

Why allergies happen, how they affect your horse's body,
and how to avoid or treat them

LIVING WITH Allergies

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Allergies can develop at any time, in any horse, and for virtually any reason. Many allergic reactions are evident as a mild case of transient hives. More severe ones, however, can truly take a toll on your horse's health and make him miserable. Allergies primarily affect the immune, respiratory, and integumentary (skin) systems and, if unmanaged, can seriously impact an animal's performance and well-being. So let's review why allergies happen, how they affect your horse's body, and how to treat them—or, better yet, how to avoid them altogether.

Allergies and the Immune System

The powerful network of cells and antibodies known as the immune system can recognize dangerous invaders and disarm them before they hurt the host. Such an immune response is essential for survival; it protects against all sorts of pathogens, from bacteria and viruses to fungi and parasites. But the immune system is not a perfect one. Sometimes it goes overboard and reacts in the face of a generally harmless substance—which the body begins to recognize as an allergen—and an allergic reaction occurs. The results are problematic.

"An antibody called immunoglobulin E (IgE) is produced when the body detects an allergen," says Samuel White, PhD, a professor of equine science at Nottingham Trent University, in England, known for his research on allergen identification and diagnostic development in the horse. "IgE binds to cells in the body and releases inflammatory molecules. These molecules are responsible for the appearance of clinical signs commonly associated with allergies, such as itching."

Avoiding the Triggering Allergens

Horses' environments are full of substances that can trigger the immune system and cause allergies. "Hay naturally contains microscopic fungal spores, plus bacterial and dust components that horses inhale as they eat," explains Lisa Fultz, DVM, MS, Dipl. ACVIM, a Florida-based large animal internal medicine specialist with an interest in respiratory disease. "Barns can also have noxious gases from the ammonia in urine. These inhaled substances can trigger an allergic response that causes narrowing of the airways, mucous secretion, and cough."

Luckily, minimizing common allergens in your horse's environment could suffice to restore his comfort and breathing. "Simple strategies for dust reduction include removing the horses from the stalls when mucking out and blowing the aisle or ditching the leaf blower altogether," Fultz says. "Avoid storing hay in the same barn as sensitive horses, since hay particles and spores can be irritating, even from a distance and even if they are not visible in the air. Soaking hay can be time-consuming but is vital to



helping horses that are showing signs of respiratory allergy.”

Feeding hay at ground level offers an added benefit: “To maximize respiratory health, horses should spend portions of the day with their heads down, the way nature intended,” she adds. “This encourages the natural drainage of irritants, allergens, and bacteria from the airways.”

Respiratory Allergies and Asthma

“Every cough means something” is a common saying among equine veterinarians. That something could very well be allergy-induced asthma. Recently, researchers have delved into the causes and consequences of what now falls under the umbrella term equine asthma.

“In severely affected horses, we would expect to see lower airway inflammation and airway obstruction, manifesting as increased respiratory effort, frequent coughing, mucous buildup, and exercise intolerance,” White says. “Milder cases of asthma are still associated with coughing, airway inflammation, mucous production, and poor performance.”

Because many respiratory allergies come from the dust in hay and bedding, veterinarians generally recommend maximizing fresh-air time through turnout. However, a small subcategory of asthmatic horses suffer from pasture-associated equine asthma. These animals require the

opposite regimen. Pollen and other plant-based aeroallergens are the source of their distress, and they fare much better inside a well-ventilated barn. Pasture-associated equine asthma is most prevalent during the summer in the southeastern U.S. but has been reported worldwide.

“**Avoid storing hay in the same barn as sensitive horses.**”

DR. LISA FULTZ

Skin Allergies

The body’s largest organ, the skin serves as the immune system’s first protective barrier. This makes it a common site for the body’s expression of allergic reactions. Urticaria (hives) is the most widely reported presentation of a skin allergy. Generally self-limiting and harmless, hives are nonetheless uncomfortable and can occasionally lead to angioedema (swelling under the skin) or purpura (blood vessels rupturing and leaking blood internally). Both can be very serious. Skin allergies can also cause pruritus (itching) and associated hair loss. Left untreated, these conditions can not only cause discomfort but also lead to raw, broken skin that allows bacteria to invade

and infect. Therefore, it is important to get your veterinarian involved right away.

Many allergens can cause skin reactions. Most commonly, horses develop an allergy to the saliva of biting insects (e.g., gnats, black flies, stable flies, horn flies) known as insect bite hypersensitivity (IBH). Because insects are omnipresent in the horse’s environment at least some portion of the year, IBH is particularly labor-intensive to manage. Helpful steps you can take include providing full-body fly apparel, applying fly spray liberally, avoiding turnout at dusk and dawn, and using fans in stalls to disrupt insect flying patterns. Preventing bites is key, because itching-inflicted injury to hair follicles and skin can take months to heal.

Managing and Treating Allergies

Many medications are available to help manage your horse’s allergies, some of which are best used as preventives in sensitive horses. These might include antihistamines such as cetirizine, which you can buy over the counter as Zyrtec from any drug store or pharmacy, or hydroxyzine, which requires a veterinary prescription. Your veterinarian might also prescribe corticosteroids such as dexamethasone or prednisolone, which provide fast and effective relief from immune-mediated conditions such as allergies because of their immunosuppressive properties.



