

DEC 2024 / JAN 2025

EQUESTRIAN HUB magazine



Keeping track
OTT welfare done well

Nicole Tough
Mastering the flying change

Antimicrobial resistance
How bad is it?

Top tips
Desensitising your horse



Christmas Gift guide inside



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On the Cover
 Nicole Tough and Everdeen competing at the Dressage Queensland Riders' Sub-Committee event in October 2024 (Image by [Picture the Moment Photography](https://www.picturethemomentphotography.com.au)).



OUR CONTRIBUTORS

From our team
to yours

Seasons greetings

Wishing you and
your family
a magical Christmas,
and a very happy
2025



Amanda Mac

As editor of *Equestrian Hub Magazine*, Amanda's two long-standing passions, one for horses the other for writing, come together perfectly. Although much of her time is spent busily editing away behind the scenes, in this issue she speaks with the team at Victoria's OTI Racing & Bloodstock for an update on their innovative Equine Welfare Program, now in its fifth successful year of operation.



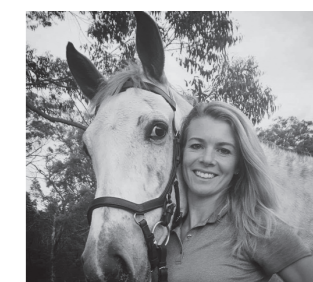
Nicole Tough

An EA Level 2 Dressage Specialist Coach and National A Level Judge, Nicole has over 30 years experience in training, competing, judging and coaching. She enjoys presenting seminars and masterclasses, has trained in Germany, Spain and The Netherlands, and has produced nine very successful FEI horses. This month, she offers expert advice on mastering the flying change.

Lisa Grund
Lisa is OTI Racing & Bloodstock's Equine Welfare Coordinator. After moving to Australia from Germany, she discovered a passion for Thoroughbreds and has been involved in the industry ever since. She has a Diploma in Equine Business Management, and is responsible for managing and tracking the progress of OTI's OTT TBs through their Equine Welfare Program. Turn to Life After Racing for more.



Christine Armishaw
Christine is a qualified EA Level 1 Coach and horse trainer who specialises in building confidence in women returning to riding and young riders getting started on their equestrian journey. Based at Otford Valley Equestrian, she runs clinics in NSW and NZ, and is a keen show jumper. Don't miss the first in her top tips series on desensitising your horse - there's more to it than you might think.



Michelle Terlato

Michelle grew up with horses and has always loved them. When she's not travelling the globe photographing the world's top equestrian athletes, she's home riding her own horses. It's the behind the scenes and the unexpected shots that she likes the best, and in our Behind the Shot feature, she shares her favourites and explains what makes them so special.



Dr Jennifer Stewart B.V.Sc., B.Sc., Ph.D.

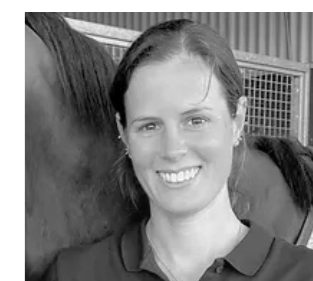
With over 40 years' experience as a veterinarian in mixed and equine practice, Jennifer's special interest is equine nutrition. She was Senior Veterinary Officer with the Australian Department of Agriculture, Water and the Environment for 10 years, and for two years was Biosecurity Veterinarian with the ACT Government. In this issue, she discusses diet analysis and feeding errors.

Larissa Bilston B.AgrSc (Hons)
Larissa is the Equine Nutritionist for Farmalagic, where she developed Equine Vit&Min and the Farmalagic Equine range. Her extensive experience is highly regarded by trainers, riders and owners who understand the importance of good nutrition. What do you know about equine gastric ulcers and their impact on feeding your horse? In her informative article, Larissa explains the risks, symptoms and treatments.



Sarah Gough BVSc/BVetBio (Hons I) DipECEIM, EBVS

Sarah is a boarded European specialist in equine internal medicine and joined Apiam's Hunter Equine Centre in May 2020 after spending two years at Rainbow Equine Hospital, a busy 22 vet referral hospital in North Yorkshire, UK. Her main interests include neonatal medicine, ophthalmology, and cardiology. In this issue she looks at the problem of antimicrobial resistance, and what can be done to prevent it.





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BEHIND THE SHOT

Michael Jung

One of Australia's top equestrian photographers, **MICHELLE TERLATO** travels the world capturing equestrian athletes in action. Each month she shares a favourite shot.

Rider: Michael Jung
Horse: Fisher Chipmunk
Event: 2024 Olympic Games Eventing
Location: Chateau de Versailles, Paris
Camera & Settings: Canon EOS-1DX Mark II, EF 300mm, f/4.5, ISO 200, 1/1250 sec

Challenges: As with any cross country event, the pressure is on to capture images of different jumps and different parts of the course. Versailles was no exception. With such a long course, it was impossible for one person to cover it all - so I spent a lot of time at the large water complex where there were five fences to shoot. It was also

a very sunny, hot day so the ISO went down and the aperture up a little to compensate.

As is often the case, I find images of competitors galloping between obstacles to be the most dynamic. Team Germany's Michael Jung was the rider before Australia's Chris Burton, and this image was actually after he had cleared the water phase and the exit jump, and was looking towards the Chateau. As the key water obstacles were a little distance away, I was shooting with my 300mm lens. But as the riders galloped past me I had no time to change cameras to a smaller lens and had to

try and capture them with the 300mm, which was tricky as they were close and travelling at speed.

Why this shot is special:

I look back on the Olympics and pinch myself about the riders, horses and competition I saw - and Michael Jung is such a good example. He's an absolutely magical rider and to see him and his wonderful horse Chipmunk in action, and for them to go on to win the individual gold medal, was so special.

I love so much about this shot: the soft position of Michael's hands and how much give is in the reins to allow the horse to travel forwards; the look of pure determination and focus on his face, with his tongue stuck out in concentration; Germany's colours on Chipmunk's headband and ear bonnet; the horse's ears tilted back to listen to his rider; the time ticking down on Michael's watch. It all delivers a glimpse of a moment in time, the speed and action of a gold medalist in full flight - and a testament to the high level of Olympic competition. 🐾

Michelle is available for event, commercial and private shoots. Visit [Michelle Terlato Photography](#) to view her impressive portfolio.



