

FACTSHEET

EQUINE ALLERGIES

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ALLERGIES AND ALLERGIC DERMATITIS IN HORSES

ALLERGEN AVOIDANCE KEY TO CONTROLLING ALLERGIES, BUT WHAT ELSE CAN HELP?

Like people, horses can develop allergies to pollens/trees/plants, dust components and mites, molds, medications, shampoos, and food.¹ Typical reactions to allergen exposure include severe itching (pruritus) and the development of hives (urticaria). Veterinary intervention, particularly in chronic cases, is directed at controlling the itch, treating the secondary dermatitis and trauma caused by the horse's scratching and rubbing, and discussing allergen avoidance.

WHAT ARE ALLERGIES AND ALLERGIC REACTIONS?

Allergies are a result of the immune system overreacting to certain substances.² When functioning normally, the immune system protects the horse from invading organisms, such as bacteria and viruses. White blood cells such as B and T cells, macrophages, and various inflammatory mediators all work together to identify the invading organism and neutralize/destroy it. A hyperreactive immune system, however, becomes sensitized to nonpathogenic stimuli such as dust, molds, and plant materials, producing very specific antibodies called immunoglobulin E (IgE). When the horse encounters the same allergen again, IgE binds to mast cells, causing the release of histamine and other very potent inflammatory mediators. This spurs the development of clinical signs associated with allergies, primarily urticaria and pruritus.^{3,4}

URTICARIA: A TYPICAL SIGN OF ALLERGIES

The most common sign of allergies in horses is skin and respiratory tract inflammation (the latter being asthma). Only dermatologic manifestations—primarily urticaria—are discussed herein. Urticaria can result from direct contact with or following ingestion, inhalation, and injection of an allergen. While typically non-life-threatening, urticaria does have a “major impact on the animal, owner, and veterinarian.”¹ In addition to affecting the horse's comfort, whether at rest or during riding, competing, and training, chronic urticaria can cause owners compassion fatigue due to the need for ongoing management. Many hives are also pruritic, causing affected horses to rub and scratch themselves, frequently damaging the skin and potentially causing infection.

COMMON ALLERGENS

Environmental (Atopic) and Contact

Typical airborne environmental allergens include molds and airborne particulate matter, including bacteria, fungi, pollens, and arthropods, such as mites dust, the horse inhales. Medications such as antibiotics, vaccinations, anti-inflammatory drugs (phenylbutazone, flunixin), and anthelmintics (dewormers) can result in allergic reactions. Chemicals or products that come in contact with the skin, such as shampoos or insect repellents, can also cause contact dermatitis and allergic reactions.⁴

Insect Bite Hypersensitivity (IBH, Sweet Itch)

Insect bites, specifically those from biting midges called *Culicoides* spp, can cause eczema-like lesions with scales, crusts, thickened skin,



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and damaged dermis from scratching (this is a highly pruritic condition). The prevalence of IBH is 30-60% globally, and presentation is typically seasonal, depending on the geographical distribution and life cycle of the biting midge. This is the most common cause of allergies in horses.⁴

Food Allergies

Compared to environmental allergies, food allergies reportedly occur less commonly in horses (unlike other species such as dogs and humans). A recent yet somewhat heated dermatologic debate was published in the journal *Veterinary Dermatology* exploring the role of food allergies in the development of urticaria in racehorses. Two studies published in French journals suggested urticaria occurred commonly in racehorses (82% of 22 horses studied). The horses were unresponsive to glucocorticoids, a mainstay in allergy management, and intradermal testing (IDT) with various food-derived allergens suggested the potential role of concentrated feeds in chronic urticaria.^{5,6}

In response, however, another group of experts wrote, “There is a notable paucity of well-defined cases of food allergy in the peer-reviewed literature.” Those veterinarians suggested the reactions could have been due to the dust, molds, and forage mites associated with the feeds, rather than the feed itself. Further, IDT is not well-standardized in horses. Finally, changing feeds to alleviate “food allergies” might simply have changed the environmental allergies (dust, molds, forage mites) rather than resolving food allergies.

Common food items blamed for causing adverse reactions include vitamins and minerals, hays/pasture, and supplements.^{1,2}

Others

Researchers and veterinarians have reported a wide variety of additional, and likely surprising, causes of urticaria. These include temperature changes (cold packing, hot shower), skin pressure, exercise, sun exposure, internal and external parasites, and even psychogenic stress (e.g., introduction of a new herd mate, trailering).¹ While the underlying cause of stress in the development of allergies remains undetermined, some experts believe stress can negatively affect the intestinal microbiome, resulting in leaky gut syndrome. The clinical manifestation for leaky gut is allergy-type reactions such as hives.⁷ Often, the underlying cause of urticaria is never identified, making management and allergen avoidance difficult.¹

CAN WE CURE A HORSE'S ALLERGIES?

In a nutshell, no¹. Despite active research in this field, steroids, including dexamethasone or prednisolone, remain the mainstay of managing allergic reactions in horses.

Various other therapies might also help, such as antihistamines (hydroxyzine, cetirizine, diphenhydramine) and fatty acid/omega-3 supplements. Newer treatment options include oclacitinib maleate, which is an effective inhibitor of various inflammatory mediators involved in allergic dermatitis, including the “pruritus cytokine” interleukin (IL)-31.⁹ Scientists are also working to produce various allergy vaccines, such as those against IL-5—a key cytokine for eosinophils and IL-31¹⁰.

ALLERGY TESTING AND INJECTIONS

Veterinarians can perform allergy testing using IDT (“skin prick” test) or serologic methods that measure IgE the body produces in response to a specific allergen. Based on those results, they might recommend allergen-specific immunotherapy (ASIT, or “allergy shots”). The efficacy of this approach,

however, remains unclear, with some researchers reporting only variable efficacy and others reporting a “good to excellent response^{4,8}.” In a recent study of 58 horses undergoing ASIT based on IDT, four were euthanized due to uncontrolled skin disease, 18 had no signs of skin disease for two years after, but 29 (61.7%) still required medication to control skin disease, including glucocorticoids, antihistamines, ASIT, and management changes. Overall, the efficacy of ASIT was only 64%. The authors suggested chronic urticaria could likely be managed with every-other-day low dosing of prednisolone, as long as the horse has no evidence of laminitis.

Management aimed at allergen avoidance plays an essential role in helping affected horses. Changing the horse's bedding type,

ASIT is a lifelong therapy, and you must wait 3-12 months to assess efficacy.

feed, and even blankets and moving him to another field/pasture/stall might prove useful in helping control this incurable condition.

TAKE-HOME MESSAGE

A wide variety of seemingly benign stimulants can result in serious, and potentially life-threatening, allergic reactions. Limitations in diagnostic testing and targeted treatments mean this condition remains incurable, only manageable. Still, some horses with chronic or progressive allergies require humane euthanasia due to the seriousness of the disease.

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