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EQUINE ASTHMA SYNDROME

A common cause of poor performance •

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Dr Surita du Preez BVSc DVStud MANZCVS DipECEIM

Mild to moderate equine asthma has been identified as one of the main causes of **poor performance** (including reduced willingness to go forward) in race, pleasure and sport horses. It is a multifactorial syndrome, with a poorly defined cause and affects adult horses, of **any age and breed**. It can be difficult to identify because affected horses are often **asymptomatic at rest**.

The aim of this talk is to increase awareness, recognition and

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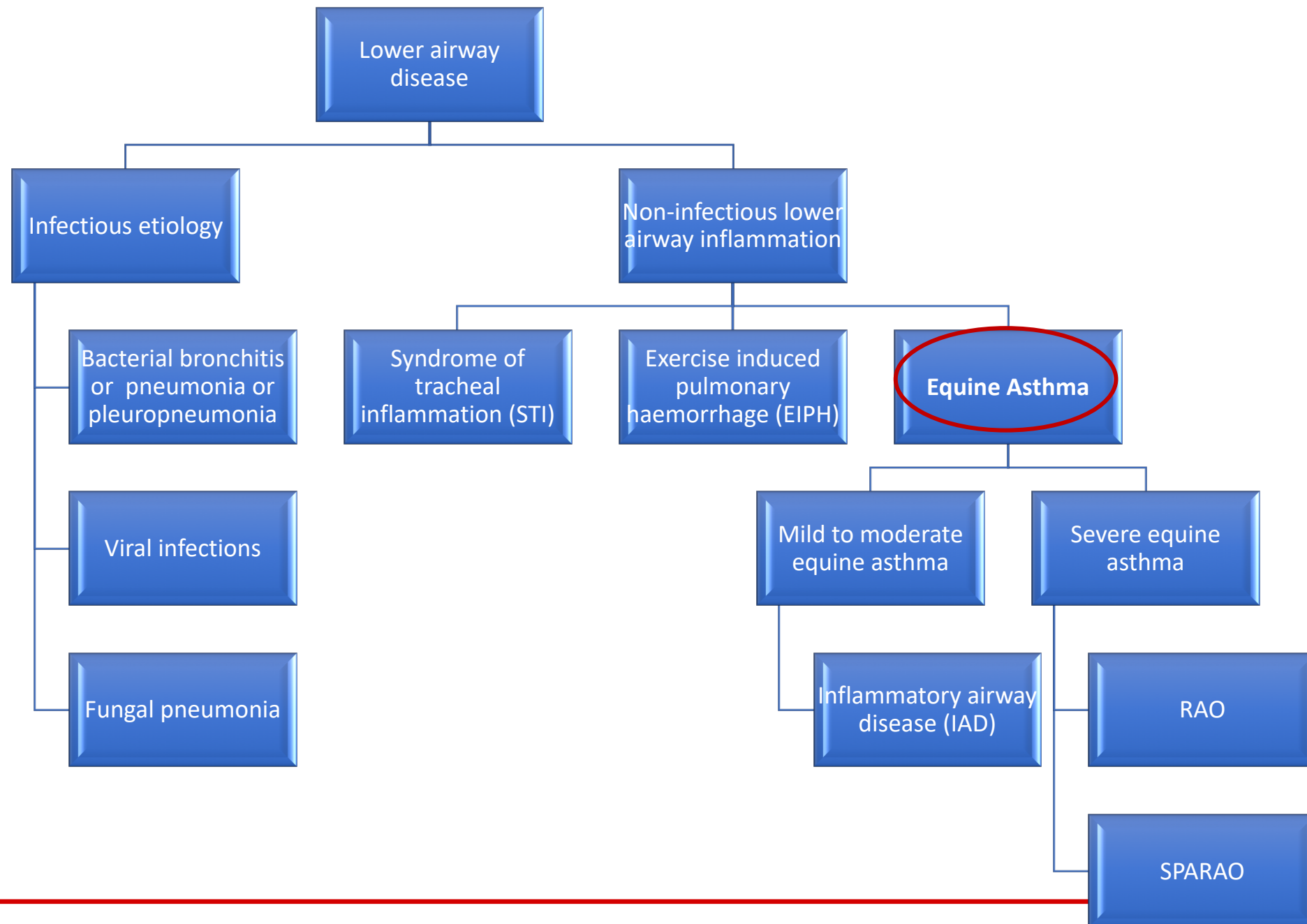
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Overview

- **What is Equine Asthma Syndrome**
 - **Mild to moderate equine asthma**
 - **Severe equine asthma**
 - How do we confirm your suspicions?
 - Possible treatment options?
 - **Questions**
- Why should we be concerned about it?
 - How can you recognize that your horse may be affected?
 - What causes it?