HANGING TOUGH

Time for high school

In her five-part series, **NICOLE TOUGH** looks at dressage training through the levels - and now it's off to high school to master the flying change.

Once our horse has a solid understanding and can perform the elementary tasks to a high degree of satisfaction and strength, we can turn our sights to medium training. This is as big a jump as a student going from primary to high school for one big reason: the flying change.

Nothing else is brand new for the horse at medium level. The extensions of the walk, trot and canter are developments of the medium walk/

trot/canter required at elementary level, the turn on the haunches at walk become more centred in a half pirouette, and the half pass is the next phase of travers ridden across the school.

Nothing better prepares our horses for flying changes than the solid elementary training we gave them in their earlier years. It's this training that ensures we can change their flexion and bend in the canter without them becoming muddled and losing

confidence, and without interfering with their clear three-beat rhythm. They will have a round, balanced canter jump with a discernible moment of suspension and their hindleg towards the centre of gravity; and we can adjust the canter stride with good control of the straightness, suppleness and balance.

If your horse fails to comply with these prerequisites, they are not ready to start flying changes. That said, it's vital to know that being ready to start flying change training is not a guarantee that it will be easy. If you or your horse are struggling, take heart in knowing you are not alone. The flying change needs to be a joint venture, a collaboration between rider and horse; and the timing of the aid is crucial to success.

The horse can only change their lead in the moment of suspension, and they need time to respond to the aid. Thus, the aid needs to be given *just before* the moment of suspension. This window of opportunity is on the

last footfall of the canter phase when the old leading leg is on the ground, allowing the horse to change the leading leg in the actual moment of suspension.

Many riders make the mistake of giving the aid either in, or too close to the moment of suspension, which doesn't give the horse time to act on the signal. The horse cannot organise themselves in time and end up running away or changing late behind.

To master the feel of the right timing, canter a circle and say 'now' out loud each time the leading leg is on the ground. And here are a few more tips:

- Always attempt the flying change towards the horse's better side. Most horses are crooked to the right, so starting right to left should help with success.
- Pick a place. My preference is a half 10 metre circle at R or S onto the centre line towards C, with the change to be attempted before G.
- Simulate the change from walk, practising your aids, and signalling the canter strike off on the 'new' side. In the above scenario, we would walk on the right rein, a half 10 metre circle at R onto the centre line and whilst holding our legs in right canter position, prepare the horse to pick up left lead in canter. Once we feel them accept this preparation, switch leg aids and canter left, turning left at C. Repeat this simulation with a good simple change, before attempting the flying change.
- Always practise the flying change in the same place. Only when the horse has understood the exercise should we attempt it in different places. We should also incorporate the same line/figure without a change to encourage the horse to wait.
- Always stop and praise your horse if they are successful in an attempt.



ABOVE: The horse can only change their lead in the moment of suspension (Image by Amy-Sue Alston). **LEFT:** Always practise the flying change in the same place. Only when the horse has understood the exercise should you attempt it anywhere else (Image by Emily Kaup).

A few more tips for this difficult stage of training:

- In the first month, do not stress about clean changes. The first stage is just about the horse understanding they have to get from one canter lead to the other whilst cantering. After understanding is reached, it is vital the flying change is carried out in the one moment of suspension, not in two parts. This stage requires a coach or a spotter every time you attempt your changes, so they can tell you if it was clean or in two parts. If in two parts, immediately walk, return to the old lead and try again.
- Whilst anticipation is encouraged, it is imperative we teach them to wait. If they change ahead of the

aid, return to walk and try again.

- Be happy with a clean change each way and don't do more. Establishing the flying change successfully can take from 12 to 18 months.
- The horse must never feel afraid to make a mistake. Encourage them to try and if they make a mistake, rather than chastise them, we should go back a step and repeat. Patience is the key.

Make no mistake. This really is the start of high school, and progression beyond this stage is impossible without a clean, calm flying change to each side. Stay patient and stay true to your horse. 🐾

If you'd like to know more about lessons or a clinic with Nicole, visit [Nicole Tough Dressage](https://www.nicoletoughdressage.com).



FEATURE

Diet analysis and feeding errors

Knowing what's good dietary advice and what isn't is vital for your horse's wellbeing. **DR JENNIFER STEWART** dives deep into the detail.

We are becoming increasingly aware of the strong association between nutrition, diet and health - for ourselves and for our horses. As well as the part they play in health, welfare and behaviour, diet and nutrition can help prevent as well as support recovery from several common veterinary conditions.

Nutrition is involved in the pathogenesis (the development of disease), management, treatment and prevention of a wide range of equine performance, behavioural and clinical conditions. In addition to disease prevention, correct nutrition is a necessary adjunct when a combination of dietary and medical/surgical management is recommended.

There is an ever-expanding body of research, recommendations and anecdotes around feeding our horses. Much is accurate and applicable, some is not. Some must be interpreted or combined with other information for it to be useable, while certain anecdotes and recommendations have been proven to be false, or are true only under certain circumstances. Nevertheless, they are often repeated by those who are unaware of findings to the contrary.

Currently available diet analysis programs are primarily based on the minimum feeding standards for horses developed by the National Research Council (NRC). The NRC used several sources for their calculations, including the results of feeding experiments and estimations derived from studies of other species, and this is what nutritionists use to provide diet and feeding advice.

But there are limitations within the NRC standards. They were established for a population of horses of a given age, weight, reproductive and performance

status and are 'averages' - hence they meet the needs of only 50% of horses. Factors not covered include breed, age, discipline, weather, climate or the requirements of an individual horse that may vary considerably from group averages. Second, they were established for healthy horses and minimum requirements are just that - calculated according to the amount required to prevent clinical signs of deficiencies and excess.

