The Equine Eye

by Elisabeth Giedt, DVM, MBA, Director of Outreach & Extension, Oklahoma State University Center for Veterinary Health Sciences

Eye

- The horse has a very large eyeball that magnifies everything much larger than we perceive it. This enables the horse to see distant objects in clearer detail than humans. Because the horse is a prey animal the horse must be on constant lookout for predators long before they get within striking range.

- Sensory hairs around your horse's eyes trigger the "blink reflex" if they get too close to any objects. When you're grooming, even for shows, avoid trimming these hairs shorter than an inch.

- Corpora nigra (pronounced NYE-grah) bodies are those generally dark round shapes along the inside edge of each pupil. Some suggest that these serve as a built-in visor, shielding interior eye structures from excess glare.

- The third eyelid is a lightning-fast flap that zips across from the inner corner to seal the eye shut against threat even before the lids can close.

Vision

- Because the eyes are placed on the sides of their head, horses can see nearly a 360 degree radius. Horses have a much wider field of vision than humans.

- Horses have a small blind spot in front of their muzzle and directly behind the tail.

- Horses see most things with one eye. This is why they may spook at something that they have already walked past and reacted to once: They are seeing it for the first time--with their other eye. (continued)
**The Equine Eye (continued)**

- The horse can bring things into focus two ways:
  - Using tiny muscles to change the shape of the eye’s lens like a human
  - Changing their head position to direct the image to a different part of their eye. The horse raises its head to focus on far-away objects (and may turn it slightly at the same time to bring one eye to bear) and lowers it to see closer objects.
- Horses have better night vision than humans.
- Horses have a different view of color than humans. For horses, red, orange, yellow and green may appear the same. They seem to do fine with this limited color vision and probably use other visual cues to function in their environment. Click here to read a review of what horses and humans see. What Horses and Humans See: A comparative Review

**Trauma**

- Because of the placement of their eyes and the flight response, horses are prone to eye injury.
- Horses may experience lacerations of the eyelid and damage to the cornea and to the eye globe itself.
- **Call your vet for a same day evaluation if:**
  - The cornea (surface of the eye) appears cloudy
  - The horse is squinting with drainage coming from the eye
  - The eyelid has a snag or tear
  - There has been any blunt trauma to the eye.

**Problems Associated with the Equine Eye**

- **Plugged Naso-lacrimal Duct** - Like humans, horses have a duct that runs from their eye to their nose. Excess tears are drained through this duct. The duct may become plugged due to dust, dirt or a foreign body. Horses with a plugged naso-lacrimal duct will have tears spill over onto their face below the eye.
- **Uveitis** - Inflammation of this portion of the eye will result in sensitivity to light, pain, or squinting, cloudiness of the eye, small pupil and redness of the eye.
- **Neoplasia** – 10 percent of tumors in the horse may affect the eye or eyelids, including the third eyelid.

Consult with your veterinarian regarding any abnormal “growths” in or around the horse’s eye.

- **Cataracts** - Horses may have congenital (present since birth) or acquired cataracts due to uveitis or trauma.
- **Glaucoma** - Like humans, this is a disorder of fluid outflow that results in increased pressure within the eye. In horses it is often associated with uveitis.
- **Blindness** - May be caused by recurrent uveitis, corneal disease, trauma, neoplasia, or infection. Blind horses can be managed with consideration to the temperament of the horse, dedication of the owner, and ability to provide a safe environment. The onset is often gradual with progressive uncertainty, especially in low light. Horses that are slowly going blind may demonstrate unpredictable behavior.

**Final Comments**

- Injuries to the eye should be seen by a veterinarian.
- Applying medication without an examination or neglect of a painful eye can cause very serious complications, including vision loss.
- Common conditions of the eye in horses include corneal ulcers, eyelid lacerations, uveitis, neoplasia, cataracts, and glaucoma – these can all be addressed and treated if caught early.
- A painful or traumatized eye is an emergency!

