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Service Builds Beneficial Relationships

By Alison LaCarrubba, DVM, DABVP

The equine ambulatory program is well into its 13th year and we are all proud to be part of such a successful program. Along with attending to the needs of the local horse community, we have continued to foster our relationship with Longmeadow Rescue Ranch. Thanks to our dean's continued support, this endeavor has proven to be an unmatched learning experience for our veterinary students as well as providing community outreach to an amazing rescue organization.

This year we are also working with Boone County Fire and Rescue to organize a group of interested veterinarians and first responders to train for large animal emergency rescues. This group of individuals will not only train to assist in a multidisciplinary approach to uncommon rescue situations, but will also focus on expanded training for veterinary students and veterinarians statewide. This program will provide new and much needed support and opportunity for our students, veterinarians, and community members alike.

We are excited to welcome Dr. Dorothy (Dee) Whelchel to our faculty. Whelchel is an internal medicine specialist, who comes to us from South Carolina, after completing her veterinary degree and residency from the University of Georgia. She will work mostly with the in-house internal medicine service, but will also spend time working in the field. When you see her on a cold winter's day, please offer moral support and maybe some hot chocolate as she adjusts to our climate.

A new addition to the Veterinary Medical Teaching Hospital was finished this spring and was specially designed

The mission of our equine ambulatory service is to provide the highest standard of medical and surgical care to our patients while training the next generation of veterinarians.

to house the state-of-the-art magnetic resonance imaging (MRI) system. The MRI is up and running and we are able to service horses and examine the lower limb with great success. MR is best utilized for diagnosis of soft tissue injury or disease with much of the focus on lameness diagnosis. This MR unit is the only one of its caliber in the central United States.

As the fall weather approaches many of us are able to better enjoy time outside with our equine friends. I know I have been having a wonderful time hitting the trails with my pony Casper. I adore this athletic and well-minded pony. The bond that my children and I share with Casper brings me closer to you as clients. I understand your successes as well as the difficult decisions you have to make when it comes to your horses, which truly are part of your family. We rely on these special friends to keep us (and sometimes our children — which is a mighty task) safe, as well as providing enjoyment and friendship. We all have the same goal, and that is to care for our horses in the best way we can, which will result in a long term bond and a healthy life. Those of us with the horse bug know that happy horses make happy people!

If you haven't already, please "like" us on Facebook so you can keep up with the current equine news, patient updates and other fun facts: <https://www.facebook.com/MUEquineClinic>.

Meet the MU Equine Ambulatory Team

Alison LaCarrubba, DVM, DABVP

Dr. Alison LaCarrubba, originally from New York, graduated from the University of Missouri College of Veterinary Medicine in 2001. LaCarrubba completed an internship in equine medicine and surgery at the university after graduation and subsequently spent a year working in an equine-exclusive private practice. She returned to the university in July 2003, and in 2009 she completed the credentialing process for the American Board of Veterinary Practitioners in Equine Practice. She is focused on becoming specialized in equine dentistry.



LaCarrubba continues to work both with the internal medicine and equine ambulatory services. She has focused her recent attention on expanding both the ambulatory and in-house dental programs. During the past couple of years LaCarrubba has attended a variety of advanced dental training courses and most recently spent time in Colorado learning new and innovative techniques for equine dental extractions. When she is not at work she is spending time with her family, who fortunately share her horse addiction.

Martha Scharf, DVM

Dr. Martha Scharf practices equine ambulatory medicine at the MU Equine Clinic. Scharf was born in Chicago and grew up riding hunters and jumpers in St. Louis. Since moving to Columbia, she has continued to ride and started to explore three-day eventing. After earning a DVM at MU, she completed a rotating equine internship at the university. She then continued on to work as a clinical instructor for the equine ambulatory service.



Following her marriage earlier this year, she changed her last name from Rasch to Scharf. She continues to spend the majority of her time instructing senior veterinary students while providing quality medical care for horses within the Columbia area. She is particularly interested in wound management and emergency care in the ambulatory setting. Scharf works closely with the referral clinicians in the MU Equine Clinic to provide superior care to horses.

Dee Whelchel, DVM, DACVIM-LA

Dr. Dee Whelchel recently joined our team as a faculty member working with the equine internal medicine and ambulatory services. Whelchel is originally from Atlanta, where she grew up riding hunter/jumpers. She attended Emory University for undergraduate studies and completed a master's degree in physiology at the University of Georgia with a research focus on botulinum neurotoxin. She completed her DVM program at the University of Georgia followed by a one-year internship in large animal medicine and surgery at Texas A&M University. Whelchel then returned to UGA to complete a residency in large animal internal medicine in 2011. During her residency, she researched low molecular weight heparin therapy in horses.



