

EQUINE GASTRIC ULCERS SYNDROME (EGUS)

Understanding Causes, Recognizing Symptoms, and Reducing Risk Factors.



© Adobe Stock / Condor36

JUST A CONCERN FOR SPORT HORSES?

Several years ago, studies conducted on clinically healthy sport horses revealed that approximately 80-90% of them showed gastric ulcers.

Similar studies have since been carried out on leisure horses: on average, every second horse - notably, most showing no obvious symptoms! - suffers from lesions of the gastric mucosa.

These findings led researchers to investigate more thoroughly the equine stomach and possible causes of gastritis (inflammation of the gastric mucosa) and ulcers (gastric lesions). This condition is now known as Equine Gastric Ulcer Syndrome (EGUS).

THE EQUINE STOMACH: STRUCTURE AND FUNCTION

Horses have a monogastric digestive system, meaning their stomach, like humans', consists of a single compartment. Food passes from the esophagus into the stomach, where it typically remains for about thirty minutes to two hours before being transported into the small intestine.

The Non-Glandular ("Squamous") Region

The stomach is divided into different zones through which feed passes consecutively. The anterior region contains gastric mucosa with a very thin protective mucus layer and largely without embedded glands. In horses, this area hosts naturally occurring lactic acid bacteria capable of digesting sugars and starch in the chyme. These bacteria produce lactic acid, which can acidify the chyme to a pH value of approximately 5 - 6.

Additionally, this process produces small amounts of "volatile fatty acids." These include, in particular, propionic acid, acetic acid, and butyric acid, if sugar or starch are present in the feed. Further along, towards the fundus of the stomach, special glands are embedded in the gastric mucosa that primarily add a digestive enzyme called pepsinogen to the chyme. When this comes into contact with the gastric acid added further along the digestive tract, it is activated into pepsin and begins to "pre-digest" proteins in the posterior region of the stomach.

The Glandular ("Fundus") Region

In the second stomach region, glands in the stomach lining secrete hydrochloric acid, further lowering the pH to approximately 3. A thick mucous layer protects the stomach lining from this acidic environment. Throughout digestion, salivary buffers help stabilize pH levels, preventing excessive acidity despite the various acids produced. This glandular region's pH of around 3 is crucial for pepsin activation and serves as a natural barrier against a range of harmful microorganisms.

Natural Feeding Patterns

A horse's stomach is never empty in its natural state. Nature designed horses as trickle feeders that consume forage low in nutrients throughout the day, with food constantly entering the stomach. When given free access to forage, horses typically choose feeding breaks of no more than two to three hours. This feeding pattern continues through the night, with horses spending most of their time eating and only sleeping in short intervals.

The continuous chewing action stimulates constant saliva production, which helps buffer stomach acids. Food moves steadily through the stomach, transitioning from a neutral pH environment at the entrance to a low pH environment at the exit.

CAUSES OF EQUINE GASTRIC ULCERS

Disrupted Feeding Patterns

Unlike many domesticated animals that naturally eat distinct meals, horses are adapted for continuous grazing. However, current management practices often conflict with this natural pattern by restricting horses to scheduled feeding times rather than providing constant access to forage. This creates artificial fasting periods during which the stomach can become completely empty. The crucial difference between horses and meal-eating animals, such as dogs, lies in their stomach function: horses continue to produce hydrochloric acid even when the stomach is empty. Without the continuous buffering effect of saliva produced during chewing, stomach pH can plummet to a dangerous level of 1.3. During these periods, with no fiber present to absorb and neutralize stomach acids, these corrosive substances can reach and damage the vulnerable non-glandular region of the stomach, which lacks protective mechanisms against acid exposure.



© Adobe Stock / Rita Kochmarjova

Forage Management

Approximately 80% of gastric ulcers occur in the squamous region of the stomach. These are almost always feed-related and develop due to extended periods without forage, especially when combined with an overall insufficient forage intake. Extended periods without feed allow the stomach to empty, which can cause aggressive acids from the lower stomach region to flow into the squamous region, where they can erode the unprotected stomach lining.

The less forage horses consume, the less saliva they produce. Horses eat significantly more hastily when fed in meals rather than continuously. This results in insufficient chewing overall, causing problems not only for the stomach but also for the large intestine further along the digestive tract.

Straw feeding cannot replace hay feeding. The plant types in hay contain additional substances that buffer the stomach, which are absent in straw. When horses eat straw, they do chew and fill their stomachs, but consuming large amounts of straw (e.g. overnight) creates a high risk of impaction colic.

