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AGRONOMY & EQUINE EDITOR
March 2022

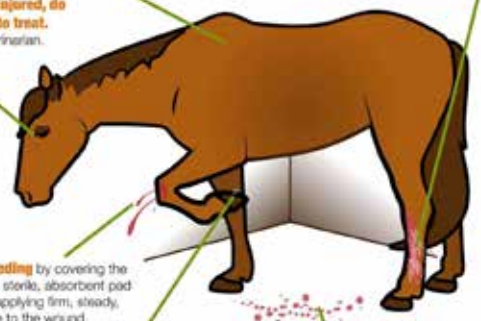
SINCE 1929

GUIDELINES FOR EMERGENCY WOUND CARE

Catch and calm the horse to prevent further injury. Move the horse to a stall or other safe location if this is possible without causing distress or further injury. Do not attempt to treat or evaluate the wound if it's not safe.

Consult with your veterinarian regarding a recommendation before you attempt to clean the wound or remove debris or penetrating objects, as you may cause further damage. **Don't put anything on the wound except a compress or cold water unless advised by your veterinarian.**

If the eye is injured, do not attempt to treat. Call your veterinarian.



Stop the bleeding by covering the wound with a sterile, absorbent pad (not cotton), applying firm, steady, even pressure to the wound.

If a horse steps on a nail or other sharp object and it remains embedded in the hoof, **consult with your veterinarian regarding a recommendation before you remove the nail.**

Do not medicate or tranquilize the horse unless specifically directed by your veterinarian. If the horse has suffered severe blood loss or shock, the administration of certain drugs can be life-threatening.

Call your veterinarian for a recommendation anytime you are unsure or feel your horse is in need of emergency care.

Examples of **situations where your veterinarian should be called include:**

- There appears to be **excessive bleeding.**
- The **entire skin thickness has been penetrated.**
- The **wound occurs near or over a joint.**
- Any **structures underlying the skin are visible.**
- A **puncture** has occurred.
- A severe wound has occurred in the **lower leg at or below knee or hock level.**
- The **wound is severely contaminated.**

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FOR MORE GUIDELINES

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HOW MUCH FAT DO HORSES NEED TO EAT?

AN EQUINE NUTRITIONIST BREAKS DOWN HOW HORSES USE DIETARY FAT AND PROVIDES CURRENT RECOMMENDATIONS FOR FEEDING OMEGA-3 AND OMEGA-6 FATTY ACIDS.

Question: What role does fat play in feeding horses, and what's the recommended percentage of fat for the equine diet?

Typically, when we think of feeding fat to horses, it is to increase the energy density in the diet. Fat is a good candidate for this because it provides 2.25 times more calories per gram than the same amount of carbohydrate. Research suggests increasing calories from fat rather than simple carbohydrates might help your horse stay levelheaded compared to feeding the same additional calories from starch.

Feeding some fat in the ration offers other benefits, as well. Over time, as horses adjust to having fat in the diet as an energy source, metabolic adaptations can occur that increase fat oxidation during exercise. Because the body can only use fat as a fuel when working aerobically, this switch to preferentially burning fat as a fuel when working aerobically preserves glycogen stores for use during anaerobic work. This can potentially increase time to fatigue. Another important role of dietary fat is facilitating the absorption of fat-soluble vitamins such as A, D, E, and K.

Certain types of fat provide sources of essential long-chain fatty acids. These include the polyunsaturated fatty acids (PUFAs) linoleic acid and alpha-linolenic acid. These and other PUFAs play structural roles within cells and are precursors for important hormone-like compounds such as prostaglandins and eicosanoids. They're also involved in inflammatory response.

A forage-based diet comprising predominantly good-quality pasture might offer 2-5% fat. This will be lower (about 2-3%) in conserved forage diets because the process of curing hay can damage fat composition. Diets of good-quality pasture will have higher levels of omega-3 than omega-6 fatty acids—about three times more. Conversely, hay-based diets have closer to two times more omega-3 than omega-6 fatty acids. Once you add concentrate feed, the amount of omega-6 fat tends to be higher than omega-3. This potentially has implications at the cellular level, because omega-3 and -6 fats have different impacts on inflammatory response. As a result, feeding horses supplemental sources of omega-3 fatty acids has become popular.

