

# **ASPECTS OF PASTURE & FEEDING THAT CAN ADVERSELY AFFECT YOUR HORSE**

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(Revised by Lucy Prior - Australia)

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# Introduction

Until recently I had no idea of the impact that various aspects of the pasture can have on the health and temperament of our horses. Go thru the list of symptoms carefully. As you read, light bulbs will go on for you regarding horses you currently own or know of, or have owned or known in the past. You too, will realise how countless, perfectly good horses have suffered, been punished, become 'problem horses', caused accidents, labeled 'bad', 'nuts', 'unmanageable', deemed unrideable, diagnosed with brain tumors, wobblers syndrome, fractured pelvis and sent to the knackers, all because of the grass!!!!

This information provides an explanation for many things going on with our horses where extensive investigations have previously failed. It comes from years of my own personal observations and experiences and those of the hundreds of horses and riders I have met and assisted over the last 10 years throughout Australia & NZ. Additionally, in the spring of 2004 I conducted the "Equine Health & Behaviour Survey" in NZ, the results of which have been very revealing. Please take part in the online survey on this web site so we may identify any other issues that may be specific to Australia. The findings and any new evidence will be posted on this web site so it's a good idea to revisit this site on a regular basis.

Scientists, investigative vets and universities around the world are releasing information and findings on a lot of the areas we are working on, after field testing and further investigations we will then be able to pass this information onto you. It is important to understand that science and therefore the literature is always 5 – 10 years behind the anecdotal evidence which we have a considerable amount of.

Horse owners frequently experience unexplained changes in their horse's temperament and personality. If you are like me and believe that horses do not 'plot against us' and are definitely NOT 'dirty' 'nutty', 'mongrels', 'bitches', 'pigs', 'bloody cows', 'have got attitude' (the list goes on!), then there must be other reasons for this kind of behaviour. There is a strong correlation between the soils and pasture and the raft of health and behavioural problems our horses are plagued with, some mildly, some chronically and sometimes acutely. Aggressiveness, herd-bound behaviour, pasture heaves, obesity and laminitis are just a few that spring to mind.

For example things have been going great with your horse, and then he starts spooking at things in the arena, or rushing out of the float, or you are paying for a lesson and he's not 'himself', so it's a complete waste of money, all of these sorts of things.

He doesn't like being touched or brushed.....

I've had the saddle fit checked but it's still like he's got a sore back.....

Why do some horses bleed from the nose when they're out at pasture?

What is the cause of head-shaking / flicking?

Why can't I get rid of that mud-fever?

How come my horse has got sore feet? Goes to bite me when I'm doing up the girth?

I'm feeding my horse heaps but he won't put on any condition...

My horse is on 'nothing' but I can't keep the weight off.....

What is the cause of many respiratory troubles? Skin troubles?

I believe the answers to these questions and many, many more,  
lie within the following information.

**We are very interested in any feedback and experiences you may have had. Please e-mail:**

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(The following information is not intended to replace veterinary advice, merely to give you an overview. If symptoms persist or are acute, call your veterinarian)

# An Overview

In New Zealand horses are either kept on pasture primarily meant for other stock like sheep or cattle, or on paddocks grazed by horses alone. Both situations lead to problems. The former consists of high production grasses (eg the rye/clover mixes) which, because of our climate and the fertilizer regimes applied to them, reach even higher production. This is counter-productive to the health of the horse, whose digestive system is highly specialised and different to other species. Their natural diet of grass, herbs, shrubs and leaves is RICH in fibre and POOR in carbohydrates.

High production grasses are LOW in fibre and HIGH in sugars and carbohydrates and are very prone to serious mineral imbalances. They can be VERY high in potassium and nitrates and low in sodium. This in turn causes the horses system to be 'stripped' of calcium and magnesium. Add to this that some grasses have oxalates which bind up calcium predominately but will also bind magnesium. Some departments of primary industries in Australia recommend not to graze horses on 100% oxalate pastures any more than 4-6 weeks at any one period of time.

In Australia a large majority of pastures are under half the recommended calcium levels and a large part of Australia also has low zinc levels. Combined with oxalated grasses this is a bad combination for horses and they must be properly supplemented to help avoid a major mineral imbalance such as 'Big Head' (Hyperparathyroidism) and magnesium deficiencies.

Nutrient uptake by grasses is influenced by many things; soil ph, type of soil, water content, air and soil temperature, fertilizers, organic matter and stress such as livestock grazing. As these elements vary so will the nutritional uptake. Also some pastures and plants accumulate specific elements, for example lucern accumulates calcium; annual rye grass accumulates nitrates; salt bush accumulates selenium.

Fertilising with super-phosphate, urea, or nitrates accelerates growth and causes plants to be shallow rooted and therefore less able to uptake minerals from deeper in the soil, urea will also create more NSC (Non Structural Carbohydrates) in grasses. These also lower the pH (acidifies) the soil and pasture, which then reduces the availability of all major minerals. In healthy soil there needs to be the right balance of fungi to bacteria. The lower the pH, the more fungi and the less bacteria. Fungi really thrive in these acid conditions. Rye-grass also loves a lower pH. This IS the root cause of why MYCO-TOXINS and MINERAL IMBALANCES are such a big problem.

Add to this the fact that the paddock of green, growing grass your horse is grazing is the equivalent of a bowl of sugar! Then we go to the feed store and buy more sugar in the form of molassed grains. No animal stays healthy for long when their diet is predominantly sugar. This high sugar/carbohydrate, low fibre intake leads to amongst other things (See Obesity) an impaired insulin response, also known as a metabolic imbalance, contributing to insulin resistant and 'diabetic' horses and ponies which are prone to laminitis and eventually the Cushings-like syndrome. It also leads to restricted peripheral circulation (eg in the hooves) and hind-gut acidosis, which has much more serious consequences than the horse just having runny manure for a few days!!!

Many horses graze pasture that is termed 'horse-sick' because it is never fertilized or attended to. It will likely have a low pH (docks, thistles, blackberries and other undesirables love this environment) which, as already mentioned, also suits the endophyte rye-grass and fungal populations in general and also tells you loud and clear that the soils lacks, amongst other things, calcium and possibly magnesium, a soil test will confirm this.

Add all this to the fact that perennial rye-grass, paspalum, and couch, containing endophyte fungi that produce mycotoxins and Kikuyu under certain conditions contain toxins that are all known to affect the health of stock, can quite often be the dominant grass species. Something else to keep

in mind is horses grazing on couch grass or white clover under certain conditions can produce cyanide otherwise known as prussic acid poisoning. Affected horses have been known to become very dangerous and can have 'bucking fits' and become uncontrollable, placing the rider or handler in very real danger.