However, equine clinical nutrition goes beyond minimum recommended intakes. Examples of horses who benefit from dietary analysis, evaluation, feeding management and nutritional support include: pregnant mares; growing horses; those at risk for or affected by conditions such as arthritis; behavioural issues; body composition concerns; convalescence; Cushings disease; dental conditions; diarrhoea; endocrine problems; EPSM; PSSM; injuries; insulin resistance; lack of muscle and topline; laminitis; orphan foals; poor hoof quality; performance problems; post-surgery; ulcers and skin conditions.

Identifying problems

In dealing with these health issues, diet analysis can indicate the appropriateness of the current diet and reveal any feeding errors. Common problems and errors discovered during diet analysis include:

The calcium:phosphorus ratio: Often borderline or significantly unbalanced, reasons for this include reliance on pasture, meadow/cereal hay and chaff. Most grasses provide plenty of phosphorus, but little calcium. Antacid ulcer medications are also a risk factor as they reduce stomach acid to levels below the ideal for calcium absorption. Oxalates in high-oxalate grasses also prevent absorption of calcium, so that even though on paper intake may meet requirements, the diet is calcium deficient.

Diets low in available calcium, or with an unbalanced calcium:phosphorus ratio, lead to osteoporosis or nutritional secondary hyperparathyroidism,



ABOVE: Cresty neck is a sign your horse needs to lose weight.

LEFT: Feeding blood builders to improve performance can result in damaging levels of iron.

commonly known as 'big head'. However, only 5% to 15% of horses develop big head, and there are many other symptoms indicating a horse has reduced bone density and osteoporosis.

Overlap: Common when a combination of manufactured feeds and supplements are fed, which often leads to excesses and imbalances. This is especially important when feeding hoof products containing high levels of zinc. Although toxicity is rare in horses, the gut flora is extremely sensitive to zinc. When hoof supplements are combined with manufactured feeds, many diets analysed have close to the maximum legal limits set in EU countries, while others exceed them. Although the effects on the horse may be negligible, the impact on the gut environment is significant, with a decrease in the abundance, richness and diversity of beneficial microbiota.

Other potential overlaps are with iodine and selenium. Horses have a narrow

range of tolerance to both, and when several supplements are used, especially with kelp products, excess iodine intake can occur. As with selenium, clinical signs of excess are similar to those of deficiency and they are often subtle and difficult to detect other than by diet analysis.

Excess iron: High in iron, blood builders to increase blood counts, improve performance and increase oxygen carrying capacity sound like a good idea. But iron deficiency in horses has only been reported after blood loss and haemorrhage. However, deficiencies of the many vitamins and minerals involved in red cell production can mimic iron deficiency. A lack of B12 and folate could cause anaemia and horses on long term acid-suppression ulcer medications, or with gut disturbances or reduced appetite, may benefit from supplementation. Deficiencies in copper and vitamin B6, and lead poisoning reduce production of haemoglobin, but

providing extra iron won't help anaemia caused in this way.

Iron never leaves the body, and an overload may occur. This can be identified through diet analysis, or diagnosed based on blood tests. Your vet may test for serum iron, transferrin and ferritin levels. Iron is toxic to the liver and levels in the spleen and liver can be very high in older horses. Horses particularly sensitive to iron are those with raised blood insulin (the most common cause of laminitis in horses with metabolic disorders, Cushings and other insulin-resistance syndromes). Excessive oral and injectable iron can damage red cells and cause low red blood cell counts in high performance horses. Other than in the event of haemorrhage and blood loss, normal diet sources - soil, grass, hays and sugar beet are all high in iron - should be enough.

Other factors

To avoid feeding errors, other areas to consider are:

Pasture: The major factor in the development of obesity, pasture must be restricted or eliminated to achieve weight loss. Recommendations for horses needing to lose weight, those with insulin dysregulation, and those either at risk of or with laminitis, include a diet of low sugar or soaked hay only, plus a low calorie, protein, vitamin and mineral balancer. Hay is low in essential minerals, vitamins and amino acids, especially as nutrients as well as sugar are stripped out when it is soaked.

The addition of a correctly formulated supplement is critical for horses that have had laminitis. The suffix 'itis' indicates a disease characterised by inflammation, and in laminitis this causes massive damage to the laminae attaching the pedal bone to the inside of the hoof wall as well as disruption to blood vessels. Healing requires many nutrients that are not found in hay. Unless these are supplied with the addition of an appropriate supplement, healing will be delayed, prolonged or impossible. Talk to your vet for reliable information regarding laminitis.



ABOVE: Growing horses benefit from dietary analysis and evaluation.

Feed labels: Extremely important for determining if a feedstuff will meet recommended levels of intake. Some nutrients such as vitamin C are not usually needed as horses synthesize their own. In some circumstances such as stress, no access to fresh grass, or illness, supplementary vitamin C, generally between 10-20gms daily, is required. There are no benefits if fed below these amounts.

Other nutrients such as biotin can be helpful to some horses, but again the correct amount (20-30mg/day) must be provided, and the label is the best way to determine whether the feed will meet requirements. Amounts of iodine in seaweed products can vary by a factor of 10, but a guaranteed analysis on the label can help determine whether the amounts will be excessive.

Ingredients: Listed on websites, these can reveal more information about a feedstuff. Some 'grain-free' feeds contain bran, pollard, millrun and/or millmix, which are all grain by-products high in sugar and starch.

Poor quality protein: This is quite common and affects body composition and the power-to-weight ratio (the amount of muscle and fat in the body).

On paper, a feed might have an appropriate percentage of protein, but if it doesn't provide essential amino acids, it will be unusable. So look for a breakdown to determine whether it will provide the essential amino acids, particularly lysine, methionine and threonine. Other impediments to the amount of useable protein - and a major reason why a horse may not be thriving even though it appears all the requirements are being met - are anti-nutritional factors (ANF).

ANFs interfere with the horse's digestive processes and include lectins, which reduce nutrient absorption, digestive enzyme inhibitors, compounds causing gas production, and others that disrupt the absorption processes of the small intestine. The major pulse groups (chickpea, faba/broad bean, field pea, lentil, lupin and mung bean) contain significant ANF levels, and, depending on the content, can have negative impacts on the utilisation of nutrients in the diet due to reduced digestibility - especially if they are fed raw or unprocessed.

