

Equine asthma has previously been known as Recurrent Airway Obstruction (RAO), Summer pasture-associated RAO (SPA-RAO), chronic obstructive pulmonary disease (COPD) or heaves.

Equine asthma is thought to occur as a result of the lung's hypersensitivity to inhaled allergens, such as moulds, dust and endotoxins commonly found in hay and straw. A similar disease can also occur in the summer months in horses out on pasture and is thought to be linked to pollens. Some horses are genetically susceptible to development of equine asthma.

What are the Risk Factors for Development of Equine Asthma?

- Any breed or gender of horse
- Age 8-12 years (Inflammatory Airway Disease, or IAD, occurs in younger horses)
- Dusty hay and straw
- Dry dusty hard feeds
- Poor stable hygiene
- Poor stable ventilation
- Recent respiratory virus



A respiratory scope being carried out on a horse with suspected RAO

What are the Clinical Signs of Equine Asthma?

Clinical signs associated with equine asthma include:

- Exercise intolerance (horse gets tired more quickly or is reluctant to work)
- Increased respiratory rate (normal rate is 8-16 breaths per minute)
- Abdominal effort when breathing out, to force air out of narrowed airways
- Cough, often at the start of exercise
- Clear or white bilateral mucoid nasal discharge

In severe cases, or cases in respiratory distress, other signs may include:

- A "heave" line
- Flared nostrils at rest
- An audible wheeze
- Anal pumping (anus moves in and out with breathing)
- Neck stretched out
- Continuous coughing fits at rest
- Large lumps of mucus coughed up on stable floor/door

Exposure to inhaled allergens causes narrowing of the small airways and accumulation of mucus within the airways. This leads to narrower airways requiring more effort to breath. If you notice your horse always has a cough at the start of exercise, it would be prudent to speak to one of our vets as early diagnosis and treatment may prevent chronic changes in the lungs. If your horse presents in respiratory distress, call the vet immediately and remove the horse from the source of allergen if possible.

How Does the Vet Diagnose Equine Asthma?

Diagnosis can generally be made based on history and clinical signs. The vet will listen to the chest on both sides with a stethoscope, and in mild cases, where abnormal sounds are not audible, the vet may use a rebreathing bag. In some cases, we may advise an endoscopy of the respiratory tract to collect samples of airway secretions from the trachea and smaller airways (broncho-alveolar

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lavage). We will examine this fluid under the microscope and in horses affected with Equine Asthma, we will see elevated numbers of a particular white blood cell called a neutrophil. Endoscopy and sample analysis can be useful both to diagnose equine asthma and to monitor response to treatment.

How do we Treat Equine Asthma?

Treatment includes two important aspects: 1. Environmental management 2. Medical treatment

Medical treatment is useless without strict adherence to good environmental management. Environmental management is the key to long term management and should include:

- Permanent turn out to pasture, with a well-ventilated shelter (unless SPA-RAO)
- Do not feed dry round bale hay in the field: this is one of the commonest reasons for treatment failure
- If the horse must be stabled at certain times, then ensure avoidance of straw bedding. Use paper, cardboard, or shavings bedding, with/without rubber matting. If using rubber matting, ensure good drainage to avoid urine pooling.
- Ensure stable location is far away from hay/straw storage and away from the muck heap
- Improve stable ventilation by providing additional air inlets and outlets. Try adding an additional window to the back of the stable and always leave the top door open. If possible, avoid shared airspaces with other horses that may not be managed in a similar fashion
- Remove urine and faeces regularly from the stable and do NOT deep litter. This causes production of moulds and noxious gases such as ammonia that are very irritant to the respiratory tract.
- Do not muck out the stable when the horse is in the stable or bring the horse into the stable just after mucking out as dust levels will be increased.

- Avoid hay as forage if possible. If not, this should be soaked in fresh water for 30-60 minutes to reduce the amount of dust inhaled. Place all nets near the door or window. Alternatives to hay include grass, haylage or vacuum-packed Horsehage. Any change in diet should be made slowly over 7-10 days to avoid risk of colic.
- Concentrates should preferably be cubed to decrease exposure to dust.
- Use of anti-oxidant supplements, containing in particular, Vitamin C, may be useful in horses diagnosed with Equine asthma.

There are two types of medication used to treat allergic airway disease: bronchodilators and corticosteroids.

- **Bronchodilators:** These drugs relax smooth muscle spasm in the small airways and increase the diameter of the airways. They can be used for management of acute respiratory distress and in long-term management in conjunction with corticosteroids. However, as they do not address the underlying inflammation, they are not appropriate as sole therapy. Clients often still ask us to dispense a “tub of Ventipulmin”. This is based on an old-fashioned understanding of Equine asthma and our knowledge about treatment of the disease is far more advanced now. We use three different types of bronchodilator:
 - Clenbuterol (Ventipulmin, Dilaterol): this both relieves airway spasm and helps clear mucus from the airways. Horses can become resistant to it, so it is best used in acute cases or in conjunction with corticosteroids.
 - Atropine: This is given by intravenous injection and is used as a rescue remedy in cases of acute respiratory distress. If bronchospasm is the significant cause of distress, signs of



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improvement will be evident within 20-30 minutes of administering the drug. Atropine can cause side effects such as colic so it is only used as a rescue therapy and not for long-term use.

- Salbutamol (Ventolin): This is an inhaled bronchodilator that is administered by an inhalation device such as a paediatric spacer device or equine spacer, such as the Equinehaler or Aeromask. It has a very short duration of action and can be used for long term control, prior to exercise or as part of a rescue remedy during an acute exacerbation of signs.
- **Corticosteroids:** These are the mainstay of treatment for Equine asthma and the most effective drug to reduce inflammation within the lungs. Corticosteroids can be administered systemically (by injection or orally) or via inhaler. We generally start treatment, especially in acute cases, with injectable Dexamethasone, followed by oral Prednisolone. Once symptoms are controlled, we prefer to use inhaled medications, such as Beclomethasone and Fluticasone. Inhaled medication carries less risk of side effects, such as laminitis. Inhaled corticosteroids are administered twice daily by a spacer device. Dosing and response to therapy must be closely monitored to ensure remission from clinical signs.

How Long do I Need to Treat my Horse for?

One of the commonest reasons for treatment failure or recurrence of clinical signs is owners stopping medication because they believe their horse or pony is now cured. However, once a horse has equine asthma, their airways become hyper-responsive to allergens in the atmosphere. Therefore, it is very important not to stop medication and to discuss any changes with your vet, whilst always remaining vigilant that you are strictly adhering to good

environmental management. Another common cause of recurrence of clinical signs is seen when owners go on holiday, and alternative carers are not made aware of the condition or how to administer medication correctly.

Can I Exercise my Horse?

Horses with severe breathing difficulties should not be allowed to work. If horses have mild respiratory signs, then light work can be performed. However, if the horse begins to cough, the horse should be allowed to stretch their neck out and return to walk. Once horses are symptom free and controlled, then a gradual return to normal levels of exercise is appropriate. Exercise can help with clearance of the airways and can be a useful diagnostic tool for treatment success.

If you are concerned your horse might have Equine Asthma, please call our office and one of our vets will be happy to speak to you.