Mycotoxins are present in varying degrees, on and around ALL plants everywhere, including legumes

Some strains of rye grass can be more virulent than others. Stress on the grass caused by drought, or being eaten by an insect or an animal, causes mycotoxin production to go even higher.

## **What are the Signs of Toxicity and/or Mineral Imbalances?**

Because both these tend to happen unpredictably and simultaneously, especially coinciding with flushes of pasture growth, it can be difficult and fruitless to try and differentiate so it is best to address both issues regardless. Some mycotoxins have also been found to bind up nutrients such as magnesium.

■ Toxins are ones that have been ingested with pasture or feed  
(They generally respond to a toxin-binder or removal from pasture)

■ Mineral imbalances are complex and it is important to consider the inter-relationship of them all. Excess of potassium and deficiency of the macro-minerals such as Calcium and Magnesium and sodium have very serious consequences. They require urgent attention in the short term in the form of appropriate supplementation. Horses kept on a dry lot or stabled will also require vitamin and mineral supplementation.

**Meanwhile if your horse exhibits any of the following then it is highly likely he is 'affected' by his diet, in particular the grass he is eating.**

**Often starts with:** General 'tetchiness', an unwillingness to be touched, or tensing up and reacting when touched, especially around chest and thorax  
Appears somewhat 'stiff', stepping short behind

**This can cause:** Cinchiness/girthiness, not standing for saddling/mounting  
General crabbiness when ridden, pinning ears, swishing tail etc.  
Tightness, tenseness, impulsiveness, wanting to run off  
Can't use your legs, reaching around to bite the girth when ridden

**Progresses to:** Touchy around ears, difficulty with bridling  
Flings off suddenly when haltering  
Sore across the loins  
Uncharacteristic bucking when first moves off with girth tightened  
- excessive aggressiveness towards you or other horses (viciously biting you, attacking, hounding other horses, you think they're a 'rig')  
-excessive herd bound behaviour  
(eg screaming maniac, irrationally attached to another horse)  
Can exhibit both these previous two 'opposite' behaviours concurrently!!  
Bucking (quite violent and "out of the blue")  
Bolting off in short bursts  
'Nutty' or 'ballistic' behaviour

<b>Hypersensitivity:</b>	Excessive spookiness/alertness Shies away when approached, hard to catch 'Spaced out', 'wired', 'not there', hallucinating Eyesight seems to be affected, can't judge jumps Overly claustrophobic, extremely sensitive to noise (reluctant to ride close to the arena wall, rushes off the float etc)
<b>Staggers:</b>	Heavy on the forehand, stumbling over nothing Standing 'base-wide' Difficulty backing up, out of floats etc Discomfort walking downhill Slightly drunk or 'zonked' looking Uncoordinated movement, staggering Giving out in the hind-quarters, laying down a lot in the paddock Dragging back feet, reluctant to go forward, Reluctant to canter, won't canter
<b>Heat stress:</b>	Instantly overheats when you put the rugs on Running madly around paddock for no reason (while other horses aren't) Slamming into fences/gates Excessive sweating, white sweats, smelly sweats, Sweating in unusual places, eg on top of rump, patches on upper neck General agitation Fence walking
<b>Head-Flicks:</b>	Like a bug has flown up their nose, can be worse on sunny days Head twitch
<b>Stringhalt</b>	Jerky upward action of the hind limbs
<b>Colic:</b>	When autopsy shows hind gut necrosis due to vaso-constriction of blood supply to the intestine
<b>Reproductive:</b>	Raging seasons, not cycling properly Difficulty getting in foal Abortion Prolonged gestation Reduced milk production Weak suckling by foal
<b>Ill-thrift</b>	Chronic dull/rough coat Won't put on weight, looks wormy but not, no topline Bloated or 'potty' belly, looks fat but neck and rump are normal or thin Consistently small, frequent manure Scours/diarrhea Lifeless eyes, dull, nobody home - glazed eyes No energy, lethargic Falling asleep on their feet (like narcolepsy)

For a quick and easy way to find out what could be your horses problems go to  
**'What's Wrong'** on this web site.

## Myco-toxins

Myco is the Greek for fungus and toxins mean poison and are produced in various types of fungi. Some of these fungi live inside the plant and are called endophytes. Perennial rye-grass which is the predominant grass in New Zealand and is also found in Australia and many other parts of the world, contains endophytes which produce two very harmful myco-toxins, namely lolitrem B and ergovaline. Annual rye-grass where as it doesn't contain the dangerous endophytes can have a highly poisonous bacteria form on the seed heads. A toxic bacterial gall is formed and some may exude a yellow slime. Both the endophyte and bacterial gall will still be present in hay even if it has been stored for years, annual rye grass is also a nitrate accumulator.

Paspalum in Australia and New Zealand can become a dominant grass in horse sick paddocks particularly during summer and autumn when most other grasses will have browned off. Paspalum contains high mycotoxin levels in the plant close to the ground and also has a highly toxic ergot that can form on the seed heads. Both Rye grass and Paspalum are known to cause the 'staggers' other wise known as the rye grass staggers or paspalum staggers.



**Perennial Rye-Grass**



**Paspalum**

Make it your business to be able to recognize these grasses. When not in seed, the rye-grass is characterized by a narrow, dark green leaf, that is shiny on the back. Some species of paspalum have a purple tinge around the edge of the broad leaves.

The rye-clover pastures seen on most NZ farms is nothing short of disastrous for horses and will cause you nothing but Trouble! (See current list of dangerous grasses for horses in Australia and more information on how to manage these grasses under '[Grasses](#)' on this web site.)

Clover is 1/3 higher in sugar and starch than grass. All rye-grasses are high sugar grasses therefore even when they have had the endophytes removed as in low or zero-endophyte strains they are still not suitable for horses.

Horses thrive on the high fibre diet, see the photo below. Have you ever noticed when the grass browns off in the late summer that horses 'bloom' and are 'easier going'? Same in winter when they are

eating more hay and the grass is not growing at all or very slowly. The following is a picture of a horse in blooming health with excellent feet. He was just rounded up off the country in the adjoining picture.



Equally dangerous are the myco-toxins produced by fungi that live on the outside of plants and in the surrounding soil, especially on the seed heads and in any decaying matter. You will perhaps have heard of the ergot, rust molds and facial eczema spores. Maybe even of Aspergillus, a known asthma allergen in humans.

Until recently, we horse owners didn't take too much notice of fungi in our horses' environment, apart from knowing not to feed moldy hay or feed. Because they are usually invisible, and myco-toxins do not show up in blood tests, it has taken a while to make the connection between many health and behaviour problems in our horses and these insidious equine trouble-makers!! Some horse owners suspected a form of poisoning was occurring, having their soils tested for heavy metals and putting water filters on the troughs.