Regulations: The Australian Pesticides and Veterinary Medicines Authority has very strict feed labelling requirements.

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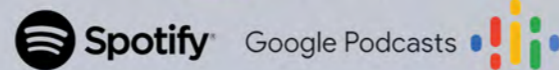
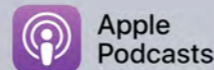


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- ◆ pruritus (itchiness), allergic conditions or food allergies
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- ◆ fungal disease, bacterial disease or any other infectious disease.

Unfortunately the regulations don't apply to product brochures, marketing material and website information, which often contain misleading material or report benefits found in humans, rodents and other species, and are therefore unreliable.

Calcium and oxalate plants: All plants contain oxalates but some, including sub-tropical grasses such as Buffel, Signal and Guinea, have more than others. There are two types of oxalates, and both are detrimental: soluble oxalates dissolve in the gut allowing the freed oxalate to attach to calcium preventing its absorption; and insoluble calcium oxalate doesn't dissolve at all so the calcium is not available to the horse. When on oxalate pastures, there are five considerations to address:

- ◆ meeting daily calcium requirements
- ◆ providing extra calcium to remineralise the bones - for horses on oxalate



ABOVE: Diet analysis software may not sufficiently discriminate between breeds or the disciplines they are involved in.

- ◆ pasture, or with a low calcium intake for 2-3 months, this can take up to 12 months
- ◆ mopping up oxalates in the gut before they are absorbed into the blood and lead to kidney failure
- ◆ inactivating the free soluble oxalates
- ◆ balancing the calcium:oxalate ratio by increasing calcium and reducing oxalate intake.

Complex requirements

Although many diet errors are unlikely to cause acute clinical disease, they will impact on overall health, bone strength, muscle mass, performance, recovery and risk of veterinary clinical conditions. The NRC feeding standards are a useful guide for nutritionists to estimate requirements, but they lack precision and do not include more recent veterinary and scientific studies.

Mathematical calculations alone don't reflect the complexity of requirements for a wide range of veterinary clinical conditions and many nutritional recommendations change as new research expands our knowledge.

Estimates can be found in textbooks, spreadsheets and feeding guides, but diet advice based on generic, computer-based diet analysis programs have

several disadvantages, the main being the one-size-fits-all approach and use of average values for the average horse – making the results applicable to less than 50% of horses. Other issues include an erroneous emphasis on nutritional requirements in terms of absolute values, especially for micronutrients, when in reality an optimum range exists; no provision for the suitability of the energy source (carbohydrate, fibre and oil) which is critical for many horses in terms of clinical health, growth or performance; and insufficient discrimination between breeds, or the type of exercise. In addition, care is required in interpreting the software's output.

For peace of mind, a professional analysis of your horse's diet combined with a veterinary interpretation of the result is always the best option.

Dr Jennifer Stewart BVSc BSc PhD is an equine veterinarian, a member of the Australian Veterinary Association and Equine Veterinarians Australia, CEO of Jenquine and a consultant nutritionist in Equine Clinical Nutrition.

All content provided in this article is for general use and information only and does not constitute advice or a veterinary opinion. It is not intended as specific medical advice or opinion and should not be relied on in place of consultation with your equine veterinarian.



TOP TIPS

Seven tips for desensitising your horse

There's more to desensitising a horse than might meet the eye. **CHRISTINE ARMISHAW** goes into detail in the first of two informative articles.

You would be amazed at the number of times I've heard the words 'my horse is just being naughty'. Yet it's very seldom that a horse is 'just being naughty'. Of course, there's the odd one that is but mostly they're not. And for me, even more amazing are the number of people who've worked with horses for years but don't realise that what they perceive as 'naughty' is actually a result of their own

lack of understanding around how the horse is trying to communicate. One of the things I'm most passionate about in my work as a coach and trainer is educating riders so that they better understand their horses, which helps to keep the rider safer, and their horses to have a better life because they feel understood. Your goal should be learning how to communicate with your horse by using their language, by thinking about how they think, and

by talking to them in a way they can understand.

But before we get into the 'how to' of desensitising your horse, the first question is, do you know the signs that indicate your horse is either starting to relax, or is in a relaxed state? Relevant to the process of desensitising (as with all interactions with your horse), these signs are important indicators as to whether what you're doing is working or just winding your horse up.

To understand what you should be looking for, take careful note of your horse's posture when they're relaxed as opposed to when they're stressed. You'll notice that when they're relaxed, they will stand with their head lowered and their eye at wither level or below - and it's this relaxed posture that we want. However, a seemingly calm horse isn't necessarily a relaxed horse. A horse with their head up, a hard non-blinking eye, and a tightly closed mouth with very little movement in the lip is a horse that's stressed. They might not be moving their body, or appear to be that bothered, but internally they're trying to decide whether they're okay with the situation, or if they should panic and run away.

When you first expose your horse to any desensitisation technique (which should

always be done at the lowest level of intensity needed to elicit a response) they're likely to react by throwing their head up, with their eyes wide and mouth tight, and might even start backing away from you. Keep doing whatever it is that you're doing, but watch your horse carefully. As soon as they drop their head even a little, or maybe blink, or take a step towards you, stop! Reward their softening by taking away the source of stress.

Watching their muzzle is key. While a horse is thinking things through, they have a tightly closed mouth. As they start to process the situation, they'll usually start twitching their lips and nostrils, but what you are really waiting for is a lick and chew, which is them processing information and letting go of tension. Even more of a tension release is the head and neck shake, and the biggest one of all is when they start yawning, which they'll usually only do after they've expended a lot of mental energy and are letting go of the tension caused by all that mental processing.

As soon as your horse licks and chews – and the more they learn and understand, the more frequently they're likely to do it - don't ask for anything else in that moment, just wait for them to finish the process. The lick and chew, which some horses tend to do much more than others, is really useful for telling you that they've processed the information in a calm way, which is what you want. As a side note, if you're looking to buy a horse, buy one that licks and chews a lot – it's a sign that they process quite readily rather than internalising stress.