Omega-6 fats have developed a bad reputation in recent years, as they are labeled as being proinflammatory, while the omega-3 fats are deemed anti-inflammatory. However, in certain situations some level of inflammation is beneficial. In fact, the National Research Council (NRC) doesn't give an equine requirement for omega-3 fat but does for the omega-6 fatty acid linoleic acid. This doesn't mean omega-3 fats are not required, but a requirement has not been quantified.

Horses' linolenic acid requirement is about 50 grams per day for a 500-kilogram (1,100-pound) horse eating 2% of its body weight in forage per day. A 500-kilogram horse eating 10 kilograms of dry matter from fresh pasture with a fat content of 3% fat is consuming 300 grams of fat per day. Most commercial feeds with a 4% fat content or more include a fat source such as rice bran or some kind of plant-based oil. The higher the fat percentage, the more of these ingredients the feed contains.

With consumer demand for higher omega-3 levels, more feed companies are including ingredients such as flax, which provides both omega-3 and -6 PUFAs. If you're feeding your horse 6 pounds of a 12% fat performance feed, you're feeding 490 grams of fat and, therefore, easily exceeding the NRC's minimum recommendations. On the far end of what amount of fat horses can handle in their diets, research has shown they can digest and utilize up to 20% of their diet by weight as oil.

TAKE-HOME MESSAGE

Whether feeding a small amount to help improve coat quality or a larger amount to help maintain condition, fat is an important nutrient in the equine diet. If you want to increase calories from fat in your horse's ration for weight gain, a fortified high-fat feed, as opposed to oil, has the benefit of being fortified with other nutrients to help ensure a properly balanced diet.

Clair Thunes, PhD

EQUINE DIGESTIVE DILEMMAS

EQUINE DIGESTION IS FULL OF TWISTS AND TURNS, AND A LOT CAN GO WRONG DURING THE PROCESS. LEARN HOW COLIC, DIARRHEA, ULCERS, AND OTHER AILMENTS CAN AFFECT YOUR HORSE'S GI TRACT AND WHAT STEPS TO TAKE TO OPTIMIZE HIS DIGESTIVE HEALTH.

An overview of GI issues in horses

Horses are known for having delicate gastrointestinal systems. Equine digestion is full of twists and turns, and a lot can go wrong during the process. Colic, diarrhea, ulcers, and other ailments are common in our domestic horse population. Being informed and prepared will help you react appropriately should your horse ever greet you with a bellyache.

COLIC: THE MAIN CULPRIT

Colic is the No. 1 killer of adult horses, accounting for 30% of U.S. horse deaths, according to the USDA's 2015 National Animal Health Monitoring System study. While the clinical signs of colic—an umbrella term referring to abdominal discomfort—might be similar in many cases, the underlying causes and conditions can be vastly different and have a major influence on treatment and prognosis.

Michael Fugaro, VMD, Dipl. ACVS, owner of Mountain Pointe Equine Veterinary Services and a surgeon at B.W. Furlong and Associates, both in New Jersey, says the two most common types of colic he encounters on the farm are gas/spasmodic (gut spasms) and idiopathic (unknown cause), with impaction next on the list.

"Thankfully, most of these cases respond to a single treatment of medical therapy and resolve without further complication," he says, for example, administering a non-steroidal anti-inflammatory drug (NSAID) such as flunixin meglumine (Banamine) under your vet's guidance.

So what causes colic? "Horses are creatures of habit," Fugaro says, "and when changes in feed, grass, water intake, medication, exercise regime, stabling, environment, etc. occur, the intestinal tract appears to be the most susceptible to that impact."

Types of colic that end up requiring surgery vary depending on the region and horse demographic. This is because different horses in different parts of the country are exposed to different risk factors. "The signalment (age, sex, breed), occupation, and other variables of the horse appear to influence the type of surgical colic experienced," he says. "For instance, older horses and Arabians are highly represented with strangulating obstructions secondary to lipomas (benign fatty tumors); geldings that crib-bite and/or windsuck have a higher incidence of entrapment of the small intestine in the epiploic foramen (a narrow opening connecting the two sacs of the abdominal cavity); and broodmares show a higher prevalence of large colon (the stretch of intestine located between the cecum and the transverse colon) displacement and/or volvulus (twisting) after foaling."

