

EQUINE GASTRIC ULCERS

Compiled from information available at: www.allivet.com/articles.asp?ID=112; ag.udel.edu/extension/; and [Horse911.com / Holistic / Illnesses & Disorders / INFO: Ulcers](http://Horse911.com/)

Stomach ulcer disease is highly prevalent in horses. Stomach ulcers occur in horses of all ages but particularly in foals and horses in heavy exercise. Activities for horses that are extremely common this time of year, such as recreational showing, have been shown to have the capacity to induce gastric ulcers within 5-7 days. Strenuous exercise and intensive training can definitely increase the likelihood of ulcer development in horses; but the mild stresses of transportation, diet changes, and new surroundings associated with weekend shows or summertime competitions, can likewise lead to decreasing performance or debilitating ulcer disease in your horse.

The complete causal list of equine gastric ulcer syndrome is quite long which includes the anatomy of the horse's stomach, the level of exercise, their feeding schedule (i.e., allowing the horse intervals of 4-6 hours with an empty stomach), the horse's diet, environmental stress (such as transport and stall confinement), and certain medications, notably the use of non-steroidal anti-inflammatory agents (NSAIDs). Equine stomach ulcer disease is principally a man-made disease. Studies demonstrate that up to 90 percent of race horses and 60 percent of performance or show horses are affected; therefore, equine gastric ulcer syndrome is a syndrome so commonly found that every horse owner needs a stomach ulcer awareness understanding. Because the syndrome is largely man made, and because the syndrome affects a great percentage of horses, the equine ulcer solution is horse-owner awareness and horse owner attention.

The term ulcers, refers to a break or erosion in the lining of the esophagus, stomach or small intestines. The depth of the erosion determines the severity of the ulcer. The lining of the horse's stomach is made up of a glandular and non-glandular (squamous) portion. The glandular portion covers the lower two-thirds while the squamous mucosa covers the upper one third. Most ulcer problems will develop in the non-glandular lining because it has little protection against the acid which is produced in the lower portion of the stomach. The exceptions to this are the ulcers caused by toxicity from non-steroidal anti-inflammatory drugs such as ButeT and BanamineT. These ulcers occur in the glandular portion of the stomach because NSAIDs block the release of prostaglandin. Prostaglandin is one of the agents the body depends on to protect the glandular lining of the stomach from the hydrochloric acid and pepsin that it secretes. Adverse outcomes occasionally happen in horses with stomach ulcers. The ulcers may perforate into the abdominal cavity resulting in infectious peritonitis and rapid death. Scarring of the esophagus, gastric pylorus or duodenum may also occur, resulting in problems swallowing, emptying of the stomach and colic.

CAUSES

Ulcers are caused by a variety of factors, including: diet and feeding management - including meal feeding, feeding high levels of concentrates, feed deprivation and types of feed (timothy versus alfalfa); the stress of training and the stress of disease; medications such as corticosteroids; and bile acid reflux.

Diet and feeding management may play a major role in inducing ulcers in horses. By nature, horses are grazing animals, spending much of their day feeding. The grazing horse has a constant flow of saliva and passage of grass into the stomach, buffering stomach acid. Most horses graze pasture during the year. When these same horses are brought into stalls and intermittently fasted they develop ulcers within five to seven days.

Competition horses and horses in training are managed as meal-eaters rather than being allowed to feed or graze continuously. They receive dry hay and concentrates year-round, or for the majority of the year, in a meal rather than eating continuously as in grazing. (Concentrates are mixtures of grain, crushed or whole, along with vitamins and minerals combined in various forms or textures (e.g., sweet-feed, pelleted feed) to compliment the nutrients found in the hay.) The feeding of high volumes of concentrates in itself

increases the production of volatile fatty acids. This, combined with meal-feeding, results in sudden drops in gastric pH and damage to cells in the stomach and intestine.

The stress of training regimen on the animal causes the increased release of corticosteroids and subsequent decrease in blood flow to the stomach lining. This interferes with the natural protective mechanisms and results in more damage from stomach acids.

Medications, such as corticosteroids (prednisolone, dexamethasone) or non-steroidal anti-inflammatory medications (NSAIDS) (e.g., phenylbutazone or "Bute", flunixin meglumine or Banamine), may similarly cause gastric ulceration.

Nervous stress also causes ulcers in horses who do not like their jobs or are challenged beyond their capabilities. Often horses are not overfaced physically but mentally, especially where showing or competing is involved. On the opposite side, boredom can create stress in a type A horse who likes to compete. Physiological stress definitely contributes to ulcer formation. Injury or any kind of chronic disease, especially if pain is involved, sets a horse up for ulcers. Horses that are anorectic (not eating) or partially anorectic because of an underlying medical condition can develop erosions and ulcers in their gastric mucosa within one to two days.