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While relatively safe for use in most horses, these potent anti-inflammatory drugs can cause a serious potential side effect in some individuals: an increased risk of developing the debilitating hoof disease laminitis. Veterinarians are especially wary of administering corticosteroids to allergic horses that suffer from pituitary pars intermedia dysfunction, insulin dysregulation, and/or equine metabolic syndrome, because these conditions are also risk factors for laminitis. Therefore, in many of these cases, veterinarians use steroids sparingly, says Fultz, at lower doses than recommended, or they turn to non-steroidal medications.

A newer prescription drug, Apoquel (oclacitinib) has recently hit the market and might prove useful for allergic horses. "Even though the drug is currently labeled for use in dogs (with allergic dermatitis), initial studies show that horses absorb it well," Fultz says. The drug targets pro-inflammatory proteins, called cytokines, responsible for itching and inflammation,



Intradermal allergy testing is the gold standard for identifying respiratory and skin allergies.

relieving signs of skin allergies. Unlike steroids, the drug has minimal impact on the immune system. She reports choosing Apoquel over corticosteroids in several of her allergic patients that are also at risk for developing laminitis. She adds, however, that some horses' allergy signs are so dramatic that corticosteroids are the most logical choice, at least initially.

If you must give corticosteroids to an asthmatic horse, your veterinarian might prescribe them to be administered via an aerosol route through the nostril (rather than orally or via injection), which minimizes the amount that gets into the general circulation. You can use a nebulizer, an inhaler, or a single-nostril aerosol chamber. "The anti-inflammatory/immunosuppressive response is ... confined almost exclusively to the lungs, avoiding a bodywide effect," says Fultz.

Immunotherapy

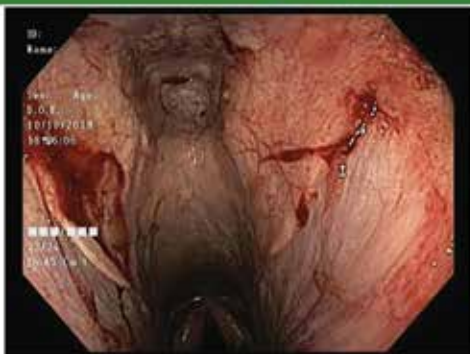
Is it possible to cure an allergy? "Immunotherapy, also called hyposensitization therapy, is a strategy used to gain allergen-specific immune tolerance," says Fultz.

In a 2019 study Radwanski et al. found a significant improvement in 76% of horses with skin allergies within one year of using allergen-desensitization serums.

"Most commonly, immunotherapy involves injecting gradually increasing doses of a specific allergen subcutaneously (just under the skin)," explains White. "These are known as allergy shots. They result in the production of antibodies that block the allergy-causing IgE from recognizing the allergen, thus preventing the associated symptoms."

Fultz adds that over time this process teaches the immune system to tolerate exposure to substances it previously considered irritating. Innovation is constantly occurring in the field of immunotherapy. Currently, White is part of a team evaluating the possibility of delivering allergy 'shots' in the form of a juice squirted under the horse's tongue. This might, down the road, be an easier and less expensive alternative for horse owners.

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Allergy Testing

Before your vet administers immunotherapy, though, you must identify your horse's respiratory and skin allergies. Intradermal allergy testing is the gold standard for this and involves a veterinary dermatologist subcutaneously injecting very small quantities of potential allergens into a clipped patch of the horse's neck. If the horse is allergic to any of them, his immune system elicits a response, and a hive forms at the injection site. The second option is serum (blood) testing. While easy to perform, Fultz says it's not always accurate at predicting the exact allergens.

If she suspects a product or ingredient to be the source of an allergic reaction, Fultz recommends performing elimination trials. Remove all nonessential supplements and topical solutions from your horse's diet and routine. This includes dietary supplements, shampoos, liniments, fly sprays, coat conditioners, etc. Then reintroduce each, one by one, while monitoring for hives or other signs

of allergies. It's an easy and cost-free strategy you can do yourself.

Nutritional Supplements: Flaxseed

On the topic of simple and economical allergy management, a readily accessible ingredient that helps many horses is flaxseed. It is no surprise we see this omega-3-rich plant with anti-inflammatory and antioxidative properties in many skin and allergy supplements. Researchers have proven flaxseed reduces skin lesions in IBH horses (O'Neill et al., 2002).

Unique Allergens

A horse can hypothetically be allergic to anything he touches, inhales, ingests, or has applied to or injected into his body. Some allergic reactions are unexpected, as White has realized through his research.

"Recently, we have found that latex, which is everywhere in the horse's environment—embedded in riding surfaces and racetracks, for example—may be associated with severe equine

asthma," he says. "In fact, in our recent study (TheHorse.com/193736) evaluating almost 400 potential allergens, latex proteins were the most significant allergens for diagnosing severe equine asthma."

White believes that while further research in horses is warranted, veterinarians should consider latex exposure a potential risk to equine respiratory health.

Though rare, allergic reactions to medications and vaccines also occur. These can be severe and lead to a life-threatening, airway-blocking, whole-body reaction called anaphylaxis. Because it's essentially impossible to predict these events, it's important to keep records of your horse's previous reactions and communicate them to your veterinarian.

Take-Home Message

With equine allergies, prevention is a horse owner's best bet. Insect and pollen season is here. If your horse's allergies are seasonal, talk to your veterinarian about steps you can take to stay ahead of them. 🐾

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