The Impact of Stress

Improper feeding is not the only concern - stress is another significant factor. Often, it's the stabling conditions that create chronic stress in many horses (which unfortunately isn't always visible). Studies have shown that stress plays a substantial role in both the development and persistence of gastric ulcers. Stress-related ulcers are particularly common in the posterior (fundus) region of the stomach, despite this area typically being well-protected against acids. This occurs because stress significantly reduces blood flow to the gastric mucosa. While short-term stress doesn't cause problems, chronic stress certainly does.

When the gastric mucosa receives poor blood supply for extended periods, it produces insufficient protective mucus. Acids can then penetrate this thinned protective layer and erode the stomach lining. Once an area becomes inflamed, it produces even less mucus, creating a self-perpetuating cycle. Gastric ulcers are very painful, and pain creates more stress - establishing a vicious cycle that horses often cannot break without therapeutic intervention.

The risk of gastric ulcers increases dramatically when both factors combine - extended periods without forage combined with chronic stress, possibly further complicated by generous grain feeding. Concentrated feed causes intense fermentation in the anterior portion of the stomach, producing increased levels of volatile fatty acids. These highly aggressive acids can further damage an already compromised gastric mucosa.



HOW DO YOU RECOGNIZE GASTRIC ULCERS IN YOUR HORSE?

Early detection of gastric ulcers can be challenging, as horses often mask symptoms for extended periods. However, the following symptoms should alert you:

- ! Treatment-resistant fecal water, particularly when horses consume coarse hay or straw
- ! Stress-related behaviors such as cribbing, excessive licking of stable walls, bars, or salt licks during feeding times
- ! Irregular eating patterns, like alternating between forage and concentrated feed
- ! Feed refusal or selective eating, including:
 - Avoidance of either forage or concentrated feed
 - Initial reluctance to try new foods or discontinuing consumption of new feed after brief trial periods
 - Rejection of hay with varying textures (whether coarser or finer than usual) or unusual odors
- ! Physical symptoms:
 - Sensitivity or ticklishness around the belly
 - Defensive or aggressive behavior during saddling and/or girthing
 - Persistent stiffness requiring prolonged warm-up periods
- ! Noticeable improvement in symptoms when bicarbonate is added to the diet



WHAT TO DO WITH THE ULCER-PRONE HORSE?

If you suspect gastric ulcers, begin by thoroughly evaluating living conditions and feeding routines, even if these appear well-organized. Often, problematic aspects of daily care become “normal” over time and are easily overlooked.

Conducting an Objective Assessment

Consider asking someone unfamiliar with your stable routine to help evaluate the situation. This fresh perspective can identify issues that might have become invisible to those involved in daily care. The observer need not be a horse expert - sometimes an uninvolved party can provide the most objective insights. Key assessment criteria are:

- *Does your horse have continuous, unrestricted access to hay?*
- *Does your horse display a relaxed, content demeanor and engage positively in social interactions?*
- *In which situations does your horse present any of the symptoms described above?*

Daily Routine Review

Examine the daily schedule for potential stress triggers, considering both animal and human interactions. This includes relationships with other horses, riders, staff, and trainers. Pay particular attention to situations where the horse shows unexplained anxiety, nervousness, or tension.

Management Changes

Stress reduction is fundamental to successful treatment. A well-trained expert can help identify specific stress factors that need addressing for long-term improvement.

Dietary Modifications

Install round-the-clock access to roughage, particularly hay, which can be provided through close-meshed hay nets to avoid weight-gain. Temporarily eliminate concentrated, starchy, and sugar-rich feeds from the diet. When transitioning feeding routines, especially for horses previously receiving high concentrates and limited hay, implement changes gradually over four to six weeks to prevent additional health issues.

Treatment Protocol

Once contributing factors are addressed, support recovery with therapeutic intervention. Offering boiled linseed together with **OKAPI GasterCare forte**, combined with time-limited use of **OKAPI Liquorice Extract**, provides initial pain relief.

The specific treatment protocol should be tailored to individual cases, considering symptom severity, concurrent conditions, and the estimated duration of ulcer presence. We encourage horse owners suspecting gastric ulcers to seek personalized consultation for developing an appropriate treatment strategy.



Please contact us before starting any therapy. We will be happy to connect you with a qualified therapist from the Sanoanimal network who can create an individualized treatment plan for your horse: office@sanoanimal.com.