

Maintaining gastric health in the competition horse

Emma Hardy, Freedom Health LLC, discusses the problems and possible solutions



Veterinary surgeons and equine caregivers must constantly and carefully balance the lifestyle of the competition horse with mental and physical well-being. Digestive health and nutrition are literally and figuratively, the core of a horse's good health and performance. Unfortunately, a majority of horses in competition are trapped in a vicious cycle of usage and husbandry that contributes to digestive disease that in turn, inhibits performance.

A new approach

The competition horse lifestyle comes under more and more scrutiny both in research and by discerning practitioners for good reason; horses are struggling. Gastric ulcers are nearly ubiquitous in horses used for competition. Ongoing research

by Professor Derek Knottenbelt shows that large colon pathology is known to be more significant and widespread than many believe, and colic remains a serious concern. Horses fall short of their potential, plagued by mysterious hind-end lameness, resistant to training, commonly displaying stereotypies, struggling to focus and failing to use themselves to their full abilities.

None of these problems will dissipate so long as we continue a treatment-oriented approach or, only view these as training problems. Maintaining horses on daily routines of proton pump inhibitors does not provide a long-term or ideal solution. No amount of good training will counteract the impact of lingering digestive disease and poor nutrition.

Instead, we must look to prevention. This requires both an understanding of

the interplay between performance and digestive health and, a commitment to improving approaches to treatment and care, while taking steps to mitigate those trainers and owners who can't (or won't) change.

At the same time, horses receiving even the best, most natural feeding and management will still be prone to digestive issues as a result of training, travel and competition stresses. So, it is critical to elevate our management of optimal digestive health in all competition horses.

Competition training and care stresses the GI tract

Competition horse management varies widely from nature. We keep horses stabled and isolated to reduce injury risk, for easy

access, protection from sun and insects, personality and gender management and, for monitoring. We feed concentrates because hay or grazing is not enough for horses in training and, it is often cheaper and simply more convenient. But confinement is not normal, nor is isolation from an established herd. Hard feed, regular, strenuous exercise, travelling hours away from home and exposure to the rigours of the competition environment, are all unnatural aspects of the performance lifestyle.

While horses appear to have adapted to these lives of domestication, training and performance, equine biology has not evolved to support this lifestyle. These elements of competition horse care are well established risk factors in the onset of digestive disease. Multiple studies have shown that in some equine cohorts, gastric ulceration risk increases with active training (Dionne et al. 2003), limited turnout, changes in diet or routine, introduction of grain-based feed, limited forage, intermittent feeding (Luthersson et al. 2009), travel and competition (McClure et al. 2005). In particular, commencement of training and management changes, diets high in concentrates and low in roughage, and intensive exercise can result in the development of ulceration in as little as seven days (White et al. 2007). However, other studies have shown that gastric ulcers can affect horses indiscriminately – including those not in work and even those out at pasture (Niedźwiedz et al. 2013).

Ongoing studies conducted by the University of Glasgow since 2013 find significant large colon pathology in horses, though the details surrounding causation, pathology and presentation are yet unclear. It stands to reason, however, that the 90 percent of the gastrointestinal tract beyond the stomach is equally at risk, and for many of the same reasons. Regarding initial findings, Knottenbelt says, “We were able to establish that there was definitely pathology in a significant proportion of horses that showed no other signs of gastrointestinal disease. These were horses that were destroyed for other reasons without any other history of gastrointestinal disease. A very significant portion, probably up to 60 or 70 percent, have large colon pathology.”

Unfortunately, as Professor Knottenbelt explains, “The difficulty is the same old thing: if we have to do a post mortem to diagnose the disease, we’re in trouble in terms of the horse.” He and his team are

working to further understand the range of diseases that affect the horse’s large colon. This includes identifying the causes, the associated symptoms, and methods to better diagnose, treat and prevent these conditions. “If there are issues, there are clinical signs that we should be able to identify,” he says.

What is going on inside the horse?