For the past three years, Whelchel has been in private practice in South Carolina where she worked both as an ambulatory clinician and a boarded equine internal medicine specialist. Her most recent experience was in Aiken, South Carolina, which is a unique multidiscipline equestrian community that includes three-day eventing, hunter/jumpers, thoroughbred training centers, and Fédération Équestre Internationale-level driving. Her professional interests include equine infectious diseases, endocrine disorders, respiratory disease, critical care, cardiology and neonatology. In her free time, she enjoys riding horses, biking and hiking.

Our interns have a special interest in working with horses, and potentially going on to complete a residency, specializing in either equine medicine or equine surgery. Every June we welcome a new crop of interns. This year our interns include Drs. Vanessa Bradley, Jordan Kiviniemi-Moore and Amanda Trimble.

Vanessa Bradley, DVM

Dr. Vanessa Bradley grew up in Adrian, Michigan. She graduated from Michigan State University in 2010 with a bachelor's degree in animal science. During her time at Michigan State she began riding. Initially she started with hunter/jumpers,



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and later participated in polo and dressage as well. She remained a Spartan while earning a doctor of veterinary medicine degree, which she completed in 2014. Her professional interests include equine surgery and anesthesia. Following her internship at Mizzou, she may pursue a surgical residency or continue working as an equine veterinarian. Outside of veterinary medicine, her interests include rock climbing, running and riding.

Jordan Kiviniemi-Moore
(Kivi-Moore), DVM

Dr. Jordan Kiviniemi-Moore (Kivi-Moore) grew up on a small farm just outside of Lexington, Kentucky. She completed her bachelor's degree in biology at Transylvania University in 2010 before obtaining her doctor of veterinary medicine degree from Auburn University College of Veterinary Medicine. Following this internship Kivi-Moore plans to pursue a career as an equine ambulatory veterinary, and she especially interested in equine reproduction. In addition to veterinary medicine, she enjoys riding horses, hiking and baking.



Amanda Trimble, BVMS

Dr. Amanda Trimble is originally from Baltimore, Maryland. She grew up riding and showing local hunter/jumpers, and continued throughout college as team captain at Dickinson College in Pennsylvania on her horse, Sam I Am. After graduating with a bachelor of science in biology in 2009, Trimble moved across the pond to Scotland for five years where she completed her veterinary degree (BVMS, MRCVS) at the University of Glasgow. Her main veterinary interests are focused around equine internal medicine, especially infectious disease. After her internship at Mizzou, she hopes to pursue a residency in medicine and remain in academia. Her other interests besides riding include traveling, cooking and watching football.



Highly Contagious, Strangles Demands Fast Isolation

By Amanda Trimble, BVMS

When the weather is beautiful like it has been these past few weeks, hitting the trails or going to a competition are probably some of the first things horse enthusiasts think about. Mixing large groups of horses together does not come without risk, however. There are a variety of transmissible equine diseases, but one of the most well known of the respiratory diseases is "strangles" or "equine distemper." It is important to understand how the disease is transmitted, the associated clinical signs and the treatment protocol to best protect your horse.

What is strangles?

Strangles is an upper respiratory tract disease in the horse caused by the bacterium *Streptococcus equi* ss. *equi*. It is a highly contagious disease of horses spread by direct contact between horses or from environmental contamination. Generally clinical signs are seen three to 15 days after exposure. The disease typically affects the lymph nodes under the jaw (submandibular) or deep in the throat/throat latch area. The disease is endemic in the United States, and cases have been recorded recently in the Midwest. At the MU Veterinary Medical Teaching Hospital we tend to see multiple cases throughout the year.

What should you look for?

If you believe your horse has been exposed, it is important to closely monitor its temperature. The disease causes an elevated temperature before the animal becomes contagious, giving you time to isolate before exposing other animals. A horse's temperature should be less than 102 degrees F. Anything above 102 degrees F should be isolated immediately and monitored closely. Generally, horses with fever show signs of lethargy, depression and inappetence. Eating may be difficult for horses with strangles

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because the lymph nodes in the throat and underneath the jaw can become very swollen and painful, similar to strep throat in humans. The lymph nodes will become enlarged and then form abscesses, which will eventually open and drain, contaminating the environment and affecting any horses that may be nearby. Horses may also have purulent nasal discharge coming from one or both nostrils, and they may cough. In more severe cases, the airway may be obstructed by the large abscesses, leading to respiratory distress, hence the name strangles.