Nimet Browne, DVM, MPH, Dipl. ACVIM, an internal medicine specialist at Hagyard Equine Medical Institute, in Lexington, Kentucky, with an interest in gastrointestinal disease, echoes these observations. Located in the heart of Kentucky horse country, Browne treats many Thoroughbred broodmares and foals. Common causes of medical colic in her patient population include large colon displacements, spasmodic colic, enteritis (inflammation of the small intestine), and impaction, including from parasites.

The colic type a horse experiences also depends on his age and lifestyle. "The majority of the colic cases referred to us are medical colics (those that don't need surgery because they can be managed with intravenous fluids, pain-relieving medications, and supportive care)," Browne says. "A colic case can require surgery if pain cannot be controlled, if there is indication of gastrointestinal compromise, or if all other treatment options have failed."

Researchers have confirmed that the faster a horse that isn't responding to medical therapy gets referred to surgery, the greater his chance of a successful outcome. "Surgical causes of colic that we frequently see include large colon volvulus, small intestinal volvulus, mesenteric rents (tears in the membrane that anchors the intestines to the abdominal wall), intussusceptions (where the intestine telescopes onto itself), and colonic displacements," Browne says.

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While it can be difficult for veterinarians to determine the cause of a colic, she sees certain well-known predisposing factors in her practice population, she adds. These include the immediate peripartum (post-birthing) period, advanced age, stress from yearling sales prepping, horse shows, stall rest, or, as mentioned, intestinal parasite load.

DIARRHEA: HOW SERIOUS CAN IT BE?

Although occasional loose manure can simply reflect recent feed changes or a brief stressful episode, severe diarrhea (due to toxins, parasites, infectious agents such as Salmonella, and more) can signify something is seriously wrong. "Diarrhea cases are not to be taken lightly and can become fatal in severe cases," says Fugaro. "If a horse has true diarrhea (waterlike manure that immediately sinks below the bedding), it is considered a medical emergency."

Here's why: Diarrhea can cause severe dehydration and protein loss, and advanced cases can even lead to the debilitating hoof condition laminitis and bodywide infection in the blood known as sepsis. In addition, acute diarrhea is very difficult to treat.

"Many horses will require around-the-clock aggressive medical and supportive therapies that can only be provided in a hospital setting," says Fugaro.

So, how can you gauge the severity of a horse's diarrhea? "It is of utmost importance to consider the systemic health of the horse in question," Browne says. "Mild diarrhea caused by feed changes is typically transient (one to three days at the most) and not generally accompanied by changes in attitude, demeanor, appetite, or body temperature."

If any of the latter signs do appear, she urges owners to call their veterinarians and ensure their horses have plenty of drinking water available, temporarily remove concentrates from the diet, and potentially administer a veterinarian-prescribed adsorbent to help neutralize the diarrhea-causing toxins. She also recommends asking your veterinarian whether you should give your horses probiotics (beneficial microorganisms) and prebiotics (micronutrients, which are good gut microbiota required to survive). Further care, such as antimicrobials and even hospitalization, might be necessary.

ULCERS: A PAIN IN THE GUT

Equine gastric ulcer syndrome (EGUS), the most common gastrointestinal disease in horses, refers to ulcerative lesions of the stomach. Equine colonic ulcer syndrome (ECUS) is a similar condition that affects the horse's hindgut—the digestive tract beyond the small intestine. Ulcers cause discomfort, pain, and often a decrease in body condition. Other reported effects include poor appetite, attitude changes, lack of energy, a dull hair coat, and chronic diarrhea.