Getting down to basics

So, now you know what to look for, let's get into the practical points of desensitising your horse.

1. No need to wait: You don't have to wait until your horse is old enough or ready to ride before you get started. Or, perhaps it's a rainy day and you don't feel like riding, or your horse has a light injury and can't be ridden, then working on desensitising is a really valuable




ABOVE: A horse with lowered head and eye at wither level or below is relaxed. **LEFT:** If their head is up with a non-blinking eye and closed mouth, it's a sign of stress.

way to make the most of what would otherwise be unproductive downtime.

2. It's not once and done: Don't go thinking that desensitising your horse can be done in one session. Although you'll get some benefit, you won't get it all. Plus, some horses are naturally more spooky than others and need more work. There are those who are initially spooky but quickly get over it, others will take one or two sessions, and some will take session after session before they make progress and may still not be as confident as other horses. And you have to factor that in. Don't compare your horse with any other horse because it will lead to frustration.

And always expect to start off one or two steps back from where you were when you last finished. If your horse is more confident than you expected in the next session, that's awesome. But if not, don't get frustrated, which won't help you or your horse. It's all part of the learning curve, so expect less, and then if you get more it's a bonus.

3. The flow on effect: One of my favourite things about the progress

you make during a concentrated desensitisation session is that the effects flow on and shape your horse's overall personality, boosting their sense of self-confidence in other areas of their life. For example, a horse who reacted really badly to sounds had to be ridden in an ear bonnet at home and going off property was not even possible. So their owner gradually taught the horse to develop a calm, relaxed posture. Then one day, instead of going into a frenzy when a tractor started work in a neighbouring paddock, the horse approached the fence, lowered their head and relaxed themselves, because they had been trained to find a place of calmness and relaxation in an otherwise stressful situation. And that's the flow on effect that filters into their everyday lives. They've learned a new way of managing themselves, essentially, a way of self-regulating that they didn't have before. 

Don't miss the final four tips in our February 2025 issue.

Christine Armishaw Equestrian offers a variety of coaching and other equestrian services at her [Otford Valley Equestrian Agistment & Training Centre](#).



VET VIBES

Antimicrobial resistance

How big is the problem and what can be done to avoid it? **DR SARAH GOUGH** explains.

Although antimicrobial resistance is a commonly used term, its significance is perhaps less well understood. So, what is it? According to the World Health Organization, antimicrobial resistance occurs when bacteria, viruses, fungi and parasites

no longer respond to antimicrobial medicines. The implications of this become clear if we think back to the early 1900s, prior to the discovery of antibiotics, where the average life expectancy of humans was nearly 25 years less than it is today, and a simple

wound infection, never mind a surgical procedure, could easily result in death.

So why are these microbes becoming resistant? In short, every time we use antimicrobials (most commonly antibiotics), we risk the development of genes that create antimicrobial resistance in the exposed microbes. Additionally, while it is normal for a microbe to have inherent resistance to one or more antimicrobial, the frequency of bacteria or fungi that are resistant to all available antibiotics and antifungals is increasing dramatically.

In response, we need to reduce our use of antimicrobials overall, and when needed, ensure they are prescribed appropriately. This process is known as antimicrobial stewardship, which should be at the forefront of our minds as we move into this era of antimicrobial resistance - a true '[one health](#)' problem.



ABOVE LEFT: An example of a culture plate with a pure growth of bacteria. **ABOVE RIGHT:** Bacterial and fungal cultures are part of the laboratory testing process to establish which organisms are present and their antimicrobial susceptibility. Discs infused with different antimicrobials are placed over a plate that has been heavily streaked with a pure growth of a bacteria. The translucent area around each disc is measured to determine the bacteria's susceptibility to that particular antimicrobial. **PREVIOUS PAGE:** Ask your vet whether you could make improvements in your horse's preventative health program.

Antimicrobial resistance

Not all microbes are created equal, so different antibiotics and antifungals are selected to treat different bacteria or fungi. This is based on the spectrum of activity of the specific drug against a specific pathogen. Part of this decision is based on knowledge of the pathogens likely to be involved in each individual case, plus the site, cause, characteristics etc of the presumed infection as confirmed by laboratory testing. Some bacteria will have inherent resistance to certain types of antibiotics and the same is true for antifungals.

However, the primary concern with increasing antimicrobial resistance is the development of new resistance patterns in microbes that were previously susceptible. Every time your horse is prescribed an antimicrobial, your vet should be considering the following key details:

- Are antimicrobials warranted? Many conditions have historically been treated with antimicrobials 'just in case', when their use is neither indicated nor appropriate (see Table 1), and this needs to change.
- If antimicrobial treatment is warranted,

then collection of a sample or swab for culture and bacterial susceptibility testing or microscopy is important so that antimicrobial selection can be guided.

- Selecting the most appropriate antimicrobial should be based on: use of first line antimicrobials (those not critically important to human health); the antimicrobial's effectiveness against the bacteria or fungi most likely to be present; its appropriateness for the situation (for example, some antibiotics are ineffective in purulent material so shouldn't be used for treating abscesses); and that an appropriate dose rate and frequency can be achieved.

The decision is not always straight forward, and in many instances deciding not to reach for antimicrobials is appropriate.

Fevers

Similar to the largely outdated practice of medical doctors prescribing antibiotics to patients with a cold, veterinarians have often administered antibiotics in cases of fever. The most common cause of fever and malaise

in horses (in the absence of coughing, colic or other localising signs) is viral infection, and symptomatic treatment is all that is required. There are exceptions where fever can be associated with bacterial infection that warrants antibiotic treatment, so it is important for your vet to assess your horse if fever develops. But antibiotics are often not indicated, and prudent use is critical if we are to slow the rate of antimicrobial resistance. Wherever possible, localised management of a suspected infection is preferred. This may include regular cleaning and lavage of a wound, drainage and lavage of an abscess, or poulticing and drainage of hoof abscesses.

