



EQUINE HEALTH UPDATE

For Horse Owners and Veterinarians
Vol. 15, Issue No. 1 – 2013

Equine Melanoma: *It's not just black and white!*

By Bria Tannler, DVM Student (Class of 2013) — Edited by Dr. Sandra D. Taylor,
Purdue University Large Animal Internal Medicine Service

When we hear the word “melanoma,” we tend to think of skin cancer related to sun exposure. However, in horses, melanoma is a type of skin tumor that is associated with coat color, with the grey/black coat most commonly affected. In fact, it has been reported that up to 80% of grey horses will develop some form of melanoma during their lifetime. These tumors tend to have a characteristic appearance and are generally rounded, raised, black nodules of varying sizes. These tumors can be benign (not cancerous) or malignant (cancerous). They can have no effect on a horse's quality of life or they can become large and obstructive, in some instances preventing normal passage of feces.² Sometimes the tumors ulcerate and ooze a dark tarry discharge.

Not all melanocytic tumors are the same. Here are the 4 types we see in horses:

Melanocytic nevi^{3, 4, 5}

These tumors are usually benign. They are seen in younger horses (average age of 5 years) of any color and appear as discrete, single masses. They vary in size but are often small (< 2.5 cm) and can be found anywhere on the body.

Dermal melanoma^{2, 3, 4, 5}

These lesions are often benign but may develop malignancy over time, especially if they are large or in atypical locations. They most frequently develop in mature grey horses less than 15 years old under the tail, in the perineum (around the anus), and on the external genitalia. Less common sites include the parotid salivary gland (throat latch area), lips, eyelids, and neck. They can vary in size but are discrete nodules and may occur singly or in multiples.

Dermal melanomatosis^{2, 3, 4, 5}

These lesions are frequently malignant with a high likelihood of eventual metastasis (spread to other organs). They usually occur in grey horses that are greater than 15 years old. Like dermal melanomas, melanomatosis tends to occur under the tail, in the perineum (around the anus), on the external genitalia and in the parotid salivary gland. They appear as multiple, large coalescing masses of varying sizes.

Anaplastic melanoma^{3, 4, 5}

These are very rarely seen, but the tumors are malignant and frequently metastasize. They tend to occur in older (greater than 20 years of age), non-grey horses.

(continued on pg. 2)

Contents...

Health

Melanomaspg. 1

Glucosamine/
Nutraceuticalspg. 4

Community Practice

Fly Controlpg. 3

Rabiespg. 6

Hyperthermiapg. 6

News & Notes

Airway Inflammation and
Barn Environment . . .pg. 5

In Depth

Melanomaspg. 1

Melanoma *(continued from cover)*



Melanoma can sometimes occur on the eyelid. The best way to know if a nodule is cancerous is to have it examined by your veterinarian and to send an aspirate or biopsy out to the lab for further evaluation.

(Source: <http://www.chronofhorse.com>)

How can you tell if a mass is malignant or has metastasized?

It is important that your veterinarian examine any mass found on your horse. Diagnostic tests can be done to clarify what the mass is, and include a fine needle aspirate (obtaining cells with a needle), biopsy, or even complete removal for evaluation of cells and tissue under a microscope.

A rectal examination or ultrasonography can help locate internal masses that may be indicative of metastasis. The most common sites for metastasis include the lymph nodes, spleen, liver, lining of the abdominal wall, lungs and blood vessels.²

How should melanocytic nevi, melanomas and melanomatosis be treated?

Surgical Excision

Early treatment of small tumors is ideal to prevent them from spreading to the surrounding tissues. In fact, excision of *melanocytic nevi* and benign dermal melanomas can be completely curative.⁵

Research within the last 10 years has shown that excision of large masses with a scalpel and/or carbon dioxide (CO₂) laser has been effective; masses did not recur during the 2 year follow-up period in any of the cases that were studied.^{5,6}

Intralesional Cisplatin

Cisplatin is a chemotherapeutic (cancer-treating) drug that is often used along with surgical excision in order to kill off any left-over tumor cells.

Injections of cisplatin into the tumor itself and the short-term implantation of slow release cisplatin-containing beads have shown efficacy in tumor resolution both with and without surgical excision for at least 2 years.^{1,5}

Cimetidine

Although most tumors do not respond to the immune system's attempt to get rid of them, some melanomas can get smaller when under immune attack. Cimetidine is a histamine blocker that can preserve the body's immune response and allow tumor cell killing.

