



EQUINE HEALTH UPDATE

For Horse Owners and Veterinarians
Vol. 13, Issue No. 1 – 2012

Is My Horse at Risk for Laminitis?

Stacy H. Tinkler, DVM, DACVIM

Laminitis (also known as Founder) is one of the most devastating and feared diseases from which horses can suffer. It is caused by extremely painful inflammation in the sensitive laminae in the hoof, and can result in death or permanent lameness. Recent research has shed new light on the causes of laminitis. Most importantly, we now know what owners can do to minimize their own horse's risk.

Although horses can develop laminitis after serious diseases such as pneumonia or retained placenta, **most cases of laminitis occur in otherwise healthy horses and ponies kept at pasture.**

There are some very important risk factors that pre-dispose horses to pasture-associated laminitis:

- 🌀 The risk is highest when grasses are growing rapidly and contain large amounts of simple (nonstructural) carbohydrates such as sugars, fructans, or starches. These times occur when there is mild weather and heavy rainfall such as in the spring, early summer and fall. They can also accumulate when pastures have been “stressed” (during periods of drought or frost).
- 🌀 Metabolic and endocrine (hormonal) factors play a role. Obesity and high blood insulin levels are associated with increased risk of pasture-associated laminitis. Often at-risk horses are “easy keepers” and have increased fat deposits over their top lines. This gives rise to the “cresty neck” that is typical of horses with metabolic abnormalities. (see Figure 1).
- 🌀 A genetic predisposition has been identified in some pony breeds, and all ponies, as well as “easy keeper” breeds such as Morgans, Tennessee Walking Horses, and Spanish Mustangs appear predisposed to EMS (equine metabolic syndrome) and pasture-associated laminitis. However, **all breeds are at risk.**
- 🌀 Equine pituitary pars intermedia dysfunction (PPID, or Equine Cushing's disease) may play a role as well. All horses and ponies that develop laminitis without an obvious cause should be tested to rule out this condition.

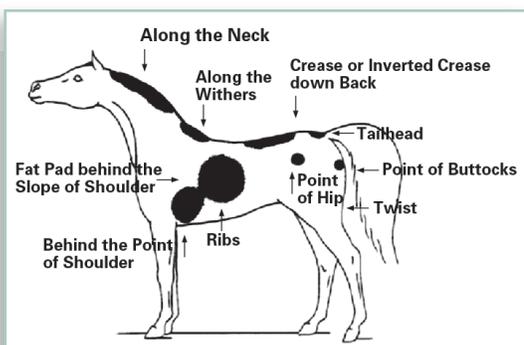


Figure 1: Typical areas of regional fat accumulation in horses with EMS (equine metabolic syndrome)

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News & Notes

Improving Fracture Treatment in the Horse

Fractures continue to be a major problem in the equine industry. By their very nature, fractures are often dramatic injuries and require a commitment of time and resources to treat successfully. A recent survey from Purdue University showed that 10% of deaths in horses in Indiana were due to limb fractures. High profile racing fractures have recently focused public attention on this issue of fractures in racing, as well as in other equestrian sports. A clear difference between major equine fractures, and equivalent injuries in humans, is the tremendous challenge in successfully treating a fracture in the horse. This challenge is in part due to the size and fractious nature of the horse. Advances in our capability to repair major equine fractures are needed, which is why we have undertaken a research study exploring improved surgical repair of fractures. A method of fracture treatment that is suited to the high energy fractures that horses often sustain is **external fixation**, where pins are placed through intact bone and attached to each other externally to stabilize a fracture. A simplified form of this method that has been successful in fracture treatment in horses is **transfixation casting**. Transfixation casting involves positioning pins across intact bone above the fracture and encasing the limb in a cast attached to the pins (see Figure 1). While effective, this method has complications that currently limit its use, including secondary fracture through the pin holes and pin loosening. Our current study aims to address these complications by examining the forces that occur at the junction of the pins and the bone. This location is the 'weak link' in external fixation across all species. We will use computer models of the transfixation cast to determine the best pin configuration to use in horses that will minimize the stresses on the bone where the pins enter. We also plan to determine whether using a new surface on the pins themselves will allow the bone to attach to the pins to keep them stable thereby reducing pin loosening. Minimizing the complications associated with transfixation casting will provide a safer, more reliable method to treat major equine fractures and reduce the impact they have in the industry. Stay tuned for our results!

