



U of M Horse Newsletter

Providing research-based information to Minnesota Horse Owners

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Horses that Roar: Laryngeal Hemiplegia

The horse larynx (Figure 1) protects the trachea (windpipe) and produces sound. These functions are carried out primarily by the arytenoid cartilages. The arytenoids open to allow air to enter the trachea (breathing) and close to stop food from entering (eating). The arytenoids open further during exercise than they do during quiet breathing at rest. This allows more air and oxygen to enter the lungs.



Figure 1. Normal Figure 2. Hemiplegia

With laryngeal hemiplegia (Figure 2), the arytenoid cartilages can't open sufficiently and/or maintain the opening due to paralysis or paresis (weakness). This leads to a reduction in the diameter of the airway, resulting in abnormal noise because of increased air turbulence in the larynx. This sound is often referred to as "roaring" or "whistling".

Laryngeal hemiplegia can be seen in horses of all ages: from a few months to 10 years or older. Many horses are not affected until 5 to 6 years of age, and have progressively more noisy breathing. Large-breed horses are more commonly affected than small-breed horses or ponies. Laryngeal hemiplegia is common in racehorses, and some cases of laryngeal hemiplegia can worsen over time. Studies on Thoroughbreds show this happens 5 to 15% of the time.

The weakness of the arytenoid cartilage is caused by a progressive loss of the large nerve fibers that supply the laryngeal muscles. This loss decreases or stops the action of the muscles on the

affected side. Total loss of nerve supply causes the arytenoid cartilage to be paralyzed and hang into the opening of the trachea. The disease can affect one or both arytenoids but left sided arytenoid paralysis is most common.

In many cases, the nerve stops working for an unknown reason. Trauma may also cause laryngeal hemiplegia in approximately 6-11% of cases. The most common causes of trauma include an irritating injection in or around the jugular vein, neck trauma, guttural pouch infection, cancer, strangles, head or neck abscess, toxins (lead, certain plants), and general anesthesia or surgery of the neck.

Horses that have a history of making noise during exercise and/or have a history of poor performance may have laryngeal hemiplegia. The noise is often described as rattling, snoring, or whistling. The noise can be heard during or immediately after exercise. These horses may also have an abnormal whinny or neigh. Horses with laryngeal hemiplegia may cough due to aspiration of food material into the trachea.

High level performance horses diagnosed with laryngeal hemiplegia often have poor performance or loss of endurance. With the inability of the cartilage to open completely or maintain the opening to the trachea, the amount of air that reaches the lungs is decreased. This results in decreased oxygen flowing to the muscles and other tissues in the body and leads to fatigue during exercise. Some horses may never show signs of exercise intolerance due to the level of work the horse performs.

Next month, diagnosis and treatment will be discussed.

Author: Rolf Modesto, DVM, Univ. of Penn. Dr. Modesto was previously with the Univ. of Minn.

Inside This Issue

Horses that Roar	1
Ask the Expert: Alfalfa	2
Weed Watch: Wild Parsnip	2

Upcoming Events

U of M Horse Team Quarterly "Lunch and Learn Webinar"

Wednesday, July 15th at
Noon

"Manure Management
and Composting"

By Betsy Wieland

To join, go to:

<https://umconnect.umn.edu/horsewebinars/>

Next webinar on
Wednesday, October 21st.

Topic: Equine Genetics

Fall Regional Horse Owner Programs

Saturday, October 3rd
9:30 am to 4:00 pm

U of M Equine Center
St. Paul, MN

Focus on Equine Metabolic
Syndrome

Saturday, October 24th
1:00 to 4:00 pm

Red Horse Ranch Arena
Fergus Falls, MN

Saturday, November 14th
1:00 to 4:00 pm

Howard Lake Middle School
Howard Lake, MN

Online registration and
agendas available in August.



Ask the Expert

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

Q: What is your opinion on feeding both alfalfa hay and alfalfa pasture for horses?