In 1985 the World Health Organization estimated that approximately 25% of the world's grains were contaminated by mycotoxins. This figure has most certainly grown since then due to an increase in global import and export of grains and cereals and the changing environmental and weather patterns.

Our climate, and the generally low pH of the soils, means the conditions are frequently very favorable to the explosive proliferation of fungal spores and myco-toxins. Particularly in tropical areas where moist warm conditions are paramount. If you happen to live anywhere near any orchards you will know how often they spray for fungi. You will have seen molds suddenly appear on horse manure from time to time or when the mushrooms appear in late autumn and early winter. Fungi love acidic conditions, so pasture fertilized with traditional super-phosphate makes an ideal environment for them.

The lifestyle of the typical horse means they spend most of the time out grazing the pasture. Consequently they are inevitably ingesting and inhaling vast numbers of fungal spores and myco-toxins 24/7. Not just at certain times of the year, **but any time the conditions favor fungi!**

Mycotoxins have also been directly linked to the extended gestation period for mares in foal as well as dystocia (difficulty birthing), lack of milk production, premature separation of the placenta and other placental irregularities. Weak or dead foals that may have suffered trauma or asphyxiation due to difficult birth or the foal may be weakened because of placental insufficiency.

It is no surprise that the results of the "Equine Health & Behaviour Survey" in New Zealand fit with this information. The horses with the most, and severest symptoms are invariably grazing the 'improved' pastures, especially the rye/clover mixes. Of these, most are also being fertilized with superphosphate.

However, there are some horses with severe symptoms that live on rye-grass pasture that hasn't been fertilized in 10 years, and some that graze 'low-endophyte' pasture and still show symptoms. Thousands of horses suffer for many months of the year, from an array of the symptoms. To help us identify as many bad grasses and symptoms to further help other horse in Australia please take a few minutes to fill out our [Online Survey](#).

All of the 'severe' cases have exasperated owners who have spent many hundreds, sometimes thousands of dollars investigating other possible causes. They have had numerous blood-tests (which time after time come up clean or show just mild anaemia), equine practitioners of all descriptions, multiple saddle fittings and sometimes up to three new saddles, horse dentists and hoof trimmers. Finally they hear about feeding the right vitamins and minerals and a toxin-binder (a completely natural food that locks on to toxins in the horses' intestine, prevents them from going thru the intestine wall and into the bloodstream, and carries them out with the manure). Within days they are astounded at the difference in their horses. Even their husbands notice improvements!!

Due to the fact that there are hundreds of different myco-toxins lurking in and around all pasture types it is no surprise that the above scenario is very common. Feeding a toxin-binder is simple, comparatively inexpensive, and totally safe. If your horse has any of the symptoms mentioned under 'Signs of Toxicity and Mineral Imbalances', it would seem logical to go down this avenue along with addressing mineral imbalances.

## **Toxin-Binders Explained**

A toxin-binder helps to protect the horse from the toxins which can cause ill-health. It is **NOT** a cure. The natural yeast cell wall extract provides lots of 'sites' for toxins in the feed to latch onto and takes them out with the manure. Sometimes, when the climate favours proliferation of fungi, or grazing very short grass close to the roots, or when seed heads are present, the toxin-binder has its work cut out and you will need to up the dose, feed morning and night or completely remove the horse from pasture until the horse 'cleans out' and comes back to normal.

Horses do not become 'immune' to the toxin-binder, how could they as it does not enter their bloodstream.

## **GRASS TETANY & HORSES**

I now believe various degrees of grass tetany is the fundamental root cause of most of the health and behavioural issues with our horses. Because the symptoms are so wide and varied it has taken a long time to put 2 & 2 together. Read "[More Mysteries Solved](#)" (Important Articles) to learn how excess dietary potassium affects your horse while the following paragraphs explain how potassium-nitrate can become a major problem.

For those who get bamboozled by science, in very simple language, the cool, cloudy, wet weather of spring and autumn (including frosts and freezes) cause acute spikes of potassium and nitrate in the grasses our horses are eating. This grass may only be 1 cm long but under these climatic conditions, it can have a drastic effect on your horse. (This effect can be made worse by high protein feeds as protein converts to nitrate which has to be somehow eliminated at the expense of your horses calcium and magnesium supply). Fertilised rye-grass and clover are the worst for this scenario but ANY grasses under the 'right' conditions can have the same effect.

This is why it is so important to have somewhere you can keep your horse completely OFF the grass during these times. (Early spring, autumn – early winter, drought breaking rains)

All the literature I have read says that horses don't suffer from nitrate toxicity like other stock. Indeed

I have a copy of a letter from a prominent Canterbury Vet who says that there is no evidence that horses suffer from grass tetany at all! He couldn't be further wrong!

As the following paragraphs explain it is not the nitrate directly but the fact that it enters the system as potassium nitrate. The excess potassium and toxic nitrate is excreted by latching on to calcium and magnesium indirectly causing a serious deficiency of these vital minerals and all the associated health and behaviour issues (an extensive list!).

For those who need a more scientific explanation: (Whilst the article refers mainly to cattle, Dr Swerczek has since done trials on horses which prove they are affected by the same process. Grass, even if it is very short, can be dangerous under certain conditions, which include a drought breaking rain) Also Google "Don't Short Salt", it is brilliant.

## **Excerpts from "Nitrate Toxicity, Sodium Deficiency and the Grass Tetany Syndrome" Dr T Swerczek D.V.M**

Numerous researchers have found that grass tetany occurs most often in older brood cows grazing lush growth of pastures in early spring, and the triggering of the grass tetany syndrome includes environmental conditions of cool, cloudy and wet weather, promoting rapid, lush growth of cool season grasses. These environmental conditions, which also include frosts and freezes, will cause acute spikes in potassium as well as nitrate in affected growing pastures. Analyses of these affected pastures during and after periods of frosts and freezes revealed elevated levels of potassium and nitrate.<sup>11</sup>

Nitrate in the form of potassium nitrate is reportedly the form which herbivores are exposed to nitrate. During periods of stress to pastures forages, the acute spike in potassium and nitrate is seemingly causing an electrolyte and mineral imbalance in affected herbivores.

If nitrate is excessive, a hypomagnesemia (magnesium deficiency) and/or hypocalcaemia (calcium deficiency) may develop as the body is eliminating magnesium and calcium with the excessive anionic nitrate. However, if there is adequate sodium in the diet and organs and tissues, the excessive anionic nitrate is removed by the gut, kidneys, and mammary glands in lactating animals, as a ionic complex associated with sodium, and magnesium and calcium are maintained at physiologic levels and hypomagnesemia and/or hypocalcaemia will not occur.