When it comes to poor performance in competition horses, digestive health can be both the cause as well as an effect. A horse struggling with poor digestive health may lack adequate nutrition and energy, or be physically uncomfortable, leading to a stress response when asked to work. On the other hand, a horse that is being stressed by training, environmental or social factors initiates a physical response that may ultimately lead to deteriorating gut health among other problems. In addition to the physiologic changes wrought by the endocrine response, stress is also known to inhibit the immune system. So, a horse under regular stress is doubly at risk with a weakened immune system, ill able to fight deleterious conditions brought on by the production of stress hormones - not to mention feeding and management as previously discussed.

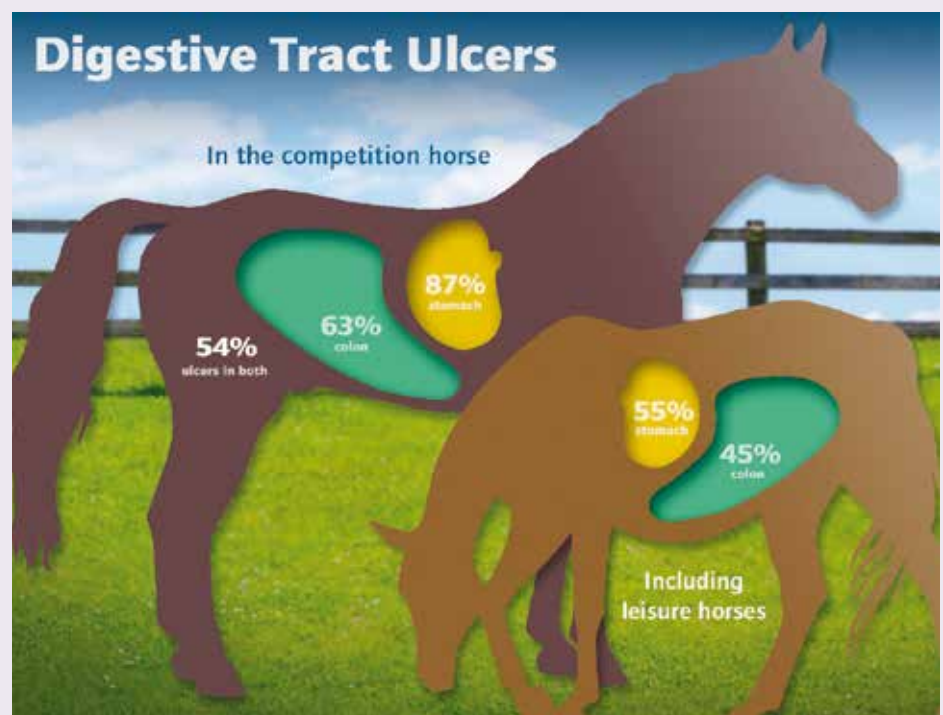
In addition to the more well-known pathology of the equine stomach, the hindgut may also be a serious contender in health and performance issues. The health of the hindgut depends on the

delicate balance between beneficial and harmful bacteria and can be easily altered. Poor digestion of modern grain-based feed causes an increase in the growth of harmful bacteria and a subsequent loss of beneficial bacteria. These events can lead to the production of toxins and can reduce the pH of the hindgut, making it more acidic than it should be (Julliard et al. 2001) This condition is known as “hindgut acidosis.” This series of events, starting with the feeding of processed feed and leading to the more acidic hindgut, causes even more beneficial bacteria to die, and so the cycle continues (Richards et al. 2006). The harmful toxins given off under these circumstances can enter the horse’s bloodstream and cause problems such as starch-induced laminitis and tying up (Milinovich et al. 2006). These toxins can also damage the tissue lining the hindgut, resulting in areas of ulceration.

When the tissue lining the colon is damaged, digestion and absorption are often reduced. This can lead to difficulty gaining or maintaining weight and irritability in the horse. Colic is a further risk, as bleeding colonic ulcers may reduce the blood supply to the end of the small intestine and the hindgut, harming the colon’s ability to effectively move digested feed material along.

