



How can I tell that my horse has a gastric ulcer?

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Horses experience gastric ulcers in a similar way humans do, and if you have ever had an ulcer, you know how much abdominal pain they cause. While your co-workers and friends may not notice your discomfort, the pain is still there. In horses, signs of ulcer-related discomfort can be hard to observe but may include poor performance and a change in attitude.

Equine gastric ulcer syndrome (EGUS) is the term used to describe lesions and ulceration of the horse's stomach and associated clinical signs. Ulcers occur when there's damage to the lining of the stomach. The secretions of the stomach are acidic and, under certain conditions, the gastric acid can erode the stomach lining and cause ulceration. Most often, the damage is shallow and looks like an abrasion. In some horses, the damage can deeply penetrate the stomach lining, and in rare cases, ulcers can lead to perforation of the stomach wall.

How do ulcers develop?

The horse's stomach is divided into two distinct areas by a structure called the *margo plicatus*. The upper portion of the stomach is non-glandular and lined with squamous cells while the lower portion is glandular. The latter produces mucus that coats the stomach lining to help prevent ulcers from the action of the gastric secretions, but the upper portion doesn't. Lesions and ulcers can develop in both portions of the stomach, but the mechanism of development and the predisposing factors are quite different.

The development of ulcers in the **squamous (upper) portion** of the stomach is directly related to intensity of training: the more intense the training of the horse, the more likely the horse is to develop ulcers. These ulcers are extremely common: up to 90 per cent of horses in some disciplines such as racing have ulcers, and even broodmares and pleasure horses can be affected by this condition. Researchers have proposed a new term to describe this problem: **ESGUS** (equine squamous gastric ulcer syndrome).

Researchers haven't identified the exact mechanism of ulcer development in the upper portion, but the link to training is well established. While training, gastric acid normally contained in the glandular (lower) portion of the stomach may splash up to the non-glandular squamous cell (upper) portion that does not have the same protective mechanisms as the lower portion to prevent acid injury.

The stomach is also compressed during exercise by the movement of abdominal organs which promotes the movement of gastric acid into the upper portion of the stomach. Since the upper stomach doesn't produce a protective mucus, it has less capacity to buffer the acid and is more prone to ulcer development when in contact with gastric acid.

While there is ample information about ulceration of the upper portion of the stomach (ESGUS), ulcer development in the **glandular (lower) portion** isn't well understood. It may be related to the use of non-steroidal anti-inflammatory drugs such as phenylbutazone (bute) in horses. Sick or stressed foals can also develop ulcers in the lower portion of their

stomachs, but it's uncommon. Scientists use a new term to describe lesions and ulcers in this part of the stomach: **EGGUS** (equine glandular gastric ulcer syndrome).

In humans, bacterial infection with *Helicobacter pylori* of the stomach is known to have a role in the development of gastric ulcers. However, there has been no direct connection between this bacteria and ulcers found in the horse.

What are the clinical signs of an ulcer?

The clinical signs of EGUS can be hard to identify. Many horses may show no signs or mild signs such as poor performance, a change in attitude or behaviour, weight loss or poor condition. Some horses may experience recurrent colic, especially associated with a specific activity such as feeding.

In many horses that don't show obvious signs, an improvement in behaviour or performance can be seen after treatment. It's important to realize that while many horses do not show signs of pain, gastric ulcers are associated with discomfort and warrant treatment.

The better you know your horse, the more likely you are to notice subtle changes that may indicate the formation of a gastric ulcer.

How are ulcers diagnosed in horses?

The only way to definitively diagnose gastric ulcers is by gastroscopy. During this procedure, a veterinarian passes a tiny camera into the horse's stomach through its nostrils so the stomach lining can be observed.

Most ulcers develop in the upper portion of the stomach along the *margo plicatus*, and more often than not, horses will have more than one ulcer. Acute ulcers appear reddened and may be bleeding while healing ulcers appear more yellow-tinged. They may be a superficial abrasion or, in severe cases, they can be very deep.