For this reason adequate levels of sodium in the body and ration will lessen or prevent the drastic effects of nitrate toxicity. Also, it explains why adequate sodium in the diet will aid in the prevention of grass tetany, which is associated with high potassium and low magnesium levels.

It is apparent that nitrate toxicity in herbivores is much more prevalent than previously reported. A well documented form of nitrate toxicity occurs in ruminants when nitrate is converted to nitrite by the microflora of the gastrointestinal tract and then the nitrite induces a methemoglobinemia and anoxia. However, It is hypothesized that a much more common mode of nitrate toxicity, and previously not recognized, is when nitrate toxicity induces a severe electrolyte and mineral imbalance in ruminant and non-ruminant herbivores. This form of nitrate toxicity is an important factor in the pathogenesis of the grass tetany syndrome and likely other syndromes in herbivores, including reproductive disorders in all herbivores, including horses. Seemingly, adequate dietary sodium not

only protects against nitrate toxicity, but also aids in the prevention of the grass tetany syndrome in herbivores, and other metabolic and reproductive disorders induced by nitrate in herbivores.

The high nitrate in the milk may also explain why neonates seemingly are affected with a multitude of opportunistic gastrointestinal diseases, including gastric ulcers and other intestinal disorders. Conversely, dams fed a low protein diet and adequate sodium rarely have neonates suffering from these gastrointestinal disorders.

Potassium promotes the overgrowth of saprotrophic (microorganisms that normally grow on dead matter), commensal (organisms that live together but don't harm each other) and pathogenic (microbes that cause disease) microorganisms in plants, especially plants damaged by droughts, frosts and freezes. Thus, such forages become the source of many opportunistic, potentially pathogenic bacteria and fungi.

After ingesting them, livestock face an overgrowth of opportunistic, pathogenic organisms in the gut. The organisms rapidly proliferate to produce toxic by-products, like excessive ammonia, which is acutely toxic to fetuses and the immune system.

These pathogens infect not only the foraging animals but their fetuses. Early and mid-term fetuses may abort, while near-term fetuses may suffer premature birth, and/or septic weak neonatal birth.

Similarly, it's felt that high-potassium forages encourage excessive growth of endophytic and other pathogenic fungi, especially in fescue and rye grasses. The toxins these fungi produce add to the reproductive problems in cattle and horses.

(see video of Grass Tetany under Video's on this site)

## **MINERAL IMBALANCES**

### **Especially Sodium, Potassium, Magnesium & Calcium Deficiency**

Unless you have been organically farming for years, your pasture WILL BE minerally imbalanced. In particular it will be deficient in calcium and possibly magnesium. Rye-grass and clover are inherently very high in potassium and low in sodium, especially under certain climatic conditions frequently encountered in autumn and spring. These macro-minerals are so vital to life that if the animal isn't getting them from the grass he is eating then we must supply them in the form of a supplement for the following very good reason...

**The body pH of the horse (or any mammal including us) is supposed to be 7.365 (slightly alkaline). When the pH drops to less than 7, from eating too much sugar/carbohydrate from grass and molassed grains, the body becomes acidic. Numerous health problems arise from this state of 'acidosis'. If the diet does not contain enough calcium and magnesium then the body has to continually swipe these vital minerals from the bones, muscles, (including the heart), nerves, and brain, to maintain this ever so slightly alkaline pH.**

In layman's terms, here are some facts. Think about them and draw your own conclusions!!! Calcium excites the nerves and magnesium relaxes them. The brain is part of the nervous system! (Attention Deficit Disorder type symptoms). They 'lose the ability to process information' (can't think straight), you have difficulty getting their attention, they become over-sensitive, spooky and cause accidents and so on.

Calcium is necessary for muscle contraction and magnesium is necessary to release them.

Horses are 80% muscle; lack of calcium/magnesium causes 'spasticity' of back muscles, tight hamstrings, tenseness, muscle cramps.

Boron is a 'synergist' for calcium and magnesium, which means it helps calcium and magnesium to do their jobs. In the absence of boron, up to 40% of calcium and magnesium is lost in the urine. Boron is also commonly lacking in our soils, more so in regions of high rainfall.

Calcium, magnesium, boron along with copper, are high on the list of minerals necessary for proper bone formation and maintenance as well as joint health.

Spring time (worst time of the year for mineral imbalances) is when mares are in the third trimester of pregnancy, and are nurturing their growing newborn foals. (Increased requirements)

Lime is calcium, so liming is a good start and will help take care of part of the daily calcium requirement. Magnesium is not so easily applied via the soil short term.

Our climate in New Zealand and Australia is changeable, warm and wet. The spring and Autumn 'flushes' are well known with their associated problems, but there are many slightly lesser 'flushes' throughout the year depending on climatic conditions.

Rapidly growing (short) grass which is usually bright lime green, even the tiniest shoots will be full of potassium and NSC (non structural carbohydrates), this mainly occurs in Autumn and spring. Excess NSC can trigger laminitic attacks especially in horses that are prone to laminitis. The surge in potassium will cause a major mineral imbalance, until just recently this has not been recognised at all in horses. It has been well documented in cattle and is called grass tetany or known as 'grass staggers' to differentiate it from 'rye-grass staggers' caused by the Lolitrem B endophyte in the rye-grass.

Horses with grass tetany will show symptoms very quickly (over night usually) they will suddenly appear very stiff in their hind legs and may even look like they are lame in the back leg(s). Some will even point their back toe like they have a hoof abscess, if left then the next morning you could find them pointing the opposite back leg. Some horses will have trouble getting up from laying down, and some can't get up. If not treated it could lead to long term effects on the horses movement, in severe cases it can be fatal. Some horses will show mild signs by stepping short with their back legs.

Any grass under stress or climatic conditions such as those of early spring and autumn, especially in drought-breaking rains or cool, cloudy, wet weather, including frosts, is subject to acute spikes of potassium and nitrate at the same time becoming low in sodium. This is exacerbated by nitrogenous fertilisers. The potassium nitrate ingested is highly toxic and the body eliminates it by latching on to calcium and magnesium and is excreted with them. Hence the necessity to feed adequate calcium/magnesium and sodium while not adding to the potassium load with lucerne/molasses, many herbs/garlic/high protein feeds/supplements containing potassium.

There is a huge emphasis in New Zealand on grass production, and comparatively little on the health of the stock that are eating it. Many of the pastures our horses are grazing are primarily for sheep and cattle, and are more suitable for improving weight gain and milk production. Furthermore, they are fertilized with substances that promote rapid growth thereby exacerbating the mineral imbalances. In Australia it's not uncommon for large cattle farms to be subdivided up into smaller lifestyle properties which are subsequently used to graze horses.