Cimetidine has reduced tumor growth and halted tumor progression in 3 horses with melanoma, but has not proven to be efficacious in complete tumor resolution.⁴

Melanoma Vaccine

Currently, a vaccine exists for canine melanoma that has shown good efficacy.⁷ A similar vaccine has been created for equine melanoma and is currently being studied at the University of Florida's College of Veterinary Medicine. If you would like to find out more about this study please visit <http://research.vetmed.ufl.edu/clinical-trials/large-animal/vaccine-study-for-gray-horses-with-melanoma/>

What should you do for your horse?

Treating equine melanoma is not black and white. **Although melanoma is thought to be slow growing, the incidence of eventual malignancy is high.** Early surgical and or chemotherapeutic treatment of *melanocytic nevi*, dermal melanoma or even melanomatosis may be beneficial in slowing down or stopping the progression of the disease. Research to produce more effective treatment protocols is ongoing.

Often, melanoma is diagnosed in its later stages when treatment is unlikely to have any effect. "Right now we need to raise the bar so that equine practitioners and the general public understand that melanoma is a malignancy and not a benign thing, like a mole," says Michael Porter, DVM, Ph.D. Dipl. ACVIM. "Increased surveillance, diagnosis and treatment could reduce the numbers of horses presented with non-treatable lesions."⁸

Ultimately, if you notice a black nodular mass on your horse or feel something abnormal under the skin, seek prompt veterinary care and be sure to ask your veterinarian about new advances in treatment.

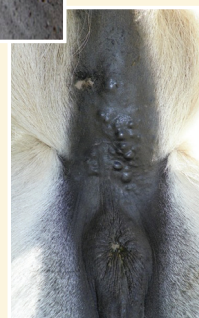
References

1. Hewes CW, Sullins KE. Use of cisplatin-containing biodegradable beads for treatment of cutaneous neoplasia in equidae: 59 cases (2000-2004). *J Am Vet Med Assoc.* 2006; 229:1617-1622.
2. MacGillivray KC, Sweeney RW, Del Piero F. Metastatic Melanoma in Horses. *J Vet Intern Med.* 2002; 16:452-456.
3. Valentine, BA. Equine Melanocytic Tumors: A Retrospective Study of 53 Horses (1988-1991). *J Vet Intern Med.* 1995; 9(5): 291-297.
4. Goetz TE, Ogilvie GK, Keegan KG, Johnson PJ. Cimetidine for treatment of melanomas in three horses. *J Am Vet Med Assoc.* 1990 Feb 1;196(3):449-52.
5. Rowe EL, Sullins KE. Excision as treatment of dermal melanomatosis in horses: 11 cases (1994-2000). *J Am Vet Med Assoc.* 2004; 225: 94-96.
6. Theon, AP, Wilson WD, et.al. Long-term outcome associated with intratumoral chemotherapy with cisplatin for cutaneous tumors in equidae: 573 cases (1995-2004). *J Am Vet Med Assoc.* 2007; 230(10):1506-1513.
7. Bergman PJ, Camps-Palau MA, McKnight JA, et al. Development of a xenogeneic DNA vaccine program for canine malignant melanoma at the Animal Medical Center. *Vaccine* 2006;24(21):4582-5
8. Kane, E. Incidences of Neoplasia. DVM 360. 2006. <http://veterinarynews.dvm360.com/dvm/article/articleDetail.jsp?id=325543&sk=&date=&pageID=2>



Small lumps below the ear in the area of the throat latch may not be noticed as easily and the characteristic black appearance of the mass may not be noticeable from the external hair coat.

(Source: <http://www.acvs.org/AnimalOwners/HealthConditions/LargeAnimalEquineTopics/SkinTumorsInHorses/index.cfm?dspPrintReady=Y>)



The area under the tail and around the anus are common sites for melanomas and melanomatosis.