Consensus Statements of the American College of Veterinary Internal Medicine (ACVIM) provide the veterinary community with up-to-date information on the pathophysiology, diagnosis, and treatment of clinically important animal diseases. The ACVIM Board of Regents oversees selection of relevant topics, identification of panel members with the expertise to draft the statements, and other aspects of assuring the integrity of the process. The statements are derived from evidence-based medicine whenever possible and the panel offers interpretive comments when such evidence is inadequate or contradictory. A draft is prepared by the panel, followed by solicitation of input by the ACVIM membership which may be incorporated into the statement. It is then submitted to the Journal of Veterinary Internal Medicine, where it is edited prior to publication. The authors are solely responsible for the content of the statements.

Inflammatory Airway Disease of Horses—Revised Consensus Statement

L.L. Couët, J.M. Cardwell, V. Gerber, J.-P. Lavoie, R. Léguillette, and E.A. Richard

What is Equine Asthma

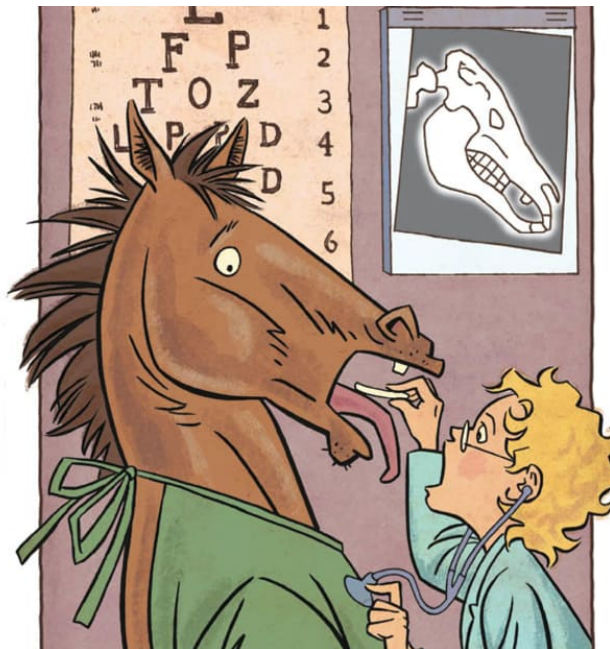
Non-infectious lower airway inflammation

Human asthma α equine asthma

Mild to Moderate Equine Asthma

Inflammatory Airway disease (IAD)

Mild bronchitis
Bronchiolitis



Severe Equine Asthma

Recurrent airway obstruction (RAO)
OR
Summer Pasture Associated – RAO (SPARAO)

Heaves
COPD

Emphysema or chronic bronchiolitis

Mild to moderate equine asthma - IAD

Why should we be concerned about it?

- **Common cause of poor performance**
- **High prevalence (rate of occurrence)**
 - 14 - 33%
 - Presented for poor performance – up to 70%
- **horses of ANY age**
 - More commonly reported in younger horses



Mild to moderate equine asthma - IAD

How can you recognize that your horse may be affected?

Performance

- Exercise intolerance OR ↑ respiratory effort during exercise
- Poor or ↓ performance
- ↓ willingness to perform in sport horses
- Prolonged recovery after exercise

Coughing

- Chronic → > 3 weeks
- Intermittent → eating, during exerciseat rest

± Nasal discharge

NO ↑ respiratory effort at rest!!

NO sign of systemic infection



<https://www.dailytelegraph.com.au/sport/superracing/doncaster-mile-pat-webster-living-the-dream-with-happy-clapper-after-slow-start/news-story/3f9f61be516c78c36a6517349d78660b>

Images courtesy Dr Sam Franklin



Mild to moderate equine asthma - IAD

What causes it?