**References**


Through the Horse’s Eye

by Kris Hiney, PhD, Equine Extension Specialist, Oklahoma State University

When working with horses, it is important to understand not only how the horse perceives its world, but also understand what the horse is capable of seeing and understanding. This month, I’ll share some of the latest research on what information your horse is seeing in you.

Your horse recognizes you.

Well of course, horses can recognize the humans they interact with every day! And I’m sure most would agree that horses recognize other horses by sight. Researchers have proven that horses use a combination of senses to recognize those in their lives. You can startle them by playing a recording of a different voice of a horse or human that they just saw walk by and out of sight. Practical jokes on horses!

Your horse understands photographs.

But did you know that they could recognize you in a picture? If you train horses to have a positive experience with a photograph by giving them rewards while viewing a picture of an unknown human. They can then recognize that person when meeting them in reality. So maybe you should ask your veterinarian for a portrait to do some training at home.

Horses understand facial expressions in horses and humans.

While it should come as no surprise that horses react to horse facial expressions, they also recognize a friendly interested horse versus an angry horse in photographs. Same goes for people. Horses will avoid angry human facial expressions in reality or in photographs. Smile the next time you go to the barn.

Horses might want their own iPad.

Researchers using computer touch screens have found that horses can discriminate shapes, letters of the alphabet and conquer the concept of less versus more. Now, they haven’t taught any to read yet, but who knows.

Head shape matters

What your horse sees might depend on its genetic background. Breeds of horses differ in the number of ganglia present in their visual streak. Horses with greater nasal length have more ganglia and thus have greater visual acuity. That doesn’t mean a longer head, but greater nasal length in comparison to total head length. Think Arabians!

Scary on the left please!

Horses prefer to look at objects that may elicit a stress response out of their left eye. This allows the image to be processed by the right hemisphere of the brain. The right hemisphere of the brain is more specialized for processing of negative emotional response such as fear and arousal. This same behavior is seen in other species, such as cattle, that prefer to keep a negative stimulus in the field of vision of their left eye. It may not just be that we used to have swords when tradition dictated we handle horses on the left.

References


Barn Cats—The Working Feline

by Elisabeth Giedt, DVM, MBA, Director of Outreach & Extension, Oklahoma State University Center for Veterinary Health Sciences

Nearly all the horse owners I know have barn cats. Some have been intentionally acclimated to the barn and others are drop offs that found a home at your farm. A recent discussion at the Horse Owner Workshop reminded me of the importance of health care in our feline population in the barn.

Cats need to have access to regular fresh water. Especially in Oklahoma where drought can dry up your farm pond, be sure to offer your cats a drinking bowl. In the winter cats appreciate warm water just like your horses.

If your intention is to have the cats help with rodent control, do not offer unlimited bowls of cat food. Feed your cats as much as they will clean up within an hour or two. Try to give them a place to eat where they do not have to share their meal with the dog.

Cat food attracts possums, skunks and raccoons. Anyone who finds a skunk, raccoon or possum eating the cat food, knows this is a surprise you can do without. In addition, raccoons, skunks and possums are part of the EPM (Equine Protozoal Myeloencephalitis) life cycle. One aspect of prevention and control of this disease involves keeping these critters out of your barn and away from your feed and bedding.

I encourage all cat owners to practice population control and get their kitties spayed and neutered. In addition to reducing fighting among the males, you won’t have that obnoxious male cat urine smell around the barn. There is nothing worse than tossing down a bale of hay from the mow and instead of that wonderful smell of grass, you inhale male kitty urine smell. Intact females will attract males from the area to your farm, another source of fighting among the cats.

The best barn cats will consume rodents, which will likely infect the cats with tapeworms. Discuss a deworming program with your veterinarian.

Just as your horses need regular checkups and vaccinations, working barn cats need the same care. At the bare minimum, a rabies vaccination can protect not only your cats but also any humans that handle them. Injured cats and cats that are not frequently handled by humans may bite if stressed. Animal bite wounds in humans require that the animal be quarantined or euthanized to determine if rabies is present. Cats are susceptible to a number of diseases so discuss your vaccination options with your veterinarian.