Poor digestive health discourages performance

So, if this is going on inside the horse, how can we tell from the outside? There are





numerous symptoms of digestive problems, and not all are obvious. With any digestive disturbance, digestion and absorption will be affected. This will lead to many of the clinical signs we might typically associate with the digestive system; loss of weight, poor condition and performance, inappetence, diarrhoea and even colic.

Some symptoms associated with poor hindgut health may be less obvious. This includes sensitivity on the flanks, reluctance for the horse to flex through the body, extend or collect, and girthingness. Girthingness has long been attributed to stomach issues. But, looking at the digestive anatomy, we can see that the location of the stomach is nowhere near the girth. It is the end of the colon, which is susceptible to compression on girthing.

Furthermore, any discomfort in the digestive tract will likely lead to a poor temperament, lack of focus, and subsequent training issues. After all, how much would you be able to concentrate and work under these conditions?

What can we do?

We often find ourselves in a constant cycle – problems occur, the vet diagnoses and treats the condition, and then it all starts over again. How can we manage the horse's health to address the root causes and avoid these problems in the first place?

The obvious answer is to radically change how we manage, feed and care for the animal to get closer to the way the horse's digestive system naturally functions. In an ideal world, we would offer continuous forage, unrestricted turnout, less grain feed, lighter work and more socialisation. Free-access to a variety of rough, fibrous forage is ideal for both nutrition and proper digestive function. The GI tract functions best with constant chewing and a steady trickle intake of grass or hay; without that health is compromised. Plenty of room for

slow, constant and safe movement while grazing with other horses is necessary for all aspects of wellness. Lack of space to move and escape from other horses contributes to injury risk, social stress and poor GI function. Healthy digestion should prioritise fermenting fibre in the hindgut, not digesting starch and sugar in the foregut. Finally, in nature horses roam slowly over many miles per day, and only use short bursts of speed to escape predators. The added strains of training and exercise, not to mention travelling and competing, challenge normal digestive health.

For many reasons though, competition horses cannot be fully kept within this model. At the least, we need to increase pasture time and the amount of forage in the diet. Other changes can involve reducing stress and the amount of starch and sugar we feed, (especially by adding chaff) to grain meals to promote chewing and substituting fibre such as (soaked) beet pulp for a portion of the grain. However, in many cases this is not practical.

One option is to support a more natural digestive process, and ensure optimal gut health, so the horse is more capable of proper digestion in the face of the many challenges described above. Doing this involves providing targeted nutrients to the digestive system. Certain nutrients are shown to enhance the natural structure and function of the digestive tract and allow the horse to mend itself under these conditions. Examples include beta glucan, nucleotides, polar lipids, certain amino acids and yeast.

Beta glucan is a soluble fibre that is known to be a powerful natural stimulant to the immune system. Nucleotides are components of DNA, which are essential for cell reproduction and tissue development. Polar lipids are components of oil from certain vegetables which provide a natural protective barrier for tissue and, which have been shown to increase absorption of fat-soluble vitamins (A, K, D and E). Some yeast products, especially mannan oligosaccharides (MOS) and yeast beta glucan, are known to bind pathogens, including bacteria and mycotoxins, allowing them to be excreted in the horse's waste.

Daily supplementation with products containing these nutrients can help maintain a healthy digestive system, which may reduce the various health and performance issues we deal with. Vets should always be active in recommending

and managing a horse's diet regime and when introducing a new supplement programme. More and more vets today are introducing wellness programs into their practices, and are open to the value of diet and supplementation as part of the animal's daily care.

Stop the cycle

The situation for competition horses and digestive health may seem dire in light of the many compounding challenges. The good news is that modern technology, research and improved understanding continue to further illuminate these issues and improve our ability to respond. Ongoing research and clinical trials shed light on what is really going on inside our horses, and how that manifests on the outside. Plus, the availability of improved diagnostic tools and support products enhance our ability to manage competition horses well.

Horses healthy from the inside out are more willing, trainable partners, able to work to their greatest potential in training and competition. Horses that are equipped to learn and work comfortably are also less stressed – and therefore healthier. Prioritising digestive health in the competition horse's feed and management programme is an obvious win-win. **BH**

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