

What you need to know about gastric ulcers in horses

The equine stomach has 2 different tissue types that can develop ulcers: **squamous and glandular**.

SQUAMOUS:

- Directly related to the degree and severity of gastric acid exposure.
- Stall confinement, intermittent feeding, intense exercise and other stressors are factors that lead to gastric ulcers in horses

GLANDULAR:

- Primarily due to disruption of blood flow and decreased secretion of mucus and bicarbonate allowing damage to occur to the glandular mucosa.
- Glandular ulcers usually take much longer to heal than squamous ulcers (2-3 months +)
- NSAIDs, stress or concurrent health issues in addition to the causes of squamous ulcers

Remember... Before deciding to treat ulcers alone, it is imperative to make sure there is no lameness/dental/saddle fit issues causing pain and stress - if these are the causes of stomach ulceration, ulcers will continue to recur no matter what ulcer treatment is used.

ENVIRONMENTAL CHANGES TO HELP DIMINISH ULCER FORMATION:

- ☐ Feed roughage little and often, or use a slow feed option to provide food over long periods (nets, etc.)
 - Some horses respond better to low bulk/ short fibre length feeds- switching to a cube or pellet diet may help in cases that are not responding well to other changes.
- ☐ Feed alfalfa hay or cubes as majority of roughage - the high protein and calcium concentration in alfalfa hay provides buffering of stomach acid up to five hours after feeding
- ☐ Decrease high sugar/carb feeds, and feed grain sparingly. High levels of carbohydrate fermentation in the GI tract induce acid injury to the squamous mucosa of the stomach.



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- ☐ Vegetable oils such as corn oil might help reduce the risk of EGGD. A study has suggested that 45ml of corn oil fed once daily helped lower gastric acid levels and encourage better protective prostaglandin levels in the stomach mucosa.
- ☐ Diminish stress as much as possible - utilise enrichment toys or activities &/or drastically increase turnout time. The stress of training and confinement in horses may lead to excess release of corticosteroids, which can inhibit the production of natural mucosal protectants in the stomach and cause persistent ulceration.



- ☐ For anxious or high stress horses, utilising relaxation techniques like massage, music, slow groundwork, etc. may help to change the stress relationship the horse has often formed with exercise/ handling
- ☐ Feed a gastric support feed (such as Purina Outlast, Assure Guard Gold, Smartpak SmartGI Ultra, Platinum GI, Relyne GI) or small amount of alfalfa immediately prior to exercise
- ☐ Consider ½ doses of omeprazole as preventative while travelling/showing (or all the time)
- ☐ Acupuncture: Although acupuncture can be helpful in treating gastric ulcers, the frequency and duration of acupuncture treatments in these cases is usually not a cost effective option.



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- ☐ Herbs/ Natural Remedies: In our experience herbal treatments can help support horses with ulcers and aid in prevention, but rarely do herbs work well as a sole treatment modality unless environmental stressors are completely eliminated and the ulceration present is mild.
 - **Jing Tang Stomach Happy** is a recommended commercial Chinese herbal blend for GI support. Keep in mind that herbal blends often have additive effects, so individual doses of herbs listed below may be higher than what is seen in a blend. Please speak with your vet when choosing herbal products for guidance.

<p>Marshmallow root: a source of mucilaginous soluble fibre and soothes irritated mucosa.</p> <ul style="list-style-type: none"> ○ 30-40g/day 	<p>Fenugreek: Protects gastric mucosa</p> <ul style="list-style-type: none"> ○ 15g/day
<p>Meadowsweet: has non-steroidal anti-inflammatory effects and can help reduce stomach inflammation specifically. Can drug test positive in competition horses.</p> <ul style="list-style-type: none"> ○ 30-40g/day 	<p>Chamomile extract and Milk Thistle: Anti-ulcer effects</p> <ul style="list-style-type: none"> ○ 15-30g/day each
<p>Licorice Root: Mucosal protectant that accelerates mucus secretion. Use for maximum 4-6 weeks.</p> <ul style="list-style-type: none"> ○ 20-30g/day 	<p>L-Glutamine: Provides nutritional support to GI cells. Cabbage is very high in L-glutamine and soluble fibres and feeding cabbage can be helpful for maintenance prevention of ulcers</p> <ul style="list-style-type: none"> ○ 1/2c fresh shredded cabbage per day

DIAGNOSES:

Gastrosopes are currently the only way to definitively diagnose gastric ulcers and grade the severity, recheck scopes are used to confirm healing and assess when it is ok to stop treating. When treating suspect gastric ulcers without scoping the recommended treatment duration is based off of “average” healing times seen in ulcer treatment trials, but as we do not know what type or grade of ulcer may be present (if at all) the accuracy of the recommended treatment cannot be guaranteed to be long enough in each individual case.