SIGNS

Both adult horses and foals are susceptible to gastric ulceration. In the adult horse, clinical signs include diminished appetite, dull hair coat, unthrifty appearance, mild diarrhea, colic, frequent pawing, weight loss and poor performance. A classic sign is a horse who eats the grain portion of his diet slowly if at all, but eats hay readily. Horses with gastric ulcers will often have a sore back since the acupuncture association point for the stomach is in the muscle adjacent to the spine at the level of the thoraco lumbar junction. Clinical signs in foals include colic, pot bellied appearance, teeth grinding, and excessive salivation.

TREATMENT

The treatment of stomach ulcers involves a combination of changes to feeding management, medical therapy, as well as reducing stress on the horse. Turnout onto green grass pasture along with altering the feeding regimen is likely the fastest method to allow the ulcers to heal. If concentrates are to be fed, they should be fed in small amounts at frequent intervals.

There are many conventional medications that are available to help heal ulcers. They include:

Antacids (aluminum and magnesium hydroxide) will reduce the acidity of the stomach for a short period but must be given every two hours to be effective.

Histamine-receptor antagonists. Cimetidine (Tagamet) and ranitidine (Xantac) are commonly used in the horse and are considered very effective in the prevention and treatment of ulcers. They reduce both basal gastric acid production and induced acid production (e.g., from food) by competitively inhibiting histamine at the H2 receptors of the parietal cells.

Omeprazole Gastrogard (RX) or UlcerGard (OTC) are the most potent anti-ulcer medication currently available. As a proton pump inhibitor, it inhibits gastric acid secretion by interfering with hydrogen ions in the final stage of acid secretion. This medication is given by mouth once daily and, therefore, owner compliance is improved. The raw chemical of omeprazole is available from compounding pharmacies. This type of product is less expensive than the commercial preparations. However, studies have shown that generic, compounded medications may be less effective. There is no quality control for compounded products. Therefore, the amount of active ingredient available in the compounded product may be very variable.

Sucralfate (Carafate) is another type of medication that is useful in treating stomach ulcers, especially in foals. After ingestion, sucralfate reacts with hydrochloric acid in the stomach to form a paste-like complex that will bind to the proteinaceous exudates that are generally found at ulcer sites. This insoluble complex forms a barrier at the site and prevents the ulcer from further damage caused by pepsin, acid and bile (4). Sucralfate will remain adherent to the ulcer crater for more than six hours (1). Because it requires an acidic environment to be effective, sucralfate should be administered at least ½ hour prior to cimetidine or antacids.

Alternative Approach: Conventional treatment for gastric ulcers involves neutralizing the normal stomach acid or blocking its production. There are several problems with this approach. First of all, the problem is not an excess production of acid. Horses produce a small amount of acid continually because they are designed to eat continually. So blocking acid production is a Band-Aid solution when what we really need to do is reevaluate management. Secondly, we are doing the horse a huge disservice by artificially lowering the pH in his digestive tract. The higher pH is harmful to the natural bacterial flora and allows for the overgrowth of pathogenic organisms. This sets the horse up for dysbiosis or leaky gut syndrome. Also digestion is impaired if acid is not present in adequate amounts to breakdown the food. This allows undigested starches to be dumped into the large intestine which has a bacterial population designed for fiber digestion. Instead of chemical protective agents, use two ounces of an aloe vera gel drink two to three times a day mixed with two teaspoons of ground slippery elm bark. Mix these together in a 60cc syringe and give orally five to ten minutes before feeding. The aloe vera aids in healing of the stomach lining and the slippery elm is a mucilaginous herb which protects and soothes the stomach lining allowing it to heal. Also give Cell TechT blue green algae at the rate of one to three tablespoons, a day to provide additional nutrition and help heal the ulcers.

PREVENTION AND RECOMMENDATIONS

Treatment and prevention is principally directed at removing offensive [albeit many times seemingly mild] stressors and preventive management of the predisposing factors. Limiting stressful situations along with sound preventive feeding practices, is most important.

Recognize the horses need to eat continuously. They are designed to be grazers with a regular intake of roughage. Allow free-choice access to grass or hay and use lower-nutrition grass hay if your horse is an easy keeper. Turnout or, better yet, access to pasture on a daily basis is a good way of reducing stress for horses as well as providing a continuous access to nutrients. .

If the horse is stalled or if grain must be fed in large amounts, feed the horse more frequently (no more than three pounds is given at any one time) to help buffer the acid in the stomach. Manage feeding schedules so that no horse must go longer than 4-6 hours with an empty stomach.

Decrease grains in your horse's diets that are prone to promote the formation of volatile fatty acids--high carbohydrate grains such as corn.

Match your horse with a job he enjoys and is well suited for. Provide as much exercise and entertainment as possible.

Provide Probiotics on a daily basis if your horse is in training or confined due to injury or illness.

Avoid frequent or long term use of non-steroidal anti-inflammatory agents.

Recognize your horse's absolute requirement for horse-to-horse social interaction. If the horse must be stalled, arrange for the horse to see the horses he socializes with. Consider offering a ball or other object that the horse can enjoy in his stall.

Ulcer disease is a medical problem that requires your veterinarian's attention.