— Dr. Tim Lescun, BVSc, MS, DACVS

Recruiting Horses for a Study on Chronic Lung Disease

We started conducting a research project at Purdue University (West Lafayette, IN) this summer 2012 to evaluate the efficacy of an omega-3 polyunsaturated fatty acid feed supplement in horses with chronic lung diseases (heaves, COPD or inflammatory airway disease).

We are looking for horses to participate in the study. The criteria for inclusion are a history of chronic lung disease (> 3 months) with at least one of the following clinical signs: increased breathing rate or effort at rest, intermittent cough, or poor performance.

The study will require **two visits** to Purdue University. During each visit horses will be evaluated as follow: physical examination, lung function testing, lung mucus collection, and a blood draw. After the initial evaluation, horses will be sent home with a 2-month supply of the omega-3 supplement or placebo chosen at random. They will need to return at the end of the treatment period for the recheck appointment. Horses in the placebo group will receive a 2-month supply of the feed supplement after the recheck appointment. All appointments, testing and supplements will be provided free of charge.

For more information about the study, or to participate, please call Purdue University Large Animal Hospital at (765) 494-8548 and ask for Dr. Laurent Couëtél or Dr. Nora Nogradi.

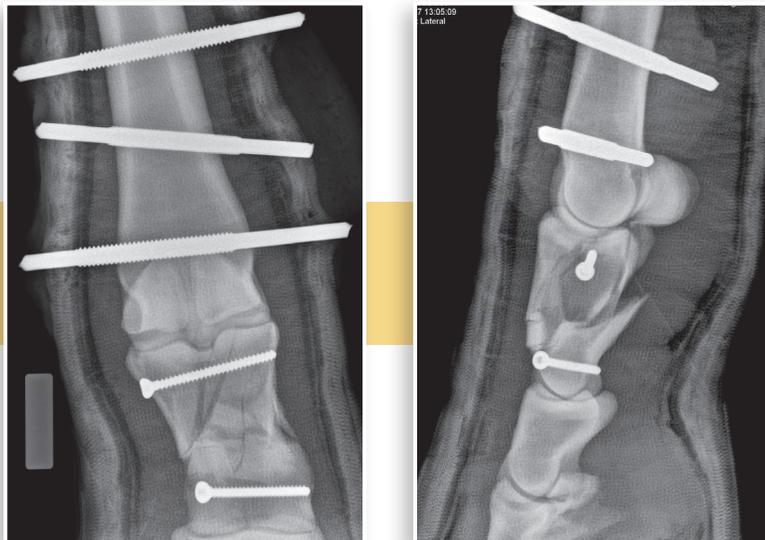


Figure 1:
Fractured proximal phalanx stabilized using a transfixation cast and lag screws.

New Veterinarian:



Dr. Carrie Fulkerson

Dr. Carrie Fulkerson is a graduate of the Purdue University College of Veterinary Medicine. She completed an ambulatory large animal internship at the Texas A&M University College of Veterinary Medicine following graduation. She currently works teaching first and second year students in the veterinary curriculum, and has been helping out with the Equine Community Practice. Welcome Carrie!

Purdue's Equine Sports Medicine Center New Treadmill

We are delighted to announce the arrival of our brand new, state-of-the-art high-speed treadmill purchased from the company Equigym based in Lexington, Kentucky. Our previous high-speed treadmill served us well over the past 17 years but broke down last fall and proved to be too costly to repair. We are hoping to resume regular treadmill work-up for clients (e.g. high-speed endoscopy of the upper respiratory tract, comprehensive poor performance work up) the first week of August. For additional information, please contact Purdue's Large Animal Hospital (765-494-8548).