Extensive exposure

When we give a horse antimicrobials many different bacteria will be exposed to that antibiotic, from the natural bacteria that make up the gastrointestinal tract's microbiota, to the natural bacteria on the skin, as well as any bacteria present within the wound. Additionally, the antibiotic may be excreted in the urine, causing environmental bacteria to also be affected. So, exposure to antimicrobials is far more extensive than the intended

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target: some of these bacteria will be susceptible to the antibiotic and will die, others may be inherently resistant, or of particular concern, some may develop resistance genes in a bid to stay alive. These genes can be spread to other bacteria and can also cause resistance to other antibiotics.

What are the impacts?

Antimicrobial resistance is developing at a frightening rate. This has led to dramatic increases in human deaths due to infection with bacteria that are multi-drug resistant and therefore in many cases untreatable. Just over one thousand Australians died in 2020, and worldwide it is estimated that close to 1.3 million people die annually, following infection with multi-drug resistant bacteria.

The golden era of antimicrobials and the dramatic increase in longevity associated with their discovery may well be coming to an end unless we act quickly and consistently to reduce the rate of antimicrobial resistance developing.

What needs to change?

Prioritising good management and infection control to help reduce the risk of infections is an important step in the fight against antimicrobial resistance. This may include: implementing biosecurity protocols on properties that house multiple horses, particularly in competition settings where horses leave the farm and are exposed to other horses; implementing vaccination programs to reduce the frequency of preventable conditions; and maintaining appropriate husbandry routines including dental examinations, farriery and appropriate parasite monitoring programs.

Ensuring good management, hygiene, and preventative health practices helps to reduce the frequency of ailments that might lead to antimicrobial prescribing. While most owners strive for and are achieving a high standard of

Ailment	Antimicrobial Treatment Indicated
Hoof abscess	NO
Superficial wound on the leg, no compromise or proximity to synovial structures	NO
Deep wound in close proximity to a synovial structure	YES
Insect bite hypersensitivity (Queensland Itch)	NO
Colic (non-surgical)	NO
Fever consistent with viral infection	NO
Limb or elsewhere, swelling/pitting oedema without lameness	NO
Limb swelling/cellulitis that is markedly painful and hot	YES

Table 1: List of common ailments and the appropriateness of antimicrobial treatment

care, it may be worth asking your vet if you have all bases covered, or whether you could make improvements in your horse's preventative health program.

Duration of course

Another important step in the fight against antimicrobial resistance is to move away from set duration courses of antibiotics, and instead treat for the amount of time required to resolve infection and not longer. The outdated advice regarding dosing with antimicrobials for a set five or seven days needs to be forgotten. If it takes three days to resolve infection, the remaining days simply expose microbes to the antimicrobial unnecessarily, helping to drive antimicrobial resistance. Likewise, if you administer the antimicrobial for five days and the infection has not yet resolved, a discontinuation may enable the remaining bacteria to develop resistance. Antimicrobial treatment requires veterinary re-examination and assessment to confirm the appropriate duration of treatment needed to

satisfactorily resolve the infection.

Due to the package size of antimicrobials in equine practice, it is not uncommon for owners to have antimicrobials remaining after the completion of a course. Understandably, they are often reluctant to throw them away as they are expensive and may be required in the future. However, it is critical that these medications are never used if they have not been prescribed by your vet. The decision to use antimicrobials is one that requires extensive consideration. The antimicrobial type, route of administration, dose rate, frequency and duration are all considered on an individual basis – and all are critical if antimicrobial stewardship is to help reduce the development of antimicrobial resistance.

Dr Sarah Gough, BVSc/BVet Bio (Hons 1), DipECEIM, EBVS, is a European and Australian Specialist in Equine Internal Medicine based at Apiam Hunter Equine Centre, Scone NSW.

CHRISTMAS GIFT GUIDE



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CHRISTMAS GIFT GUIDE



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ABOVE: Alicia and Harvey, winners of the 2024 Mount Gambier Agricultural Show Senior Fashions on the Field (Image by Matilda Jones Photography). **LEFT:** Count nine riders from the right and that's Alicia aboard the then 3-y-o Corncrake in 2019 (Image courtesy Alicia Frankenburg).



LIFE AFTER RACING

Keeping track

When it comes to horse welfare, some racing industry organisations are going the extra mile and are achieving great things in the process, writes **AMANDA MAC**.

It's always a joy when you hear of an organisation within the racing industry taking the wellbeing of horses particularly seriously, and credit where it's due, Victoria based OTI Racing & Bloodstock are doing a fine job with their innovative Equine Welfare Program.

Established in 2019, the program is the initiative of Terry Henderson, OTI's CEO

of many years standing. Terry's vision was to find a way of monitoring a horse's welfare from their arrival at OTI to the end of their life. So, he tasked then OTI Welfare Manager Campbell Wansbrough with establishing a state-of-the-art system capable of tracking every horse that came through the organisation's hands. "We'd always had an informal

rehoming program," Campbell tells me, "but we thought it was time to put something more structured into place that would also make funding for new off the track owners available. What evolved was a program with two main pillars, our tracking register and our welfare fund."

In a nutshell, the welfare of all horses leaving OTI's management, whether by sale or retirement, is monitored through the register, with twice yearly reviews to ensure the horse is going well in their new home. "We sometimes request a photo or video so we can see for ourselves whether the horse is in good shape," Campbell explains, "but more usually it's an email or a phone call to check in with the owner." New owners are also required, by way of a written agreement, to provide any information needed to update the register, ensuring it remains both accurate and current.

Running alongside the register is OTI's Welfare Fund. Financed with a \$2,000

levy on every racehorse OTI sells, the fund is designed to help new owners taking on an OTT Thoroughbred. "The owner can receive up to \$2,000 to help cover any veterinary or relocation costs, but we've used it on other occasions too. Where an owner is in a bit of trouble and needs an extra top up to help with things like feed, we're happy to assist," Campbell says.

The fund has also proved its worth on the few occasions when a six-monthly horse welfare review revealed that all was not well, at which point OTI stepped in and managed the situation by either sending a vet out to assess the horse, or offering the owner assistance to help them get back on track.

