

A STEP-BY-STEP GUIDE EXPLAINING HOW THE GUT AFFECTS YOUR OTT'S HEALTH AND HOW TO SAVE YOURSELF WORRY (& MONEY) ON THE JOURNEY BEYOND THE RACETRACK.



HOW TO FEED SO YOUR OTT BLOOMS!

(WITHOUT STRESS OR A BIG FEED BILL)

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INTRODUCTION

Your brand new OTT has just arrived. Lanky, thin, ribby and anxious, yet tired and withdrawn. Or maybe highly strung, bargey and burning up a pile of energy in nerves. You notice the dull coat, and brittle hooves. The sour-smelling, loose manure. And those manners... well, let's just say the manners will need some work. At feed time you notice this horse's appetite is poor at best.

You might have done this all before and know exactly what you're in for. Or maybe it's your first time. Either way, you're braced for a long road ahead. You have resigned yourself to the fact that this horse might take a lot to get 'back to its best'. You have apologised in advance to your bank account for the hiding it is about to receive.

Because, after all we horsey folk know that Off The Tracks (OTTs) **eat a lot**. And take forever to put on weight. And they give you endless months of worry with their on-again, off-again appetite. And their quiet-today, spooky-tomorrow behaviour. And their hooves that your farrier will moan about. And their muscles that won't build. And their constantly anxious behaviour as soon as you take them anywhere.

What have you gotten yourself into? You may be asking yourself if you actually thought this through? Cue the anxiety and some degree of loss of sleep.

But... WHAT IF it didn't have to be like this?

What if I could give you the keys to a calm (safe) horse that will bloom into a mount that can gain and hold weight easily? Who will muscle up beautifully, get a talk-of-the-town shiny coat and amazing hooves AND on a **lot less feed** and **for a lot less money** than you expected?

Rest assured, **this is possible if you know how**. Most of it just relies on you having a basic understanding of what is going on inside that beautiful creature's gut! Oh, and a good dose of patience.

Let me show you where your OTT is now in terms of gut health. And what you can realistically do to improve things, so your new horse's gut health is optimised. Once this is done, we'll turn our attention to the hooves and coat, muscle, behaviour and condition.

Ready? Let's go!!

Dr. Nerida



What if I could give you the keys to a calm (safe) horse that will bloom into a mount that can gain and hold weight easily?

1. WHAT'S REALLY GOING ON? A WALK DOWN THE DIGESTIVE TRACT.

The key to bringing OTT's back to full health lies in restoring their gut health. But, because we can't SEE the gut, sometimes it's not easy to understand how broken their gut is. Or that this is indeed what needs to be fixed.

In this chapter we will walk through the gut so you can 'see' the likely state of your OTT's gut health after they have been through a racing stable or a racing preparation. Then you will understand why it needs to be fixed! And most importantly, HOW to 'fix it'.

The Stomach

The first piece of the puzzle lies in the stomach. Studies in racing standardbreds and thoroughbreds have found that **60 - 90% of them have gastric ulcers**. Ulcers are painful open wounds in their stomach. The tendency for trainers to work racehorses on an empty stomach, plus their hectic and high stress schedule of travel and racing (also largely on an empty stomach), plus their high starch intake (from grains) are thought to be the main reasons for this high prevalence of gastric ulceration.

Gastric ulcers are known to **reduce appetite** in many horses. Plus they **cause pain** and can lead to **anxious behaviour**. The ulcerated stomach is also no longer an impenetrable barrier between the gut and your horse's body. This means bacteria, toxins and pathogens can leak out into the body causing other chronic problems like inflammation and infection.

Horse's with ulcers struggle to hold their weight. They will often display 'poor' or dangerous behaviour and their coats may be dull. **A horse with ulcers is neither healthy, nor happy** (and nor would you be). This is one of the first things that needs to be assessed and fixed in your OTT.

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“When we see something that is broken, we usually want to fix it. But when we can't SEE what is broken, what we need to fix is much less obvious”

DR NERIDA RICHARDS

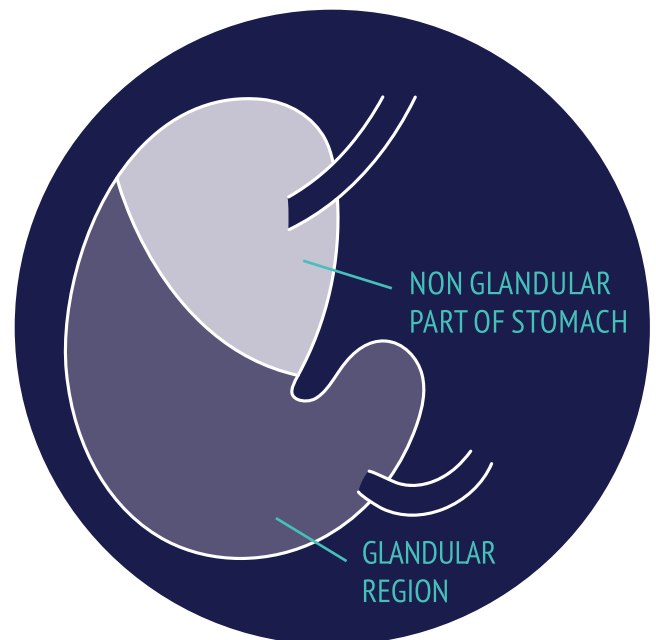


Figure 1. Stomach of the horse

- 1. Non glandular part of stomach:** This area is not protected by mucous and is highly susceptible to ulcers from 'acid splash'.
- 2. Glandular region:** There is also a high prevalence of ulceration in this region, though the cause remains largely unknown. Ulcers here are harder to treat.