Cats can carry toxoplasmosis in their feces, which they can give to women during pregnancy. The cats do not appear sick. Cats may use the bathroom in loose straw or dirt as well as sawdust. Pregnant women should not handle cat feces.

Here in Oklahoma, flea and tick problems can be a year round challenge. In addition to the annoyance of fleas and ticks, cats can contract several diseases from these pests. Talk with your veterinarian about the ideal way to control fleas and ticks in your barn cats. Among the diseases that are associated with fleas and ticks are tularemia/rabbit fever, bobcat fever and Bartonella. These diseases can have similar symptoms. Your barn cat my hide, run a fever, stop eating and have vomiting and diarrhea. Unfortunately, if you are not watching the cats every day, you may find them near death or dead from these diseases. Early intervention is the key to success in treating these diseases.
Bartonella or cat scratch fever in humans is spread by infected fleas. Bobcat fever is so named as the natural host is bobcats. The parasite lives in the blood of the bobcat and is transmitted to cats via ticks. While the parasite is in the natural host—bobcats, these animals are rarely sick. When an infected tick bites your barn cat, the disease can cause death in your barn cat within two to three days if left untreated.

Cats typically get tularemia by ingesting contaminated food (raw meat from infected animals) or by drinking contaminated water. They can also inhale the aerosolized bacteria, have it enter their bodies through mucus membranes or breaks/cuts in skin, or become infected by biting flies or ticks.

Be sure to store machinery liquids, such as antifreeze, out of the reach of cats (and if your cats are like my cats, there is literally no place too high for them). Lock machinery liquids in a cabinet. Also, do not allow cats exposure to dewormers meant for horses or cattle. These can be fatal to your cats.

Cats do need some shelter. Several creative huts can easily be made using plastic bins to keep them warm in the winter. https://www.neighborhoodcats.org/how-to-tnr/colony-care/feral-cat-winter-shelter

Evidence suggests that cats were originally domesticated to safeguard grain stores from rodent pests. Enjoy your barn cats and help them live happy, healthy lives. 😊

The OSU Veterinary Medical Hospital has been serving horse owners since 1948. We offer routine appointments Monday-Friday and 24 hour emergency service including holidays. The equine medicine and surgery service is staffed by board certified specialists, post-graduate veterinary residents, and senior veterinary students. The service is supported by board certified specialists in other areas of the hospital including anesthesiology, ophthalmology, radiology, cardiology and pathology. Licensed animal health technicians specifically trained in equine internal medicine and surgery assist our veterinarians and provide patient care during the day and after hours.

All members of our team utilize state of the art diagnostic and therapeutic modalities with the common goal of delivering the highest possible standard of compassionate veterinary care to ill or injured horses, while training the equine practitioners and veterinary specialists of the future.

Members of our faculty have special interests in

- internal medicine
- neurology
- equine surgery
- ophthalmology
- sports medicine
- cardiology
- rehabilitation
- anesthesiology and pain management
- radiology
- alternative medicine
- neonatology
- dentistry
- reproduction
- geriatric care

We can perform endoscopy exams on horses at work on the treadmill. We can perform CT of the head and limbs and nuclear scintigraphy. Our imaging techniques also include digital fluoroscopy and ultrasound of limbs and chest and abdomen. We utilize complementary medicine such as acupuncture along with other therapeutic modalities to manage pain and help athletes perform to their potential.

Veterinarians Committed to Excellence in Horse Health Care – CVHS Equine Specialists

Internal Medicine: Lyndi Gilliam, DVM, PhD, DACVIM; Todd Holbrook, DVM, DACVIM, DACVSMR
Surgery: Michael Schoonover, DVM, MS, DACVS, DACVSMR; Daniel J. Burba, DVM, DACVS; Megan Williams, DVM, DACVS
Reproduction: Reed Holyoak, DVM, PhD, DACT; Candace Lyman, DVM, DACT
Anesthesiology: Marjorie Gross, DVM, MS, DACVA; Kip Lemke, DVM, MS, DACVA
Ophthalmology: Margi Gilmour, DVM, DACVO; Emily Sharpe, DVM, DACVO
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