



U of M Horse Newsletter

Providing research-based information to Minnesota Horse Owners

Visit our Website at: www.extension.umn.edu/horse for more information and to subscribe to the newsletter.

Volume 9, Issue 9

September 2013



Managing HYPP Horses

By: Stephanie Valberg, PhD, DVM, U of M

Found in both humans and horses, hyperkalemic periodic paralysis (HYPP) arises from an inherited defect in the gene that produces the skeletal muscle sodium channel. The disease occurs in Quarter Horse-related breeds especially in halter horses. Horses with HYPP have episodes of abnormal electrical activity in the muscles which looks like the horse is trembling and twitching for about 20 to 30 minutes. In some cases, this can progress to muscle weakness where horses must lie down. In its most severe form, the muscles in the throat become so weak that the horse is unable to breath and it can die from suffocation.

What triggers an episode of HYPP? How often and how severe attacks of muscle twitching are depends on whether the horse has one or two copies of the abnormal gene, the diet, stress, and exercise history. Horses with one copy of the abnormal gene may have no symptoms or may show signs of HYPP on a weekly basis. Horses with two copies of the abnormal gene can have severe signs and are no longer registered by the American Quarter Horse Association. High potassium (K) concentrations in the diet are the most common trigger of HYPP. Potassium triggers muscle sodium channels to open and twitching soon follows. Feeds high in K include forages such as alfalfa. Stress such as trailer rides, changes in weather, colic, or general anesthesia can also trigger episodes of HYPP.

Ask the Expert: Hay Bales

By: K. Martinson, PhD, Univ. of Minn.

Q: How many small square-bales are in a round-bale? A: It depends on the weight of both the large and small-square bales. For example, if the round-bale weighs 1,000 pounds, then 20 50-pound small-square bales would be equivalent to 1 round-bale. If the large round-bale

How do I know if my horse has HYPP? There is a DNA test for HYPP that can be done on hair roots from the mane or tail (www.vgl.ucdavis.edu/services/hypp.php).

What to do during an attack? Owners should give horses a cup of dextrose (i.e. Karo syrup) in the mouth by syringe and walk horses if possible. As the blood sugar rises the concentration of K in the blood will fall. Many times this is enough to stop an attack. A veterinarian will often use IV dextrose or IV calcium solutions to drop K levels or stabilize muscle membranes if the horse is still having muscle twitching.

Managing a horse with HYPP? Dietary management to keep the total amount of dietary K to less than 1.1% of daily feed intake is important. For example, if an adult horse gets 22 lbs of hay and 4 lbs of grain concentrate per day, then there should be less than 132 grams of daily K in the diet. To do this accurately, hay and pasture samples should be analyzed for K content and feed manufacturers contacted to provide information on K content. Multiple feedings throughout the day reduce fluctuations in serum K and exercise and turn out are important for muscle health. In severe cases, a medication called acetazolamide can be provided by a veterinarian to try to prevent attacks and should be given prior to surgery for HYPP horses. Finally, Karo syrup should be kept near-by for administration in case a horse starts having an episode.

weighs 1,200 pounds and the small-square bales weigh 40 pounds, then 30 small-square bales would be equivalent to 1 round-bale. It important to know the weight of hay bales both for feeding and economic efficiencies.

Inside This Issue

Managing HYPP Horses	1
Ask the Expert	1
Guttural Pouch Mycosis	2
Research Update	2

Upcoming Events

74th Annual Minnesota Nutrition Conference

September 17-18, 2013

Mystic Lake Casino & Hotel
Prior Lake, MN

Sept. 18 Equine Session will focus on forage utilization

www.mnnutritionconf.umn.edu

U of M Releases 2 Apps for iPhones and iPads

“Hay Price Calculator” converts price per bale to price per ton. “Healthy Horse” estimates a horses body weight, ideal body weight, and a body weight score based using new research-based equations. Both apps are available in iTunes for a small fee.

“Like” us on Facebook

Research Update Mondays,
Tip of the Week

Wednesday, Friday Funnies
and upcoming events.

www.facebook.com/UMNHorse

Looking for a “speaker” for your next equine function?