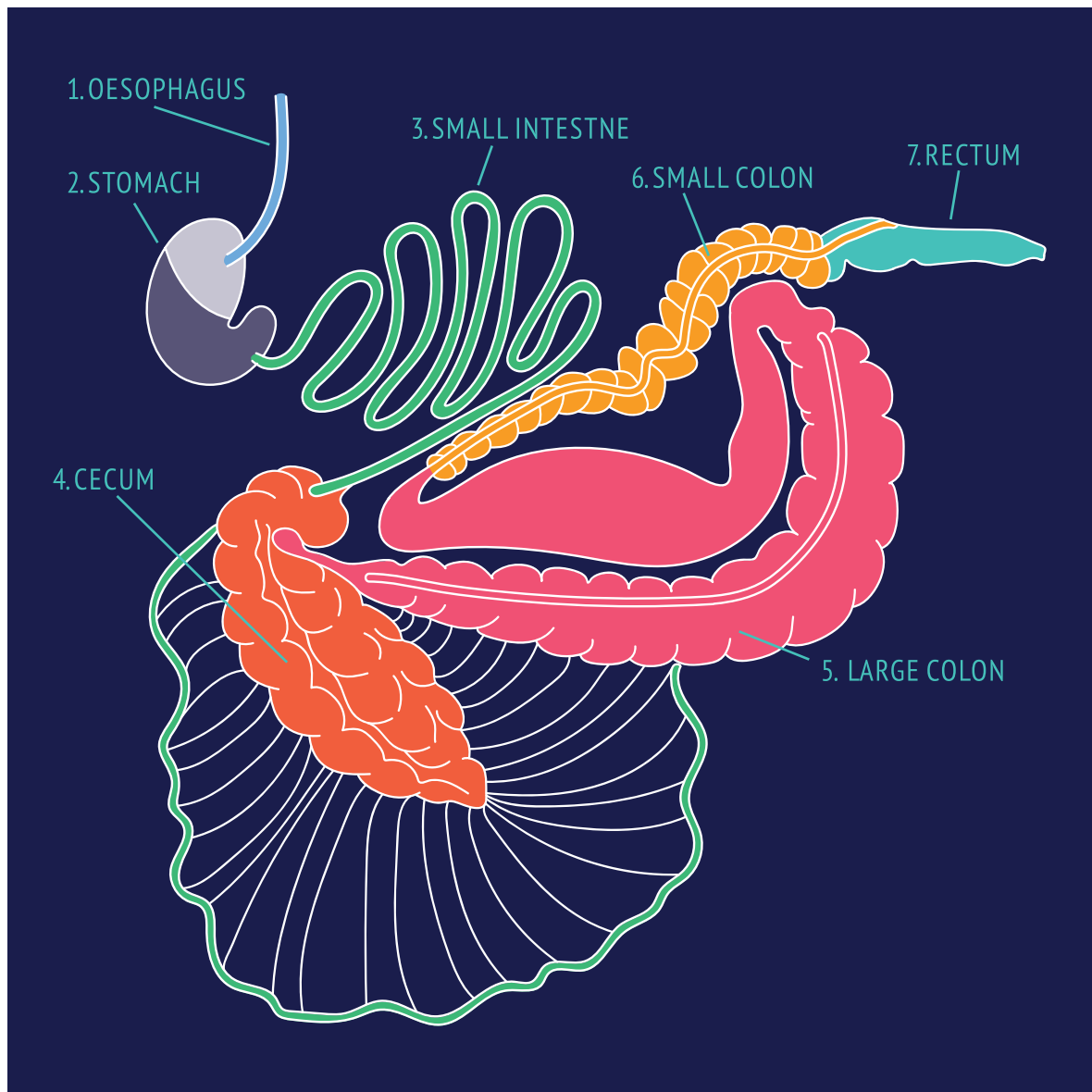


Figure 2. Digestive tract of the horse



The Small Intestine

As yet we don't know a lot about the small intestine and how its health may be affected during a racing career. But there are **some reports of ulcers occurring within the small intestine**. The general assumption though is that this part of the gastrointestinal tract remains relatively healthy in most horses, most of the time.

There are some possible problems in the small intestine that may affect horses that have been on **long term proton-pump-inhibitor (PPI; e.g. omeprazole) treatment for gastric ulcers**. In humans, **bacterial overgrowth** can occur in the small intestine because the acid has not been present in the stomach to kill unwanted bacteria that then end up in the small intestine.

Plus, horses that have been on long-term acid suppression treatment may start to experience **acid-rebound effects where stomach acid is hypersecreted*** once treatment stops. This hypersecretion of acid may cause duodenal** ulceration and possibly causes gastric ulcers to reappear once treatment is ceased. This is a 'watch-this-space' for horses as it is still not something we understand, but definitely something that needs to be researched. Research in humans indicates that this acid-rebound effect causes long-term reliance on these PPI drugs.

The Hindgut

The cecum and colon of the horse (the equivalent of our large intestine) is collectively known as the hindgut. The hindgut of a horse is huge. In your average sized racehorse, the cecum has a capacity of around 35 litres, is approximately 1 meter long, and it sits on the right side of the abdominal cavity. The large colon is approximately 4 meters long with a capacity of 80 litres. All up the hindgut has a volume roughly the same as 3 bags of feed!

* Hypersecretion means that more is secreted than normal.

** The duodenum is first section of the small intestine.

The hindgut is home to over 100 Trillion bacteria as well as specialised fungi. These little critters - collectively known as the microbiome - help horses to digest the fibre found predominantly in forages like pasture and hay.

The bacteria and fungi break fibre down to compounds called **volatile fatty acids (VFAs)**. The horse absorbs these VFAs and uses them as a **source of energy**. In the process of fibre digestion the gut bacteria also produce vitamins for the horse, including **vitamin K and the B-vitamins thiamine (vitamin B1) and biotin**. The health of a horse's gut microbiome plays a large huge role in determining the health and behaviour of the horse itself!

“

*The hindgut
has a volume roughly
the same as 3 bags
of feed!*



To understand the negative impact of a typical racing diet on a horse, and then how to reverse its impact and bring your horse back to health, you need to understand your horse's gut bacteria. There are two major families of bacteria that live in a horse's hindgut.

These are:

1. Team Fibre Fermenters (The Good Bacteria)

These little guys are a diverse group of bacteria who **LOVE to ferment fibre**. They devote themselves to the time-consuming, **slow process of breaking fibre** down via fermentation and turning it into **volatile fatty acids (VFAs)** that the horse can absorb and use as a source of calories (energy). They are sleepy little critters and only produce VFAs at the same rate as the horse can absorb them. This means **acids never build up in the hindgut** and the hindgut pH remains neutral (close to 7). These bacteria are the ones we call the **good bacteria!**

2. Team Starch and Sugar Fermenters (The Bad Bacteria)

These bacteria **LOVE to ferment starch and sugars** and can do so **extremely rapidly**. Compared to the sloth-like fibre fermenting bacteria, these critters do everything fast. Including fermenting starch and sugars to VFAs and lactic acid. They ferment so fast in fact that the VFAs and lactic acid can accumulate in the hindgut and **cause the hindgut to become acidic**. Too many of these bacteria and they start to become the **bad bacteria**.