Remains incompletely defined

Multifactorial syndrome

Likely causes

- Non-infectious agents
- Immune system dysfunction
 - ↳ Allergic response
 - Pollens
 - Moulds
 - Other inhaled particles

Bacterial & fungal wall fragments
(including endotoxins)
UF particles (< 100nm)
Mite debris

Noxious gasses

- Ammonia
- Carbon monoxide

Uncertain/potential causes

- Infectious agents
- EIPH



Images courtesy Dr Sam Franklin



Mild to moderate equine asthma - IAD

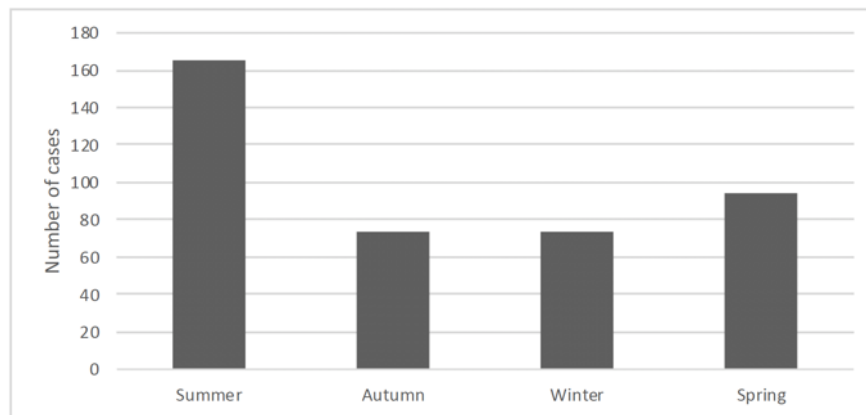
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Courtesy Dr Sam Franklin



Images courtesy Dr Sam Franklin

Mild to moderate equine asthma - IAD

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- Non-infectious agents
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 - Mite debris
- Immune system dysfunction
 - Allergic response
 - Pollens
 - Moulds
 - Other inhaled particles
 - Noxious gasses
 - Ammonia
 - Carbon monoxide

Uncertain/potential causes

- Infectious agents? → Bacterial infection
Viral infection
- EIPH → EIPH ↔ Equine asthma?



Severe equine asthma – RAO/Heaves

Why should we be concerned about it?

Syndrome of mature horses

- > 7 years old

Prevalence (occurrence rate)

- Northern hemisphere = 14 - 23%
- Southern hemisphere = unknown
 - Less prevalent than mild to moderate equine asthma

Heritable component

- Genetic predisposition in Warmbloods & Lipizzaners
- Also TBs, Arabians, Morgan horses and American Trotters

Cannot be cured, **ONLY** controlled

Severe equine asthma – RAO/Heaves

How can you recognize that your horse may be affected?

Performance

- Exercise intolerance → → → limited activity

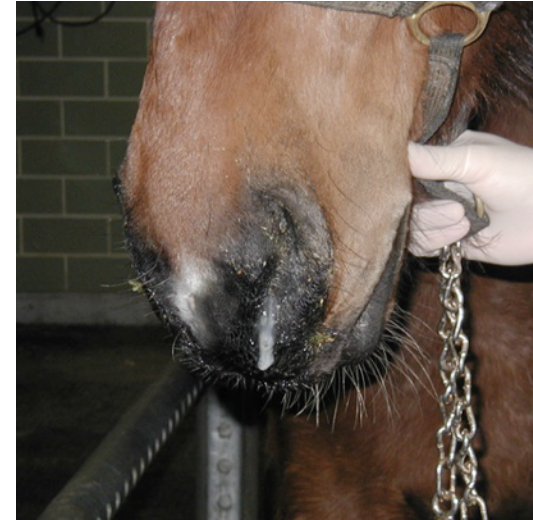
Coughing

- Regular and frequent

Nasal discharge

Respiratory distress at rest!

- Nostril flaring
- Long abdominal expiratory phase
- ↑ breathing effort at rest



Images courtesy Dr Sam Franklin







Severe equine asthma – RAO/Heaves

How can you recognize that your horse may be affected?

