

Equine RAO (Respiratory Airway Obstruction) also referred to as “heaves”, broken wind and COPD. A common respiratory condition that can be very debilitating.

Vetoquinol advises you to consult your veterinary surgeon concerning any specific health questions about your horse. The information contained in this document is intended for educational purposes only.

Two different forms of RAO are recognised in the horse: the stable associated type often seen in stalled horses fed hay, and summer pasture-associated obstructive pulmonary disease (SPAOPD, also called summer heaves and pasture-associated heaves) seen more commonly in horses living on pasture.

RAO is a common equine respiratory condition and the frequency of the disease increases with increasing age though the sex of the horse is irrelevant. It is most frequently diagnosed in horses 8 years of age and older. The result is a chronic debilitating problem that has many similarities to that of asthma in humans.

Inhalation of allergy inducing particles (allergens) and irritants that may be present in the horse's environment cause inflammation, mucus accumulation, and constriction (narrowing) of the horse's airways, primarily the bronchioles (tiny airways of the lungs).

Common allergens and irritants that induce RAO include:

- Mold spores from straw bedding and hay (over 50 species of fungal spores have been identified)
- Small molecules such as endotoxin
- Other irritants like ammonia from the horse's urine.



How to recognise signs that could be suggestive of heaves ?

The most common signs to look out for are:

- Chronic cough
- Nasal discharge
- Exercise intolerance - difficulty maintaining normal work levels
- Respiratory difficulty.

With time other signs may become apparent

- The classic “heave line” that can be seen along the bottom edge of the ribs is due to increased muscle development (hypertrophy) of the abdominal muscles linked with the effort to breath,

Severely affected horses may also exhibit:

- weight loss, anorexia, and exercise intolerance.

How is RAO diagnosed ?

As with all diseases, it is important to have your horse examined by a veterinary surgeon to ensure a more serious condition is not the underlying problem. In the case of respiratory diseases, it is important to rule out infections such as pneumonia (together with RAO the most common cause of coughing).

Your veterinary surgeon will begin by taking a complete history of what has been happening before performing a full physical examination and listen to the chest over the entire lung field to rule out pneumonia or other infectious diseases.



Additional diagnostic procedures may be appropriate :

- Scoping the horse's airways (endoscopy) : a thick mucus is often present with RAO
- Performing a bronchoalveolar lavage (BAL or "lung wash," which yields a sample of cells from the lung) will help assess the severity of the disease.
- (Radiographs (X rays) and ultrasound are generally not useful in RAO)
- Allergy tests are available for affected horses: they rarely unearth the specific disease-causing allergen (also encountered with asthma allergy testing)

There is no quick fix to the problem of RAO

While the veterinary surgeon during more acute or resilient episodes of RAO reverts often to treatment with drugs such as bronchodilators to open the airways in the lungs, this is generally recognised as being only partially and temporarily effective, and only really worthwhile as an adjunct to the critically important task of maintaining horses in as dust-free an environment as possible.

Managing the horse's "breathing zone"

Experts recommend considering the horse's "breathing zone"—the two-foot (65 cm) sphere around the horse's nose from where he draws his breath. The secret is to keep this area as clean as possible to limit the number of particles your horse inhales.

Consider the following:

- Keep your horse on pasture as much as possible (Many horses, if rugged up properly, can happily live out all the year round, grazing and drainage permitting)
- **Good stable management is essential**
 - o Keep the half-door open at all times
 - o Install an inlet in the opposite wall so that there is a constant flow of fresh air.
 - o Make sure that the air inlets are not close to muckheaps or haybarns
 - o If the stable has windows leave them open all of the time or better still remove one or more panes of glass.
 - o Alternatively drill 4-5cm holes all along the top of the back wall
 - o Never restrict ventilation in cold weather to keep the horse warm. If you think the horse is cold put on another rug.



o And remember the adjacent environment, too. There's little point trying to keep one stable in a yard dust-free if all the other horses close by are kept on hay and straw. Likewise, while you're mucking stalls out, sweeping stable rows, or moving/piling hay. Hay should not be stored above the stall of your horse. Avoid using leaf blowers in the barn and idling tractors near the stabled horses.

o Treat and clean the stable and barn areas to reduce harmful levels of ammonia

• **Bedding management : REMOVE STRAW bedding!**

o Shavings, paper or rubber matting are the preferred options, with shavings the most common and easiest to use. The essential thing is that the shavings are kept spotlessly clean.

o Deep litter is not permitted as the endotoxin-producing bacteria multiply rapidly in urine and dung-stained shavings, making them just as bad as straw. Use the shavings sparingly and clean them out on a daily basis.

o Ensure the "muck heap" is well away from the stabling area and ideally "down wind" according to the predominant wind direction.

• **Diet is also an important consideration**

o **If possible AVOID HAY, however good it appears**

o Although it's easy to spot severely moldy hay, visual inspection can't pick up a more mildly affected but equally damaging product. Soaking hay doesn't adequately reduce exposure to dusts and moulds and also leaches out much of the nutritional value. Low-dust alternatives such as silage, a complete cubed diet or, best of all, haylage.



o **When replacing hay is not an option**

o Soak your horse's hay before feeding (ideally complete immersion for approximately 30 minutes. Too long and the palatability will be compromised not to mention the nutritional value)

Do not allow your horse to feed from round bales or large piles of hay. (Horses tend to stick their noses into the pile to eat for prolonged periods)

o Spread hay on the ground to encourage mucus drainage from the airways when horses put their heads down to eat.

o All hard feed (concentrates) should be fed damped, and fed at floor level to encourage drainage of secretions from the horse's airways

o Complementary feeding stuffs and RAO management : Certain plants have been shown to have beneficial effects in helping maintain healthy airways and these can make up part of the management protocol (discuss with your veterinary surgeon)

"The major limiting factors to success are the practicalities of the regime and the expense involved".

A important point not to forget:

« It is well worth stressing the point that ALL horses, not just those suffering from RAO, will reap substantial benefits from living in a dust-free environment. In addition, keeping dust levels low is important for human health, as it will reduce the chances of you and other staff developing dust-induced cough and asthma. »

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