Laminitis *(continued from cover)*

What is EMS?

The term equine metabolic syndrome (EMS) has been adopted to describe horses and ponies that **exhibit generalized or regional fat accumulation, insulin resistance (a pre-diabetic-like state that manifests as elevated blood insulin levels), and prior or current laminitis**. This syndrome has a human counterpart. It is well known that individuals with high blood cholesterol, elevated blood pressure and increased abdominal fat (the beer belly) are at very high risk for future heart attack and stroke although they feel no symptoms. In a similar vein, a horse that is overweight with a thick, cresty neck and a high blood insulin concentration looks and feels healthy. However, it is much, much more likely to suffer from laminitis than a horse without those conditions. Identifying and managing the EMS horse **before** it develops laminitis is the best way to prevent this devastating problem. If your horse sounds like it may have EMS, talk to your veterinarian about appropriate nutritional management and developing an exercise program for weight reduction and control. If diet and exercise alone are not sufficient, or if the pain of laminitis prevents meaningful exercise, additional pharmacologic agents such as thyroid hormone may be needed.

What is insulin resistance?

Insulin is the hormone in the body that regulates glucose metabolism. In some horses, the normal amounts of insulin are not sufficient to maintain normal blood glucose levels. Horses and ponies compensate by secreting even more insulin into the blood. This is why horses and ponies with EMS have higher blood insulin levels than normal horses. It can be measured to determine if insulin resistance is present. The situation is extremely similar to that seen in people with non-insulin dependent or Type II diabetes. Unlike people, however, the horse can make enough insulin to compensate for the body's poor response to it, and hyperglycemia (diabetes) is extremely rare.

So, why/how does all of this cause laminitis?

When a horse grazes on a pasture that is rich in simple or nonstructural carbohydrates (NSC), they deliver a large load of fructan and starch to the large intestine (cecum and colon). The bacteria in that part of the intestine use them as an energy source, and rapid fermentation of these carbohydrates occurs. This, in turn, causes intestinal disturbances that kill off the normal colonic bacteria and damage the intestinal wall. The sudden increase in carbohydrate intake causes the already elevated insulin concentrations to increase even more. The end result is laminar injury and laminitis.

Take home message

Monitoring weight, preventing obesity, seeing that horses get regular exercise, preventing intake of large amounts of easily-fermentable carbohydrates, and limiting pasture access for sensitive horses are steps that can be taken to help decrease your horse's risk of pasture-associated laminitis. If your horse fits the Equine Metabolic Syndrome profile: easy keeper, obese, deposits of fat over the top line, cresty neck—it should be tested to ensure that it is not insulin resistant. If evidence of insulin resistance is found, steps should be taken immediately to address the condition before laminitis occurs.

In the next issue we will talk about how to feed the EMS horse. If you can't wait, call Purdue Equine Community Practice at any time.



Update on Potomac Horse Fever

Dr. Sandy Taylor DVM, PhD, DACVIM

Late summer and early fall in the Midwest conjures images of corn fields, wind farms, the occasional thunderstorm, and... oh yeah, horses with diarrhea! Every year, dozens of horses in Indiana contract Potomac Horse Fever (PHF), a bacterial infection that causes colitis (inflammation of the colon/large intestine). The name of the bacteria that causes PHF is *Neorickettsia risticii* (*N. risticii*), which lives inside several species of flukes (trematodes). Similar to the 1950's children's song "I Know an Old Lady Who Swallowed a Fly," the horse develops disease when it swallows an insect that "swallowed" a fluke that "swallowed" *N. risticii*. The most common culprits are infected caddisflies, mayflies, stoneflies, damselflies and dragonflies that fall into the hay or water, although horses may become infected by ingesting infected flukes directly from streams or rivers. Luckily, the flies and the flukes don't cause problems! Freshwater snails are also an important part of the fluke (and therefore, *N. risticii*) life cycle, and along with insects, are more prominent in the late summer and early fall; thus, disease is typically seen from July to December, with the highest number of cases in August. However, we diagnosed our first PHF positive horse at Purdue in June 2012, likely due to the early spring we have seen this year, and possibly indicating the potential for a lot more cases of PHF to come.