Performance

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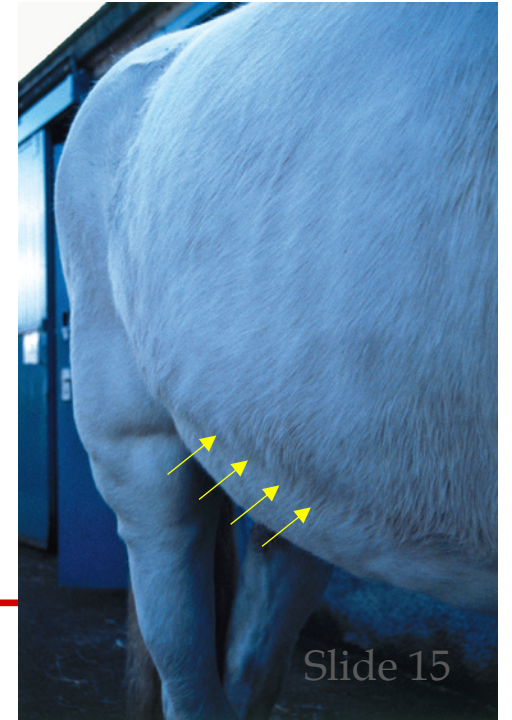
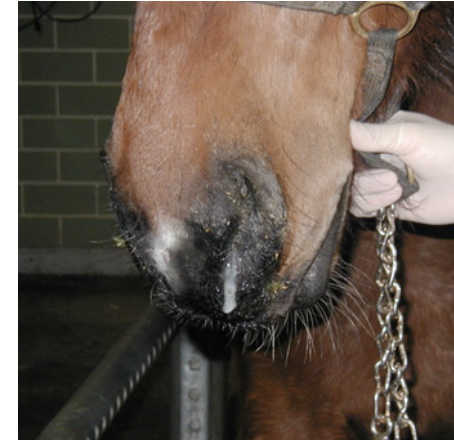
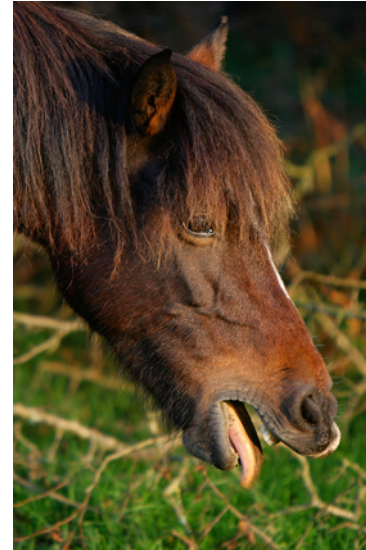
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Severe equine asthma – RAO/Heaves

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Coughing

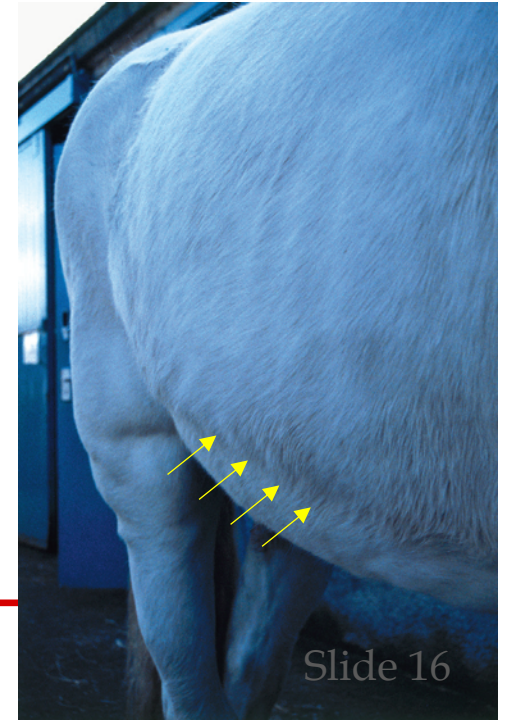
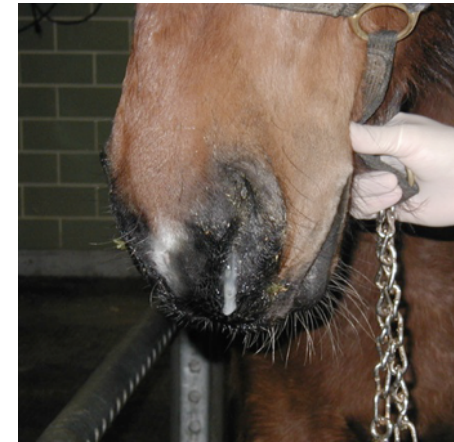
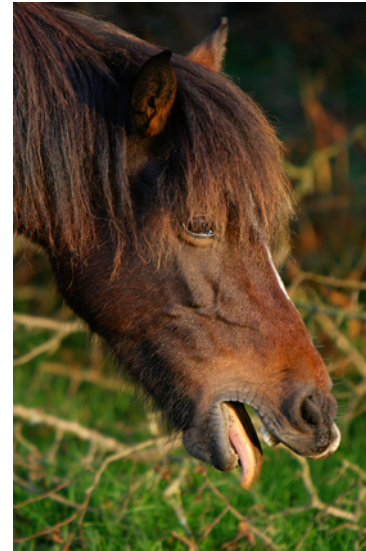
- Regular and frequent