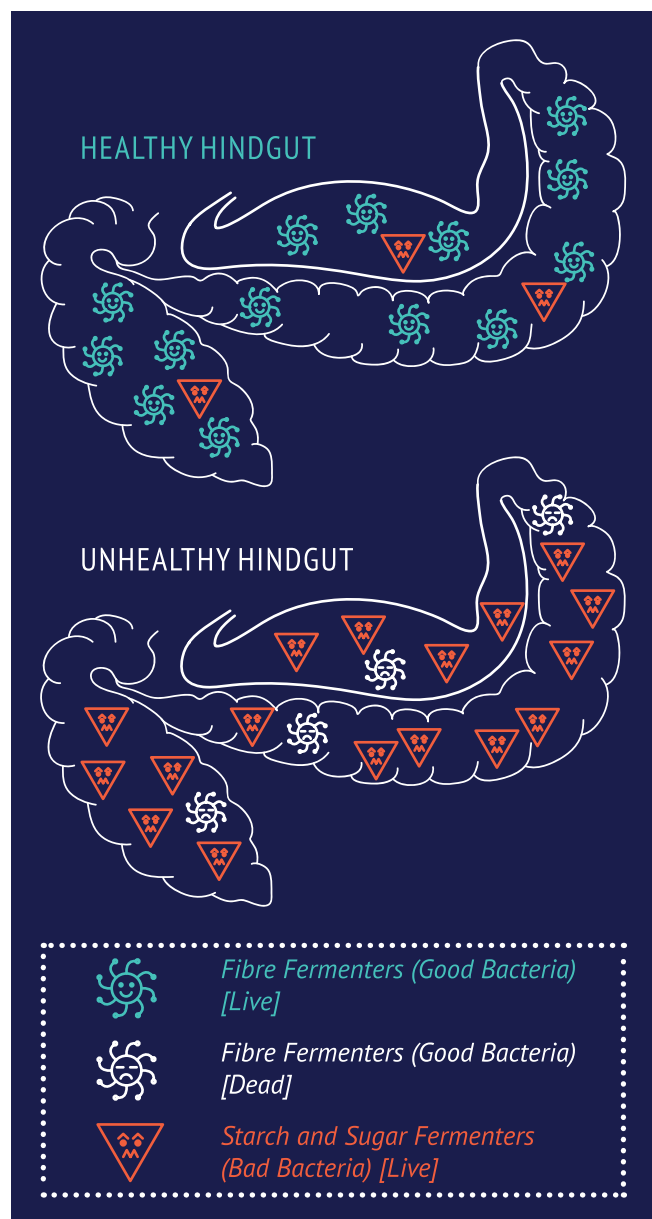


Figure 3. (Top) A healthy hindgut with an abundance of Fibre Fermenting 'Good' bacteria and a very small population of starch and fibre fermenting bacteria. **(Bottom)** An unhealthy hindgut with an overgrowth of Starch & Sugar Fermenting 'Bad' bacteria



Too Many Bad Bacteria

A majority of trainers feed uncooked grain, including cracked corn, to their horses. In a study we conducted in Australian thoroughbred racing stables we found that the **average racehorse is fed a whopping 7+ kg of grain per day!** Standardbred racing stables tend to feed less grain, but grain still forms a significant portion part of a standardbred racehorse's daily calorie intake.

When large amounts of uncooked grains are being fed, there is lots of undigested starch being delivered to the hindgut. This starch is the bad bacteria's favourite food! With plentiful fare on offer, their **population explodes and very quickly they overtake the entire hindgut.** The acids they produce **reduce the hindgut pH** and make it so acidic that the 'good' fibre fermenting bacteria either shut down in an attempt to survive. Or they die.

Without their good fibre fermenting bacteria, racehorses in training are left without their good bacteria minions to do the work of digesting fibre for them... or in other words, they have lost their most valuable digestion workforce. **Which means most of the calories in the forages and fibres they eat will go right through them without actually being digested!** No wonder your OTT can eat so much and not put on any weight! Most of the fibre your horse eats is not being digested! (Hopefully right now I can hear you saying 'Ahh I get it!')

The good part is that once you understand this, you can also see that **you just need to reverse it, to turn your OTT into a much better doer.** You just need to help your horse get their good bacteria (and fungi) back! More on getting the gut mojo back in a minute!

Another impact of too many bad bacteria is that they destroy vitamin B1 before the horse can absorb it. We know that **vitamin B1 deficiency leads to loss of appetite.** This at least partially explains why racehorses on high (uncooked) grain diets lose their appetite. And will be a part of the reason why your OTT doesn't want to eat a whole lot of hard feed.

The Perfect Storm

With all of this happening in the gut, racing horses are set to experience the perfect storm. They are in pain, it hurts to eat, they have lost their appetite AND what they do eat is poorly digested. When you understand this, it is easy to see why they are often in very light condition and find it almost impossible to maintain, let alone gain any weight!

Now what you really need to know is: how can you fix all this and get your OTT back to using their feed efficiently (so they maintain a healthy weight without you spending a fortune on feed)? Want to know how? Keep reading!

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The average racehorse is fed a whopping 7+ kg of grain per day!



2. HOW TO GET THAT GUT RIGHT

Our natural instinct with these OTTs who are lean and look like they just ‘need a good feed’ is to hop right in and start feeding them. A lot! But what they actually need is TIME.

AND, the right diet to get their gut health back on track. Restoring gut health in OTTs can’t be done in a hurry. So be prepared to sit on your hands, fight your instinct, throw on a rug if you can’t stand seeing ribs. And wait..! But trust me, the results are worth it! Let’s walk back down the gut and look at what to do to fix each piece.