Affected horses usually stop eating and become lethargic 1-2 weeks after ingesting *N. risticii*, and these symptoms correspond with a high fever (102-106°F). Horses usually develop watery diarrhea and subsequent dehydration soon after the onset of fever. In very severe cases, horses may become lame and be reluctant to walk due to laminitis ("founder") in both front or more commonly, all four feet. This is due to systemic ("whole-body") inflammation that occurs secondary to PHF and is one of the most significant complications of disease.

Diagnosis of PHF is based on a simple blood or fecal test that looks for *N. risticii* genetic material (DNA) and is usually positive while symptoms are present. The name of this test is Polymerase Chain Reaction (PCR), and is often done in conjunction with an antibody test (Indirect Fluorescent Antibody Test) to confirm the diagnosis. These tests take up to a week to run, so it is important that horses be treated for PHF if it

is suspected as the cause of symptoms. Early and aggressive treatment is likely to increase the likelihood of survival and includes tetracycline-based antibiotics to kill the bacteria, as well as hydration support in the form of intravenous fluids. Intensive management is required if laminitis is present.

Although several vaccines have been licensed for prevention of PHF since the discovery of disease in the 1980's, many have been pulled from the market, leaving only one currently available vaccine to date. The reason that vaccines are not completely effective in preventing disease is that *N. risticii* is able to mutate so that it "looks" different to the horse's immune system compared to the vaccine strain. Therefore, the antibodies that were made in response to the vaccine strain are not always protective against other mutated strains. So far, at least 60 strains of *N. risticii* have been identified. Research is currently underway to develop more effective vaccines.

Although our best guess as equine practitioners has been that "most" horses survive PHF when treated aggressively, a recent study was performed at Purdue University in collaboration with Hagyard Equine Medical Institute in Lexington, KY to identify factors that might predict survival. Data was collected from medical records of horses diagnosed with PHF over the last 15 years, and analyzed to obtain information that may help us improve outcome in affected horses. Briefly, our results showed that the more abnormal the serum electrolyte abnormalities (which reflect severity of colitis), the less likely the chance of survival. We also found that the presence of laminitis decreases the odds of survival. The use of oxytetracycline increases the odds of survival, suggesting that this antibiotic be administered to horses with compatible symptoms in endemic areas (such as the Midwest) during the summer/fall months, even prior to a confirmed diagnosis. It is important that horse owners speak to their veterinarians regarding the risks of antibiotic use. Finally, our study showed that vaccination did not increase the odds of survival in this small subset of horses. However, vaccination may decrease severity of disease and the decision to vaccinate should be made after consultation with a veterinarian.



“Bumps, bites, and hives: Oh My!”

Common Allergic Skin Conditions in the Horse

Rose Paddock, DVM student (Class 2012)

While summer usually means good weather and more daylight hours to enjoy your horse, it also brings insects and a variety of frustrating skin conditions that can affect them. Here is an overview of common allergic skin conditions that affect horses.

Insect Hypersensitivity

Several different types of insect bites can incite an allergic, (hypersensitivity) reaction. “Sweet Itch” describes a hypersensitivity reaction to the saliva of a common midge (*Culicoides sp.*). These midges bite at night, and result in a papule or wheal (swollen raised area on the skin) at the site of the bite. Following the initial reaction to the bite, the area will become intensely itchy and the horse may rub the area resulting in secondary hair-loss, crusting, and sometimes changes in the pigment of the skin (see Figures 1 & 2). Lesions are commonly seen affecting the mane, saddle and rump, or causing ventral midline dermatitis (lesions on the underbelly). There is evidence that a hereditary predisposition to developing the hypersensitivity occurs. Other flies such as stable, horn, horse, deer, and black flies often cause itching and rubbing in horses. Stable flies have been reported to cause moist lesions on the legs of adult horses. Horn flies may produce skin lesions just on the underbelly. The usual sites of black fly bites include the udder, scrotum, prepuce, inner surface of the thigh and upper forelimbs, throat, ears, ventral abdomen, chest and natural body orifices.

