

HIFORM



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Ulcers, Omeprazole and Calcium

RESEARCH PAPER

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OMEPRAZOLE REDUCES CALCIUM DIGESTIBILITY IN THOROUGHBRED HORSES

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ABSTRACT

Protein pump inhibitors such as Omeprazole reduce nutrient digestibility in humans. This study determined the effect of Omeprazole on the digestibility of diets containing limestone or marine derived calcium (BMC) and to assess changes in blood parameters associated with gastric acid production and calcium status in horses. Thoroughbreds were used to evaluate the digestibility of diets containing different calcium sources with or without Omeprazole over four 21 day periods.

Equine gastric ulcers are by far one of the most common conditions diagnosed in the equine community. Usually, it is remedied by a course of ulcer medication, commonly proton pump inhibitors such as Omeprazole. As the incidence of ulcers is on the rise, so is the regular use of Omeprazole.

One recent study published in 2020 outlines the transverse effect Omeprazole has on the digestibility of calcium. Interestingly the study found no effect on the digestibility of zinc, copper, phosphorus, magnesium, potassium, sodium, iron or manganese. The study used both limestone and marine-derived calcium, both of which we never recommend being fed to horses as horses are strict herbivores and cannot digest animal material effectively. However, for the study they demonstrated two versions of commonly used calcium supplementation. The study concluded that while on a course of Omeprazole, calcium absorption was reduced by 40-50%, this is a considerable amount considering the duration of the treatment and the sheer size of the horse.

So what does this mean for your horse? Should we steer clear of all proton pump inhibitors? Definitely not! Medication is needed in a lot of cases, especially with moderate-severe cases, however with the rapid development of science around nutraceuticals we are hoping there will be side effect free alternatives available in the future.

This study is a good example of how commonly used medication can lead to nutritional deficiencies later down the track. We always recommend only using ulcer medication if your vet has assessed the horse and confirmed that ulcers are present. To prevent nutritional deficiencies from occurring, there needs to be more education around prevention of ulcers.

THIS FROM OUR EXPERTS . . .

Here are a few rules to go by from our Nutritionists:

Always provide roughage

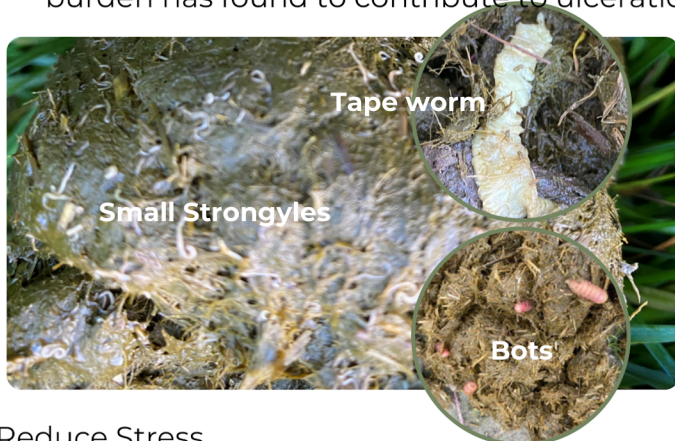
- Horses are grazing animals and have no gallbladder, meaning they have a constant release of gastric acid and need 24/7 access to hay or pasture. Otherwise build-up of acid in the stomach can cause damage to the lining, resulting in ulcers.

Feed hay while brushing and tacking up

- Providing your horse with hay before riding will ensure they have something in their stomach before working, reducing the effect stomach acid will have on an empty stomach.

Ensure you are not letting your horse become worm burdened or over worming.

- A strict worming or faecal egg count schedule is important as both over-worming and worm burden has found to contribute to ulceration.



Reduce Stress

- Horses are naturally a free spirited, mindful animal, they are not built for the stressors or environment we place them in. Keeping an eye on your horse's behaviour and building a strong bond can go a long way into understanding when your horse is stressed and how to reduce this.

Reduce Grain

- If grain is not essential in your horses diet, then reduce it. Opt for more natural sources of grain such as oats and barley opposed to corn and wheat. Oats and barley are both grasses which are grazed in the wild and are less inflammatory.



Supplement where necessary

- There is a lot of science backing the benefits of slippery elm, aloe vera, zinc, vitamin C and pre and probiotics for the prevention and treatment of ulcers in humans and some preliminary research showing similar in horses. Supplementing horses with a previous history of ulcers or at-risk horses with known nutraceuticals can assist in reducing the chance of reoccurrence.