The Stomach

First things first, let’s get this stomach healed. Chances are your OTT has stomach ulcers and will be feeling pretty miserable because of it. You may see outward signs of ulceration, like loss of appetite, a grouchy attitude, or strange eating habits like eating and then drinking alternately. But remember your horse is a prey animal. Showing outward signs of being sick is to risk being eaten! So horses are extremely good at being stoic and hiding signs of pain and distress. This means your horse might have ulcers and you can’t tell!

Best practice is to have your OTT scoped for ulcers (there are options for free gastroscopy available). Once you have your horse scoped **you will know what you’re dealing with** and can treat accordingly. You may find no ulcers (lucky you!). You may find ulcers in the upper part of the stomach. If so, these are relatively easy to treat. Or you may find ulcers in the lower section of the stomach, and these are much more difficult to resolve. Whatever you find, actually diagnosing what you are treating before trying to treat it puts you a long way in front.

Work closely with your vet to diagnose and then treat any gastric ulcers that may be present.

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“You usually have to wait for that which is worth waiting for”

CRAIG BRUCE

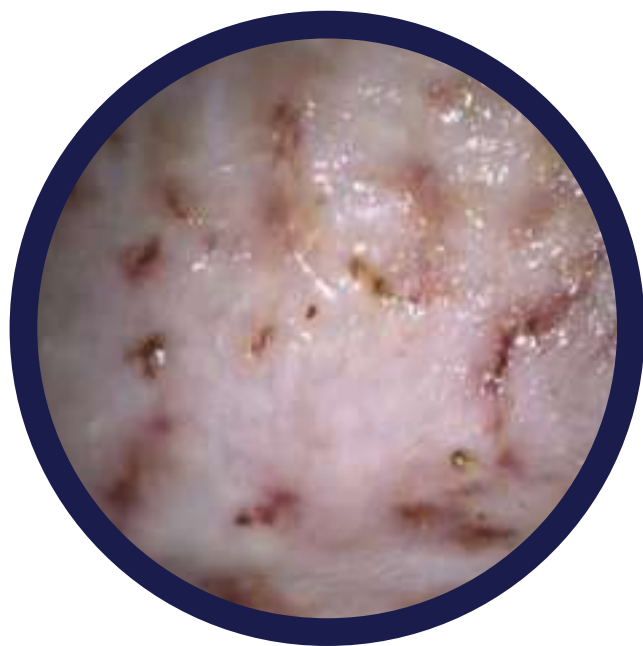


Figure 4. Image of a horse’s stomach with grade 4 ulcers



How To Feed To Help Ulcers Heal

Here are some useful nutrition strategies to help ulcers heal:

1. Feed some lucerne hay.

Multiple studies have shown that lucerne assists horses in healing ulcers.

2. Add some high-quality soybean meal or full fat soybean to the diet.

The gut-lining needs very specific amino acids to heal and produce its own protective mucous. Soybean, has a rich profile of essential amino acids, so helps to provide the amino acids needed to repair an ulcerated gut.

3. Meet all vitamin and mineral requirements.

Minerals like zinc are critical for tissue repair. If the diet is deficient in nutrients like this, healing of gastric ulcers will be slow. But don't just feed one or two important nutrients in isolation, make sure all requirements are met!

4. During ulcer treatment follow the directions regarding ulcer medication and free choice hay.

Once ulcer treatment is complete, allow your horse access to free choice hay. Remember to include some lucerne.

5. Never ride your OTT on an empty stomach.

Always feed lucerne hay while you are tacking up for a ride. It will help to keep your horse calm while being saddled. AND the Lucerne will buffer and physically protect the stomach from further damage. If you don't feed lucerne, just use whatever hay you have on hand.

DID YOU KNOW?

You must not feed free choice hay to a horse on ulcer medication!

Horses on omeprazole treatment (the most common drug used to treat equine gastric ulcers) need their stomach to be slightly acidic for the drug to be absorbed and effective. Which means you mustn't feed ad lib hay to a horse on omeprazole.

Sykes (2019) suggests instead that horses are medicated after an overnight fast (8 hours+). THEN, withhold feed for 60 to 90 minutes after administration. Then feed a large feed of forage, which will stimulate gastrin which then makes omeprazole more effective. After the horse has eaten the hay it can be fed any concentrate it may require in its diet.

I know this sounds counterintuitive, but unless that drug gets absorbed, using it just becomes a useless exercise that will only succeed in wasting your time and money. And you will have a horse that STILL has ulcers.

So while on omeprazole, free choice hay is a no-no. If you can't bring yourself to restrict hay during treatment, speak with your vet about the possibility of using an injectable form of omeprazole.



HOW TO FEED TO HELP ULCERS HEAL



NEVER RIDE YOUR
HORSE ON AN
EMPTY STOMACH



FEED SOME
LUCERNE
HAY



FOLLOW DIRECTIONS
FOR ULCER TREATMENT
& FREE CHOICE HAY



FEED SOME
FULL FAT SOY
OR
SOYBEAN MEAL



MEET ALL
VITAMIN & MINERAL
REQUIREMENTS



Figure 5. How to Feed your OTT to help ulcers heal



The Small Intestine

There is not a lot to do to help repair any damage that may be present in the small intestine. Perhaps the biggest thing to be conscious of is **getting ulcers treated** as efficiently as possible so you can **allow gastric acid production to resume**. Gastric acid will help stop bacterial overgrowth which may be present in the small intestine. It also helps your horse to digest nutrients once they reach the small intestine.

We truly know so little about the small intestine and any damage it may have sustained that there is not much to specifically be done here.

The Hindgut

Put your gumboots on, we are heading back into the hindgut! And here is where the real work starts. But ironically it is almost a case of **“hurry up... and wait!”** Or in other words, the best thing you can do for the hindgut is fill it up with the favourite food of the good bacteria (i.e. fibre) and then just **wait for the good bacteria to come back**.

I know that doesn't sound very exciting, and it will feel like you are doing nothing. And for horses with almost totally destroyed hindgut bacterial populations **it will take months for positive change**. But here is where your patience is so important. If you can be patient enough to wait, and allow your horse some time when it will look underdone and may not gain weight... your OTT will repay you, for years, by becoming a horse that can digest feed efficiently, and not cost you a fortune in feed bills forever and ever.

The other important part of feeding at this stage of rehab is to **avoid feeding grains**, if you can! Here is why... most of your OTT's woes are due to the bacteria in the hindgut being severely out of balance. The high grain, low fibre diets typically fed during race training mean the BAD starch fermenting bacteria take over the hindgut and kill off the GOOD fibre fermenting bacteria.