Fly control is essential for the resolution of clinical signs.

This can be achieved through a combination of topical products, such as fly-sprays containing permethrins, and environmental management including stabling horses at dusk and dawn, using fans in the barn, and eliminating standing water that can act as a breeding ground for these insects. Barrier techniques such as fly sheets and fly masks that prevent insects from settling on the horse to bite can be very effective as well. Good sanitation (stable flies lay eggs in rotting vegetation, and horn flies lay eggs in feces) is also important.

If these measures are not sufficient to control the clinical signs, your veterinarian may prescribe anti-histamines and/or a course of corticosteroids.

Non-insect bite allergies

The allergic skin diseases in the horse that are non-insect bite related are atopic dermatitis (atopy), food allergy, and contact allergy. The history of the skin lesions is very important in determining which of these is most likely in any particular horse. A seasonal itchiness, particularly affecting the face and trunk, would be most consistent with atopic dermatitis from



Figure 1: Severe “sweet itch” skin lesions on the neck of a mare.



Figure 2: Severe “sweet itch” on the rump of a mare.

pollens, whereas year-round itchiness would be more consistent with an atopic dermatitis as a reaction to molds or barn dust or a food allergy. Skin reactions that occur after topical treatments with a shampoo or spray would be consistent with a contact allergy.

Atopic Dermatitis

Atopic dermatitis is an allergic response to environmental allergens, such as dust, pollen, and mold. It may be seasonal or non-seasonal and can resemble insect-bite hypersensitivity. The most common clinical sign seen is rubbing, due to itchiness of the face, legs, and occasionally the trunk. Sometimes hives and hair loss are seen. Your veterinarian can use intradermal skin testing to aid in a diagnosis of atopic dermatitis and as a way to determine which allergens could be used in possible hyposensitization therapy (immunotherapy). However, it is important to note that a diagnosis of atopy can NOT be solely made on the basis of the intradermal test or serum allergen test. Treatment involves corticosteroids, and/or hyposensitization injections (immunotherapy).

Contact Allergy

Horses can have allergic skin reactions to different beddings (especially wood-chips) and commonly used topical products such as fly-sprays, shampoos, and ointments. Skin reactions can vary, from swollen papules, to reddening and hair loss, to crusting and thickening of the skin. Sometimes horses exhibiting contact allergy will be itchy. Diagnosis usually relies on a good thorough history of application of a new product or change in bedding. Discontinuing use of the product or bedding should resolve signs, however, in some cases treatment with corticosteroids may be necessary.

(continued on pg. 7)



Equine Herpesvirus-1

Dr. Amanda Farr, Dip. ABVP Equine Practice

There are several strains of Equine Herpesvirus (EHV) that cause a variety of disease syndromes including respiratory disease, neurologic disease (myeloencephalopathy), and abortion in horses, donkeys, and mules around the world. EHV Type 1 (EHV-1) causes the most severe clinical disease and has the greatest economic impact; therefore, this article will focus on the three major forms of EHV-1 and their prevention.

So, how do horses get EHV-1?

EHV-1 is transmitted from horse to horse primarily through nasal secretions, contaminated objects such as feed/water buckets and troughs, tack and grooming equipment, and through infected placental or fetal fluids. Most horses have been infected by the age of two. Initial infection typically occurs via the dam, but may not cause obvious symptoms. Just like people that become infected with a herpes virus (i.e. cold sores), the virus becomes inactive (latent) but is not “cleared” from the body. Therefore, the virus may become active during periods of stress or immune suppression and cause symptoms. During these periods, the virus is shed in nasal secretions and can infect other horses.

