

The Equine Eye: What Horse Owners Should Know

The equine eye is a miraculous and delicate organ. Veterinary problems relating to the horse's eye are common, and should be recognized and treated appropriately. There are many types of problems that affect the eye, but the purpose of this article is to touch on a few of the most common. Injuries and disease involving the eye are usually considered veterinary emergencies. Disease processes in the eye can progress rapidly, and can quickly lead to permanent loss of vision.

The cost of making a mistake is great. Once the eye is severely damaged, restoration to a functional eye may be impossible. The goal of this article is to discuss the basic structure and function of the equine eye, the common veterinary problems that affect the eye, diagnosis, and treatment.

THE EQUINE EYE

Equine Eye – Basic Anatomy

The eye is a fluid filled globe that sits in a protective bony socket within the skull. It can be thought of as virtually an extension of the brain. It is closely associated with the brain both in location and nerve connection. The surface of the clear part of the eye is known as the cornea. Just inside that is the anterior chamber, filled with thick clear fluid known as aqueous humor. The colored part of the eye is the iris. It is a thin ring of two layers of muscle that contract and relax to either open or close the pupil. The size of the pupil determines the amount of light allowed into the back part (image forming part) of the eye.

The pupil contracts under bright light conditions and enlarges in low light. Just behind the pupil is the clear lens, which focuses an image on the back wall of the globe. The projection screen of the eye is called the retina. The

posterior chamber is the back chamber of the eye and is also filled with a clear jelly-like substance. The retina makes up the back wall of the posterior chamber and is made up of millions of light and color-sensing cells. The projection of an image onto the retinal surface stimulates the retina cells, which translate their stimulation into nerve impulses. This is communicated through the optic nerve to the brain, which produce an image. The eyelids have tear glands that produce tears, keeping the eye moist. A duct known as the nasolacrimal duct drains the tears to a small opening just inside the nostril. Blockage of this duct causes a runny eye.

The horse's eye has some unique features. It is very large and well adapted to the life of a prey species living in wide-open country. Horses have excellent peripheral vision. The third eyelid is a pink membrane which moves over the eye from the inside corner toward the outside corner. Its function along with the upper and lower lids is to protect the eye from trauma. An unusual feature of the equine eye is a structure known as the corpora nigra. This knobby structure juts out from the top of the iris and functions to shade the pupil from glare, just as the bill of a baseball cap shades our eyes. Horse owners are sometimes curious about this strange structure and call our office concerned that it is a problem.

Equine Eyelid Wound

EQUINE EYE PROBLEMS

Because of their speed and tendency to move their heads violently, horses are predisposed to eye injuries. Wounds often involve the eyelids and sometimes damage the eye itself. Wounds that are near the eye or involve the eyelids should be seen by a veterinarian immediately. Careful surgical repair of eyelid wounds is critical. Failure to repair these injuries correctly can lead to an eyelid that does not function correctly, or actually irritates and damages the eye.

Penetrating Wound to Eye/Eyelid

Corneal ulcers and injury are very common. Corneal ulcers may be caused by trauma, fly irritation or foreign bodies (plant awns, burdock) that get into the eye. This irritation can cause a small break in the thin outer membrane of the cornea. Once a break occurs in this thin corneal surface layer of cells, bacteria can colonize and break down the corneal material, expanding the ulcer. It is very important to treat corneal ulcers quickly and appropriately. Many horses lose their sight as a result of owners failing to treat this problem. Corneal ulcers can be difficult to see. Horses often just appear to have a weepy eye. On closer examination, a gray discoloration of the cornea can sometimes be seen. Veterinarians usually use a fluorescent dye (fluorescein) to stain the surface of the eye to make the ulcers more visible. This stain usually makes visible even tiny breaks in the surface of the cornea. This is important because the approach to treatment is different depending on whether or not there is a break in the cornea.

Another common equine eye problem is Equine Recurrent Uveitis (ERU), also known Moon Blindness or Night Blindness, and Anterior Uveitis. This is an inflammatory condition of the front chamber of the eye including the iris and sometimes the cornea. This chronic inflammatory disease is the most common cause of blindness in horses. It is usually treatable but requires long-term management.

Cataract occurs in horses and can cause partial or complete blindness. Cataract is an opacity of the lens. It can occur for a variety of reasons. Trauma or injury to the eye is the most common cause of cataract. Congenital cataracts are fairly common as well, especially in some breeds. Mild cataract is common in very old horses.

At our high altitude, squamous cell carcinoma (a type of skin cancer) is a very common disease of the eye. It is caused by the effects of ultraviolet light on non-pigmented tissues. It is thus especially common in paint horses and Appaloosas, or

any horse with no pigment in the skin around their eye. These tumors can be on the cornea itself, and appear as a pink to gray discoloration of that otherwise clear tissue. Or they can also look like inflamed tissue or a pink growth on the skin of the lids, the white of the eyeball, or the third eyelid. Prompt treatment is necessary because these tumors can spread to the deeper tissues behind the eye, where they are difficult or impossible to treat. Horse owner should realize how common this problem is at high altitudes in these horses. I consider any reddish tissue in horses with pink skin around their eyes as cancerous until proven otherwise. There are also other less common tumors that involve the eye and the surrounding tissue.

The most common eye problem in foals is known as entropion. In entropion, the eyelids are rolled inward, causing the eyelashes to be in contact with the cornea. This can cause severe irritation and damage. There are simple veterinary treatments for this and breeders should be on the lookout for it. It generally appears in a young foal as a runny, irritated eye. Foals can have other congenital problems of the eye. A post-foaling exam by your veterinarian usually detects these problems.

Certain equine breeds are predisposed to eye problems. The Appaloosa breed is predisposed to ERU. Morgan Horses are predisposed to congenital cataract. Paint Horses, Appaloosas and other horses with pink skin around their eyes are more prone to squamous cell carcinoma. Other breeds have predispositions to other problems.

DIAGNOSIS & TREATMENT

Examining and treating the equine eye can be difficult, especially when it is painful. It takes good horsemanship and technique to do it safely and effectively. Your horse should be comfortable with you handling his eyelids and covering his eye so that if you ever are forced to treat the eye, you can do it easily and without drama. Veterinarians methodically

examine the eye both with and without an ophthalmoscope. Other instruments are less commonly used. We sometimes paralyze the lids so that they can be held open easily, or anesthetize the surface of the eye with special topical local anesthetics. As is done in human eye exams, at times we dilate the pupil with topical medication. The treatment chosen depends totally on the diagnosis. Often ointments or drops are prescribed.

As I discuss in many of my articles, you should have a trusted veterinarian with whom you can discuss any equine health care question. This is very important with respect to disease and injury of the eye. Call your veterinarian early on when you suspect injury around or involving the eye. From your description, he or she may choose to have you treat it, or may feel that it needs to be seen. Prompt and appropriate treatment of eye problems usually results in positive outcomes. Delay in diagnosis and treatment can cost a horse its vision.

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