Nasal discharge

Respiratory distress at rest!

- Nostril flaring
- Long abdominal expiratory phase
- ↑ breathing effort at rest
- “Heave” line

Weight loss if severe



Severe equine asthma – RAO/Heaves

What causes it?

Exposure to airborne organic dust

- stabling
- feeding hay

Delayed hypersensitivity response to inhaled allergens

- Fungi
 - Moulds
- } Hay

Non-specific inflammatory response to inhaled

- Endotoxin
- Inhaled particles
- Noxious gasses



Images courtesy Dr Sam Franklin

Severe equine asthma – SPARAO (Summer pasture associated RAO)

What causes it?

triggered by pasture environment

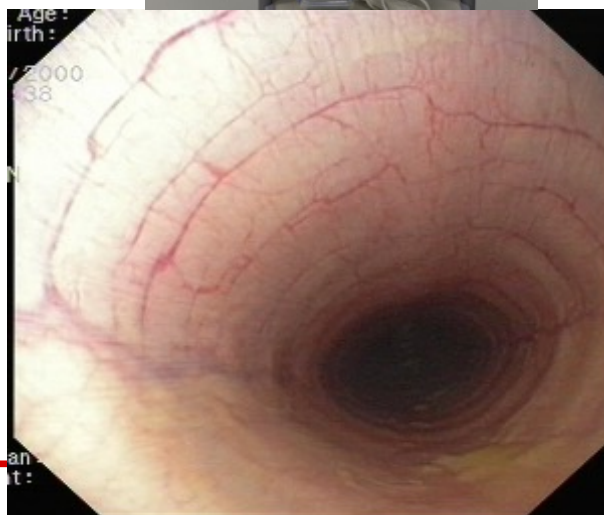
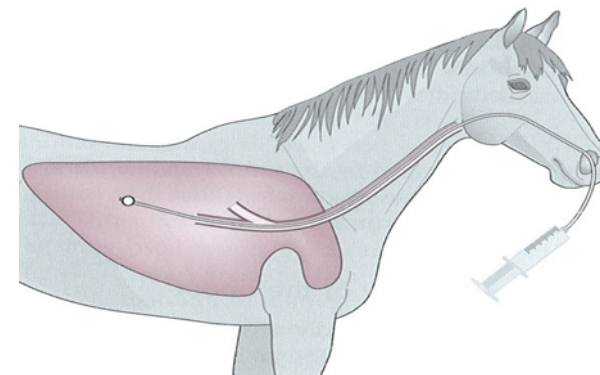
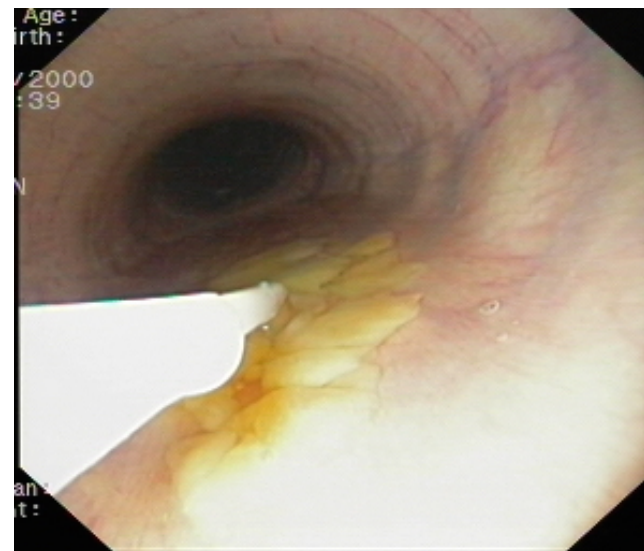
- **hypersensitivity to environmental allergens → pollens, moulds**
- **Seasonal**
 - late spring → early autumn
- **May also have hypersensitivity to stable dusts.**



