse, the horse's fitness level, rider fitness, and rider ability level. For example, a fit horse with ideal conformation can carry more weight if the rider is also fit and well balanced.

Summarized by: Krishona Martinson, PhD, University of Minnesota

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Upcoming Events

Unwanted Horse Summit
Saturday, March 8, 2014
Leatherdale Equine Center
St. Paul Campus
Registration and agenda available soon!

The Hay Price Calculator is now available for Android users in the Google Play Store! Search "umn.edu.haypricecalc" to download the app. The app costs \$0.99 and funds help support equine research at the University of Minnesota.

U of M Releases Apps for iPhones and iPads
"Healthy Horse" estimates a horse's body weight, ideal body weight, and a body weight score using new research-based equations. The app is available in iTunes for \$1.99. An Android version will be available in early 2014.

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Equine Herpesvirus 1 (EHV-1): Is Your Horse at Risk?

Equine Herpesvirus-1 (EHV-1), is a growing concern in the horse industry. This virus can live within horses for a long period of time, perhaps even throughout their entire life, making it a common disease in the population. Up to 90% of horses are infected with EHV-1 by the time they are 2 years old. Generally, the virus lies dormant in the tissues and doesn't cause problems. However, with various stresses, the virus can re-activate and cause illness. There are 3 different forms of the disease: (1) reproductive, (2) respiratory, and (3) neurologic.

The reproductive form of EHV-1 can result in abortions or premature foaling can be seen with no other symptoms exhibited. If a mare aborts her foal, EHV-1 should be considered likely. The mare should be isolated from other horses immediately and a veterinarian should examine the mare to make sure there are no other causes for the abortion and submit tissues for EHV-1 testing. If she is otherwise healthy, the mare does not need further treatment and can be rebred. The prognosis for this form of EHV-1 is excellent. Mares can be expected to carry their next foal normally.

In the respiratory form of EHV-1, adult horses may seem tired, run a fever, lose their appetite, experience weight loss, have nasal discharge, or a cough. A

horse with a fever and nasal discharge should be stall rested away from other horses during the illness and for one additional week after clinical signs resolve. A nonsteroidal agent such as Banamine® can be given to ease the fever. Antibiotics are not generally required but close attention should be paid to make sure the horse doesn't become dehydrated or develop a secondary infection. Most horses recovery fully within a few days to weeks.

Horses with the neurologic form of EHV-1 often become acutely ataxic (i.e. stumble around as if drunk), seem weak, become unable to urinate on their own, and may "dog-sit" on their haunches. This form of EHV-1 is much harder and more expensive to treat. Most horses need to be hospitalized as care needs can be extensive and because the horse's health can change quickly. IV fluids are often necessary, and medications may need to be given frequently. Common medications include: NSAIDs for fever and pain, steroids to decrease inflammation and antivirals to help combat the virus. Most horses need to have their bladder catheterized and may need feces removed manually. If the horse loses the ability to stand, sling support is needed or the horse may develop severe muscle injury. This form has a variable prognosis. Some horses return to health with

minimal problems. More severely affected horses that have been down for 24 hours or longer have a guarded to poor prognosis. Up to 30% of horses die or are euthanized as a result of this form of EHV-1.

Since EHV-1 typically presents as a disease outbreak, other horses on the farm may also be affected by one of the three forms of the disease. Minimizing transmission and outbreaks is the best way to prevent EHV-1 from causing illness in horses. New horses should be quarantined for a minimum of 30 days in a separate barn or paddock. Pregnant mares should be vaccinated at regular intervals during their pregnancy with a killed vaccines. Most herpes vaccines are modified-live vaccines and should NOT be used on pregnant mare. Pregnant mares should not be housed with competition horses or horses traveling off site to minimize the risk of exposure to new strains of EHV-1. Horses exposed to other horses through the show circuit or other venues should be vaccinated to decrease the likelihood and severity of the respiratory form of EHV-1. Unfortunately, there is no vaccine for the neurologic form of EHV-1. Finally, when traveling, check for equine herpes alerts in the area so you can apply appropriate monitoring and take extra precautions on your return.

By: Sarah Barta, College of Veterinary Medicine Class of 2014

University of Minn. Equine Program Launches YouTube Channel

We are excited to announce that the University of Minnesota Equine Extension Program has launched a YouTube channel! Our goal is to show important aspects of horse care and management that are

better demonstrated through video. To date, four videos have been posted with three additional videos planned for early 2014. Videos focus on weighing feed, when to start grazing, and how to analyze

pasture for quality. Subscribe to the channel and receive notifications when new videos are posted www.youtube.com/channel/UCgKrdVlbGmFtwWDall_h87Q.

By: Krishona Martinson, PhD, University of Minnesota