Magnesium is one of the most important minerals in the cell. Some is stored in the body, mainly in the skeleton, muscles including the smooth muscle of the heart from where it is released when deficiencies occur in the diet. Magnesium plays a vital role in the activation of around 350 enzymatic processes in the

body including breakdown of blood glucose. Blood magnesium levels rise after the horse eats glucose or carbohydrates. Simplified : low magnesium = a reduced insulin response. It therefore contributes significantly to the development of obesity, the 'diabetic' horse, associated laminitis and eventually to the "Cushings-like" syndrome.

Spring grass is especially high in glucose and low in minerals including magnesium. Deficiencies affect the cell membranes of nerve and muscle tissue, leading to many of the above symptoms, especially the 'hypersensitivity' ones.

Magnesium is one of the essential electrolytes, along with calcium and potassium. Too much calcium and/or not enough magnesium can predispose a horse to 'tying up' (severe muscle cramps)

### **Symptoms include:**

- Excessive spookiness/alertness/excitability
- Stepping short behind, not tracking up
- Chronic saddle fitting problems
- Loss of appetite/poor condition
- Nervousness
- Exhaustion
- Cramps
- Cardiovascular irregularities
- Hypersensitivity to noise
- Grinding the teeth, doesn't like the bit, unquiet mouth

Epsom salts (magnesium sulfate) can be fed short term, however, regular feeding can lead to gastrointestinal upsets, even diarrhea. Magnesium oxide is a form of magnesium that is usually applied to the soil. From there it would be processed thru the plant into a form that the body can utilize. It is imperative to feed a highly absorbable, organic form that is non-toxic and what ever the horse doesn't need will go out with the urine or manure.

Magnesium needs to be part of the right feeding regime for your horse, according to his lifestyle.

Kikuyu grass contains oxalates which bind up calcium making it unabsorbable by the horse's intestine (see **Bad Grasses** list on this web site for other oxalate grasses in Australia). Horses grazing pastures with significant proportions of kikuyu definitely need to be supplemented with calcium. Feeding some lucerne along with a good calcium supplement is a good option but bear in mind some horses can not tolerate lucerne because it is high in potassium and fluorescing pigments which can cause photosensitivity. Photosensitivity can appear as a persistent mud fever or sun burn particularly on unpigmented skin of white patches. (also see **Photo-sensitivity**)

Kikuyu grass is not high in nutrition, it is important to have a good feeding regime when kikuyu is prevalent in your pasture.

Calcium is very important particularly when the majority of soils in Australia are generally under half the calcium levels recommended. Calcium is crucial for good gut health in horses, not to mention for all their vital organs. Leg splints can form for no apparent reason and facial crests on growing horses that are not getting enough calcium while grazing Kikuyu. In Queensland and Northern NSW oxalate grasses are a huge problem, there are some warnings about the grass but depending which state or territory you are in the information may be contradictory to an adjoining state and very confusing.

In Queensland and Northern NSW it is commonly know as 'Big Head' or 'Bran Disease', the technical name is hyperparathyroidism. Common symptoms of 'Big Head' are affected gait, poor performance

and swelling of bones of the head. Horses grazing oxalate grasses like Setaria or Kikuyu for a period of time that are not being properly supplemented in calcium may experience demineralisation and possibly an enlarged thyroid gland or other wise known as goiter. The parathyroid gland inside the thyroid releases a hormone which melts the bone to maintain calcium levels in the blood. If calcium levels drop in the blood below normal this could have a detrimental effect on the horse's survival so their body is designed to maintain the correct calcium levels at all times (this is called homeostasis). That's why it's unusual to see low calcium levels in blood tests and if you do see this the horse would be by this time seriously ill.

Kikuyu grass also binds up sodium so it's important to also feed plain (non iodised) salt. Salt can also act as a buffering agent for acid in the horses body, including lactic acid and acidosis of the hind gut. Salt is also vital for the drinking reflex, over autumn / winter if you notice your horse's manure getting dry this is probably because they are not drinking enough water in the cooler conditions. Increase the salt by 10gms each couple of days until the manure is back to normal, a good starting guide for feeding salt is 10gms per 100 kg of body weight.

Salt and Calcium are the two things that will vary in a horses diet according to the situation they are in, for example heavy work load, extra sweating or in foal. Vitamin and Mineral supplements on the market are designed to add Calcium and Sodium separately for this reason, the only problem with this is they DON'T TELL YOU! Fine non iodised salt is easily available at your local produce store.

It is important to note that for proper calcium absorption other elements such as Magnesium boron and copper must be present. It has also recently been documented that magnesium is also bound up by oxalates, not to the same extent as calcium but it explains why so many horses on oxalate pastures are also showing all the signs of magnesium deficiencies.

Horse people are notorious for thinking that if one scoop is good two must be better. This is not the case with Vitamins and Minerals. There are some minerals such as Selenium that can become toxin if over dosed. Calcium and salt should also not be over dosed, so always stick to the manufacturer's dose rate or check with your veterinarian.

## **Respiratory Problems**

**May be caused by Inhaling Toxins and Pollens which are Allergens or "Hyperkalemia" (too much potassium) or high nitrate levels**

**These symptoms therefore don't respond to a toxin-binder**

- Inflamed nasal membranes
- 'Runny' noses, gunk in the corners of their eyes
- Blisters/ulcers up the nose (swabbing proves negative for Herpes)
- Coughing in paddock and/or on exercise\*
- Excessive snorting
- Breathlessness, laboured breathing, out of 'puff' after very little exertion, can't get fit \*\*
- Wheezing
- 'Gunk' out of one or both nostrils periodically
- Nose-bleeding when at rest out in the pasture

\*(coughing during exercise and an enlarged goiter / thyroid gland can be a symptom of too much iodine, another reason not to feed too much iodine such as iodised salt or spirulina.)

\*\* Also a major symptom of 'hyperkalemia' : too much potassium or high nitrate levels.

Many horses that suffer from one or more of the above symptoms, some to the point where they are retired or their careers cut short. Once again extensive investigations which involve scoping, blood tests, etc are often fruitless and expensive.

On a sunny day, hold your horses' nostril open towards the sun and look up the nasal passages. Hopefully it is pink and clean looking. If it looks inflamed, or looks yellowy and bumpy, or there are little 'blisters' or even larger ulcerations, then your horse could have one of the allergies we are talking about.