Through their program, Campbell estimates that as many as 100 retired racehorses have found a new life off the track, and notes that OTI has built up a network of retrainers who are always keen for horses. He also commends Racing Victoria for their

off the track program, which has been particularly helpful. "It makes rehoming a lot easier when you can go to Racing Victoria's website and access their list of retrainers, which also includes information on the sort of horses the retrainers are particularly interested in."

The program's effectiveness has been further enhanced through forging important working partnerships with several welfare-related charities, including [Lisa Coffey's Racing Hearts](#), [Living Legends](#), and the [Thoroughbred Sport Horse Association](#), all of which focus on creating a life after racing for OTT horses.

After establishing the welfare program, Campbell later shifted focus and is now OTI's Communications Manager, his previous position ably filled by Lisa Grund. With a passion for Thoroughbreds backed by a Diploma in Equine Business Management, Lisa has been involved in the industry for some

years and is responsible for managing and tracking the progress of OTI's off the track horses through their Equine Welfare Program.

One particular rehoming story Lisa is delighted to share is of Alicia Frankenburg and Corncrake, who also answers to Harvey - and as a side note, if ever there was a poster child for the Thoroughbred's extraordinary versatility, Harvey is surely it.

Alicia first met the then three-year-old colt by Mastercraftsman out of Harvest Queen in 2019 while she was in the UK working for Richard Hannon Racing: "I rode him in track work, and followed his career closely when he was imported into Australia to race with OTI."

When she heard that he was to be retired, Alicia asked if she could take Harvey on for his after racing journey, which was to be the rekindling of a remarkable partnership.



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After several months of rehab to deal with a niggling tendon injury, Harvey was introduced back into work, and since then the pair have successfully turned their combined hands to, as Alicia puts it, "anything and everything." And that includes showing, eventing, stockman's challenges, dressage and Pony Club. They've competed in show jumping, hunts and hurdles, open show horse, the breed ring, fashions on the field, fancy dress and barrel racing - none of which have phased Harvey in the slightest - and have collected multiple wins and placings along the way. He's proved to be great with children and beginner riders, loves swimming at the beach, trail rides and hacking out, and has even been a nanny for Alicia's yearling.

One of their most recent outings was to Equimillion 2024, a popular showcase for the talents of OTT Thoroughbreds. "We competed in show jumping and eventing at the 65mm level in both and finished mid-field," Alicia says. "Harvey was perfectly behaved for the whole weekend. He has become the most amazing riding horse. He was the easiest horse to retrain off the track, and he's just so willing to please and have a crack at any discipline I ask of him."

The bond Alicia and Harvey share is a special one. It started five years ago in the UK and was renewed when Harvey eventually retired from the track here in Australia. But there's another facet to this relationship that makes it even stronger: "Harvey has helped me through some challenging times in my life and made me fall in love with riding again," Alicia explains. "And I love how people react when they meet him or see him in action. They all love him! He really is a unicorn and I'm so thankful I ended up with him, all thanks to OTI's amazing welfare program."

Follow this link to learn more about [OTI's Equine Welfare Program](#).



ABOVE & MIDDLE: Harvey is an enthusiastic participant in any and every discipline (Images courtesy Alicia Frankenburg). BELOW: Competing at Equimillion 2024 (image by Rodney's Photography).



NUTRITION

Equine gastric ulcers: risks, symptoms and treatment

Gastric ulcers are not uncommon in horses. But as **LARISSA BILSTON** explains, there are strategies that can help to prevent and to heal them.

Gastric ulcers are quite common in horses of any age, with most studies estimating that between 50 to 90 per cent of horses have gastric ulceration. The highest prevalence occurs in racehorses (80-90%), and some studies indicate that over 60% of performance horses experience gastric ulcers at some point in their lives.

Equine gastric ulcers are typically categorised into two types based on the affected area: equine squamous gastric disease (ESGD), which impacts the upper, squamous part of the stomach; and equine glandular gastric disease (EGGD), which affects the lower, glandular region. Unfortunately, symptoms can be very vague and variable, with variation between individual horses and few links

between symptoms and the type or location of the ulcerated tissue. In some cases, horses diagnosed with quite severe ulcers can present as symptom-free.

Since each disease has distinct causes, and different treatment protocols, successful management relies on accurate diagnosis via veterinary endoscopy.

Understanding ESGD

Horses evolved with a digestive tract designed for near continuous forage grazing, and any diet or management practice that strays from this can elevate the risk of ESGD. Ulcers in the squamous region of the stomach occur when the sensitive phospholipid lining in the upper stomach is damaged by acid exposure. The causes are multi-factorial, but common risk factors include:

High-starch diets: Meals rich in grains and concentrates contribute to higher stomach acidity, which can damage the squamous lining. Meal fed horses often receive less forage which increases the risk.

Long exercise durations: Intense or prolonged exercise increases the risk of acidic stomach contents splashing onto the squamous lining.

Stabling: Horses kept off pasture, or restricted to stalls or small yards have limited access to forage, contributing to increased acid exposure and the likelihood of ulcers.

Isolation: Lack of companion horses and herd living places a low level, ongoing stress on horses, creating another risk factor.

Symptoms

Squamous ulcer symptoms can resemble those of heartburn in humans. Watch for the following signs:

- 1. Poor performance:** including altered stride length, fatigue and reduced aerobic capacity.
- 2. Poor body condition or unexplained weight loss:** Due to discomfort and reduced food absorption, horses with ulcers may struggle to maintain weight even with adequate food intake.
- 3. Reduced appetite:** Picky eating of hard feed and occasionally a reluctance to eat roughage.

- 4. Dull or rough appearance to coat.**
- 5. General discomfort, altered behaviour or colic:** Horses might appear unsettled or show signs of discomfort during and after meals or exercise.

Prevention and treatment

Nutrition, medication and lifestyle are the pillars for successful ESGD treatment and management. The focus is on reducing stomach acidity and supporting stomach health through dietary modifications and supplementation. Lifestyle changes which encourage natural foraging and social behaviours are key for long-term success.