When to call the veterinarian?

If your horse has a persistent fever, is lethargic and not eating, has nasal discharge, large and painful swellings on its mandible, or any difficulty breathing, it is time to call the veterinarian. The veterinarian will examine the horse and obtain samples in an effort to make a diagnosis. These will then be sent to the lab for appropriate testing. Treatment and supportive care will be initiated at this time as well.

What happens if your horse has strangles?

Your horse will be isolated from others immediately if strangles is suspected or confirmed. Strangles is highly contagious, so rapid isolation is imperative to keep the disease from spreading. People, including stable help, visitors and veterinarians working with affected horses, must take great effort to avoid spreading the disease. We recommend handling the affected horses last — including feeding and cleaning stalls. It is important to have separate cleaning supplies for the affected horses as well as separate buckets and grooming supplies.

Generally speaking, strangles is a self-limiting disease and supportive care is the mainstay of therapy. Typically, horses with strangles receive anti-inflammatory drugs to reduce fever and ease the pain. Hot packing of the lymph nodes to encourage ab-



scess maturation is important. When the abscess becomes soft, the veterinarian can then open and drain the contents. In the routine cases we do not recommend antimicrobial therapy as that will typically delay the disease progression and healing time.

In 20 percent of cases, some more severe complications have been reported post infection with strangles such as vasculitis (purpura hemorrhagica), abscesses forming elsewhere in the body (bastard strangles), and guttural pouch disease (empyema and chondroids). Horses can also become long-term, subclinical carriers. That means that seemingly healthy horses can harbor the bacteria and pass it along to other horses they come into contact with. When diagnosing strangles it can be important to examine the guttural pouches using an endoscope, which will not only allow for improved diagnostics, but also aid in treatment in many cases.

Once clinical signs resolve, affected horses should be maintained in isolation until lab results indicate the animal is no longer shedding the bacteria. This may take three to four weeks after resolution of symptoms. Horses that have recovered from the disease typically will go on to have a

relatively long and enduring immunity to the disease.

There is a vaccine on the market that targets strangles. The vaccine is a modified live intranasal vaccine that is administered once yearly. Since the vaccine is administered at the site of infection/exposure (the nasal cavity), it is thought to provoke an appropriate, targeted response. The vaccine is a modified live vaccine, so precautions must be taken as not to cause disease while administering it. No other intramuscular vaccine should be given after the strangles vaccine is administered as this carries risk of inoculating the horse and causing abscessation along the neck musculature. After handling the vaccination, the veterinarian should wash hands and even change clothes as not to contaminate other horses. Uncommonly, the vaccine can have side effects such as causing the disease. Also, if animals are repeatedly vaccinated and have very high titers to the bacteria, further vaccination can result in uncommon disease sequel, such as purpura hemorrhagica. The best method of protection is understanding the disease process and monitoring closely for possible clinical signs so the affected animals can be isolated and handled appropriately.

Although Difficult, Some Extractions Unavoidable

By Alison LaCarrubba, DVM, DABVP

There is nothing simple about pulling horse teeth. Horse's teeth have long crowns and root systems and were designed to last 25 to 30 years. Trying to remove a tooth in a young horse, or even a horse in its teens, can therefore prove to be a very difficult task. Many people have been working on improving our tools and techniques where equine dental extractions are involved. There is no silver bullet when it comes to equine dental extraction, but there are certainly things that we have learned and improved upon over the years to make dental extractions a better experience for the horse, the owner and the veterinarian.

The most common indications for equine dental extractions include a fractured or fragmented tooth, a tooth root abscess and severe periodontal disease. Clinically, owners notice that the horse is dropping grain, having difficulty eating, not eating well or chewing with their head tilted to the side. Owners may also notice weight loss and lethargy.

Horses have what we call hypsodont teeth, which means that the teeth continue to erupt throughout the life of the horse. Historically, veterinarians have utilized general anesthesia to facilitate dental extractions, which promises the horse will be quiet and still during what can often be a long and arduous task. General anesthesia in horses poses numerous risks and increased cost to the owner. Although we do our best to minimize any risk to the animal, uncommon complications include anesthetic reactions and limb fractures. Keeping this in mind, equine dental specialists have been honing their skills and techniques, allowing for teeth to be safely extracted in the standing, sedate horse.