Now what you need to do is reverse this trend. **Fill the hindgut up with fibre (pasture and/or hay) to let the population of GOOD bacteria build up again**. And starve it of starch so you don't give the BAD bacteria any food that will keep them hanging around in large numbers.

DID YOU KNOW?

Horse feed ingredients that are high in starch and should be avoided where possible include:

- Grains
- Millrun
- Wheat middlings,
- Bran
- Pollard
- Wheatfeed, and
- All other forms of grain by-products.

When choosing a feed for your OTT, be sure to read labels carefully.



6 Top Tips for Restoring the Hindgut

Here are some useful nutrition strategies to help restore the hindgut:

1. Feed free choice hay or give free access to pasture.

Allow horses free access to forage. But, if your horse happens to have a big appetite, you may need to restrict its hay to no more than 3% of bodyweight, or 15 kg per day for a 500 kg horse. More than this and it will move so fast through the gut it won't have time to be digested.

2. Use a variety of forages.

For example, use one or two (or more) different types of grass/meadow hay, plus lucerne hay. More variety in fibre brings more diversity in fibre fermenting bacteria.

3. Use high fibre, low starch feeds.

High fibre, low starch feeds like lupins, beet pulp, copra meal and/or lupin hulls can be used to top up calorie requirements and provide additional fibre diversity for the hindgut. The more of these ingredients you can use in combination, the better!

4. Paddock your horse with other horses that you know have healthy hindguts.

Grazing around another horse's manure will give your new OTT the opportunity to collect fungi that will have been scattered over your pasture and they may even take the opportunity to eat another horse's manure to naturally repopulate their own gut with good bacteria.

5. Keep your diet balanced.

Like the stomach, the hindgut will probably have some damage to repair on its gut wall. So you need to be sure your horse has everything he needs in the way of vitamins, minerals and quality protein to carry out that repair.

6. Wait! It might take up to 12 months for the hindgut to fully repair itself.

And in that time you may see very little response in terms of weight gain. But be patient, it will eventually happen!

Note: Remember to introduce any new feed ingredient slowly and only introduce them one at a time.



HOW TO FEED TO RESTORE HINDGUT HEALTH




Paddock your OTT with horses that have healthy hindguts


Wait! It might take up to 12 months to fully repair the hindgut


Keep the diet balanced


Use high fibre, low starch feeds


Feed a variety of forages


Feed free choice hay or give free access to pasture

Figure 6. How to Feed your OTT to help restore hindgut health



Method for Faecal Microbiome Transplant:

Faecal microbiome transplants can be used to help a horse re-establish a healthy microbiome in the hindgut. It is particularly useful to help a horse who has suffered severe acidosis or horses with diarrhoea. This is a veterinary procedure and must be carried out by your veterinarian.

Here is how it can be done:

1. Place horse on omeprazole (full treatment dose, follow directions for feeding hay during treatment on page 8) for a couple of days prior to faecal transplant. This will reduce gastric acid production in the stomach and make it more likely that the bacteria will make it through the stomach alive.

2. Take 500g to 1 kg of fresh faeces from a suitable donor. Use a donor horse who maintains weight easily, is on a high forage diet with a healthy hindgut and is parasite free.

3. Very gently mix the faeces in 2 litres of lukewarm water. Use a sieve to remove large particles (taking care not to expose the liquid to too much air) and then add 100 grams of grass or other fibre only pellets (make sure they are grain free with a very low starch and sugar content). eg. lucerne pellets, beet pulp or lupin hull pellets.

4. Administer immediately via gastric intubation.

Healthy Gut, Healthy Horse

It is so important to **do the work of restoring your OTT's gut health FIRST** before you do or try anything else. It is not fair to expect your horse to be calm and behave well under saddle with a painful, malfunctioning gut. And it is unreasonable to expect that your OTT will gain any weight or muscle when the very process of digestion is so compromised. So, **don't gloss over this bit**, be prepared to do the work, spend the money and wait patiently. I really do promise it will be worth it!!

DID YOU KNOW?

Oxygen is toxic to the bacteria in a horse's gut.

The bacteria in your horse's gut are known as anaerobes, meaning they live in an oxygen free environment. Oxygen is actually toxic to them. Once they come into contact with air, they die. Which means most of the probiotics on the market are useless when it comes to repopulating a horse's hindgut because they aren't the bacteria you actually want established in there.

If you suspect your OTT has had severe acidosis or has diarrhoea that won't respond to anything, you might consider using a faecal microbiome transplant to assist with re-establishing the hindgut microbiota.



3. HEALTHY HOOVES, ENVIABLE COAT

The good news is, on working toward fixing your OTTs gut, most of the hard work in getting the hooves and coat right has already been done! But there are a couple of extra little things you can do to get those hooves into shape as quickly as possible.

The Hooves

One symptom we see of **poor gut health** in thoroughbreds is **poor hoof quality**. And this, I suspect, comes down partly to **loss of natural biotin production in the hindgut** when the bad bacteria are allowed to take over.

So, in re-establishing your horse's hindgut population of good bacteria, you should have also restored their natural production of biotin. Plus, by now you have your horse on a balanced diet that is meeting requirements for other nutrients like essential amino acids, copper, zinc, magnesium and calcium that are all important for hoof quality. Which means long-term, your OTT should be able to maintain high quality hoof.

But there are some extra things you can do in the short term to help with hoof quality. These are:

- 1. Double check the diet is balanced** and that requirements for copper, zinc, magnesium and calcium are met! (Hint: use FeedXL.com or a qualified, independent equine nutritionist)
- 2. Add a biotin supplement to the diet.** While your horse is re-establishing his hindgut he may need some support in getting enough biotin. Adding 20 mg of biotin per day to the diet will help him get that new hoof growth happening so you get a full new hoof grown a bit faster! Watch that the hoof supplement you choose doesn't add too much zinc and unbalance the diet copper to zinc ratio. You can check this using FeedXL.com.
- 3. Add lucerne hay and high-quality soybean meal or full fat soybean to the diet.** These ingredients will help to

provide high quality protein with plenty of the essential amino acids that hooves need to grow.