When you think about it horses have their noses down in the grass eating most of the time. Whilst they are eating they are also breathing. There are quizzillions of fungal spores in the grass which get sucked up their noses. For instance spores from the rust molds and aspergillus fungi, both very common on our pastures, are known to cause hay-fever and asthma in humans. It stands to reason that some horses will also have allergic reactions to them. In fact some of the symptoms in our horses are very similar to asthma in humans.

If your horse has the laboured or noisy breathing, (symptoms similar to asthma), then he is suffering from constriction of the airways. Remember that magnesium is a natural dilator so keeping magnesium levels right up there is hugely beneficial. Addressing mineral imbalances is vital, You need to get the potassium DOWN and the sodium, calcium and magnesium UP.

Lush, moist pasture can be high in potassium and is the ideal environment for fungi so is best avoided for horses with respiratory conditions. It goes without saying to feed good quality, non-dusty (dunk in water if necessary), non-mouldy hay. Leaving matter to decay on the ground, such as toppings, also creates a wonderful environment for fungi.

An interesting fact is that when your soil is biologically active and minerally balanced, (ph up towards 7) fungi will not thrive, whereas they love an acidic environment. By attending to the 'cation capacity' (Calcium, magnesium, sodium and potassium balances) the pH of the soil will improve. This reduces the fungal populations to the optimal level.

One suggestion in the meantime, is to smear some Vaseline around the inside of the nostril to catch the spores and pollens on the way up. (Apparently you can do the same thing on aeroplanes and buses to prevent other peoples' germs going up your own nose!)

Keep magnesium intake right up there as when magnesium levels decline, the incidence of allergies and asthma rises. (also see [Mineral Imbalances](#))

## **Nose-Bleeding**

This can occur when the Aspergillus fungus 'sets up camp' in the walls of the guttural pouch of the poor horse. Their preferred location is on one of the major blood vessels that are right there. The blood vessel gets damaged and bleeds. It's as simple as that. Sometimes this colony of fungi damage nerves in there, which can cause difficulty swallowing.

Unfortunately it's not that simple to eradicate, it's a serious and debilitating condition and horses have been known to bleed to death. Surgery may be required.

This form of nose-bleeding is not related to exercise. If it is induced by exercise there is a different cause.

There is an excellent article "The Whys and Wherefores of Guttural Pouch Disease" by Dr Dwayne Bennett. Google will find it. Go to 'Guttural Pouch Mycosis' for more details.

## Skin Conditions

I am talking about the persistent ones that don't respond to the normal treatment regimes. Where the poor horses rub and scratch their bellies on the ground so much that they bleed, or reach around and bite their elbows until they bleed, some times referred to as sweet itch or Queensland itch. "Skin crawling/tingling that drives you nuts is yet another symptom of "hyperkalemia" (excess potassium). These skin conditions require a drastic reduction in potassium and an increase in sodium, a decrease in sugar (short or lush grass) consumption and corresponding increase in mature grass or hay consumption to restore hind-gut health and function, which will kick start B-Vit production (essential for healthy skin), ensure omega 3's are in the diet with a good quality multi-vitamin and mineral supplement which does not contain potassium.

The answer lies in getting the horse into a state of optimal health.

## **High Sugar = Lack of Fibre Insulin Resistance / Acidosis / Laminitis**

Grasses planted primarily to fatten livestock and promote milk production are 'high sugar' grasses. Hay made from wheat, barley, rye-grass or oats is high in sugar especially if it has been made prior to seed formation.

Sugar levels can be elevated in grasses when they are drought stressed or over-grazed. Sugar levels can sky-rocket in the spring when grass shoots away. Grains, whilst they contain some protein, are mainly carbohydrate, and therefore oats, corn, wheat and barley contribute to total sugar the horse is consuming. So does any feed containing molasses.

When the input of feed far exceeds the output required for the amount of exercise the horse is doing, problems will ensue!! What is happening is we make the mistake of thinking that grass provides enough roughage and fibre. NOT TRUE! Young, green, growing grass is mainly non-structural carbo-hydrate (sugar and starch). Clover is 1/3<sup>rd</sup> higher in starch than grass. As the grass matures it develops more stalk and becomes more fibrous (as in roadside grass or standing hay). Then it is great as it is more fibre than sugar.

Food ingested by the horse passes thru the small stomach to the 'small intestine' (where carbs are digested). From there it passes thru to the HUGE hind-gut, (the caecum and large intestine), which takes up most of the room in the horses 'barrel'. The hind-gut is meant to be chokka full of micro-organisms which are designed to ferment the large quantities of fibre the horse would normally eat. What happens instead is that the excess carbohydrate from the grass / molassed grains diet we force upon them, gets pushed into the hind-gut, where it cannot be digested. Resulting in acidosis (low Ph) which kills all those good micro-organisms-at the same time encouraging an increase in detrimental bacteria and pathogens in the horses digestive system. The ensuing metabolic chaos, compounded by mineral imbalances especially high potassium, results in inflammation of the laminae of the hoof and there you have it, sore feet and laminitis.

In fact the horse/pony can eventually become insulin resistant, which is a similar condition to Type 2 Diabetes in humans.

## Signs of insulin resistance include:

- being obsessed with eating, especially grass, you can't keep their head up!!
- 'lives on the smell of an oily rag', get fat easily
- has a 'cresty' neck
- gets 'pads' of fat behind the shoulders and above the tail
- puffiness, around the eyes and sheath
- urinates a lot
- lethargic
- mares don't cycle properly
- drinks a lot
- sore feet (pre-laminitic)
- prone to laminitis



It is important to understand that these horses are not just fat, they have a serious metabolic disorder that needs urgent action! They are like diabetic people and suffer from the dysfunction of every major organ system in their body, the circulatory system (especially to the hooves), the digestive system (especially the hind-gut), the reproductive system, the nervous system (including the brain), the endocrine system. They are an inch away from foundering.

## WHAT TO DO...




These symptoms can be reversed by removing the horse from anything green (especially short grass in spring and autumn, merely restricting grass may not be enough), and feeding plenty of hay that has had the much of its sugar content leached out by soaking in a tub of cold water for at least an hour before feeding. The water goes brown and fizzy. Tip it on your garden. Supplementation with a quality Vitamin & Mineral supplement containing organic chromium and magnesium. Attention to healthy hoof form and as much exercise as possible are equally important.

# PREVENTION IS WAY BETTER THAN CURE.

Please understand that it is primarily a hind-gut problem caused by sugar overload, lack of fibre and lack of exercise. These horses are the equivalent of the couch potato person who lives on junk food. The key to a healthy horse with healthy hooves is to look after the flora in the hind-gut by ensuring the majority of the horses diet consists of coarse fibrous material such as mature grass, hay, chaffs and beet.