Images courtesy Dr Sam Franklin

Diagnoses of Equine Asthma

Images courtesy Dr Sam Franklin

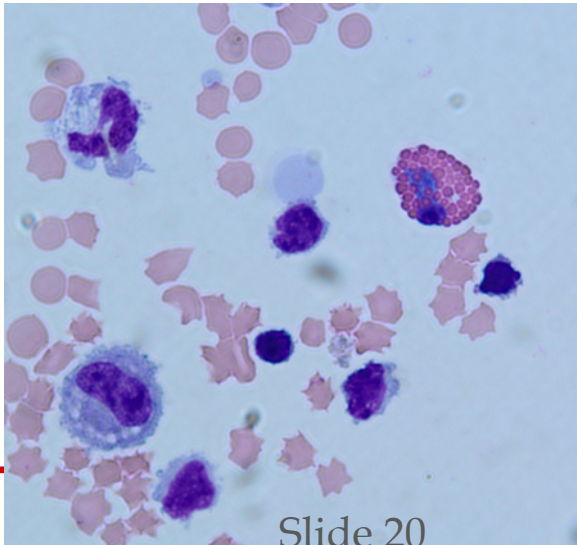
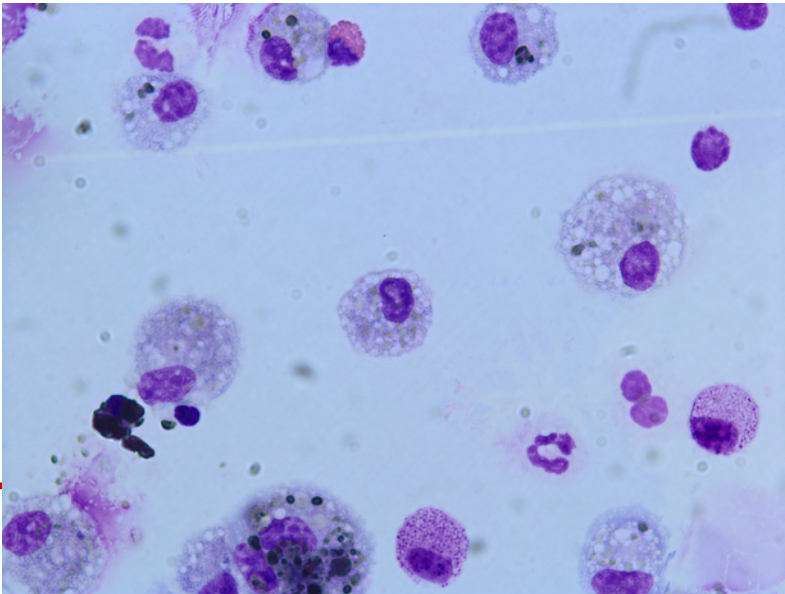
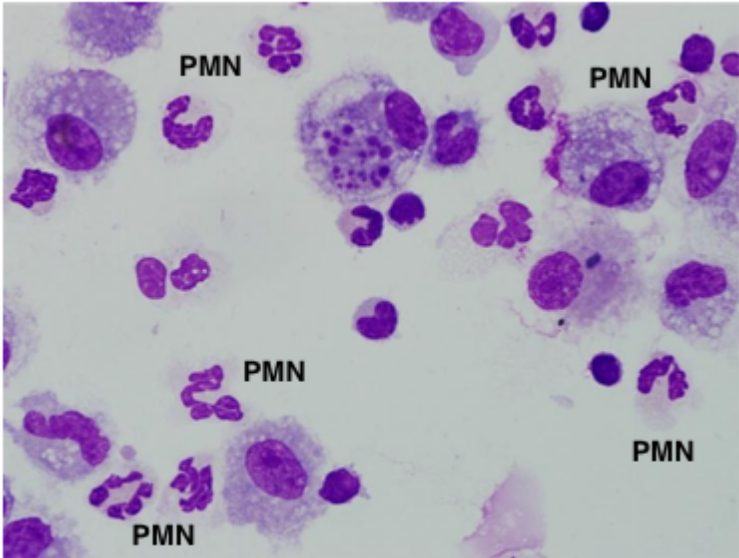


