References:


Gastric ulceration is a serious yet common condition that can affect any horse, at any age. Studies indicate that gastric ulcers occur in up to:

- **93%** of racehorses in training
- **63%** of performance horses
- **37%** of non-performance horses

Foals are also at particular risk with around 50% of foals developing gastric ulcers, particularly during the first few months of life – and they may show no clinical signs. In foals, the condition can be fatal.

Gastric ulcers tend to be under-diagnosed because:

- Horses often show no outward clinical signs of gastric ulceration
- A limited number of veterinary establishments own a three-metre video gastroscope
- It is a common misconception that gastric ulceration only affects racehorses.
Equine gastric ulcers
What you can’t see

Pathogenesis

Equine Gastric Ulcer Syndrome (EGUS) describes the range of disorders in which there is acid-induced damage to the oesophageal, gastric or duodenal mucosa, although only the stomach is involved in most cases.

Gastric ulcers develop when aggressive factors – such as acid and digestive enzymes – overpower the protective factors in the gastric mucosa.

Foals are known to secrete substantial amounts of gastric acid by two days of age, resulting in highly acidic stomach contents especially when intervals between nursing become extended. Orphan foals are therefore a high-risk group as, despite our best efforts, we can rarely feed them more than every two to three hours over a 24 hour period, whilst naturally they would nurse every 20 minutes.

Physiology of the equine stomach

The equine stomach is divided into two distinct regions: dorsal and ventral.

Squamous ulceration

The dorsal region of the stomach is covered by stratified squamous epithelium and has no glands. Ulcers in this region occur as a direct result of extended exposure to acid. Most equine gastric ulcers occur at the lesser curvature of the stomach – adjacent to the oesophagus – as the stratified squamous lining here is particularly sensitive to acidic secretions. In neonatal foals the developing squamous epithelium is thinner than in adults, increasing their susceptibility to gastric ulceration.

Glandular ulceration

The ventral region of the stomach has glands that are able to produce a bicarbonate-rich protective mucus layer. Ulcers in this region occur when the protective mucus layer is compromised, enabling acid erosion of the gastric wall.
Equine gastric ulcers
What you can’t see

The acid pump

Hydrochloric acid is produced by parietal cells in the ventral portion of the stomach, using an H⁺, K⁺-ATPase enzyme system termed the proton pump.

This pump is regulated by three pathways:

- Neuroendocrine – via acetylcholine from nerves in the stomach wall
- Endocrine – via the hormone gastrin
- Paracrine – via histamine, somatostatin and prostaglandins.

Functional structure of glandular epithelial mucosa

Diagnostic classification

Equine Gastric Ulcer Syndrome spans a wide spectrum of severity:

- Inflamed but intact epithelium
- Superficial erosions or scarring
- Discreet or widespread erosions or ulcers
- Bleeding erosions or ulcers
- Deep ulcers with necrotic centres
- Perforation – usually fatal (most likely in foals).

Approaches used to simplify diagnostic classification include the four-point ulcer scoring system. Grades 2 or above are considered clinically significant.

Clinical signs?

It is important to note that horses can have potentially serious gastric ulcers – confirmed by a gastroscopy – without initially displaying outward signs. In a survey of 187 horses in 1989 (71 thoroughbreds, 3 standardbreds and 113 other horses) ulcers were found in 92% of those presenting with clinical signs of gastric ulceration, such as abdominal discomfort, poor appetite, weight loss or diarrhoea. But gastric ulcers were also found in over half of the horses showing no signs of GI disease.
Impact of ulcers

Gastric ulceration is a serious condition that can be fatal in foals and can also seriously impede an adult horse’s performance, with negative effects on training, appetite, temperament and overall health and wellbeing.

Signs of Equine Gastric Ulcer Syndrome:

**Confirm by gastroscopy**

One or more of the above clinical signs can indicate the presence of gastric ulcers. **Only a gastroscopic examination can provide a definitive diagnosis**, for use as the basis of an appropriate treatment plan. The size and anatomy of the horse necessitate the use of an endoscope three metres long, in order to reach the pylorus and investigate the entire stomach.

<table>
<thead>
<tr>
<th>Adult horses/yearlings</th>
<th>Foals</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Poor performance</td>
<td>• Frequent dorsal recumbency</td>
</tr>
<tr>
<td>• Poor appetite and weight loss</td>
<td>• Poor appetite, intermittent nursing</td>
</tr>
<tr>
<td>• Poor body condition, dull coat</td>
<td>• Poor body condition, rough hair</td>
</tr>
<tr>
<td>• Mild or recurrent colic</td>
<td>• Diarrhoea or a history of diarrhoea</td>
</tr>
<tr>
<td>• Dullness and attitude changes</td>
<td>• Depression</td>
</tr>
<tr>
<td>• Other behavioural changes</td>
<td>• Bruxism</td>
</tr>
<tr>
<td></td>
<td>• Ptyalism</td>
</tr>
<tr>
<td></td>
<td>• Intermittent colic.</td>
</tr>
</tbody>
</table>

(Adapted from reference 11)
Gastroscopy Clinic Days

Once you have decided on the date to hold your Gastroscopy Clinic Day, Merial will provide you with materials that you can use to promote it to your equine clients. You then book in up to 7/8 horses for that day, and report your gastroscopy findings back to Merial.

The Merial Gastroscopy Clinic Day support kit

Our Territory Managers will be able to guide and support your practice to get your Gastroscopy Clinic Day off on the right track. They can also supply you with the following easily adaptable materials targeted at horse owners:

**Before the day**

- Two mailing templates to inform owners about EGUS and its prevalence and to promote your Gastroscopy Clinic Day
- A Gastroscopy Clinic Day appointment confirmation letter template
- Owner information about the preparation of horses for the Gastroscopy Clinic Day

**On the day**

- Gastroscopy procedure and ulcer grading chart
- Owner information booklet about the gastroscopy procedure and aftercare
- Owner and vet questionnaire to collect data on clinical signs, examination findings and prescribed treatment details, if applicable.
- Information on how to prevent further ulcers

Holding your own InnerVision Gastroscopy Clinic Day

**How it works**

1. Your Merial Territory Manager will provide you with all the marketing materials required to promote it
2. In line with the relevant timelines, send out the promotional materials to the equine clients whose horses would benefit from a gastroscopy
3. You assess horses that have been nominated by clients, and recommend gastroscopy where appropriate
4. On the day, you perform the gastroscopies that have been booked, and complete the questionnaire to record your findings
5. Horses that show signs of gastric ulcers may then be prescribed treatment where appropriate, and a follow-up appointment made.

**Gastroscopy Clinic Day checklist**

- Questionnaire completed by horse owner
- Questionnaire completed by vet
- Completed questionnaire returned to Merial
- Provide horse owner with information booklet
- Confirm follow-up appointment date with horse owner, if applicable.