Respiratory form (Rhinopneumonitis)

↪ Signs that your horse may have “rhino” can include a snotty nose, cough, fever, and rarely secondary pneumonia. This form is rarely fatal and can be easily confused with Equine Influenza (“flu”), which is why an accurate diagnosis is needed when your animal has signs of viral respiratory disease. Your vet can diagnose EHV-1 by collecting a blood sample and sample of nasal secretions with a swab. Treatment consists of supportive care (meaning there is no specific drug or cure for the virus itself) including non-steroidal anti-inflammatory drugs as well as hydration and nutritional support. Typically, horses fully recover within two to four weeks, and can gradually return to work. Newly infected horses can spread disease to other horses for up to 3 weeks after infection. Therefore, separating the infected horse is critical to prevent transmission.

Neurologic form

(Equine Herpes Myeloencephalopathy – EHM)

↪ Following a major outbreak of EHV-1 at a cutting horse show in Utah last year, many horse-owners and veterinarians are now more aware of this form as some of these horses developed EHM. Since then, additional outbreaks have been reported at racetracks, boarding facilities, and veterinary clinics. In May of 2012, a horse from Northern Indiana was diagnosed with EHM at Purdue University’s Large Animal Hospital. This form of disease is due to a mutated EHV-1 strain that is able to attack the nervous

system. Symptoms of EHM include lethargy and fever followed by loss of coordination, weakness, stumbling, falling, dribbling urine, and possible recumbency (lying down, unable to rise) as the disease progresses. Testing is similar to the respiratory form, although a spinal tap may help support the diagnosis. Treatment is supportive, although there is some evidence that anti-viral drugs may decrease the chance of developing EHM if your horse is diagnosed with EHV-1. It is important to remember that not all horses that are diagnosed with EHV-1 develop EHM! However, a veterinarian should be called immediately if these symptoms are noticed.

Reproductive form

↪ EHV-1 is a common cause of infectious abortion in mares, and is responsible for “abortion storms” on large breeding farms. Mares typically abort late term (between five and nine months gestation), and can abort weeks to months following exposure to the virus with no prior symptoms. Foals infected during pregnancy often show signs of respiratory distress at birth and rarely survive. If you have a mare that aborts during late pregnancy, tell your veterinarian immediately as the tissues can be very infectious to other mares and samples of them will be needed for an accurate diagnosis.

Prevention

- ↪ Vaccines are available against EHV-1 and are protective against the respiratory and abortion forms of the disease. Booster vaccines should be administered one to four times annually based on risk. Broodmares should be vaccinated (with an approved vaccine) at 3, 5, 7, and 9 months of gestation to protect against abortion.
- ↪ Currently no vaccines are licensed or proven effective against EHM.
- ↪ Disease prevention is the best means of control for all forms. This can be done through practical biosecurity measures and good hygiene, including using equipment specific to each horse, isolating new horses for 2-3 weeks in case they’re shedding the virus, and isolating sick horses. Vaccination is recommended, as is minimizing stress if possible.
- ↪ If EHV-1 infection is suspected, rapid quarantine of the associated farms/stables can prevent the spread of disease.

It is clear that EHV-1 is a serious disease in horses, and can have a significant economic impact on the equine industry. Decreasing exposure risks through practical biosecurity, good hygiene, and vaccination are the best methods for prevention of disease.



Strategic Deworming in Horses

Katrina Anderson, DVM Student (Class of 2012)

Internal parasites can be a threat to your horse's health and can cause a variety of clinical signs from a dull hair coat, weight loss to colic. Infected horses shed the parasite eggs in their manure, contaminating the environment. The eggs or larvae are ingested while the horse is grazing and mature within the horse's digestive tract. Some parasites are able to migrate to other areas of the horse's body causing damage.

In the past, traditional deworming recommendations were to treat horses with a different class of deworming product every 6-8 weeks. Reports of parasite resistance to common deworming medications have caused experts to rethink standard strategies for parasite control. Research has shown that only about 20% of the horses in a herd shed the majority (> 80%) of parasites on a pasture. Variability in egg counts between different horses is attributed to their individual immune response to the parasites. **Treating horses with low numbers of parasites not only wastes money, but can promote resistance to dewormers.** Due to the development of resistance, the current recommendation is to strategically treat only those horses with high parasite numbers with the appropriate dewormer at the appropriate time.