Use our free, recorded
webinar library!

www.extension.umn.edu/horse/webinars

The University of Minnesota is an equal opportunity employer and educator.



Guttural Pouch Mycosis

By: Monica Snyder, DVM, U of M Veterinary Student Alum

A horse is found dead in his stall, having bled to death. The horse has no wounds, but had a history of a blood from the left nostril a few weeks ago. The bleeding stopped without treatment and the horse seemed otherwise healthy. The culprit? A fungal infection of the guttural pouch that has eaten into the carotid artery.

“Mycosis” refers to the presence of fungal organisms which are always in the environment. They come and go out of the horse’s airway, generally without causing problems. However, they can latch onto arteries in the guttural pouch, using the nutrients in the blood for growth (Figure 1). The guttural pouches are air-filled structures located between the middle ear and the throat of the horse. Guttural pouches may help with brain cooling or serve as resonance chambers for vocalization. When fungi invade the guttural pouches, important arteries and nerves can be damaged, leading to bleeding (seen through the nostrils), trouble eating and drinking, other neurological signs, and, if not treated quickly, death.

Guttural pouch mycosis can occur in any horse. Fungi from the *Aspergillus* family are the most common but any variety of fungal species can be involved. The fungus

invades the guttural pouches and forms plaques, eroding and damaging the tissues and structures in the area. Usually only one guttural pouch is affected but the fungus can spread to the opposite side.

Horses with guttural pouch mycosis may exhibit a variety of signs. Bleeding from the nose due to erosion of the carotid artery is the most common. Horses may have a series of smaller bleeding episodes prior to significant hemorrhage. In addition, the horse may lose weight due to difficulty in eating, drool or dribble food, cough more frequently, or make noise while breathing (most often during exercise).

Figure 1. Fungus on carotid artery inside the guttural pouch



Bleeding from the nose can occur due to trauma, tumors, or other problems besides guttural pouch mycosis. Endoscopic examination of the nose, throat and guttural pouches is generally necessary to determine the cause of bleeding. If

guttural pouch mycosis is confirmed, endoscopy also helps determine the extent of damage to tissues.

Aggressive treatment is recommended due to the risk of fatal hemorrhage. Medical treatment is possible for fungal infections that are not positioned over an artery. Treatment can include brushing off the lesions and topical antifungal agents (sprayed onto the fungus through the scope). However, if an artery is involved, surgery is recommended.

The goal of surgery is to block the eroded artery (or arteries) to prevent bleeding. Because the arteries are located deep within the head, balloons or coils are used to block the arterial blood flow. Blocking the arteries does not cause problems for the horse as the brain is designed to have extra blood flow. Surgery works well to control hemorrhage; however, any nerve damage related to the fungal infection may be permanent

If your horse has a bloody nose without an obvious cause, it is important to be proactive. Plan to scope the horse to determine the cause as soon as possible. While it is rare, guttural pouch mycosis is a serious condition that should be addressed immediately. Proper intervention and management can save a horse’s life.

Research Update: Weight Loss In Obese Horses

By: Emily Glunk, MS, U of M

Obesity in equine has become a significant problem. In a study conducted in England, obese (BCS \geq 7) ponies, Andalusians, and Standardbreds were used to compare weight loss with and without the addition of daily exercise. All animals were housed and fed individually on a dry lot for up to 12 weeks on a restricted diet of 1.25% body weight of grass hay

daily. Half of the horses were exercised daily for 25 minutes.

Obese Standardbred horses lost body weight and condition when fed only hay, but Andalusian and ponies did not lose weight as easily. While it only took the Standardbreds 6 weeks to achieve a BCS of 5, it took ponies and Andalusians 12 weeks to achieve the same results. Amount of exercise was found to have no

effect on body weight loss; however, 25 minutes might not have been enough time to effect body weight. This study illustrates the differences in the ability of different breeds to lose body weight. While 25 minutes of exercise was not found to contribute to weight loss, exercise is still recommended for all healthy horses.