A: Forage (hay and/or pasture) should be the backbone of a horse's diet, with at least half of the diet being some type of forage. Alfalfa is an excellent forage for most livestock, but the forage quality of good alfalfa hay and pasture exceeds the nutritional needs for most horses. The average adult horse (lightly worked or ridden) needs about 10% crude protein in their diet. The crude protein in most good quality alfalfa hays and pastures vastly exceeds 10%. Although feeding excess protein to horses does not result in any short term health problems, it can lead to strong smelling urine (a concern if the horses are stalled in a barn) and can contribute to weight gain. If buying hay, hay with higher protein levels usually demands a higher price. Numerous horse owners are paying a premium for protein that is not needed by their animals.

Alfalfa hays and pastures also have higher digestible energy (DE) compared to grass hays and pastures. DE is used to balance the energy portion of a horse's diet.

Feeding alfalfa hay and pasture to the average horse will most likely result in significant weight gain. Horse health problems tied to excessive weight gain include Cushings, metabolic syndrome, laminitis or founder, and insulin resistance. The potential for excessive weight gain is the major drawback for feeding a high quantity of alfalfa to horses. Mares that are lactating or in late term gestation, or horses that are in an intensive training program would most likely benefit from adding some alfalfa to their diet because of the increased energy.

Calcium (Ca) and Phosphorus (P) is critical to bone and tissue formation in horses. For the average adult horse, the Ca:P ratio should be between 3:1 to 1:1. A benefit of having alfalfa as part of your forage is that alfalfa hays and pastures tend to have higher calcium levels relative to phosphorus, and have higher Ca levels than most grass hays and pastures. It is important to have your forage and grain tested to ensure the Ca:P is adequate and never inverted, especially in young, growing foals.

Not only will horses likely gain weight on pastures with a high quantity of alfalfa, but there are also pasture management practices to consider (i.e. no chemical weed control options) when alfalfa is included in pasture mixes.

Horses are selective grazers. Some research studies have shown that horses prefer alfalfa over grasses in a pasture. In a mixed grass – alfalfa pasture, horses will actually choose to continuously graze the alfalfa, while leaving the grasses. However, most varieties of alfalfa will not withstand continuous grazing causing it to be short lived in a pasture. To extend the life of alfalfa in a pasture, choose a variety that is recommended for grazing. Be sure to rest the pasture and allow regrowth of both alfalfa and grasses.

Bottom line, alfalfa is an excellent forage, but should not be fed as the sole forage or in high quantities to the average adult horse because of the potential for excessive weight gain and the negative health effects tied to weight gain. Feeding alfalfa (not usually as the sole forage, but in higher quantities) can be useful for classes of horses that require additional energy, including lactating mares and horses in intensive training programs.

Weed Watch: Wild Parsnip

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

Wild parsnip is taking over ditches and infesting fields throughout Minnesota. Wild parsnip can contain a chemical toxin called furanocoumarins. It can create severe skin irritations when present at high enough levels in fresh or dried hay eaten by horses and cattle. High levels of the toxin have been found in all parts of the plant, including the seeds. The toxic dose of wild parsnip is not known and toxicity will depend on the amount of wild parsnip ingested.

Signs and effects of toxicity include severe sunburn (photosensitivity). These symptoms occur in both people, having skin contact with the plant, and animals after ingestion. The sunburn occurs only if people and animals are exposed to UV light after contact or ingestion. Sunburn is due to the toxin circulating in the blood vessels just below the skin surface. Severe sunburn can occur on both light and dark skinned areas. It is easily seen on the white or other light skinned

areas. If you suspect wild parsnip toxicity, remove the plant source whether it is found in hay or pasture. Move all affected animals to a shaded area. A topical treatment can be applied to skin lesions. Since wild parsnip is commonly found in ditches, hay harvested from ditches containing wild parsnip should not be fed to horses or cattle.