We have improved our sedation protocols, as well as the dental blocks that numb the area to be worked on, just as human dentists do before working on a painful tooth. Ideally, we will put the horse in stocks for restraint and support. Once the horse is sedated we will perform the necessary blocks to numb the area of interest. After the block has taken full effect, we place the horse in a speculum to keep their mouth open and begin the loosening process. It may take one or as many as three hours to extract a tooth in a young horse.



During the procedure it is important to close the horse's mouth/speculum periodically so the horse's jaw muscles do not become sore. Sometimes the tooth is stubborn enough that we split the procedure into two different days. If the tooth is fractured or difficult to grab, it might be retropulsed into the oral cavity. Instead of grabbing the tooth with forceps we actually line up a pin with the root of the tooth and punch the tooth from the outside of the mouth, into the oral cavity. This is somewhat more invasive, creating a tract from the oral cavity to the outside, which then needs to be filled until it heals over.

The great news about a standing oral extraction is that after the tooth has been removed there is often little aftercare. The horses are typically on pain-relieving medications, antimicrobials and soft feed for three to five days. Complications from oral extractions are rare, and it has been noted that 93 percent of horses that underwent an oral extraction had no complications. The complications that do arise include fractured roots, retained fragments and sinus infections.

We do not consider equine dental extractions lightly, but with improved sedatives, nerve blocks and extraction techniques we are having great success. Although the procedures can be long and difficult, it is ultimately extremely rewarding to see the end result: horses that are happy, healthy and eating well.

Multidisciplinary Approach Results in Success

Case Study

By Alison LaCarrubba, DVM, DABVP

A 21-year old Arabian gelding, Adah Alexander (Alex), presented to the Veterinary Medical Teaching Hospital (VMTH) for a two-year history of low-grade weight loss and lethargy that had recently worsened significantly. The owner, Julie, is very astute and appreciated subtle changes in Alex's recent energy and was worried about Alex's overall disposition, weight loss and oral cavity health. Julie requested an oral examination, as well as a general examination.

Upon physical examination Alex was relatively bright and alert, recognizing that he was in a new environment. His physical examination parameters were within normal limits. Alex was slightly underweight, with a dull hair coat. He was sedated, and a complete oral examination was performed. Alex had significant dental abnormalities. Two cheek teeth were very loose and easily extracted, and sharp enamel points and hooks were floated, or smoothed. At this time we discussed further endocrine testing, but as the stress of the dental procedures may have affected the results of the testing, we elected to wait until the next visit. Alex returned home, was eating well and seemed to be slightly improved.

Approximately six weeks later, Julie noticed that Alex was lame on both front feet and she was concerned about laminitis (founder). Julie started Alex on anti-inflammatory medications and brought him to the VMTH shortly thereafter. Upon examination Alex's vital parameters were within normal limits, he continued to have a somewhat dull hair coat, his weight was unchanged and he was painful on both front feet. Alex had increased digital pulses, in-



dicative of inflammation within the hoof. He had a stilted gait, consistent with laminitis pain.

Radiographs taken of both front feet showed significant rotation of the bone within the hoof capsule. Based on the clinical signs and radiographic changes, we confirmed a diagnosis of laminitis. At this time we elected to pursue further testing for endocrine disease, as Equine Pituitary Pars Intermedia Dysfunction (PPID) is a leading cause of laminitis in older horses. While we were waiting for test results we elected to treat the laminitis with continued use of anti-inflammatory medications, shoeing modifications and stall rest. Alex's feet were trimmed and placed in specialized rubber shoes designed to improve sole growth and blood flow and change the mechanics of the foot to improve overall comfort. The shoes were taped on, and Alex was sent home. There was significant improvement immediately.

Within a few days Alex's endocrine testing was completed. The results, in conjunction with Alex's age and clinical signs, supported a diagnosis of PPID. Treatment for this disease was initiated.

PPID is a common disease of older horses that can result in laminitis, abnormal hair coat characteristics, excessive drinking and urination, weight loss, lethargy and other less common symptoms. It is a good idea to have older horses tested during routine, annual examinations, especially if there are other concurrent signs, such as laminitis, lethargy, or weight loss. In horses with PPID, a part of the pituitary gland grows in size and activity, (adenoma) resulting in hormone dysregulation secondary to age-related changes. This hormone dysregulation causes the concomitant clinical signs. We can work toward controlling the clinical signs of the disease with a specific drug that acts on the pituitary

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gland to help dampen the hormone production, but there is no cure for this disease. Along with targeted drug therapy, it is critical to address the special needs of the geriatric patient, such as regular dental care, specialized hoof therapy, especially in cases that involve laminitis, and nutritional counseling.