(Source: <http://www.chronofhorse.com>)



“Shoo, Fly, Don’t Bother Me”

Information on Flies and Fly Control for Your Horse

By Nikki Kisling, DVM Student (Class of 2013) — Edited by Drs. Joseph Camp, Parasitologist, Purdue Department of Comparative Pathobiology and Stacy H. Tinkler Equine Community Practice

The warm-weather of spring and summer motivates us to embrace the outdoors. This time period also brings a huge nuisance to our barns—flies. Every year horse owners struggle to prevent flies from annoying horses and their human companions. Disease prevention is also a concern when flies are involved. This article aims to educate horse owners and enthusiasts regarding what the experts know about flies and how we can lessen their numbers in our environment.

The Culprits

The primary flies of concern during the warmer months in the Midwest are houseflies, horse flies, biting midges, and mosquitoes. When swarms of flies are present around your horse, houseflies usually represent the majority species. Houseflies prefer to breed in garbage and feces, which is why they are seen in large numbers around trashcans and manure piles. One pair of houseflies has the potential to produce 191,000,000,000,000,000 (191 quadrillion!) more house-flies between April and August. Horse flies are large flies that have a very painful bite. Biting midges (aka: no-see-ums) and mosquitoes may be harder to notice on your horse due to their smaller size. Horse flies and biting midges breed in semi-aquatic environments, such as moist soil, mud, and decaying matter. Mosquitoes breed in aquatic environments, such as stagnant pools or puddles of water.

The Potential Diseases

Flies serve as disease spreaders for various parasites, bacteria, and viruses. For example, houseflies carry a parasite that causes “summer sores”. This condition most commonly occurs as a result of houseflies depositing the parasite larvae (immature parasite) into the eyes and injured skin, resulting in red, inflamed, and itchy sores on your horse that are difficult to control. Horse flies can serve spread certain types of ringworm and swamp fever (equine infectious anemia or EIA). Biting midges help spread another parasite that can invade the nuchal ligament (a large ligament that supports the head and neck) and result in severe skin inflammation and a condition called onchocerciasis. Mosquitoes also harbor and spread deadly viruses such as Eastern and Western Equine Encephalitis (EEE and WEE) and West Nile Virus (WNV). Prevention and control methods, described further, will allow your horse to avoid these serious conditions.



Area of eye where houseflies deposit parasite larvae.

(Source: infovets.com)

Management of Environment

One of the most important methods of fly control is proper cleanup and disposal of hay, bedding, and manure. Piles of manure and soiled bedding and hay should be cleaned up as soon as possible and stored in a location far from your horse’s environment until it

can be disposed of or composted properly. This prevention method will largely control the presence of houseflies. Proper drainage of water is also important to eliminate moisture from the environment, as flies cannot breed as well in a dry environment. Water buckets and troughs should be cleaned and changed regularly, especially to prevent a breeding area for mosquitoes. Eliminate other sources of stagnant water, such as tires, birdbaths, plant pots, etc.

By eliminating feces as a source of breeding environment for flies, owners can better prevent fly infestation of their horses.



Fly Mask

(Source: thehaughtyhorse.com)

Exclusion devices

Fly masks and fly blankets are available to prevent flies from landing on a horse’s skin and eyes. These lightweight materials can be worn daily and allow your horse to move, see, and eat while being worn. Fly masks and blankets are available through various horse supply companies and local tack shops. Window and door screens can also be installed to prevent flies from entering tack rooms and horse stalls. Large fans can also be installed in windows and doors that direct outward airflow in order to keep flies from entering barns.

Chemical and Biological Control

There are several different insecticide products available that can either be applied directly to your horse or its environment. Some of these products contain pyrethrin or related compounds. Pyrethrin is an insecticidal chemical that is extracted from certain species of *Chrysanthemum* sp. flowers. Other insecticides may contain chemicals known as organophosphates or insect growth regulators (IGR). **Organophosphate insecticides include neurotoxic chemicals that are used in small amounts to kill insects; however these compounds are exceedingly toxic to humans and animals and should be avoided.** IGRs kill insects by preventing proper development of their exoskeleton.