The Coat

Like the hooves, all of the changes you have made to the diet so far will have done most of the work for improving coat quality. Fixing gastric ulcers if they were present, re-establishing the hindgut bacteria and balancing the diet should give you an already gleaming coat.

One final touch to help with skin and coat health you can use is to **add some oil to the diet**. You can use canola oil, flaxseed (linseed) oil or a half & half combination of the two to provide your OTT with **essential omega 3 and omega 6 fatty acids**.

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“No Hoof, No Horse”

SAID EVERY FARRIER, EVERYWHERE!



5 SIMPLE STEPS TO HEALTHY HOOVES & COAT



FEED OIL FOR
OMEGA 3 & OMEGA 6
FATTY ACIDS



COPPER
+ ZINC



FEED A BIOTIN
SUPPLEMENT



FEED LUCERNE
&/OR
SOYBEAN MEAL OR
FULL FAT SOY FOR
QUALITY PROTEIN



KEEP THE DIET
BALANCED

Figure 7. How to Feed your OTT to help enhance their hooves and coat



4. FEED FOR CALM BEHAVIOUR

Undoubtedly your OTT is going to need work when it comes to behaviour. A lot of this will come down to re-education. But nutrition matters here too.

The way you feed is going to affect behaviour. While there are many aspects of nutrition you will need to consider, here are my top three for a recently off the track horse:

1. Get on top of pain!

If there is one thing that will make a horse behave poorly, especially under saddle, it is pain. **Gastric ulcers are known to cause irritable, anxious behaviour.** So if you haven't already, get your horse checked for ulcers and treated as soon as possible (see page 7).

Pain in the hindgut also creates issues and will **make picking up the correct canter lead difficult** (especially to the right where the caecum sits.) An inflamed hindgut can also result in a horse that is cranky or resistant to the rider putting their legs on, or not wanting to go forward or even rushing transitions.

Before you try correcting all of this through education, consider that maybe your horse 'won't' do what you want because he 'can't'. Go back to working on the gut, you might be surprised how much change you then see in behaviour. Horses are in essence honest creatures. 'Bad' behaviour is usually a direct result of pain or discomfort they're feeling.

2. Be aware of calories (energy).

Excess energy in a horse's diet changes their behaviour. Horses on high energy diets will often reflect that level of energy in their behaviour! But, you are, by the very nature of wanting to put weight on your OTT, feeding a high energy diet. Which is probably going to make them a bit hyperactive.

Sometimes you just need to accept that you can't have your cake and eat it too... you can't have your OTT on a high calorie, weight gain diet AND expect them to remain settled

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The way you feed is going to affect behaviour”



and calm under saddle all the time. You may be fortunate and get an OTT who can stay calm. But most won't.

Best case scenario here is, **turn your horse out and give them the luxury of being able to put on weight without the expectation they will also be able to behave.** Then, once you have the weight on, you can start to lower the calories in the diet back to a weight maintenance diet. And then you can start working him under saddle. Safer for you. Fairer on your horse.

3. Focus on restoring the hindgut.

We know from research in many animal species that the **bacteria in the gut play a HUGE role in determining behaviour.** As an example, researchers can take the gut microbiome from 'anxious' mice and place it in mice with normal temperaments. And it makes the normal mice anxious! Scary! This likely means that at least some of the behaviour you see in your OTT is being driven by the fact he doesn't have his normal 'good bacteria' to help establish his normal behaviour.

But it is also encouraging to know that hopefully, once you restore your OTTs hindgut back to containing a healthy microbiome (see page 11) you should also reap the benefits in improved behaviour!

So many OTTs have a bad reputation for being 'hot' or difficult to handle. But for many of them, this is likely due to poor gut health. It makes sense to repair the gut. Otherwise you may be trying to ride an unhappy, unhealthy horse and sometimes this results in them appearing unsuitable to be ridden? And this is not a good outcome for them.

I work with a thoroughbred trainer in Victoria who I nickname Dr Doolittle because I swear this guy actually does talk to his horses! He said to me one day that he has NEVER met a horse who actually had a sour temperament or real behavioural issues. For every horse that comes to him with 'behavioural issues' he finds an issue, be it back pain, issues with the gut, hoof problems or whatever it may be. Sorts it out. And finds the real horse underneath.

So, if your OTT is acting up, ask yourself why. What is it you are missing that might be creating this behaviour? Let's be very clear, I am not saying you should excuse true bad manners! BUT, before you grab extra gear or give your OTT extra work to 'wear them down', really look, see and feel for an underlying issue. I can almost guarantee there will be problems in the gut that you need to get on top of. There might also be other problems that need addressing too.

“

“If your OTT is acting up, ask yourself why. What is it you are missing that might be creating this behaviour?”



5. HOW TO BUILD MUSCLE

By now in your OTTs journey, you should have the gut well on the way to being healthy, the hooves and coat improving and behaviour under control (or at least a work in progress!). I am sure now you'll want to turn your attention to getting some muscle on the big guy!

Building muscle requires four things:

1. Work! Your horse won't build muscle unless they are using those muscles. So getting your OTT into the right work for muscle building is essential. This isn't my thing. If it's not yours either you should work with someone who knows what the best type of work is for correctly muscling an OTT for doing the type of work you require of them.

2. The right amino acids. Muscle is built from protein, and protein is made up of 20 different amino acids. 10 of these amino acids your OTT can make for themselves. These are called the 'non-essential amino acids' and we don't need to pay a whole lot of attention to them.

The other 10 are called the 'essential amino acids'. **Your horse can only get these from their diet.** If you want to build muscle, you **MUST** pay attention to these in the diet. **Soybean, lupins and lucerne** are all high-quality sources of essential amino acids and are useful in the diet of OTTS needing to build muscle.

3. Leucine. Leucine is one of the ten essential amino acids. But **it is the only amino acid that is able to 'switch on' the muscle building process.** Meaning your horse needs to get leucine high enough in the blood for any muscle building to occur.

Whey protein concentrate is easily the richest source of leucine. Soybean meal, brewers yeast, full fat soybean and lupins also contain good levels of leucine.