While they might not be immediately evident, ulcers are prevalent among pleasure, performance, and especially racehorse populations and linked to many factors. Fasting, lack of forage, high amounts of concentrate feed, stress, stall confinement, transport, and NSAID administration are among the most common. However, there are many steps you can take to help protect your horse's stomach, starting by providing as much turnout and forage access as possible. If your horse needs NSAIDs to manage pain associated with arthritis or other chronic conditions, for instance, ask your veterinarian about using firocoxib (Equioxx), a COX-2 selective NSAID that's gentler on the stomach than nonselective forms like Bute or Banamine. Omeprazole, an oral antiacid sold under the names GastroGard and UlcerGard, is highly effective in treating and preventing gastric ulcers. Colonic ulcers are more difficult to diagnose and eradicate but have anecdotally responded to gastroprotectants such as -misoprostol.

Consult your veterinarian if you suspect your horse has ulcers. He or she might perform gastroscopy (passing an endoscope through the nostrils and into the stomach to look at its surface) to make a diagnosis and can prescribe the appropriate treatment.

GUT MICROBIOME DISTURBANCES

The horse's intestines are populated with beneficial bacteria, protozoa, fungi, and archaea (single-celled organisms) responsible for digesting and absorbing nutrients. Together, they make up the microbiome, which digests fiber into volatile fatty acids the body can use for energy. Any alteration of the flora within the digestive tract, known as dysbiosis, can impair the gut's normal functioning, potentially causing big problems.

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"The microbiome is highly influenced by diet, geographic location, and host genetics, as well as systemic medications and/or supplements," Browne says. "When the microbiome is altered, minor to life-threatening complications can arise, including colic, colitis (inflammation of the large colon), laminitis, gastric ulcers, as well as weight loss, obesity, diarrhea, and systemic inflammation."

When treating these conditions, she stresses the importance of identifying and addressing underlying problems, which could include inflammatory bowel conditions and/or infectious causes of diarrhea.

"Even once these issues are addressed, maintaining and cultivating normal flora can be difficult," Browne says. "General principles of restoring a healthy microbiome include removing inciting causes, administering probiotics and prebiotics, and providing high-quality fiber."

MALABSORPTION OF NUTRIENTS

Malabsorption occurs when the intestinal mucosa fails to absorb and transport nutrients such as carbohydrates, protein, fat, vitamins, or minerals into the bloodstream correctly. "There is ongoing research about malabsorption, as it is believed to be a contributing factor in many of the clinical symptoms we observe in horses," Fugaro says.

Browne adds that malabsorption usually occurs when inflammatory or neoplastic (abnormal tissue growth) cells infiltrate the intestinal mucosa. Inflammation of the small intestine usually leads to chronic weight and protein loss, while that of the large intestine (colitis) more commonly causes diarrhea. Other clinical signs include lethargy, colic, and dependent edema (swelling affected by gravity, generally on the abdomen and/or legs).

"Chronic inflammatory bowel disease, which is commonly diagnosed in humans but more rarely in horses, is often a culprit," Browne says. "So are neoplasia, small strongyles (intestinal parasites), diffuse fibrosis (scarring), extensive small intestinal resection during colic surgery, and also infectious conditions such as (equine proliferative enteropathy)." Again, treatment depends on the cause of the malabsorption, which is best determined by your veterinarian.

TAKE-HOME MESSAGE

Horses have sensitive gastrointestinal tracts that are susceptible to a variety of ailments, but owners can take several simple steps to optimize digestive health. Provide constant access to forage and fresh water, make feed changes gradually, turn your horse out as much as possible, and reduce sources of stress in his environment. And, as always, communicate early signs of trouble to your veterinarian. With gastrointestinal issues, rapid intervention is crucial for a successful outcome.

The Horse

EVENTS / CALENDAR

PURINA CHECK-R-BOARD & CHICK DAYS

Monday, March 21 - Saturday, March 26

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Always feed a minimum of 1.0 to 1.2 lbs. per 100 lbs. of body weight of good quality hay or the equivalent in pasture.

Reduce and/or delay feeding a horse which is hot, excited, showing pain, has a fever or diarrhea. Consult your veterinarian if any problems arise.

Any feed changes should be made gradually over 7 to 10 days. Changes in the rate of feeding should not exceed 1.0 lb. per day of each horse.

Provide plenty of fresh, clean water at all times. Provide your horse access to salt. Maintain an effective control program for internal parasites. Examine your horses teeth annually and consult with your veterinarian on a regular basis.

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