Struggling to breathe

Equine asthma is a chronic, non-infectious condition that can range widely in severity. *Catherine Welton* finds out what we know about it



A nebuliser may be used if medications are required

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EQUINE ASTHMA (EA) is the umbrella term currently used to describe chronic, non-infectious, lower airway inflammation.

"Historically quite a few terms have been used, some were extrapolated from human medicine but weren't really applicable to horses," explains vet Rachel Jago, a specialist in equine internal medicine at Bell Equine in Kent. "Today we think of it as a spectrum, with severe equine asthma at one end of the scale, and mild to moderate asthma at the other."

The disease prevalence of severe equine asthma in the UK is estimated at around 15%.

SIGNS AND SEVERITY

DEPENDING on the severity of the case, a horse may present with different signs. For a horse with mild to moderate asthma, the first sign is often reduced exercise performance, whereas a horse with a severe case may have an obvious cough.

"A case of severe asthma would be frequently coughing at rest or at exercise. For mild or moderate, they might cough when they're first ridden, a clearing cough at the beginning of exercise but then not thereafter," says Rachel.

"You'll see poorer exercise performance in a mild to moderate case, but in a severe case they will be completely intolerant of exercise," she continues. "Another important difference is that a horse with severe asthma will have an increased respiratory rate and effort at rest, while a mild to moderate case will not."

Asthma can be triggered at different times of the year, by different environments.

"Classically in wintertime it's related to being stabled, but there is also a different, summer pasture form of asthma," says Rachel. "Some horses will have one of those conditions, others have both and it can be a year-round problem."

Some summer pasture cases can be harder for owners to detect early enough to put preventative measures in place: "These horses are sometimes less likely to cough, so owners are less likely to notice. They tend to be more advanced when we see them."



A dust free shavings bed rather than straw will help an asthmatic horse. Muck out with the horse out of the stable

DEVELOPING A DIAGNOSIS

IN the first instance, vets will assess based on history from the owner. Some severe cases result in an emergency call-out, and in such cases there can also be obvious clinical signs too, such as wheezing upon auscultation of (listening to) the lungs.

Other diagnostic procedures involve examining the airways themselves: "Using

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Coughing is the most obvious sign that may point to equine asthma, but a drop in exercise performance can also be an indicator of the condition

an endoscope, we go down into the trachea and into the airways where they split into the left and right lung lobes. We collect fluid from specific sites and examine it under the microscope. That can help rule other things out, such as a bacterial or fungal infection, or tumour cells."

When it comes to mild cases, the lungs will sound normal and asthma is harder to diagnose. "It's diagnosis by exclusion. You're trying to rule out heart disease or orthopaedic issues as the cause of the poor performance."

Rachel warns that, if left untreated, equine asthma can cause irreversible damage.

"Initially the airways become smaller due to the amount of mucus produced and start to spasm," she says. "Once you've had so many uncontrolled episodes, the airways are remodelled and that scarring is usually irreversible.

"It's a huge welfare issue in horses. A horse's normal respiratory rate is eight to 14 breaths per minute, but an asthmatic horse's rate may be 30 and they are living with that increased effort."

HOW IS IT TRIGGERED?

EXPOSURE tests conducted decades ago mean that we have a much better understanding of how stabled, severe equine asthma is triggered.

"We know it's due to inhaled dust because horses with a history of coughing were exposed to different forage and bedding, and their lung function tested," says Rachel.

While inhaled dust has many different components – including fungus, bacteria, plant debris and ammonia – the two main components associated with severe asthma are known to be endotoxins (a toxic substance released from the outer membrane of bacterial cells) and moulds.

Less is known, however,

What does the future hold?

ASTHMA does have a genetic component and research in humans has led to more personalised treatments, so the hope is that the same might be possible in horses in the future.

"Some groups of horses have asthma because they're allergic, others have more of a classical inflammatory pathway. Although it presents as the same thing, the pathway to get to that point is different and we haven't fully interrogated all those pathways in horses yet," Rachel explains.

"If we can identify the immune pathways, we could treat it at the beginning of the pathway not the end, so we're not just treating the clinical signs, but rather we're trying to prevent the reaction in the first place."

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about the causes of summer pasture asthma.

"When the horse is outside it has flare-ups when inhaling outdoor seasonal allergens," says Rachel. "Triggers are thought to be grass and tree pollens, but these are very difficult to exclude from the grazing environment so we rarely find out the exact cause in individual cases."

REMOVE TRIGGERS

ASTHMA is a chronic condition – once a horse has it, it will need to be managed for life. The most effective way to do so is to try to eradicate triggers from the animal's environment.

"It's like if you're allergic to cats, stop being around cats," says Rachel. "Step one is always environmental change, which usually means a dust-free bedding and changing the forage – dry hay is a no-no."

Exposure tests with horses on hay and straw showed that hay was the worst culprit: "If the horse was switched to haylage from hay they improved significantly, even when they were still bedded on straw."

"Soaking hay reduces the respirable dust by about 60% but it has to be completely immersed because the dust is still there, it's just been dampened so the horse isn't inhaling it. Also, you can't leave it soaking too long, as it can become mouldy, which defeats the object."

Rachel points out that steaming hay is not necessarily a silver bullet either: "There have been mixed results, with some studies showing an improvement but others not, so it's inconclusive at the moment."

Her preference is to feed good-quality haylage or to keep the horse out at grass.

"If laminitis is an issue, try feeding an equine-specific, lower-calorie brand of haylage. Pelleted fibre or forage can also be an option."

Although secondary to forage, bedding can still be a big trigger and Rachel says to avoid straw: "An alternative is dust-extracted shavings, or shredded paper and cardboard."

"The most effective approach is to try to eradicate triggers from the environment"

It's also important not to neglect your stable hygiene.

"Sometimes you look at stables and they're covered in cobwebs, with dust. You need to clean regularly," Rachel advises. "And when you sweep, don't do it with the horse present."

She acknowledges that on a livery yard owners have less control over their horse's environment: "The bedding and the forage of the horse next door will have an impact for your horse. On a livery yard you're more restricted than if you have sole use."



A less common form of the condition, summer pasture associated equine asthma, is thought to be triggered by grass and tree pollen

MEDICATE OR MANAGE?

"MEDICATION should be an emergency measure until management changes can be put into place," Rachel explains. "Most horses, if you catch them at the first episode, when they don't have any irreversible airway remodelling, you should be able to manage them with environmental change in the long term. Where that is not possible, medication can help.

"Steroids are the cornerstone of medical management, in injectable, oral or inhaled form. There are asthma inhalers or nebulisers. They all come with their pros and cons. One of the biggest downsides of steroids is the risk of laminitis. Inhaling should, in theory, have fewer side effects but there is still a risk of immune suppression and laminitis. Injectable steroids carry the highest risk of laminitis."

Other medications can help dilate the horse's airways, but Rachel says these are for short-term use only. "They can be inhaled or taken orally as a powder. I always say in a 'rescue' situation it's fine but if you open the airways without steroids, you're just allowing more allergen exposure." **H&H**

NEXT WEEK **Lameness assessment: what your vet considers**



Classically the condition occurs in horses stabled in winter



A dusty, cobwebby environment is a known trigger of asthma

Pictures by Westend61/Alamy, Becky Selina/Alamy and Catherine Welton

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