

Respiratory Health By Heather Smith Thomas

Horses today don't always have natural or ideal conditions; they may not be roaming over grasslands and breathing clean air. We often keep them confined indoors with poor ventilation, or feed hay (which often contains more dust and molds than green forage) or ride them in a dusty arena. Horsemen must be diligent in management efforts, to maintain good respiratory health in these animals. Melissa Mazan, DVM, ACVIM, Associate Professor and Director of Equine Sports Medicine at Tufts Cummings School of Veterinary Medicine says that when we look at this seasonally, it's always a balance to try to determine whether keeping a horse indoors or outdoors is better, for that particular horse. The outside environment is often better than the dusty air in an enclosed barn, but there are also days with air pollution, or high pollen levels, etc. that can also affect the horse detrimentally. "We don't always know why some horses are adversely affected, whether there's a certain degree of allergen components or if it's simply exposure to particulate matter," says Mazan.

"We have to look at where and when the horse has more particulate exposure. This may depend on where you live and what the weather is like. The classic horse with heaves is usually a somewhat older horse that has intermittent episodes of difficulty breathing. We notice changes in that horse when it goes indoors. This is typically a response to the high level of particulates inside the barn. There does seem to be a certain amount of immune response to hay, mold spores, etc. The horse is exposed to some molds even in good hay. Obviously good hay is better than bad hay, but there are still some spores and some dust. These horses will go into a breathing crisis," she explains.

Other things can be a factor as well, when horses are inside. "Hay that is stored overhead is always raining down some dust. Horses housed near an indoor arena may be inhaling the dust floating about, unless the arena is always kept in top shape by continuous watering, or with use of various products that can be laid down to minimize dust." If you are cleaning the barn, whether putting in new stall bedding, whacking down cobwebs or sweeping the aisle, you are also creating or stirring up dust.

WINTER RESPIRATORY PROBLEMS - Winter often results in increased time spent indoors, and increased exposure to particulates. It's almost always more dusty inside a barn than outdoors. "When you stand in the stall and look at a beam of sunlight coming through, you can see the tiny dust particles in the air. The ones that you can see probably get caught in the horse's nose (to be expelled in mucus) but if you can see them, then you know there are also smaller ones that you can't see," says Mazan.

Cold weather in itself may also create some irritation of the horse's airways. "We've known for years that people who are exposed to very cold weather have a reactive airway syndrome. Cross-country skiers, for instance, who are breathing deeply in the cold, may have problems. Cold can make your airways twitchy, which may make you cough, which may make you short of breath. Mike Davis, at the veterinary school in Oklahoma has been doing work on cold exposure in horses and airway disease and has found that extreme cold can cause some inflammation, and airway reactivity. So if you

are in a cold climate, or on a cold day, it's not a good time to be galloping your horse," says Mazan. Extreme exertion in very cold air is not wise, whether it's you or your horse.

SPRING AND SUMMER PROBLEMS - If you live in the South, your horses may experience breathing difficulties outdoors during wet, warm seasons. "In the South it's also due to mold, but in this instance it's out in the pasture instead of in the barn. The summer pasture associated reactive airway diseases are due to the same problem—overwhelming exposure to things the lungs don't like," says Mazan.

"Though we usually think of this being a southern problem, we also see it here in the Northeast and other regions, when mold blooms are high. There are things you can do to help prevent this, and one is pasture care. Many people don't think about getting their pastures de-thatched, but this can help. Think of it like grooming a dog; when there is a thick under-layer of hair you must brush the hair coat to get it out. Pastures sometimes get like that also, with a deep under-layer of grass. If you have a lawn and want good green grass in the summer, you need to rake it in the spring to get all the dead grass out. That dead thatch is a beautiful place for mold to flourish," she explains. "Molds tend to all bloom at once (when conditions are right), so you have this sudden expelling of huge numbers of spores into the air. This can cause breathing problems."

Then there is also the pollen season. "Some people are looking for allergens to blame for breathing problems, but it doesn't even take a specific allergy. Pollen, for you or your horse, contains a high level of endotoxin. Hay dust and shavings, arena dust, etc. are high in endotoxins, and so is grain. Endotoxins are produced in the outer walls or pieces of the outer walls of dead gram-negative bacteria. These endotoxins can cause airway inflammation. If you or your horse breathes in a lot of pollen, it doesn't have to be that you are allergic to the pollen." Allergy may be one component, but not the only factor. The main problem may be a toxic inflammatory reaction.

If your horse is pastured next to a crop of corn or alfalfa, there may be times in the spring or summer that the pollens are detrimental, if the prevailing breezes bring these over the pasture. Getting the horse indoors may help, though some of the pollen may also come inside the barn via air ventilation/circulation.

In summer when it's dry, and weather is clear, your horse may still have problems if where you are riding gets dusty. "Sometimes there may also be a lot of ozone in the air, which may be a factor in air quality. We don't have much data about ozone, but studies that were done a while ago in England by David Marlin and his group showed that greater exposure to ozone results in worse lung function in horses. In general, ozone is not good for humans, particularly sick ones. If you have a horse that you know has respiratory problems and you know the air quality is poor outside, it might be wise to bring that horse indoors that day, if you have a barn that's well ventilated," she says. But being in a dusty barn won't be better than being outside.

"If the air quality measures (as you can find on your computer) in the summer are poor you should keep in mind that it's not just going to be bad breathing conditions for you, but also for your horse, especially if you are riding him. Your horse is probably breathing harder and deeper than you are; he is working harder than the rider, and getting more of that bad air in the lower airways," explains Mazan.

WHAT CAN YOU DO - To look at the big picture, think in terms of reducing exposure to particulates and endotoxins, which go hand in hand. “Keep the horse’s environment clean. Prevent dusty situations. Try to keep the air as clean as you can. Some of that is completely out of your control, but other factors are not. Sometimes people get discouraged because they can’t keep it perfect, so they don’t do anything. Any changes they can make, however, are good,” she says. It may be a matter of degree, and if you can reduce any of the irritants, this can help. You can think of it like the straw that broke the camel’s back; cumulative respiratory stresses may add up to create a problem, and if you can reduce or eliminate some of those stresses, the horse will be much better off.

“The horse may be able to tolerate some mold spores in the hay, and may be able to tolerate some dusty shavings, but then he gets changed to a stall that’s right next to a dusty indoor arena, and that’s too much. I tell owners to not be discouraged if they can’t achieve perfect conditions. Achieving better conditions is still worthwhile,” says Mazan. Work on the particular conditions you can control, to improve them. This may make the difference in whether or not the horse can handle the irritants or becomes a respiratory cripple.

Regardless of whether you live in the North or the South, or it’s winter or summer, the important thing is to reduce the amount of dust, exposure to molds, pollens, etc. Think about how you can achieve clean air for the horse. Sometimes your individual circumstances make it more difficult, such as if you live next to a dusty county road with a lot of traffic—with dust billowing constantly over your pastures or paddocks. Sprinkling your immediate area, can help, however, like your riding arena or your own driveway. Choosing dust-free bedding material for inside the barn can also help. Many of the best choices are the pellet types of bedding.

Mazan recommends keeping a diary, if you have a horse with respiratory problems, making notes as to when the horse has trouble. Then you might be able to see a pattern, especially regarding seasonality. You may then be able to get ahead of the curve the next year, knowing when to expect a problem and to possibly change some things in the horse’s environment or become more diligent on dust control.