Alex presented to the VMTH for a re-evaluation and for continued specialized laminitis care six weeks after his second visit. Alex was seen by our laminitis specialty team, which includes a veterinarian and farrier. We repeated radiographs and performed a venogram to evaluate the blood flow to different areas of the hoof. Venograms are helpful for diagnosis, treatment recommendations and prognostic information in horses with laminitis. Alex was fitted with specialized shoes that are designed to promote robust foot growth and are considered to be part of a “de-rotation” program.

Alex is looking and feeling better. His coat is shiny and healthy, and Julie reported that Alex was much more energetic. In this instance multiple services and specialties were able to work together to produce the best possible outcome. Alex has his own, dental, endocrine and hoof team, and he has shown vast improvement from this multidisciplinary approach.



With Extra Care, Horses Can Enjoy Good Health Well into Senior Years

By Martha Scharf, DVM

In the past, older horses were often turned out for retirement, receiving less care and management than their younger, working counterparts. Now, many of us have geriatric horses that serve not only as long-term, honored members of our herds, but also highly valued companions, sport horses and teachers. These horses are commonly working and living happily into their late 20s, 30s, and sometimes even their 40s. Although advances in veterinary care and husbandry have helped extend the lifespan of many horses, some horses will undergo age-related changes as early as 15 years old, resulting in the need for senior care. With modern horses enjoying longer careers and lifespans, it's important to be aware of the special requirements to monitor and care for this aging population.

One of the most common conditions observed in older animals of all species, including horses, is orthopedic (bone) disease. As senior horses become less active, they lose muscle tone, causing stiffness from old injuries to increase. Additionally, their bones and cartilage wear, leading to joint pain (arthritis) and further inactivity. It's important to monitor older horses for signs of lameness, lack of movement, trouble lying down or ris-

ing, inability to keep up with the herd, or swollen joints. These ailments can often be treated with anti-inflammatory medications, which allow the horse an improved quality of life.

As horses age, they can experience significant dental disease. Their teeth are designed to last for 20 to 30 years. As the animal ages the teeth become worn out and dysfunctional. The teeth can wear abnormally, causing sharp, painful points and hooks, and they can become loose and either fall out or require extraction. Horses with dental problems will chew slowly or abnormally, store food in their cheeks, drop food, turn their head sideways, have undigested grain in their manure, or have ongoing weight-loss issues. As a result, geriatric horses require more frequent dental examinations.

Adequate nutrition is also a major concern for geriatric animals. As horses age, a combination of dental attrition (lost and worn-out teeth) and an inefficient gastrointestinal system often result in significant weight loss. As a result, older horses require more, highly digestible food. Complete senior feeds are invaluable, providing soft, dense, highly digestible fiber and

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high-fat diets. Complete senior feeds will provide the animal with all of the required nutrients and will supersede the necessity of feeding hay, which older horses often cannot chew or process. In addition to complete senior feed, calories can be added using corn oil and rice bran to increase fat content, as well as beet pulp and soaked alfalfa cubes, which increase digestible fiber and protein.

Senior horses experience hormonal imbalances that younger horses are less likely to face. A common disease of geriatric patients is Pituitary Pars Intermedia Dysfunction (PPID) also known as Equine Cushing's Syndrome. Horses with PPID often experience loss of muscle mass and weight loss. Other common clinical signs of PPID include a long, curly hair coat, lethargy, increased water consumption and urination, sweating and, perhaps the most devastating clinical sign, laminitis, or founder. PPID predisposes the animal to immune system dysfunction, increasing the animal's risk of acquiring infectious diseases. Horses with PPID can be managed with medication directed at slowing down the production of the aberrant hormones released from the pituitary gland.

The immune system dysfunction associated with geriatric horses makes it imperative to maintain a stringent deworming and parasite control program. Shelter from wind, rain, snow and sun becomes increasingly important with age, and adverse weather conditions can quickly be detrimental to an older horse's overall condition. It is important to monitor older horses closely during extreme weather, which is common in Missouri.

Most of the health conditions associated with our geriatric horses can be well controlled, especially when diagnosed early. With proper management and special attention, senior horses can live a comfortable, healthy lifestyle for years to come.

Remove Pregnant Mares from Affected Pastures to Prevent Devastating Fescue Toxicosis

By Jordan Kiviniemi-Moore, DVM

Most Missouri horse breeders are aware of the dangers that endophyte-infected fescue presents to our mare and foal pairs. It is important to remember that the effects can be devastating and that endophyte-infected fescue covers much of the state, making the likelihood of exposure significant.

What is fescue toxicosis?