“

Soybean, lupins and lucerne are all high-quality sources of essential amino acids”



4. Calories. Building muscle takes energy (calories) to drive the process. Without enough calories, the entire process halts. Much like building a brick wall stops if the bricklayer is not there to actually do the work. So your horse needs to be in positive energy balance and actually gaining some weight for muscle building to occur.

Here is a good place to remind you that you still need to be patient. **Your horse won't build much (or any) muscle until their gut health is restored and they start to gain some condition.** If you don't see much happening for a few months, don't panic! Keep following all the guidelines above for restoring gut health and slowly but surely you will start to see more muscle!

Watch Out For 'Vegetable Protein Meal'

Feeds that are least cost mixed (meaning they are made to meet nutrient specifications using the lowest cost ingredients) will often list **'vegetable protein meal'** on their list of ingredients! If you are actively trying to build muscle in an OTT I would avoid feeds that list this in their ingredients. Look instead for feeds that clearly list the exact ingredients they use.

In Australia, **vegetable protein meal is often cottonseed meal. Cottonseed meal has a poor profile of essential amino acids. Plus around 60% of the lysine it contains (lysine being the essential amino acid that is often in shortest supply) is not available for absorption.** Never ideal for building muscle!

Back Pain

Back pain is going to stop your OTT using their back muscles correctly. And that will stop those muscles from building. So if you are really struggling with topline, yet you feel like you are doing everything right, check the horse for back pain! Or pain anywhere along the topline, including through the neck and into the hind quarters!

Also, and importantly, as your OTT begins to change shape, maintain regular saddle fitting checks as adjustments will need to be made on the way.

DID YOU KNOW?

Shaking Up Muscle Building

Do you know why bodybuilders use protein shakes right after a workout? It's to increase their blood leucine levels and provide the muscles with the amino acids they need to grow. **And the timing is important.** Because right after a workout is when the muscles are driven to build and get stronger.

Can you do this with your horse? Absolutely! Straight after you ride give your horse a small meal (up to 250 g) of soybean (meal or full fat) mixed with some lucerne chaff.

And if you really want to ramp things up you can add a small amount (100 g) of whey protein concentrate!



6. HOW TO PUT WEIGHT ON

The biggest key to putting weight on (and keeping it on) OTTs is re-establishing the hindgut population of fibre digesting microbes. Without their friendly bacteria and fungi, your OTT literally can't digest and extract the calories from fibre. Meaning most of their pasture and/or hay will go right through the gut without being digested. Get those microbes back though, and all of a sudden, your OTT can digest fibre and gain weight.

By this stage, most of the hard work is done in getting your OTT to put weight on. Follow the 6 Top Tips for Restoring Hindgut Health (page 11) because these are also my 6 top tips for putting weight on an OTT.

If you want to use **one extra weight gain trick**, that won't compromise gut health, you can **add some oil to the diet**. **Oils are extremely energy dense** and allow you to get a lot of calories into the diet without increasing meal size and without providing any food for the bad bacteria (because remember, we are trying to starve them out!).

You can use any oil to assist with weight gain. But I would **avoid corn oil and sunflower oil** as both are very high in omega 6 fatty acids and provide virtually no omega 3. If you have specific concerns about inflammation (e.g. arthritis), stick with flaxseed (linseed) oil as its high level of omega 3 fatty acids may be of benefit.

Don't Fight a Losing Battle!

So many people get OTTs and immediately put them on high grain diets in an attempt to put weight on. It's not uncommon to see these horses on more than 5 kg of hard feed/day for no result.

Why?! Because feeding like this maintains the high starch, low fibre diet characteristics of their racing diets and doesn't

give their gut bacteria a chance to rebalance and bring back those oh so valuable fibre fermenters!

So while I understand why you might want to do this, if you want the best long term results, please don't. It really is the start of a losing battle!

A NOTE ABOUT...

Fence Walkers

Separation anxiety and fence walking is a common problem with newly off-the-track horses. Given they are raised in groups and are virtually never left alone it is understandable.

But if you think about it, a horse walking a fence instead of eating has a high energy output and a low energy intake. There is no way you are going to put weight on a horse doing this.

If you have a fence walker that needs to gain weight you are going to need to find it a buddy who is calm and spends a lot of time grazing and sleeping. The sooner your new horse can learn to do this, the better.

You may also find that as gut health improves, this sort of behaviour will reduce in frequency!



Poseidon's Digestive EQ

As a consulting nutritionist I work with supplement companies like Poseidon Equine. My favourite role is new product development! Of all the products I have created over the years **this is one of the best I have been given the opportunity to work on!** The way it works exceeds even my expectations! When designing this product, we came at gut health from multiple angles and tried to think of all the ways we could use nutrition to support the health of the gut. In Digestive EQ there are ingredients to:



POWERFUL
PREBIOTIC

Support the rebuilding of the hindgut bacterial populations.



THREONINE
& GLUTAMINE

Support the gut wall repairing itself.



DUAL ACTION
MYCOTOXIN BINDER

Stop the harmful effects of mycotoxins that contaminate so many feed ingredients



DIGESTIVE ENHANCER
& PH STABILISER

Buffer the stomach



ADDED ENZYMES
& ANTIOXIDANTS

Help the small intestine digest various carbohydrates

Poseidon Equine's Digestive EQ can be used to help to speed up the process of gut repair. Which will then hopefully reduce the amount of time it takes to have your off-the-track looking, feeling and working his best!

(I also want to say I have no financial interest in Digestive EQ and receive zero payments of any kind from its sales... I tell you only because I genuinely think it will help your OTT)



7. YOUR OTT DIET PLAN

THE FIRST 12 MONTHS

To give you some confidence in moving forward with your OTT, here is a guideline for how you can approach feeding a thoroughbred or standardbred that has come directly out of a racing stable:

Month 1 – Fibre, Fibre, Fibre (and some other important stuff)

The focus of feeding in the first month is to really start the process of supporting those good fibre fermenting bacteria and starving out the bad starch fermenting bacteria. BUT, we must also balance the vitamins and minerals in the diet. AND we want to get some high quality protein in there.

