

## The Challenge of Heaves

Does your horse habitually cough or have trouble breathing?

by Toots Banner, D.V.M.

Heaves is a severe inflammatory obstructive disease that is often caused by inhalation of dust from feed and bedding. Most of the affected horses are middle age or older, kept in stalls and fed hay for much of their lives. An association between poor quality feed and the development of heaves has been recognized for more than 400 years. This disease, formally known as COPD (chronic obstructive pulmonary disease), is now called RAO (recurrent airway obstruction) and generally persists in varying degrees of severity for the life of the horse. Due to the probability of recurrence throughout the lifetime, horses with RAO need to be managed to control and prevent the reoccurring bouts of airway inflammation. It is thought that the process is not simply an allergic response but interaction between one or more agents in hay dust.

### Enemy Dust foal

The amount of dust inhaled by the horse from feeds depends largely on the quality of the feed. Hay dust contains a variety of inflammogens, including endotoxins, molds, forage mites and inorganic material. The speed at which respiratory distress begins in relation to inhalation of these particles varies greatly among horses. In heaves-affected horses, severe respiratory distress is obvious within hours of stabling, whereas in others it can take days until clinical signs worsen. The reason for this is unknown, but each horse typically behaves in a characteristic fashion over several years.

### The Signs

The primary lesion of heaves is inflammation of the bronchioles, or small tubes leading to the alveoli, where oxygen exchange takes place. This bronchiolitis is characterized by an accumulation of mucous and white cells in the lumen and by infiltration of other white cells around the bronchioles. The airway walls are also thickened (bronchospasm), causing further constriction of the lungs. Initial clinical symptoms are a soft, persistent cough, which may progress to more frequent coughing and exercise intolerance. The nostrils begin to flare, abdominal effort breathing is noted, and the horse may begin to wheeze. The horses have no elevated temperature, and upon auscultation of the lungs they will sound raspy and wheezy. In some horses with severe obstruction, silence may be noted because they are so obstructed with mucous that minimal air is flowing through those areas of the lungs. Weight loss is a common sign in advanced RAO, due to the energy being used up by the increased respiratory effort.

## Testing

A tentative diagnosis can be made based on complete history, age determination and complete physical exam. A complete blood count (CBC) may be indicated to rule out any infectious diseases of the lungs. A tracheal lavage or bronchoalveolar lavage may be indicated to confirm the type of inflammatory cells present in the secretions of the lower airways. It is usual to find 60 percent or more neutrophils (a type of white cell) in the secretions of heaves-affected horses, compared to less than 10 percent in normal horses. Bronchoalveolar lavage is more difficult to do but provides a more definitive diagnosis. A diagnostic test, which can be used to help differentiate RAO, is to use a bronchodilator drug such as atropine, which can dramatically reduce bronchospasm within 15 minutes.

## Take Control

Controlling RAO falls into two main categories: medical therapy (which you should discuss with your veterinarian) and environmental management. To improve the horse's surroundings, your No. 1 priority is to reduce or eliminate dust exposure. For most horses, the primary source of dust is from hay and stall bedding. It is very important to realize that most RAO-affected horses are highly sensitive to these agents that provoke airway inflammation. As little as seven hours of exposure to a stable environment can initiate airway hyper reactivity that lasts for more than three days. It is very likely that exposure shorter than seven hours, possibly minutes, can initiate airway inflammation in more sensitive horses.

## Greener Pastures

Several environmental management changes have been shown to be effective in reducing airway obstruction and the clinical signs associated with RAO. Keeping the horse on pasture for 24 hours a day, seven days a week for three weeks will often greatly reduce the clinical signs of the disease. Keeping the horse off of hay and kept entirely on pasture grass is a good concept but is not practical for a large majority of horse owners. Another therapy is to sprinkle or soak the horse's hay with water. Water causes dust to settle and cause spores and other material to swell, which should reduce the number of particles from being inhaled as the horse chews the hay. Studies done on common feedstuffs and bedding to measure breathable dust content and mold spores showed that the highest dust content is in hay - and rolled oats were surprisingly dusty. However, when molasses is added to oats, dust is dramatically decreased. Alfalfa pellets, cardboard bedding, specially processed wood shavings and new composite material bedding were all low in dust.

## Commercial Solutions

With this information in mind several products have been developed to

manage the horse with RAO. One example is a textured feed called Seminole Challenge. This feed, formulated with a high level of beet pulp, provides a complete and balanced diet - especially for the horse with heaves or RAO. Challenge has soybean oil and rice bran to increase the energy density necessary to maintain the horse's weight - even with the increased abdominal effort of restricted breathing. Added yeast culture increases digestibility and probiotics increase feed efficiency. Beet pulp and alfalfa meal provide dust-free, highly-digestible fiber sources to eliminate reactions from dust in the grain. Challenge can be fed as a sole ration, but I recommend additional roughage supplementation.

#### Roughing it out

Most horses consume at least 50 percent of their total diet as hay or 1 to 2 percent of their bodyweight. Despite the fact that hay is a substantial part of the horse's diet, the nutritional content and quality are often unknown. To solve the problem, Seminole Feed has developed and distributed a variety of roughage products that are ideal for a horse affected by RAO. In addition, the products have a guaranteed nutrient analysis, so you can be sure of their quality. Seminole Alfalfa Cubes and Seminole Alfalfa Pellets, made from premium quality, leafy Idaho alfalfa, are harvested for optimum nutrient content. With a consistent guaranteed nutritional analysis of 16-17 percent protein, these products also have low dust levels, usually 90 percent less than hay. Another option: Totally Timothy, a high-temperature, dried timothy hay that can be exchanged with long stem hay at the rate of 5 pounds of Totally Timothy to 7 pounds of long-stem hay. DENGIE Hi-Fi is a chopped, high temperature dried roughage product made from timothy, oat and alfalfa hay. It is free of dust and mold and can even be mixed with Challenge. Spillers/Seminole Showing Chaff is a low-protein, high-fiber source that can be used as a hay replacement as well as give exceptional bloom and shine to the coat.

The horse that is affected by RAO has significant challenges that may be reduced or eliminated through persistent and diligent efforts by the owner. Your efforts to control the horse's physical environment, along with carefully choosing the horse's nutritional diet, can go a long way in helping to improve the quality of life of the horse that is afflicted by this potentially devastating disease.

For more free equine nutrition information, call 1-800-683-1881 or log on to [www.ecmagazine.net](http://www.ecmagazine.net).

#### Low-Starch Alternatives

Dr. Ott's findings reveal that a low-starch diet is helpful for horses suffering

from “tying-up.” Minimize your horse’s chances of tying-up by utilizing these low-starch commercial feed products.

- Spillers/Seminole Hdf pellets
- Spillers/Seminole Horse & Pony pellets
- Spillers/Seminole Happy Hoof
- Spillers/Seminole Showing Chaff

Please call 1-800-683-1881 or visit [www.seminolefeed.com](http://www.seminolefeed.com) to learn more about equine nutrition.