Fescue toxicosis affects pregnant mares. One of the most devastating effects is reduced milk product or a complete lack of milk production, leaving the foals with no nutritional support, and, perhaps more importantly, no colostrum. Colostrum is the first milk and is full of protective antibodies from the mare. Foals are born immunologically naïve, which means that they rely on this first milk to protect them from environmental pathogens, such as bacteria and viruses. Without ingestion of good quality and sufficient quantity colostrum, foals are at risk for a variety of diseases that can cause life-threatening illnesses.

Other problems associated with fescue toxicosis include prolonged gestation, thickened placenta, and delivery of weak, stillborn or dysmature foals. Mares with exposure to infected fescue are also at increased risk of dystocia, which can endanger both the life of the mare and the foal.

What causes fescue toxicosis?

Fescue toxicosis is caused by the endophyte fungus *Neotyphodium coenophialum* that grows symbiotically with tall fescue grass. The fun-

gus produces toxins including ergot alkaloids that inhibit secretion of the hormone prolactin, which most notably affects milk production.

How can I tell if my mare is affected by fescue toxicosis?

Your veterinarian may presumptively diagnose fescue toxicosis based on clinical signs such as failure of normal mammary development and prolonged gestation coupled with access to fescue in the pasture or in hay. A definitive diagnosis of fescue toxicosis requires microscopic examination of the plant or seed samples to check for the presence of the endophytic fungus.

How is it treated?

Fescue toxicosis is best prevented by removing mares from affected pastures and fescue hay at least two months prior to their due date. Several medications have been studied to prevent and treat fescue toxicosis, and among the most common treatments is an oral medication that prevents the suppression of prolactin, allowing milk production to ensue.

After waiting almost a full year for a foal to arrive, there is nothing more disappointing than losing them to a preventable disease. The effects of fescue toxicosis can be wide reaching and devastating, and they are completely preventable with the correct management practices. It is always better to be safe than sorry. We urge you to remove your mares from any and all fescue-containing pasture and hay in order to prevent this potentially expensive and life-threatening problem.

Equine Enteric Coronavirus: Emerging Disease?

By Dee Whelchel, DVM, DACVIM-LA

Although infrequent reports of equine coronavirus (ECoV) have been associated with foal diarrhea, recent outbreaks of ECoV in adult horses have been reported in Japan (2011) and the United States (2012-2013). The Japan outbreak involved large numbers of horses associated with a thoroughbred training center, while outbreaks in the United States were reported in various riding centers located in Texas, Wisconsin, California and Massachusetts. Coronaviruses are enveloped RNA viruses that affect many species, including humans, typically causing gastrointestinal or respiratory disease. Thus far, three groups of coronaviruses have been identified: alpha, beta and gamma coronaviruses; ECoV belongs to the beta coronavirus group.

Common clinical signs in adult horses with ECoV include fever, anorexia and lethargy. Changes in fecal consistency, diarrhea and colic are less common symptoms. The virus causes disease by infecting cells lining the small intestine and large colon causing blunting of the finger-like projections that line the gut (villi). This results in malabsorption, maldigestion and sometimes diarrhea. Horses that become severely sick from ECoV may develop symptoms of endotoxemia, septicemia and neurologic disease. The virus is shed in feces of infected horses, thus fecal PCR testing (looking for the viral RNA) is the most common method of detection.

The good news is that most horses recover from ECoV within one to four days after the onset of illness. Uncomplicated cases typically require supportive care such as anti-inflammatories and oral or intravenous fluids. However, not all horses survive the disease. ECoV is transmitted by a fecal-oral route as affected horses shed the virus in their feces for



four to nine days or longer. During outbreaks, morbidity rates (rate of illness) are generally high, ranging 20 to 57 percent with much lower mortality rates. Outbreaks typically last two to three weeks and occur more commonly in the winter months. Currently, there is no recommended vaccine for ECoV.

Because symptoms associated with ECoV are common to other viral infections in horses, ECoV should be on your veterinarian's rule-out list for horses with fever of unknown origin, anorexia and low white blood cell count. Appropriate biosecurity measures should be taken when an ECoV outbreak is suspected. Facilities should be quarantined for at least two weeks past the last clinical case with a positive fecal test.

When at equestrian events, help to prevent the spread of equine infectious disease including ECoV. Use common-sense biosecurity measures such as avoiding contact with urine or feces from unknown horses (e.g., dirty stalls, manure bins, stall cleaning equipment), avoid sharing common water sources, feed tubs or tack with unknown horses, and wash your

hands after handling unknown horses to prevent the spread of infectious diseases to your horse. Remember to report any horses with fevers greater than 102°F to the veterinarian in charge at that event.