Diagnoses of Equine Asthma

TABLE 1: Tracheal wash and bronchoalveolar lavage differential cell count (mean \pm s.d., %) reference values in asymptomatic horses[§]

Cell type	Tracheal wash*	Bronchoalveolar lavage [†]
Respiratory epithelial cells [‡]	High numbers	Occasional
Macrophages	79.6 \pm 8.2	50–70%
Lymphocytes	9.3 \pm 5.8	30–50%
Neutrophils	9.3 \pm 4.9	< 5%
Mast cells	0 \pm 0	< 2%
Eosinophils	0.2 \pm 0.6	< 0.1%

* Richard *et al.* (2010). [†] Hoffman (2008). [‡] Not included in the differential leucocyte count. [§] These data have been taken from the literature and are used in the authors' laboratory. Data may differ from laboratory to laboratory.



Treatment of Equine Asthma

Goals

- **Reduce inflammation & mucus production**
- **Relief bronchospasm**
- **Improve performance**
- **Prevention**
 - Episodes or progression

1. Environmental management

2. Corticosteroids

3. Bronchodilators

Treatment of Equine Asthma –

Environmental management

Minimise inhaled particles – all types of Asthma

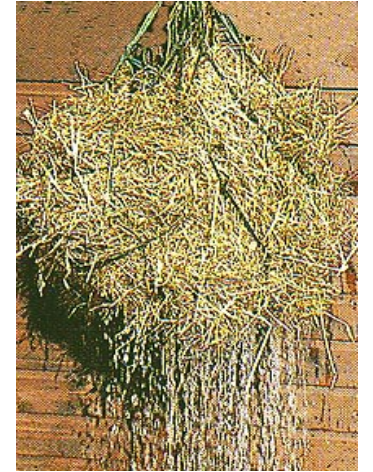
- **Paddocks**
- **Stables**
 - **Low dust bedding**
 - **Good ventilation**
 - **ALWAYS** remove from the stable when mucking out
 - **Separate airspace**
 - **NO** lofts over stables
- **Riding**
 - **Hose down/sprinkle arena**



Treatment of Equine Asthma –

Feeding strategies

- **Feed from the ground**
 - avoid haynets
- **Damp feed**
- **DO NOT feed dry hay**
 - Steam or soak the hay to reduce the inhalable particles
 - Avoid round bale feeding
 - Use alternatives – haylage, silage or Lucerne pellets
- **Complete pelleted diets in cases with severe asthma**



Images courtesy Dr Sam Franklin

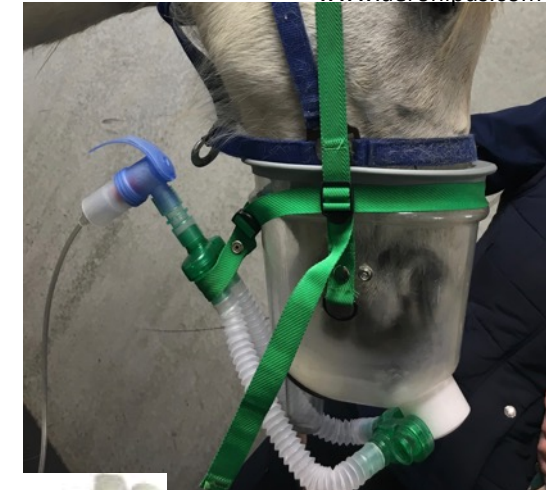


Treatment of Equine Asthma – Medical management

- **Corticosteroids**
 - anti-inflammatory
 - Systemic
 - Inhalation
 - Inhalers/“puffers”
 - Nebulisers
- **Bronchodilators**
 - Open airways & ↑ mucus clearance
 - Inhalers
 - Longer acting oral medication
- **Others**



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Conclusion

Equine asthma has been identified as one of the main causes of **poor performance** in race, pleasure and sport horses. It is a multifactorial syndrome, with a poorly defined cause and affects adult horses, of **any age and breed**.

The **environmental conditions** in SA is highly conducive to the development of equine asthma.

Identification of **risk factors** and adoption of management strategies may help to minimize, if not prevent, the development of equine asthma

Questions

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