

# Nutritional strategies for reducing gastric ulceration

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Equine Gastric Ulcer Syndrome (EGUS) has been suggested to affect between 58 – 100% of adult horses in training. Incidence rates have also been reported to be high for weanlings (50%) and broodmares (70%). The development of gastric ulceration may be viewed as an imbalance between aggressive and protective factors on the mucosa. Horses continuously secrete gastric acid (even without the presence of feed material in the stomach) and exposure to acid is currently thought to be the major cause of EGUS. Clinical signs include lack of appetite, weight loss/poor body condition, dullness of coat and decreased performance however not all horses with ulceration will show clinical signs of disease.

Several risk factors have been associated with the development or severity of gastric ulceration. These include the intensity of exercise, highly concentrated (grain-based) diets, the size of the meal, quality of hay, frequency of feeding and transportation.

On initial diagnosis of EGUS, veterinary treatment should be commenced with effective pharmacological agents. Prevention of ulcer recurrence depends primarily on environmental, nutritional and dietary management.

- *In general, horses should be fed as much fibre/forage as possible.* The feeding of hay has been shown to increase gastric pH in horses likely due to the salivary bicarbonate and the buffering effect.
- *Which hay?* Lucerne hay or a lucerne mix may help to buffer the stomach more effectively than oaten or grassy hay. It is theorised that the calcium in lucerne may have a direct effect on gastric secretions or the protein may act as a buffer for the pH.
- *Keep the horse eating.* The horse's stomach is quite small and produces acid continually (rather than just when food reaches it as occurs in humans). This design is perfect for perpetual grazers, but not for horses that are fed only a few times a day. *Ad lib* access to hay as part of a balanced ration will help to increase gastric pH. Slow-hay feeders may also be considered as a means of slowing down hay consumption if required.
- *Optimise the level of concentrates in the ration.* Racehorses are normally offered grain in order to meet their high requirement for energy. Selecting grains that are naturally higher in fibre (such as oats) and limiting feeding rates according to workload and bodyweight will assist in reducing the incidence of gastric ulceration as well as other metabolic and behavioural issues.
- *Include high fat supplements.* The addition of fat as part of a balanced feeding program has a range of benefits for the racehorse. During extended exercise, aerobic metabolism of fatty acids can delay blood glucose and glycogen depletion, resulting in higher muscle reserves being retained at the end of exercise and lower lactic acid accumulation. Studies also suggest that fat substituted for cereal grains can reduce gut fill and hindgut weight, which may increase speed and reduce fatigue in horses. As far as gastric ulceration is concerned, one study demonstrated that the addition of just 45ml

corn oil daily reduced gastric secretion and increased levels of potentially gastroprotective prostaglandins in horses.

- *Other feed ingredients.* Beet pulp is a by-product of the sugar beet industry and is referred to as a “super fibre” due to its high digestibility and ease of fermentation. The product is usually soaked and offers an alternative or additional source of fibre. Beet pulp is also high in pectin which has been theorised to protect the lining of the horse’s stomach from ulceration.

In conclusion, nutritional management may assist in reducing the prevalence or severity of EGUS in racehorses. Strategies include optimising the diet composition to promote optimal levels of fibre without negatively impacting energy levels or bodyweight, offering lucerne hay or a lucerne hay mix, implementing methods to increase the time a horse has access to feed and including fats or oils as part of a balanced ration.

Dr Caroline Foote (Equine Consulting Services Pty Ltd) provides a range of nutritional services to horse breeders, owners and trainers in Australia and New Zealand. For further information, please contact 0418 488 718.

### **References and further reading**

Andrews, F.M. et al. (2017). Nutritional management of gastric ulceration. *Equine Veterinary Education* 29, 45 – 55.

Andrews, F.M., Nadeau, J.A. (1999). Clinical syndromes of gastric ulceration in foals and mature horses. *Equine Veterinary Journal* 29, 30 – 33.

Cargile et al. (2004). Effect of dietary corn oil supplementation on equine gastric fluid acid, sodium and prostaglandin E2 content before and during Pentagastrin infusion. *Journal of Veterinary Internal Medicine* 18: 545 – 549.

le Jeune, S.S. et al. (2009). Prevalence of gastric ulcers in Thoroughbred broodmares in pasture: a preliminary report. *Veterinary Journal*. 181(3): 251 – 255.