Horse insecticide applications are available as sprays, wipes, roll-ons, towels, “spot-ons”, and dusts. There are many brands and formulations of insecticide products that are available through horse supply companies and feed stores. Downsides to these products are that many of them are inactivated by sunlight, so they have to be applied frequently, and there is very little information on the long-term toxicity of the pesticides in fly-sprays. Some horses may show skin reactions with these products, which may require veterinary attention and discontinuation of use. **Always read the labels and directions for any insecticides to prevent improper use of chemicals on or near your horse. Also ensure that these products are safe for use around other animals that may be in contact with your horse.**

(continued on pg. 4)

To Use or Not to Use: The Glucosamine Conundrum

By Dr. Stacy H. Tinkler, Purdue Equine Community Practice / Carrie Nedele, DVM Student (Class of 2013)

Edited by Drs. J. Hawkins Large Animal Surgery and J. Kritchevsky Large Animal Medicine



Osteoarthritis (OA) is a common cause of lameness in horses, and can be expensive to manage and treat.¹ The use of oral joint supplements to treat or manage OA has become exceedingly popular because they are easy to give to horses, are less expensive than injectable drugs, and are largely perceived as harmless.²

Glucosamine-chondroitin (G-C) sulfate is one of these compounds and is thought to be chondro-protective, meaning that it has the potential to slow the degeneration of cartilage.³ These supplements are generally recommended for use in animals with OA or for use as a preventative in animals at risk for the development of OA.

With the numerous glucosamine supplements displayed at the feed store and available for on-line purchase, it can be difficult to determine which product will best meet your horse's needs. Before we grapple with this question, let's first establish a few important points. Glucosamine (often from shellfish skeleton, cow, or synthetic) and chondroitin sulfate (often made from shark and cow cartilage) are both considered to be dietary supplements, commonly referred to as "nutraceuticals". Unlike drugs that are labeled for a specific use (such as antibiotics like penicillin or anti-inflammatories like bute), nutraceuticals do not undergo rigorous safety and efficacy testing by the Food and Drug Administration (FDA). **Manufacturers of nutraceuticals are not required to provide scientific evidence of safety or efficacy in order to obtain approval for marketing.**^{1,4}

Unfortunately, **less stringent regulation allows for the potential for misleading claims on the labels.** In one study, a group of human glucosamine-containing products were put to the test, and 84% of the tested products did not meet their labeled ingredient claims.⁵ A study looking at glucosamine levels in 23 equine oral joint supplements found a range of 0%-221% glucosamine content of label claim, meaning that glucosamine levels ranged from no glucosamine at all up to double what the label stated was in the supplement.² In addition, even if the product does contain the labeled dose of ingredient, the ingredient may not be in a form that is bioavailable (readily absorbed and available to the tissues.) Because these products are given orally, if they are not absorbed by the horse, they are of no benefit. Even if a product is absorbed from the gut and makes it into the blood stream, it may not get into the joints or work there! If you are going to buy nutraceuticals for joint health, it is important to select specific products that have been shown to be absorbed by the horse experimentally. Specifically, look for products containing glucosamine HCl and glucosamine sulfate.^{4,5}

Be wary of 'worst offenders' regarding misleading label claims particularly those that state they are a "complex," "formula," or a "blend" of ingredients with no weight of the components listed on the label. Products that make exaggerated claims, rely on testimonials, or do not have information on the quality of ingredients available should be avoided. Lastly, don't forget that any substance may be toxic to an individual animal, and has the

potential for interacting negatively with other medications or supplements your horse may be getting.

So that brings us to the original question—how do I choose the product that best suits my horse's needs?

There is no easy answer to this question. Unfortunately, the current research on the effectiveness of oral G-C supplements in the horse is limited.¹ Many of the published studies have contradictory results and do not prove efficacy in the horse. It is important to remember that **just because a drug or supplement has been proven to work in one species, does not mean it will work in another**—horses absorb and process compounds differently than humans and even dogs. Cosequin, by Nutramax Labs, is a product containing both glucosamine HCl and chondroitin sulfate. Nutramax is the only company we are aware of that has funded research regarding the use of its product in horses with clinical and experimental OA. Cosequin has the most experimental evidence supporting its efficacy in the dog, though the results are not as good in the horse, despite being the most heavily researched.^{4,5} More studies are needed to prove the efficacy of Cosequin for use as a treatment and/or preventative for osteoarthritis in the horse. However, clinically we recommend Cosequin ASU as the best available oral cartilage nutraceutical and recommend it when owners request oral supplementation. Our clinical impression is that Cosequin is a useful adjunctive treatment for equine OA. Cosequin ASU is only available with a veterinarian's prescription. **There are FDA approved injectable drugs available for horses (polysulfated glycosaminoglycan, hyaluronic acid) that have been shown to be effective in treating and preventing equine osteoarthritis, in contrast to nutraceuticals.** Your veterinarian can help you decide if one of these drugs may be appropriate for your horse.