Veterinarians can use a grading system based on severity, depth and number of ulcers to monitor the ulcers over time and through treatment.

As the signs of EGUS are hard to identify, gastroscopy is warranted for any horse that experiences recurrent colic or has a change in behaviour or performance that can not be attributed to any other pathology.

When gastric ulcers are diagnosed, your veterinarian should also look for other signs of disease in your horse since ulcers are often associated with other health conditions. It's also necessary to rule out other causes of poor condition or performance such as dental problems, parasites or respiratory conditions, cardiac issues and lameness.

How do we treat ulcers?

As gastric ulcers cause abdominal discomfort, they all warrant treatment regardless of what signs the horse is exhibiting. Initial treatment will help ulcers heal and prevent the development of new ulcers. There are several treatment options available:

- **Proton pump inhibitors:** Omeprazole (Gastrogard®) is considered the most effective, "gold standard" treatment for gastric ulcers in the horse. It works by inhibiting the pumps in the cells lining of the stomach that produce gastric acid. The stomach contents become less acidic, preventing formation of new ulcers and allowing current ulcers to heal. Omeprazole can be used for the treatment as well as prevention of gastric ulcers, and in most cases, horses are allowed to compete while on the drug. Most horses experience no side effects.

While a compounded product at a lower cost may be tempting, these products haven't been evaluated by Health Canada for safety, stability, potency, efficacy and consistency. They may be ineffective for the treatment of gastric ulcers and are therefore not recommended.

- **H2 antagonists:** Ranitidine (Zantac®) and famotidine (Pepcid®) can also reduce acidity by blocking the stimulation of acid-producing cells in the stomach. The efficacy of H2 antagonists is sometimes questionable: they appear to be effective in some horses and not in others.
- **Sucralfate:** Sucralfate (Carafate®) is commonly used in people for the treatment of gastric ulcers, but its efficacy in horses with ESGUS is unknown. It coats the lining of the stomach to help buffer gastric acid and protect the stomach lining. Sucralfate may interfere with the absorption of other oral drugs such as omeprazole.
- **Antacids:** Antacids such as Maalox® neutralize the acidic contents of the stomach. However, since its effects only last a couple of hours in a horse, it would require large doses of antacids multiple times a day.
- **Prokinetics:** Prokinetics may be part of a therapy plan if your veterinarian suspects that a delay in the emptying of the stomach is playing a role in the development of ulcers.

If your horse is diagnosed with gastric ulcers, your veterinarian will work with you to determine the most appropriate treatment plan. Horses usually require treatment with omeprazole for four weeks. At that point, the gastroscopy procedure is repeated to determine if the ulcers have healed. If the ulcers haven't healed or new ones have developed, your horse should continue to be treated and monitored.

How can we prevent ulcers from recurring?

Horses that have been diagnosed with ESGUS can be prone to developing ulcers again after treatment, but the risk of ulcers can be reduced with some changes in management.

Consider feeding a diet that is higher in forages and lower in grain. Feeding multiple times over the course of a day is also beneficial: horses have small stomachs with continual acid production, so they're best suited to grazing throughout the day. Stalled horses also have a higher risk of ESGUS, so consider daily turn out periods.

In some cases, horses may require treatment before a stressful event, such as shows, to prevent the development of ulcers. If you know your horse well, you can start treating your horse as soon as you observe mild signs of ulceration.

If you notice any changes in your horse's condition or attitude, talk to your veterinarian. While ulcers may be at the root of the problem, it is important to rule out other diseases. Diagnosis by your veterinarian and initiating treatment will put your horse back on the road to recovery and a pain-free stomach.

Dr. Fernando J. Marqués is a former associate professor at the Western College of Veterinary Medicine (WCVM). Reprinted with permission from the WCVM Townsend Equine Health Research Fund (www.tehrf.ca) and Horse Canada.