So, what about the calcium?

Well, this is necessary to address. Calcium deficiency in horses can lead to brittle bones, OCD, bighead syndrome or neurological conditions just to name a few. Ensuring your horse has sufficient calcium in their diet which isn't impacted by high oxalate (oxalate is a compound which prevents calcium absorption) grasses.

The best way to do this is to get professional advice from a trusted and qualified Nutritionist, who can evaluate the diet for you. Calcium and phosphorous should ideally be fed together for optimal absorption. When looking into calcium supplements always trust human grade supplies and steer clear of stockfeed grade minerals; limestone, dolomite, or marine sourced calcium, which you would never ingest yourself to correct calcium deficiencies.

There has been plenty of research to suggest calcium has a buffering effect which assists in the prevention and healing of ulcers.

This is interesting to note as the side effect of medication is generally the opposite.

Lucerne is commonly the feed of choice for horses suffering from ulcers, due to both the high calcium content and the low sugar and starch content.

Due to the reduced absorption of calcium during omeprazole courses it is highly recommended to feed more lucerne as well as a trusted calcium specific supplement such as Hi Form GrowthFix and incorporate BioEquus as a preventative also.

As horses ferment their own feed through their digestive tract, there has been little research on whether feeding pre-fermented feed to horses is safe.

Traditionally hay is used as a horse feed and not silage (a fermented grass product), as horses tend to prefer forage that has a higher sugar content, and the sugar (molasses) in silage is turned to acid during fermentation.



There is no doubt that the right type of diet containing a high level of roughage can counteract changes in gastric pH (stomach acid).

This means that a high roughage diet can help to prevent gastric ulcers in horses. The correct terminology for resisting changes in pH is called buffering.

Alfalfa or Lucerne hay has been shown to reduce the severity of ulcers as it provides a superior buffering action compared to other types of fibre and increases saliva production, which also acts as a buffering agent.

Supporting a healthy digestive tract and gut microbiome from the horse's stomach to the large intestine is what all horse owners should aim for.

It makes sense considering that horses are herbivores, that a good quality, high roughage diet is essential for longevity of the horse's health.

While it is not recommended you feed silage to your horses, horse owners have been increasing the use of Lucerne since the information relating to its effect on gastric ulcers has been made available.

WHAT ARE ULCERS?

Ulcers are essentially sores on the lining of the horse's stomach, usually the top part of the stomach, which cause pain and discomfort. There are two types of ulcers: gastric and colonic.

Gastric ulcers occur in the stomach (discussed in this article) while colonic ulcers occur in the hindgut, specifically the colon.

HOW ULCERS DEVELOP

The horse's stomach is made up of two sections - the upper 'squamous' area and the lower 'glandular' area.

When grains and forage enter the horse's stomach they are partially fermented and during the fermentation process the bacteria produce volatile fatty acids (VFA). These VFAs are the same as the horse produces in the hindgut during fermentation there, however in the stomach they get mixed with the hydrochloric acid from the stomach and the gastric acid produced can cause cells of the upper part of the stomach to become inflamed, and swell, and ultimately make the stomach wall lining more prone to ulceration.

Ulcers rarely form in the lower part of the stomach even though it is constantly exposed to the gastric acid, as it produces bicarbonate and mucus for protection.

The upper half of the horse's stomach is responsible for mixing the stomach contents and differs from the lower portion of the stomach in that it has a thin lining that is constantly eroded by the gastric acid that is produced, even when the horse is not eating.

Saliva production and the buffering action of feed is the only protection this part of the stomach has from gastric acid.

RECOGNISING WHEN YOUR HORSE HAS ULCERS

It is quite common for horses to have no clinical signs of ulcers, but there are indicators. These include poor performance, poor appetite, temperament changes, diarrhoea, mild colic and often weight loss.

The horse's coat condition will often look quite poor.

Your vet can confirm if your horse has ulcers or not by performing a gastric endoscopy, or simply 'stomach scoping', a non-surgical, minimally invasive procedure that involves inserting a tube with a light and camera into the throat and the stomach.



Grade 1

The stomach lining is in tact but there are areas of yellowing.

Grade 2

There are small single or multiple superficial ulcers present.

Grade 3

There are large single or multiple superficial ulcers present

Grade 4

There are extensive ulcers with areas of deep ulceration present.

For further information on managing horses prone to ulcers or those that have a history please contact is via FB or email enq@hiform.com.au