Roughage focused diet: A high-roughage diet is crucial. Ideally, feed 1.5-2% of the horse's body weight in roughage daily. Limit carbohydrates in favour of more forage-based foods. Avoid sugar and starch based hard feeds and treats. Eliminate cereals and their by-products from the diet, including grains, pellets and hay made



ABOVE: Horses evolved with a digestive tract designed for near continuous forage grazing. **LEFT:** Encouraging social behaviours can reduce stress levels.

from barley, wheat, rice, oats and corn. Choose feeds made from copra, super fibres (e.g. soy hulls) or oilseed meals such as soybean or lupin.

Pre-ride feeding routine: Provide at least half a biscuit of lucerne hay immediately before riding. The hay forms a mat which soaks up free liquid and reduces acid splash into the higher regions of the stomach, helping to protect the squamous lining during exercise.

Shorter rides: Research shows that limiting exercise duration with shorter, more frequent rides reduces acid splash. Minimising warm-up and cool-down times may also help.

Omeprazole: Omeprazole, a proton pump inhibitor, is widely used for ulcer treatment. However, it requires continuous administration until ulcers are fully healed, often taking about 21 days for squamous ulcers. Long-term use of omeprazole is not advised due to its impact on calcium digestibility. Nutraceutical supplements may be

beneficial after medication ends to alleviate rebound acid secretion effects.

A balanced diet: This is essential for providing the nutrients necessary for gut healing. Oxidative stress is evident in horses with EGUS, increasing their need for antioxidants - so supplementation can be beneficial. Ask a qualified equine nutritionist to check the overall balance of your horse's diet to ensure fibre, energy, protein, antioxidants, vitamins and mineral levels are adequate and in the correct ratios.

Nutraceutical supplements: Although research on nutraceutical supplements has been limited, they may show promise in ulcer management. Some worth consideration as an aid to alleviating symptoms include: Omega-3 fatty acids (EPA, DHA and GLA); antioxidants (vitamins C and E, selenium, SOD); SB live yeast (*Saccharomyces boulardii*); pectin with lecithin; soy flour fermented with lactic acid bacteria *L. delbrueckii lactis* Rosell-187; and aloe



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vera, sea buckthorn and other herbs including licorice, marshmallow root, slippery elm, chamomile. Buffers are helpful for temporary relief before intense activity, but are not a long-term solution for ulcer healing.

Understanding EGGD

Glandular ulcers are primarily seen in performance horses, particularly in certain breeds, and often stem from stress, high workloads, or frequent handling changes. Major risk factors include:

- 1. Breed predisposition:** Warmbloods are more prone to glandular ulcers
- 2. High work demands:** Horses with limited rest days (more than five days of work per week) are at a higher risk
- 3. Multiple handlers:** Having different riders or handlers may induce stress and behavioural changes
- 4. Stress from pain or physical discomfort:** Physical or behavioural stressors can also contribute to ulcer formation
- 5. NSAIDs:** The use of non-steroidal anti-inflammatory drugs such as bute.

Symptoms

Horses with glandular ulcers may exhibit different symptoms from those with squamous ulcers, although signs are not definitive. Look for:

- Pain and irritability:** Discomfort and sensitivity around the stomach area may be apparent. This is often most noticeable as girthing during saddling
- Reluctance to work:** They may resist work, refuse to perform, or seem unenthusiastic about tasks they previously enjoyed
- Behavioural changes:** They may display increased aggression or altered personality
- Colic episodes:** While not as common as other symptoms, some horses with glandular ulcers may experience colic.

Treatment and management

Behavioural management is increasingly recognised as essential for preventing EGGD. Allowing horses adequate rest days, minimising handler changes, and encouraging social behaviours can

reduce stress levels, which may play a significant role in EGGD development. Researchers are also studying the role of the gut microbiome in ulcer formation, although no direct bacterial cause has been found, differences in microbial populations may contribute to EGGD susceptibility. Treatment involves:

1. Focus on microbiome and diet:

Studies suggest the importance of a healthy gut microbiome in preventing and managing glandular ulcers. While there is no evidence that *Helicobacter* bacteria affect horse ulcers, the microbial community in the glandular region in ulcer-affected horses is different to that in the healthy horse, indicating a possible link between microbiome health and ulcer risk. A forage-based diet with minimal sugar and starch hard feeds is therefore recommended. Diet recommendations for ESGD can be applied to horses with glandular ulcers as part of a well-balanced diet to help heal and maintain a healthy gut lining. Supplements tailored for stomach health help maintain balance in the gut microbiome and protect against stress-related flare-ups. They may be beneficial for horses with a predisposition to glandular disease.

- 2. Scheduled rest:** Rest is essential for EGGD prevention and healing. Two to three rest days per week helps reduce stress and prevents strain on the glandular region of the stomach.
- 3. Social interaction:** Providing companion horses and encouraging natural social behaviours can reduce stress levels and improve overall health. Reducing the number of human handlers to one to two people per horse also improves horse well-being and reduces EGGD risk.

4. Omeprazole: Omeprazole should be given after an overnight fast, followed by feeding one hour later. This regimen is more effective in targeting glandular ulcers. Healing often requires 4-6 weeks of consistent treatment due to the resilient nature of glandular ulcers.



ABOVE: Rest is essential for EGGD prevention and healing.

Key takeaways

Follow these guidelines to support your horse's digestive health, improve their comfort and performance, and reduce the likelihood of gastric ulcers developing or recurring.

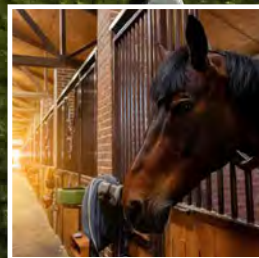
- Prioritise roughage and fibre.
- Manage exercise and stress.
- Supplement wisely.
- Follow medication guidelines.
- Encourage socialisation and minimise handlers.

Managing equine gastric ulcers requires a multi-faceted approach combining diet, exercise moderation, stress reduction, and targeted treatments that rely on accurate diagnosis. Recognising risk factors early can help horse owners make adjustments that may prevent ulcer development. 🏠

Larissa Bilston, BAgSc (Hons) is the Equine Nutritionist for [Farmalagic](http://Farmalagic.com).

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