## Fibre Requirements Relative to Lifestyle

(Adult Horses & Ponies)

Oils 5%	Oils 5%	Oils 5%	Oils 5%	Oils 5%
95% Soaked Hay FibaRich Pellets <i>10% of this can be made up of Hay Cubes or Protein</i>	Protein and Carbohydrate (eg soya bean meal) (eg crasses, grains)			
	15%	25%		
	80%	70%	35%	45%
	FibaRich Pellets Hay Cubes Hay	FibaRich Pellets Hay Cubes Hay	FibaRich Pellets Hay Cubes Hay	FibaRich Pellets Hay Cubes Hay
<b>Obese &amp; or Laminitic</b>	<b>Idle</b>	<b>Light Work</b>	<b>Moderate Work</b>	<b>Intense Work</b>
<i>See below *</i>	<i>Less than 3 rides per week</i>	<i>Pleasure riding, dressage, Hacking, showing etc</i>	<i>Trekking, stockwork, showjumping</i>	<i>Racing, polo, endurance, hunting, eventing,</i>
 Fibre	 Protein & Carbohydrate	 Fat		

## Important:

- Soak hay in water for one hour (to reduce sugar content) discard water and feed immediately.
- Feed Hay without any perennial rye grass, clover or any of the other '**Bad Grasses**'.
- Supplement with calcium and magnesium if grazing oxalate grasses.
- Supplement with extra calcium, magnesium & sodium if grazing rapidly growing grasses especially in cool, wet, cloudy, frosty climatic conditions. The first shoots to appear after a drought breaking rain will be particularly dangerous.
- Supplement with sodium to help correct the sodium:potassium ratio and help buffer any acid build up, to increase water intake (there must always have fresh drinking water freely available).
- After approx 6-9 months the obese/laminitic horses' metabolism will be returning to normal and they can be fed as 'Idle' Be extremely diligent about not allowing a relapse.
- When on any kind of pasture feed a toxin binder containing natural yeast cell wall extract (Tox-Defy). For oxalate pastures in particular a highly absorbable calcium and magnesium supplement such as Alleviate Xtra Cal is ideal.
- For horses in moderate to intense work add carbohydrate (eg grass & grain) and protein (eg soya bean meal, solvent extracted canola meal, sunflower seeds ) according to energy requirements (refer to table above). Be careful of full fat soy in warm weather as the oil content may go rancid
- Avoid sugar and protien overload in broodmares, young & growing horses, by supplementing their diet with enough high fibre intake to offset the high sugar content of lush pastures.

## Why Add Fibre?

### Adding fibre to the diet of Aust & NZ pasture-fed horses is vital:

- ✓ It keeps the hind-gut and its resident micro-organisms healthy, preventing sugar overload, which causes hind-gut acidosis (sloppy manure), ADD (attention deficit disorder), insulin resistance, metabolic chaos, laminitis.
- ✓ The digestion of fibre has immune-boosting, anti-allergic and hormone regulating effects.
- ✓ The fermentation of structural fibre is a major source of energy.
- ✓ Fibre helps synthesise B-Vits & Vit K for calmness and good health
- ✓ Provides fuel for their internal body heater.
- ✓ Creates a water reservoir for proper hydration, especially after sweating, urinating and salivating.
- ✓ Requires more chewing = more saliva, preventing stomach ulcers.

### Does your horse eat Grass? Clovers? Molassed feeds? Grains?

Consumption of these, without sufficient accompanying fibre according to lifestyle will sooner or later result in a vast array of ill-health problems. Symptoms including many of those in the above list, (pg 5-6 eg herd-bound, nappy), ravenous appetites, insulin resistance, obesity or ill-thrift, weak, sore feet and laminitis will become apparent.

**Green grass which is kept at a young stage of growth by constant grazing does not supply enough fibre in the diet of Aust & NZ pasture fed horses.**

## How Much Fibre?

A 500kg horse requires approximately 2% of his bodyweight per day. ie 10 kgs /day, 365 days/yr. Hay bales vary but this is approximately ½ bale.

This can be achieved with a combination of hay, chaffs and beet pulp.

NB. A heavy Hack of 16.2 hands will weigh approximately 550kg, a 14.2 galloway approximately 400kg and a 12.2 pony will weigh approximately 300kg. Take empty float to a weigh station, then take horse in float to weigh station, this will give you an accurate weight. Alternatively use a weight tape.

If the horse is light in condition feed according to the weight he should be, not the weight he currently is.

If you want your horse to lose weight, soak the sugar out of the hay rather than cutting down his hay. Horses have a need to be eating and chewing 16-18 hours a day. Long periods without food cause mental stress and stomach ulcers.

## **B-Vitamin Deficiency is Caused by a Lack of Fibre**

Within the large intestine of the horse, there should be a healthy population of 'good' bacteria, whose purpose it is to breakdown the food further, producing energy-rich, short-chain fatty acids. These bacteria also produce essential B- vitamins of which biotin is one and vitamin K necessary for just about every function in the body, including healthy red blood cells and optimal function of the nervous system, healthy hair coat and strong hooves.

Signs that a horse is not making sufficient of his own B vitamins are poor appetite, sour attitude, anemia, poor hooves and skin conditions.

**Biotin is one of this large group of vitamins. Everyone is busy supplementing with biotin to improve hooves when all the horse needs is more fibre in his diet so he can make his own. Hooves will not be strong and healthy on a sugar diet!!**

Anything that upsets digestion, such as a low roughage diet, (eg, spring-time sloppy manures caused by acidosis) or increased stress of any kind, will interfere with the horses ability to produce his own B vitamins.

It is a good idea to make sure your multi vitamin/mineral supplement has the full range of B-Vitamins. The range of Vitamin B's are water soluble and not stored in the body, you cannot overdose on them.

## **Selenium**

Selenium is essential to good health in the horse. It is a trace mineral which helps to make important antioxidant enzymes that have several functions in the horse's metabolism. These selenium containing enzymes provide antioxidant protection in every cell of the horse's body. They also have roles that affect growth, immune function, muscle recovery and reproduction.

Many areas of New Zealand and Australia have soils deficient in selenium, which means unless you are supplementing with it, your horse is likely to be deficient. Too little selenium in the diet is a problem, it's a bit like trying to run a car without oil, causing degeneration of muscle tissue, stiffness of gait and a predisposition to 'tying up'. However, too much selenium is a problem as it is toxic to your horse. This has become more of a possibility since selenium is now added to a lot of feeds.

**Annual blood tests are essential, so you know exactly how much to supplement with.**

It is best fed in small doses often, as in the organic forms available that you add to a daily feed. For economic reasons, people with multiple horses often resort to the less absorbable, but cheaper, inorganic forms of selenium as in Selmit 1.