Here is my suggested feeding regime for an OTT in the first month 'off the track':

4 kg/day	Lucerne Hay (part of this can be fed as chaff)
Free Choice	Grassy Hays or Pasture
250 grams	Full Fat Soybean
130 g/day	Poseidon Equine Digestive EQ
Recommended dose*	High Quality Vitamin and Mineral Supplement or Balancer Pellet

* Tip: Use FeedXL to balance the diet and find the correct dose rate of your chosen supplement (FeedXL.com)



Months 2 to 4 – Fibre, Fibre and Some Extra Calories

By now your OTT will be at least partly settled into their new environment. You should be getting on top of gastric ulcers. Behaviour should be starting to calm. You may have noticed some change in condition, positive or negative. Or your OTT may still look much the same as they did when they arrived.

Where your horse is at now depends very much on the state the gut was in and the condition they were in when they arrived. However your horse looks on the outside, if you have followed the diet given for the first month above... AND treated where required for ulcers; Rest assured, I can almost guarantee they will be improving on the inside.

Now you can start to introduce some higher calorie ingredients to gently start encouraging some weight gain.

Here is my suggested feeding regime for an OTT in months 2 to 4 'off the track':

4 kg/day	Lucerne Hay (part of this can be fed as chaff)
Free Choice	Grassy Hays or Pasture
250 grams	Full Fat Soybean
130 g/day	Poseidon Equine Digestive EQ
PLUS	
1 to 2 kg/day	Any combination of lupins, sugarbeet pulp, lupin hulls, or copra meal (the more variety the better!)
Recommended dose*	High Quality Vitamin and Mineral Supplement or Balancer Pellet
OR	
Up to 2 kg/day	High Quality Grain-Free complete feed



Months 5 to 12 – Fibre, Patience and Still More Calories

Right... all going well by now you should be seeing change! Coat, hooves, temperament and weight should all be starting to improve. Which are all signs that you have successfully started the process of turning the ship around and have it happily steaming off in the right direction.

What your horse needs the biggest dose of at this point in time is your patience. Don't get to this point and start to want to hurry things along faster. You have done the hard work, don't bring it all undone in trying to get somewhere too quickly!

Fibre is still critically important at this stage. But you can consider introducing some well-cooked grains* at this point if supply or expense of grain free ingredients is pushing you that way. Done sensibly, they make a nice addition to the diet. However, when rehabbed well, grain is not needed in most OTT diets.

(*by 'well-cooked' I mean extruded by a reputable feed manufacturer).

Here is my suggested feeding regime for an OTTB in months 5 to 12:

4 kg/day	Lucerne Hay (part of this can be fed as chaff)
Free Choice	Grassy Hays or Pasture
250 grams	Full Fat Soybean
130 g/day	Poseidon Equine Digestive EQ
PLUS	
1 to 2 kg/day	Any combination of lupins, sugarbeet pulp, lupin hulls, or copra meal (the more variety the better!)
Up to 250 ml/day	High quality vegetable oil (e.g. canola or flaxseed)
Up to 1 kg/day	Extruded barley or extruded (stabilised) rice bran
Recommended dose*	High Quality Vitamin and Mineral Supplement or Balancer Pellet
OR	
Up to 3 kg/day	High quality complete feed (grain free or with starch less than 20%. If using a feed with grain, make sure the grain is cooked)



Long Term

It's hard to give one-size-fits-all advice on the best long-term diet for your OTT as it will depend on many factors.

The following factors will all influence what your OTT's long term diet will need to look like.

- Your horse's new career and it's associated energy demands (eg. Weekend pleasure mount or eventer),
- Your horse's ability to naturally hold weight (ie. whether your OTT is an innately easy keeper or a poor doer or something in between),
- Access to pasture and the quality of that pasture; and
- Your horse's natural tendency to graze and sleep, versus run and play,

BUT, the 5 to 12-month diet given above is a good place to start. The main thing you will need to adjust is the high calorie ingredients. You may need more if your horse is working seriously hard (e.g. eventing or polo). Likelihood is you will need less.

And if your horse does need less... make sure you do feed less, or you will have a horse who feels a million dollars and is high on high energy feeds... and that may not end well for you. Feel your way with it. Your intuition counts here. If your horse is on their toes, reduce the high energy feeds!



ENJOY THE JOURNEY

Enjoy the journey you are embarking on! There are few things in life I find more satisfying than helping a horse truly thrive. And an OTT gives you the ultimate opportunity to do this!

If I can give you one final parting piece of advice it is this... so much of what is happening in the early stages will be happening on the inside. You can't see it, and for a while you won't see any outward changes to suggest things are getting better inside... but it will be happening.

You just need to follow the guidelines here and be patient. Hard I know, but 12 months of patience now will give you benefits for **years** to come!

Have fun! And give your horse a big scratch from me!

Nerida Richards PhD

Equilize Horse Nutrition Pty Ltd

“

“As you start to walk on the way, the way appears”

RUMI

GUT HEALTH SUPPLEMENT

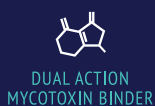


Digestive EQ is a **gut health supplement** designed to support the digestive and immune systems of your horse.

Its unique formulation is designed to **assist with fore gut and hind gut digestion, and inflammation and immune challenges.**

It also contains a **mycotoxin binder** to negate mycotoxins and help **get your horse's gut healthy again.**

It comes in a **great-tasting, easy-to-feed powder** form.



VITAMIN & MINERAL SUPPLEMENT



Designed to complement and be fed alongside Digestive EQ, **Digestive VM** is the ultimate **vitamin, mineral and amino acid supplement.**

With ingredients like organic selenium and chromium, natural vitamin E, plus essential amino acids, **Digestive VM is platinum standard.**

For **added digestive support**, it also contains glutamine and a yeast derived prebiotic.

It comes in a **great-tasting, easy-to-feed pellet** form.



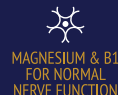
PASTE FOR ACUTE STRESS



Stress Paste is a concentrated nutritional formula designed to **support your horse in times of acute stress.** Such times may include when competing, racing, transporting or in extreme heat & humidity.

Acute stress affects horses in many ways. They can stop eating. They can stop drinking. Muscles can fatigue quickly with dehydration and can result in reduced nutrients available to support energy production.

Stress Paste is designed to address each of these responses to stress and **keep the horse eating and hydrated with well-functioning, well protected muscles.** It is also designed to **support the gut** so it can remain healthy during higher stress periods.



TRUE HEALTH BEGINS IN THE GUT



WWW.POSEIDON-EQUINE.COM