Discuss your overall OA treatment or prevention plan, including any oral supplements or over-the-counter remedies with your veterinarian first. There is a sea of misinformation and many over-the-counter joint supplements that are not supported by clinical research. Your veterinarian can help you make treatment decisions to meet your horse's particular needs. Your vet can help you specifically by looking at the active ingredient in a certain product, how well it is absorbed in the horse, whether research studies have been done looking at the doses recommended by the manufacturer, or if any adverse or toxic effects have been reported in association with a particular supplement.

References

1. Vandeweerdt JM, et al Systematic Review of Efficacy of Nutraceuticals to Alleviate Clinical Signs of Osteoarthritis. *J Vet Intern Med* 2012;26(3):448-456.
2. Richardson, DW and Loinaz, R. An Evidence-Based Approach to Selected Joint Therapies in Horses. *Vet Clin North Am Equine Prac* 2007; 23(2):443-460.
3. Hanson RR, Smalley LR, Huff GK, et al; Oral treatment with a glucosamine-chondroitin sulfate compound for degenerative joint disease in horses: 25 cases. *Vet Clin North Am Equine Prac* 1997; 19:16-20.
4. Trumble TN, The use of nutraceuticals for osteoarthritis in horses. *Vet Clin North Am Equine Prac* 2005; 21:575-597.
5. Goodrich LR, Nixon AJ, Medical treatment of osteoarthritis in the horse—a review. *Vet J* 2006; 171:51-69.

Fly Control *(continued from pg. 3)*

Feed-through products are also available, such as Equitrol® II Feed-Thru Fly Control, also by Farnam Companies, Inc. These products are designed to be fed to your horse so that the chemicals are present in their manure, resulting in fatal toxicity to developing fly maggots. There is some concern about the toxicity of these products, particularly when fed to pregnant mares as the active ingredient is an organophosphate, albeit in a small amount.

There are available alternatives to pesticides as well, including a number of pesticide-free sprays. Other fly control methods include biological insecticides, such as BTI and Fly Predators. BTI is a naturally occurring soil bacterium that can be added to pond water to kill mosquito larvae without harming other animals. Mosquito-eating species of fish, such as killifish and mosquitofish, can also be added to pond water. Fly Predators reduce pest fly populations by destroying the next generation of flies in their immature pupa (cocoon) stage. They never become pests themselves and are small, biteless and stingless. They live their entire life-cycle on the fecal pile and eat the pest fly pupa.

Other Preventative Management

Consult your veterinarian for regular deworming and vaccination regimens in the Spring and Fall each year. Vaccines are available to prevent EEE, WEE, and WNV. Dewormers that contain ingredients such as ivermectin and moxidectin can prevent many parasites that can be transmitted by flies. There is no known method of fly control that offers 100% eradication of pesky flies. While we may not be able to control flies entirely, we can control the parasites and viruses they spread with preventative medicine.

For More Information

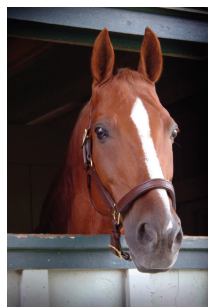
You can access the Purdue Extension Entomology website for more information on insect control: <http://extension.entm.purdue.edu/>



Mosquitoes may be harder to notice on your horse due to their smaller size. They breed in aquatic environments, such as stagnant pools or puddles of water.

News & Notes

Airway Inflammation and the Barn Environment



Horses frequently develop inflammation in the lung, with mucus buildup and airway narrowing increasing the effort of breathing. At its most severe, this inflammation results in recurrent airway obstruction (RAO), a disease commonly referred to as heaves. Heaves usually affects older horses and can cause coughing and such severe difficulty breathing that affected horses lose weight from the effort. Mild airway inflammation that causes more subtle signs can occur in horses of all ages and is known as inflammatory airway disease (IAD). Because the disease reduces the efficiency of oxygen movement from the lung into the blood, the effects of IAD become noticeable when horses are asked to perform athletically.

Heaves and IAD are believed to develop as a result of the dust that horses breathe when they are kept in barns, but the exact cause of disease is unknown.

