

MESSAGE FROM THE GRAYSON-JOCKEY CLUB RESEARCH FOUNDATION

# EGUS PREVENTION: IT IS NOT JUST ABOUT WHAT YOU FEED

BY DR. BEN SYKES



Grayson-Jockey Club  
Research Foundation

**E** GUS in the adult horse consists of two primary sub-diseases; specifically, equine squamous gastric disease and equine glandular gastric disease. ESGD is well recognized as a disease in which diet plays an important role in its development. In contrast, EGGD is not a disease of diet; other risk factors dominate its development.

## ESGD PREVENTION

A recent study demonstrated that reducing the carbohydrates in the diet can reduce the recurrence of ESGD. This is no surprise, given that the feeding of low carbohydrate meals has been a cornerstone of EGUS prevention recommendations for nearly 20 years. What is surprising is that the effect of lowering dietary carbohydrate content was only modest and that many horses still developed squamous lesions with the discontinuation of omeprazole. This raises questions as to what other factors might influence ESGD development, and what other preventative management strategies might be important or useful.

The author considers three factors to be dominant in the development of ESGD, namely carbohydrate content in the diet, the amount, type and timing of roughage fed, and the volume of exercise that a horse performs.

An increase in starch above 1 g/kg has been shown to increase the risk of ESGD. Accordingly, a core recommendation for reducing ESGD risk is to keep non-structural carbohydrates (NSCs) below 1 g/kg/meal. This is readily achieved with most sport and pleasure horses with careful selection of feed type. Where additional calories are required beyond this point, the author's default is to ensure optimal roughage intake and add in oil at up to 1 ml/kg/day before increasing concentrate feeding. Following this approach, most sports and pleasure horses do not approach, let alone exceed, the 1 g NSC/kg/meal recommendation.

Ad libitum hay (as much as desired) has

been a cornerstone recommendation for years, and it is widely stated that horses are continuous grazers. Yet the later point is not supported by behavioral studies that demonstrate a clear circadian rhythm to eating with most horses spending little time eating between 10 p.m. and 6 a.m., even if ad libitum hay is available. During this self-imposed fast the pH in the proximal stomach decreases to <4 resulting in increased risk of ESGD if horses are exercised first thing in the morning. This effect of decreased pH in the proximal stomach is present regardless of whether the horse is stabled overnight or at pasture, potentially explaining the finding that pasture has not been consistently shown to be protective against ESGD (again against common conception otherwise).

Proximal intragastric pH increases again with the resumption of grazing activity in the morning and peaks mid-to-late afternoon. Factoring this in, the author recommends ESGD-prone horses be exercised in the afternoon. If morning exercise is necessary, feeding one or two flakes of alfalfa hay prior to exercise should be beneficial. Further, at-risk horses on limited pasture should receive supplementary hay, feeding immediately prior to exercise.

The pH in the proximal stomach decreases to <4 with the onset of trotting. Importantly, the magnitude of exposure does not differ between trot and higher speed gaits. It is the duration of exercise that a horse completes within each period (day or week) that determines the risk of ESGD, not intensity i.e. extended warm-up and cool-down periods increase the risk

of ESGD as much as high-intensity work. Factoring this in, the author recommends high-intensity, short-duration exercise with minimal warm-up and cool-down periods at a trot or canter in at-risk horses.

Where the ability to impact on one, or several, of the "big 3" factors contributing to ESGD development is limited (such as is often the case in racehorses, endurance horses, and high-performance sport horses), then the use of pharmaceutical prophylaxis with omeprazole remains logical.

## EGGD PREVENTION

EGGD is not a disease of diet, and the above recommendations have no impact on EGGD disease risk. Instead, two factors dominate the described risk factors for EGGD development: behavioral stressors and the number of days exercised per week

Behavioral stressors have long been proposed to contribute to ESGD risk, but little evidence exists to support this notion. In contrast, stressors such as increased numbers of riders or handlers might increase EGGD risk. Horses with EGGD have been shown to have a more pronounced cortisol response to ACTH stimulation, further supporting the relationship between stress and EGGD. Considering this, the author routinely recommends behavioral enrichment as a key part of EGGD prevention. This can include reducing the number of handlers or riders, ensuring a fixed routine, feeding the individual horse first if in a group of horses, and the provision of a companion. The author also believes that allowing horses to express natural behavior is an important aspect of management, i.e. removing rugs to allow them to express normal grooming behavior.

The absence of rest days is another key factor. In a study of showjumpers,

those working six or seven days per week were approximately 3.5 times more likely to have EGGD than those working  $\leq 5$  days per week. In Australian and UK racehorses, those working five to seven days per week were approximately 10 times more likely to have EGGD than those working  $\leq 4$  days per week. These findings strongly suggest dedicated rest days are likely to have a protective effect on the development of EGGD.

The role of ongoing use of omeprazole for EGGD prevention is unclear at this stage, and the author's preference is to focus on management strategies and to use omeprazole strategically during high-risk periods. Although diet does not play a specific role in EGGD risk, the author believes that there is a strong place for the use of specific nutraceuticals in the ongoing management of EGGD. The choice of

supplement should be supported by clinical evidence of efficacy and manufacturing under GMP standards. [BH](#)

---

*Dr. Ben Sykes is an associate professor at Massey University, New Zealand. The author would like to thank the Grayson-Jockey Club Research Foundation for its support of his doctoral studies into the treatment of EGUS.*