The disease was diagnosed through the Veterinary Medical Teaching Hospital on a farm in southern Missouri. Multiple horses from that farm were treated at the VMTH and subsequently diagnosed with ECoV. These horses showed the requisite signs of lethargy, inappetance, fever and loose feces. Isolation measures were initiated on the farm to control spread, and all horses survived, but this is a good reminder to be vigilant about biosecurity protocols as this disease is present in Missouri.

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Many Conditions Can Lead to Ocular Diseases

By Vanessa Bradley, DVM

As prey animals, horses rely heavily on their vision for safety and protection. Their visual field is almost 350 degrees, allowing horses to constantly assess their surroundings while grazing and moving with the herd. There are a variety of causes of ocular (eye) diseases in horses with the potential for loss of vision. Many eye conditions can have rapid progression that can threaten the health of the eye, therefore early recognition and treatment of these conditions provides the best outcome for the horse.

The most common clinical signs of ocular disease or pain in horses include tearing of the affected eye, squinting, ocular discharge, swollen eyelids or cloudiness within the eye. If there is a traumatic injury, there may also be bleeding or obvious cuts or scratches on or near the eye. Masses can also affect the equine eye, eyelids or surrounding skin. If any of these signs are noted in a horse it is important to promptly contact a veterinarian, as a minor condition could progress quickly to something more serious that may threaten the horse's vision.

Corneal ulcers

Corneal ulcers are very common in horses and most often occur secondary to trauma, which can be as minor as a small scratch. Corneal ulcers are erosions or defects in the horse's cornea, which is the clear surface of the eye. Ulcers can vary in size and depth, with smaller superficial ulcers being less serious than those that are larger and deeper. Corneal ulcers are diagnosed by a veterinarian using a special stain that sticks to areas of the cornea that are damaged, and will appear bright green under the light of an ophthalmoscope. Horses are known for acquiring severe corneal disease quickly, perhaps due to their environment and surroundings.

Treatment of corneal ulcers depends on the severity of the ulceration and the presence of a secondary infection. Small, superficial ulcers are most common and are typically treated with topical antimicrobials, antifungals and an agent that dilates the eye and helps control pain. Simple, superficial ulcers often heal within a few days to a week and present no long-term complications to the horse.

Secondary bacterial or fungal infections can occur if the corneal ulcers are not treated promptly, and sometimes will occur despite treatment. Secondary infections can lead to deeper or larger ulcers, or those that heal markedly slower than expected or not at all. In these cases more aggressive and involved treatment is necessary to prevent permanent damage to the eye. The complicated ulcerations (infected, deep, indolent) have varying prog-



nosis depending on the severity. Prompt recognition, diagnosis and treatment provides better outcomes.

Indolent ulcers or non-healing ulcers result when cells of the outer surface of the cornea will not adhere to the underlying tissue. Geriatric horses with immune compromise can be predisposed to this type of ulceration. The horses are painful, and these types of ulcerations require special therapy and debridement in order to promote healing. Treatment for indolent ulcerations can be long lasting and unrewarding for our geriatric patients.

Equine recurrent uveitis

Equine recurrent uveitis (ERU), also known as moon blindness, is most common cause of blindness in horses. The internal structures of the eye become inflamed periodically at varying intervals. It can be present in one or both eyes, and each episode of inflammation results in permanent damage to the internal structures of the eye that eventually will lead to cataract formation and blindness. The inciting cause may be trauma, bacterial or viral infection, or other miscellaneous causes, though the inflammatory condition itself is believed to be immune-mediated. Although there is a familial association in certain breeds, such as Appaloosa's, we often cannot predict which horses will acquire the disease. Often this is a painful disease, so horses will tear, squint or hold the eye closed completely. The eye may have a blue or cloudy appearance, and the pupil may be smaller than that of the other unaffected eye when observed.

ERU is diagnosed with a thorough ophthalmic exam
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performed by a veterinarian. The goal of treatment is to treat the inciting cause if one is noted, along with controlling the inflammation within the eye in an attempt to minimize permanent damage.

Treatment of ERU may involve both systemic and local medications, and is often quite aggressive in an attempt to quickly reduce inflammation and preserve the inner structures of the eye to prevent blindness. ERU is a progressive disease and even with aggressive treatment horses will often have compromised vision or complete vision loss over time. Prompt recognition of ocular disease and initiation of treatment provides the best prognosis for the horse, and will allow us to slow disease progression and maintain vision for as long as possible.