A study conducted at Purdue followed a group of young Thoroughbreds over the course of their first month in training, measuring the amount of airway inflammation and the levels of dust for each horse. The majority of these young horses were found to have airway inflammation consistent with IAD. In these horses, a specific inflammatory white blood cell involved in allergic reactions, the eosinophil, increased in the lung when high levels of dust were measured. This finding provides the evidence that IAD may develop as an allergy to components of the dust in the barn. This study also showed that **the level of dust exposure can be reduced by feeding hay from the ground rather than elevated in a hay-net.**

To explore the components of dust that cause the immune system of the lung to react, a new technique was developed to separate the proteins in barn dust and determine if they are recognized by antibodies in the lung and if different proteins are recognized by horses with airway disease such as heaves and IAD. This method revealed that there are many proteins in airborne barn dust that are recognized by lung antibodies, and that there appear to be differences in the number and type of proteins recognized by individual horses. **The results suggest that certain proteins in barn dust may be important factors in triggering inflammation in the airway of the horse.**

Research will continue at Purdue University College of Veterinary Medicine to learn more about the interaction between the barn environment and the immune system of the equine lung with the hopes of providing new diagnostic tests and new treatments for airway disease in the horse.

— Dr. Katy Ivester, DVM, PhD, DACVS

Sources:

Camp, Joseph. *Veterinary Parasitology II*. Purdue University, College of Veterinary Medicine. Spring 2011.

Foil, Lane and Carol Foil. "Fly Control". *Current therapy in equine medicine*. Editor: Robinson. Edition 5. St. Louis, MO: Saunders Elsevier, 2005.

Townsend, Lee. "Insect Control for Horses, Horse Barns, and Stables". University of Kentucky Extension Service, College of Agriculture. 2011

Rabies and Horses: What's the Risk?

By Mark A. Yoder, DVM Student (Class of 2013)
Edited by Dr. Stacy H. Tinkler, Purdue Equine Community Practice

If you have ever wondered: “Can horses get rabies?”, “What are the signs of rabies?”, “How is rabies spread between animals?”, or “Is my horse at risk and how can I prevent rabies?”, then keep reading!

What is rabies?

Rabies is a viral disease that can infect all mammals and results in neurologic disease—disease of the brain and spinal cord—that causes your horse to move or behave abnormally. There are a few different ways that rabies can be transmitted between animals and to humans, but the most common is

through bite wounds of infected animals. Once an animal or human is exposed, the virus multiplies in the muscle around the site of the bite wound. Eventually the virus travels up the peripheral nerves (outer nerves in extremities) and gets into the central nervous system (brain; spinal cord). Finally, the virus will move from the central nervous system to various tissues in the body; most importantly the salivary glands. This makes it possible for the virus to then be passed on to other animals through the saliva via bite wounds.



Top 7 Pointers for Preventing Hyperthermia in Your Horse this Summer

By Dr. Janice Kritchevsky, Large Animal Internal Medicine Service, Purdue University



Introduction

Many horse owners think summer is the best time of year. The show and fair season is in full swing, and it's the best time for camping, trail riding, and many of the other activities that make owning a horse such

a pleasure. Like humans, horses cool off by producing sweat and by increasing their respiratory rate. If the horse becomes so hot that sweat and increased respiration cannot cool it down, hyperthermia results. Body temperatures above 105.8°F can cause life threatening damage to the body's cells unless cooled off quickly. Below are some things to consider before hitting the trails this summer. If you have any questions about your own horse, be sure to contact your veterinarian.

1. Know the difference between hyperthermia and a fever

A fever is an increase in body temperature that occurs when the brain increases the thermal set point, often in response to an infection or inflammation. Hyperthermia is an increase in body temperature that occurs because of an increase in heat from external sources. Usually the horse is otherwise healthy. While there is a maximal increase in its own temperature that a horse can reach due to fever, there is no maximum with hyperthermia. This is why hyperthermia is so much more dangerous than fever.

2. Know if your horse is at risk

Horses that are older, debilitated, suffering from an illness, or have just moved to a hot climate from a cooler place are at increased risk of developing hyperthermia. Fans, shade, and fresh water should be available to horses at increased risk of hyperthermia at all times.