A fecal egg count is a reasonably priced test that can be run off of a fecal sample that determines the type and number of parasite eggs that your horse may carry. Results of a fecal egg count are expressed as eggs per gram (epg) of manure. A fecal egg count of less than 200 epg indicates a low parasite load, 200-500 epg indicates a moderate parasite load, and a fecal egg count of greater than 500 epg indicates a high parasite load.

So what does all of this mean? Horses with low fecal egg counts may not need to be dewormed more than twice a year, while horses with high fecal egg counts may need to be dewormed 4-6 times a year, and until your veterinarian checks which category your horse falls into by doing some fecal egg counts, you might be overspending and overworming! It is important to note that a fecal egg count of zero does not mean the horse is free of internal parasites. Some types of parasites produce eggs only intermittently, while larvae may not produce eggs at all.

Fecal egg counts can also help evaluate the effectiveness of a particular dewormer on your farm should there be any indication of resistance. This is done by performing a fecal egg count on your horses, then treating them with an appropriate dewormer. Another fecal egg count is performed 2 weeks later. If the fecal egg count is not reduced by at least 90%, the parasites your horse has are considered resistant to that particular dewormer. That dewormer should not be used as a treatment by itself but may still be effective when used in combination with another deworming product. Regardless of the type of dewormer you use, always remember to use a weight tape to estimate the weight of your horse and administer the correct dosage of dewormer.

It is important to utilize the best source of information when developing a deworming protocol that will work best for your horse's situation: your veterinarian. Veterinarians will be able to best provide the information regarding appropriate targeted deworming needed to best serve your horse so we avoid overuse of the limited number of effective dewormers we have available.

Allergic Skin Conditions *(continued from pg. 5)*

Food Allergy

Food allergies which resolve on a 'hypoallergenic diet' and recur when the horse is re-challenged with the food allergen are VERY uncommon in the horse or other herbivores (plant eaters). A diagnosis is made by limiting the diet to one foodstuff for at least four weeks. If clinical signs (lesions and itchiness) resolve during the trial, AND after they recur upon re-challenge, various foodstuffs may be added weekly, one at a time, to determine the offending allergen.

Hives

Hives, or urticaria, are a **sign** of disease, and not a disease itself. Hives can be due to a variety of immunologic or allergic reactions from substances that are inhaled, ingested, injected, or less commonly, secondary to systemic diseases. Therefore, determining the **cause** of the hives is important. Hives are usually flat-topped, raised skin lesions called papules, which can range from 0.4 to 4 inches in diameter, and they may "pit" when pressure is applied. Hives may or may not be itchy, and

hair loss is not typical. Diagnosis of the cause of the hives can be difficult. If the horse was administered any medications, feeds or other new products (put on the skin, taken orally or injectable), these should be discontinued and you should contact your veterinarian. Additionally, if your horse displays any signs of systemic illness, such as decreased activity or decreased appetite, you should contact your veterinarian as the underlying condition could be serious. Treatment often involves systemic corticosteroids, usually administered intravenously in an acute reaction. If an underlying disease condition is involved, your veterinarian can help determine a course of treatment.

Please remember, if you have any questions about your horse's skin, contact your veterinarian to investigate this issue further. Careful observation on your part can help your veterinarian get a complete history and arrive at an accurate diagnosis and from there you can work together to determine an appropriate treatment and management strategy. ↻

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The **Equine Sports Medicine Center**

Purdue's Equine Sports Medicine Center is dedicated to the education and support of Indiana horsemen and veterinarians through the study of the equine athlete. The Center offers comprehensive evaluations designed to diagnose and treat the causes of poor performance, to provide performance and fitness assessments, and to improve the rehabilitation of athletic horses. Other integral goals of the Center are to pioneer leading-edge research in the area of equine sports medicine, to provide the highest level of training to future equine veterinarians, and to offer quality continuing education to Indiana veterinarians and horsemen. For more information visit our website:

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