In the field, we can check reactivity over acupuncture points ST 10 and in the girth region – horses that are very reactive at these points are often suspected of having gastric ulcers, and often the reactivity decreases after

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treatment. This is not a definitive diagnostic test, but can increase suspicion if behaviour also correlates with potential ulcers. Lack of reactivity after treatment also cannot confirm that gastric ulcers have fully healed.

If a horse suspected of gastric ulcers is not responding well to multiple rounds of ulcer treatment, a scope or other diagnostics to confirm a diagnosis is recommended.

TREATMENT:

Treatment success is dependent on following the recommended dosing for each medication, and most cases that are not responding well are because the directions of each med are not being followed. Treating gastric ulcers successfully with multiple medications can be time consuming and difficult to manage, as many meds cannot be given with food or at the same time as other medications. If medications that are meant to be given on an empty stomach are given at feeding time, or if multiple medications are given at once, the treatment will not be very effective. In these cases, treatment can be both expensive and unsuccessful. We recommend focusing on reducing stress, making feed changes and accurate medication administration, as well as being honest about what medication schedules are manageable for your specific situation.

- **Omeprazole:** decreases gastric acid production and has very few common adverse effects. Omeprazole safety hasn't been studied in pregnant mares and should be used cautiously in horses with liver disease.

Dosed at 4mg/kg once per day to treat ulcers (~2g for the average 450kg/ 1000lb horse), and 1-2mg/kg once per day to prevent recurrence of ulcers. Full doses should be given for 1 month, if not gastro-scoped to confirm healing then it is recommended to continue with half dosing for at least 1 more month. The tapering dose is recommended to try to diminish rebound acidity increases in the stomach once the medication is stopped.

Omeprazole should ALWAYS be given on an empty stomach, presence of food in the stomach decreases omeprazole absorption by 65%. Recommend giving 30min-1hr before feeding.

- Gastroguard: Omeprazole with an enteric coating that greatly increases the bioavailability/ absorption by the horse. Omeprazole dosing recommendations and efficacy studies are based on Gastroguard trials, and the results are very good. Note that a full Gastroguard syringe is the recommended dose for a 575kg/1250lb horse.
- Compounded Omeprazole: Markedly decreased bioavailability compared to GastroGuard (no enteric coating), however is a less expensive option for attempting to treat suspected gastric ulcers. Effectiveness is not reliable because a large amount is destroyed by stomach acid before being absorbed, but anecdotally some horses seem to show reduced clinical signs.



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- **Sucralfate:** Acts as a coating agent to decrease inflammation and encourage ulcer healing, in both the stomach and hindgut.
 - Dose 20mg/kg by mouth twice daily, it must be given at least 1 hr after giving omeprazole. Efficacy of omeprazole is decreased if given together as sucralfate blocks its absorption.
- **Misoprostol:** A mucosal protection agent that is sometimes used as a secondary option for glandular ulcers that do not respond to omeprazole/ sucralfate combo. Has weaker data than omeprazole for treating gastric ulceration.
 - Should be given 1 hr prior to feeding as absorption is decreased if feed is in the stomach, but cannot be given at the same time as omeprazole or sucralfate. Dose is 5ug/kg by mouth 2-3 times daily.
 - **CANNOT** be given to pregnant mares, and may react with magnesium antacid medications
- **Ranitidine/Cimetidine:** Acts to block acid pumps in the stomach and slow acid secretion.
 - Sometimes used as a 2-week bridging treatment to wean horses off of omeprazole and prevent excessive rebound stomach acid production. Dose is slowly tapered.
 - Decreases omeprazole efficacy if given within 2hrs time of each other. Generally not recommended as first line ulcer treatment as appropriate dosing becomes difficult and time consuming, and is rarely as effective as omeprazole. It may be an option for some horses that do not respond well to omeprazole or misoprostol.

Keep in mind that recurrent ulcers in the face of good stress management and feeding practices may indicate that there is something else going on - in these cases, chronic pain or disease is a concern. Referral to an internal medicine specialist is always an option for further workup for these horses.