Ocular tumors

Tumors in and around the eyes of horses are not uncommon. These tumors tend to be more common in horses without pigmentation (pink skin) surrounding their eyes, such as Paint horses and Appaloosa, as they have less protection from damaging UV radiation compared to other horses. The most common ocular tumor for this group of horses is squamous cell carcinoma, which tends to be locally invasive.

Many times the tumors themselves are the only clinical sign, however small tumors on or near the eye may cause some irritation that may manifest as general signs of ocular disease (squinting, tearing) even if the tumors are not easily visible. Other types of tumors that affect the eye/eyelid include sarcomas (the most common skin tumor of horses), melanomas of grey horses, and much less commonly lymphoma.

Definitive diagnosis of ocular tumors requires a biopsy, or tissue sample. Early recognition and treatment of ocular tumors is very important, especially if surgical removal is necessary as it is simpler to remove a smaller tumor. Therefore prompt veterinary evaluation is key for providing the best possible prognosis for the horse.

As athletes and partners we expect a lot from our equine friends. Although adult horses tend to do very well with one eye or even when they are blind (pasture pets), this does affect their ability to perform. It is important to have a veterinarian perform a complete examination of the eye when any pain or abnormalities are noted in order to initiate prompt and careful treatment with the ultimate goal of preserving vision.



Horse Humor

Courtesy of HorseFix.com!

Horse Sales Terminology Translated

BIG TROT: Can't canter within a two-mile straight-away.

NICELY STARTED: Lunges, but we don't have enough insurance to ride him yet.

TOP SHOW HORSE: Won a reserve champion five years ago at a show with unusually low entries due to tornado warnings.

HOME BRED: Knows nothing despite being raised on the back porch.

BIG BONED: Good thing he has a mane and tail, or he would be mistaken for a cow.

NO VICES: Especially when he wears his muzzle.

BOLD: Runaway.

GOOD MOVER: Runaway.

ATHLETIC: Runaway.

NEEDS INTERMEDIATE RIDER: Runaway.

SHOULD MATURE OVER 16 HANDS: Currently 14 hands, dam is 14.2, sire is 15.3 hands, every horse in pedigree back 18 generations is under 16 hands, but *this* horse will defy his DNA and grow.

WELL-MANNERED: Hasn't stepped on, run over, bit or kicked anyone for a week.

PROFESSIONALLY TRAINED: Hasn't stepped on, run over, bit or kicked anyone for a month.

RECENTLY VETTED: Someone else found something really wrong with this horse.

EXCELLENT DISPOSITION: Never been out of the stall.

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Horse Humor, continued from page 11

CLIPS, HAULS, LOADS: Clippity clippity is the sound of his hooves make as he hauls butt across the parking lot when you try to load him.

FOR SALE DUE TO LACK OF TIME: Rider cannot afford to spend anymore time in the hospital.

QUIET: Dead (almost).

SPIRITED: Psychotic.

WELL BRED: Mother and father are also brother and sister!

COLOR IS BLACK: Brown and/or dirty.

ANY VET CHECK WELCOME: Please pay for us to find out what is wrong with him!

SUITS EVENTING: No brakes.

SUITS DRESSAGE: No accelerator.

SUITS ANYONE: Except us, we hate him!

Things You Wish You Could Tell Non-Horse People

- A pony is not a baby horse.
- There is a distinct difference between being bucked off and falling off.
- Trotting is not the same thing as galloping.
- The horses in the field are not blindfolded.
- The horses in the field laying in the sun are not dead, they're just napping.
- Jumping is not what you see in the old western movies.
- You cannot just throw a saddle on any horse, and expect to ride it.
- Yes it is hard to ride a horse, no it does not do all the work and no you don't just sit there.
- Yes, in the wild horses didn't live in stalls, wear blankets or get their feet trimmed, but they also did not do dressage or jump 3 feet with an extra 180 pounds on their backs.
- There's a difference between galloping for fun and being run away with.
- Just because my horse is a boy does not mean he is a stallion.
- Kicking a horse in the ribs and yelling "Yaaahhh" isn't the appropriate way to start.
- An awful lot of the big names in the movies actually couldn't really ride that well. The horse deserved his own award for tolerance.
- I'm 23. I have a degree in equine science. I'm not going to grow out of it. It's no longer just a phase!
- In real life, horses do not whinny constantly like they do in the movies.
- She's not "white," she's a grey.
- No, he will not automatically kick you if you walk behind him.
- Not all horses are either beer horses (Clydesdales) or race-horses.