

A Pain in the Gut: **Disturbing the Stomach Mucosa**

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Nature's master plan was never to domesticate, extensively train or feed concentrates to the equine species. In fact, horses were designed to be grazing animals which could roam over grasslands, consuming relatively small amounts of forage on a more or less steady basis, with as much exercise as they see fit and, of course, no human interaction⁷.

It was people that molded the horse to fit a whole new order of life; confining the horse to small acreage or a stall, using the horse for transportation or work methods, undergoing a great deal of training, exercise and performance demands⁹, setting rigid feeding schedules, asking the horse to consume a specific amount of food in a specified time limit, adding concentrated feed into their diet⁷, and introducing medication when a horse develops a health issue or illness. All of these can cause serious gastric problems in a horse.

Horses with gastrointestinal (GI) problems can exhibit poor appetite, poor body and hair coat condition, recurrent low-grade colic, stomach lesions, and a change in attitude and performance--e.g., the horse becomes more aggressive or grouchy⁶. Recognizing these symptoms in your horse is one thing, but understanding why these symptoms occur is another. This article will focus on factors such as food, exercise, stress and medication and how they can have a direct bearing on the stomach's good health or lack of it⁷.

THE STOMACH

The stomach is a large sac that liquefies the feed ingested by the horse. Acid from the stomach helps to break down some feed particles² and a limited amount of fermentation and enzymatic activity takes place in the stomach as only a small microbial population exists⁷. No nutrients are absorbed through the stomach² and food remains in this organ for about 15 minutes before being passed on into the small intestine

The stomach contains two linings; the upper portion is the non-glandular or squamous (scale-like) lining and covers about one-third of the total area. This mucosa contains no glands and is covered by special squamous epithelium. This is where problems can often occur because it has little to no protection against hydrochloric stomach acid⁷. The lower two-thirds of the stomach is glandular and is the location where acid and pepsin are secreted to digest food, as well as the production of bicarbonate and mucus, which help form a protective barrier over the mucosal surface⁶.



When the stomach reaches about two-third of its capacity, food begins passing into the small intestine and the filling and emptying process continues until the horse finishes eating⁷.

FOOD

As grazers, horses produce gastric acid constantly, which is meant to be offset by nearly continuous eating and associated saliva production, which contains acid-buffering agents. However, lack of turnout and stalled horses are fed twice-daily grain meals and limited hay. These horses could be at increased risk for gastric upset and lesion development¹⁰. Research has shown that when horses are fed frequently, the stomach contains food much of the time and the risk of stomach irritants are diminished as the food absorbs the acid⁷.



The type of food given to the horse can have an adverse effect on the stomach lining as well. Researchers have shown that horses consuming alfalfa hay have a lower incidence of gastric ulcers than horses consuming only pasture or grass hay as they believe alfalfa's high calcium and protein content have a buffering effect in the stomach¹⁰. Another study concluded that

a group of ponies that received mixed feed had a 37% incidence of stomach lesions while the group that was fed solely hay had zero occurrences⁷.

EXERCISE

Research by the University of Florida has shown that any exercise above a walk could force acidic gastric juices up into the sensitive areas of the equine stomach and has affected more than 80% of performance horses^(3,4). This discovery noted that changes in gastric tension during intense exercise can actually push acidic stomach contents up into the vulnerable, squamous-cell-lined portion of the stomach – a circumstance that hints to why lesions often develop or worsen when horses are in intensive training^(3,4).

STRESS

The word "stress" is frequently used when discussing equine health concerns, in particular gastrointestinal issues says Michael J. Murray, DVM, MS⁸. People have a tendency to associate between emotional stress and an upset stomach, and even though severe physical stress can cause ulcers, commonly considered stressors do not cause ulcers directly. For example 'stress' may interrupt eating behavior and indirectly contribute to ulcers⁸.

MEDICATION

It has been shown that prolonged and excessive use of non-steroidal anti-inflammatory (NSAID) drugs, such as phenylbutazone (Bute), flunixin meglumine (Banamine), and ketoprofen (Ketofen) have been associated with gastrointestinal problems in the glandular mucosa of horses^(1,6,10).

The administration of NSAID drugs impairs the inflammatory process by inhibiting the enzyme cyclooxygenase (COX) which is responsible for inflammatory response in the horse's body¹ and in turn, suppresses a critical component of the stomach lining's protection, making it more susceptible to acid's deleterious effects¹⁰.

CONCLUSION

One should be aware that treating a horse with gastric issues can be a very expensive proposition, therefore, take advantage of preventative measures by utilizing the horse's natural buffering mechanisms. Carefully consider the horse's diet and feeding schedule, and provide the horse with as much pasture turnout as possible. Constant grazing will result in the production of large amounts of saliva that will buffer gastric acidity, and the horse being active while grazing promotes better emptying of the stomach, which again will reduce the accumulation of damaging acid in the stomach.

Protect the gastric mucosa of the stomach with supplementation prior to exercise and performance, as this will no doubt have a positive effect on the horse's attitude and performance. Such simple lifestyle and management changes in the daily schedule of your horse can go a long way towards avoiding potential gastric interruptions, especially when the stomach is concerned, to making your horse happier and healthier



RegenerEQ & RegenerEQ Plus are innovative natural health products formulated by Omega Alpha Pharmaceuticals Inc. to support equine gastrointestinal (GI) health by supporting the GI mucosal immune system. This, in turn, can have beneficial effects on the over-all health of our equines.

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