3. Access to fresh water

When a horse becomes dehydrated, blood supply to the skin is shut down so that blood flow to vital organs is preserved. In addition, less sweat can be produced. Both situations hinder a horse's ability to cool itself off. Horses will drink more water in the summer to compensate

for losses in the sweat; sometimes doubling their intake from that in the winter. It is important that their increased water needs are met by having fresh, potable water available.

4. Access to electrolytes

In addition to water, horse sweat has high concentrations of electrolytes such as sodium, chloride, and calcium. Like water, it must be replaced for the horses to be able to cool off. Electrolytes can be offered to the horse in the form of a balanced complete diet, or as supplemental electrolytes that can be fed alone or added to water. If electrolyte water is offered, always offer fresh water as well.

5. Trailers can become hot boxes

Like a car with its windows rolled up, a closed up trailer becomes extremely hot when standing in the hot sun. If a horse must be kept in a trailer for any period of time, make sure that there is adequate ventilation by opening windows and vents.

6. Do not overwork

Muscles generate heat when they are exercised, and a galloping horse must dissipate a large amount of muscle heat. This is more difficult for a horse as the ambient temperature increases. Gradually increase the amount of exercise asked of a horse so that its body can adapt. During the very hottest days of summer, reserve hard training times to the cooler times of the day. Watch for signs of overheating, and do not continue with a horse that feels hot to the touch, stops sweating, or has an increased respiratory rate after stopping.

7. Recognize anhydrosis

Anhydrosis is the inability to sweat. A horse that cannot sweat has lost its best cooling mechanism, and is at very high risk of hyperthermia. A horse with anhydrosis will feel hot and dry to the touch, and will not sweat when hot. To compensate, the respiratory rate increases dramatically and often a horse with anhydrosis is believed to have pneumonia or some other respiratory disease. A horse that cannot sweat must be kept in a shaded, cool spot with good ventilation until a veterinarian has been able to examine the horse.

Is rabies really common in horses?

Rabies infection is rare in horses but the outcome is invariably fatal. Transmission of the rabies virus to horses usually occurs via a bite wound by an infected wild animal. Keep in mind, however, that **any infected mammal can transmit the virus (including cats and dogs)**. The most common wild animals that carry rabies in the United States are bats, skunks, red fox, and raccoons. So, **horses that are kept out on pasture are at higher risk of encountering one of these animals as our equine friends are curious by nature, and could get exposed to rabies through a bite without you even knowing.** Infections in horses and livestock tend to increase in late summer when wildlife populations have peaked. Any horse bitten by a wild animal is considered potentially exposed to rabies, whether or not you have the wild animal that bit it available for testing.

So how can I tell if my horse has rabies?

If your horse has obvious signs of a bite wound, or if your horse is moving funny, or isn't acting like himself, you need to call your veterinarian so they can help you stay safe, assess the horse, and provide treatment.

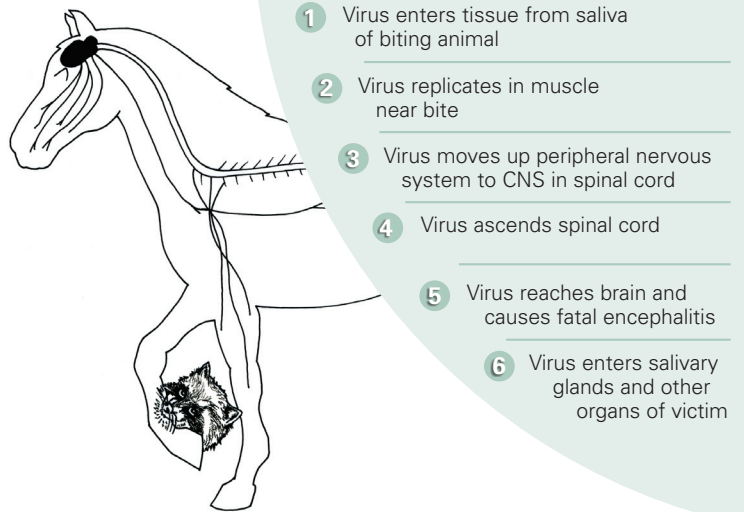
A variety of neurologic signs are possible with rabies-infected horses, but some of the most common ones include:

- 🐾 Your horse may act depressed—it may seem dumpy or not itself
- 🐾 Your horse may not be eating or drinking well
- 🐾 Your horse may be biting at or chewing on itself causing trauma
- 🐾 Your horse may show behavioral changes as the disease progresses: irritability, disorientation, panic
- 🐾 Your horse may develop seizures
- 🐾 Your horse may develop partial or total paralysis of the hind limbs
- 🐾 Your horse may develop ataxia—a wobbly gait
- 🐾 Your horse may become recumbent (unable to rise) when the disease is advanced
- 🐾 Death usually occurs in 5-10 days, up to 14 days has been reported

Unfortunately, rabies is the “great imitator” and can be confused with other conditions. There is no specific sign that specifically shows that a horse has rabies. Therefore, whenever a horse is showing signs of neurologic disease, there is a possibility of rabies as the cause, and an evaluation by a veterinarian should be performed.

How soon after a bite do you see signs of rabies?

The time from infection to showing symptoms can be tricky because it can be as long as a couple of months—it all depends on how far away the bite wound is from the central nervous system and how long the virus takes to get there—remember, the virus has to travel up the most outer nerves first, and this can take a while. Generally horses start showing clinical signs anywhere from 2-9 weeks after infection.



But if it is rare, why should I vaccinate my horse for it?

First, rabies in horses is ultimately fatal and there is no treatment, so prevention is the key! Second, you can get rabies from your horse! Even though the law doesn't require rabies vaccination for horses like it does with dogs, it is a good idea to vaccinate. The mainstay of this prevention is vaccination and lack of vaccination places your horse at an increased risk. Most cases of rabies in horses have been in unvaccinated animals, although some cases were reported in animals with inconsistent vaccination histories. The last rabies case in a horse in Indiana was in 2002. Another important reason for prevention through vaccination is that there is no diagnostic test other than a post-mortem exam that can tell if your horse has rabies, so your horse would have to be put-down in order to even diagnose the disease! Contact your veterinarian to discuss your horse's risk of rabies and whether rabies vaccination is recommended.

So, if can I get rabies from my horse what do I do if I think it has rabies?

If you ever suspect that your horse could have been exposed to rabies, contact your veterinarian immediately, and isolate the horse away from other animals and people until it is examined. There are no reports of horse-human rabies transmission in the US to date but you don't want to be the first! Wear gloves, a face shield and/or goggles and do not put your hands in or near your horse's mouth as the virus in the horse's saliva can enter your system through small cuts or scrapes on the skin. Any fully vaccinated animal (vaccinated more than 30 days before the bite) should be revaccinated immediately and observed for 45 days. An exposed but unvaccinated animal should be euthanized immediately or kept under quarantine for 6 months. If it turns out your horse does actually have rabies and you or other people have been exposed, you must get to a hospital for a series of vaccinations known as post-exposure prophylaxis. **Rabies is a reportable disease, which means that state or federal health authorities MUST be consulted when managing a potential case.**

Sources:

1. Sommadahl, C.S. "Equine Internal Medicine: Part II, Chapter 10.15 – Rabies." 2nd Ed., ©2004.
2. Goehring, L. "Equine Neurology: Section III, Chapter 13 – Viral Diseases of the Nervous System." ©2008.
3. Stewart, A. Rabies in Large Animals; Transmission, Diagnosis, Prevention and Occupational Safety, Proc ACVIM, New Orleans LA, 2012.

EQUINE HEALTH UPDATE

is published by:

Purdue University

College of Veterinary Medicine

Equine Sports Medicine Center

1248 Lynn Hall

West Lafayette, Indiana 47907-1248

ADDRESS SERVICE REQUESTED

Phone: 765-494-8548

Fax: 765-496-2641

www.vet.purdue.edu/esmc/

With generous support of
Purdue University's Veterinary
Teaching Hospital and the College of
Veterinary Medicine Dean's Office.

Please address all correspondence related
to this newsletter to the address above.

Editorial Board:

Drs. Couétil L., Hawkins J. and Tinkler S.

Design & layout by:

Elaine Scott Design

EA/EOU

Nonprofit Org.
U.S. Postage
PAID
Purdue University



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:

www.vet.purdue.edu/esmc/



Continuum© by Larry Anderson

Purdue University is an equal access/equal opportunity/affirmative action university.

If you have trouble accessing this document because of a disability, please contact PVM Web Communications at vetwebteam@purdue.edu.