## Photo-sensitivity..... (Sunburn & Mud Fever)

Many horses with white faces and/ or white socks, suffer from 'sunburnt' noses, and/or chronic mud fever. Some get ulcers in their mouths.

The first line of thought with mud fever is that it is caused by 'mud'. The first line of thought with scabs on the nose is 'sunburn'. However, the truth is that it can be a very complex issue that doesn't respond to external treatments. This is because the real cause of 'mud-fever' and 'sunburn' is Photosensitisation.

This is caused by eating plants which contain certain photodynamic (or fluorescing) pigments. These pigments enter the bloodstream and eventually reach the unpigmented skin of white faces and white socks, where they are exposed to UV rays, they oxidise, and thereby create the oozy sores in the surrounding skin.

Affected skin rapidly becomes reddened, painful, and raised above areas of adjacent pigmented skin. Serum often oozes through the affected skin to form crusts in the hair. Soon, the dead skin becomes dry and parchment-like, and the hair and white skin slough leaving ulcerated areas that may develop secondary bacterial infections, especially in muddy conditions. Hence the name 'mud fever'. Yet the bacterial infection could be secondary to the real cause which is photosensitization.

When this occurs on the muzzle, it resembles, but is not, sunburn. It is a reaction caused by eating these plant pigments, which are exposed to UV rays in the vulnerable unpigmented skin areas. Most commonly affected areas are the muzzles of horses with white faces and white socks as in mud-fever.

This explains why some horses that have 'heaps of white' never sunburn or get mud-fever, while others do so, chronically and exasperatingly!! Plants known to cause this kind of photosensitization include Perennial rye-grass, (you might have guessed!) clovers, especially white clover, alfalfa, lucerne, St John's wort and buttercup. Many horses are grazing pastures that comprise these species. Buttercups also contain a chemical that causes dermatitis from direct contact with it.

Protection from UV rays is a huge help in prevention, however, this is tricky on the legs. There are vast numbers of topical applications for treating mud fever, which 'work', but often on some horses but not others. Quite often, just when you think you've got it beat, hey presto, it's back!!

Preventing the horse eating the offending plants is obviously the best option but not always easy. Keep in mind that rye grass, clover and lucerne hay may also cause skin photosensitivity.

It is yet another really good reason to work out ways to change your pastures to encourage other species than those listed above. See [Paddocks - Yards - Grasses](#) on this web site.



**This is a mild case after eating a very small amount (flexs) of clover amongst her grass hay**



## Head-Flicking/Shaking

One of the most heart-breaking, exasperating, baffling conditions to affect horses anywhere.

It has been established that it involves the trigeminal nerve in the horses head. The trigeminal nerve originates behind the horse's eye and has branches down to the mouth, nostrils and up to the ears. When this nerve is surgically 'cut' or 'blocked' the symptoms immediately cease but unfortunately, in the case of cutting, the nerve eventually heals up again to some extent after which symptoms are worse and in the meantime the horse has a 'droopy lip'.

People with trigeminal nerve trouble describe 'sharp, electric shock sensations' in their face. It is an extremely painful condition and warrants urgent action. **See What To Do**

Globally, nobody has any idea of the cause of head-flicking. Many treatments have been tried, everything from nose nets, to masks, to contact lenses, melatonin, spirulina, drugs such as cyprohepradin, even surgical cutting of the nerve.

Until now, the prognosis has NOT been good for head-flicking horses. Often they are turned out only to get worse. When distressed owners see them flinging around the paddock, banging their head on the side of the water-trough or trying to stuff their head in the hedge they are often put down.



**Buddy: a 'good' moment**

### How I came to realise the cause

For the last 13 years I have had many opportunities to learn all about head-flicking, what causes it and how to reverse it. Having owned one of these horses myself and met many more during my time as a Horsemanship Instructor, especially since I have been studying all the diet issues, I have been able to test theories and observe the results.

About 8 years ago I 'acquired' a little quarter-horse 'Buddy'. Unbeknownst to me, amongst his other 'bad' behaviours, he was a head-flicker. I had no experience of head-flicking until then, had never heard of it. At first episodes were sporadic and I went thru all the usual things: he didn't like the bit, my hands must be bad etc, etc. Things got worse when we moved to a property with ex dairy, (rye-grass and clover) pastures where he became so bad he was unridable.

Bright, sunny, breezy days would really set him off, as would riding him on sandy arenas which reflected any light. In the picture he looks happy but in actual fact he was fixated on the bright bits of the sand and the next frame would have shown his head jerking up! He would usually be fine at the walk but the increased blood flow with exercise would trigger the flicking, just like a bug had flown up his nose. Unpredictably he would suddenly jam on the anchors by plunging his head down to rub his nose on his leg. Very unnerving at the canter!! Riding him was no fun and as it was obviously uncomfortable for the horse I gave up riding Buddy altogether.

Then we moved grazing again. The new pasture was all cocksfoot (orchard grass). When I next rode Buddy after being on this new grazing for several months, it was a bright, sunny day and he did not flick his head at all. Thinking it must be a fluke, I rode him again and again: no more flicks and he has been pretty well 'flick-free' ever since. To add to this, a few years ago, I conducted the Equine Health & Behaviour Survey. 25% of the owners who filled out the Survey, had horses who were head-flickers. Some of these horses had a long list of other issues too. Noticeably there was a 100% correlation

between head-flicking and rye-grass and clover pastures, especially if they had been fertilised.

One year later I contacted some of these people. Several of them had horses who also no longer flicked. It turns out that they also had happened to move grazing, to brown-top or cocksfoot type pasture where they no longer had the problem. The penny started to drop that it was something about the pastures, in particular the rye-grass and clover that was causing the head-flicking syndrome. Also it was observed that it was easy to induce the head-flicking by feeding lucerne (alfalfa) to these horses. There had to be a 'common denominator' between these plants.

Without pinpointing the exact cause, I started recommending to people that they take their head-flicking horses completely off all grass and lucerne and instead feed non rye/non clover, non lucerne hay along with a feed of soaked beet every day in which they put the Alleviate and the Premium New-Zealand-Horse Minerals (Supreme Australian-Horse Vit & Min). The idea was to remove the cause at the same time replenishing the horses system with vital minerals.

Two such people were Tracey Austin from Auckland and Nic Greene from Hawkes Bay. Both had chronic head-flicking horses, both followed instructions and both horses recovered to be happy useful horses. [See Case Studies](#)

The same regime has now worked just as well for lots more head-flicking horses. [See What To Do](#)

### **Symptoms:**

May start with head twitching

Involuntary jerking up and down of the head exactly like a bug has flown up their nose

Suddenly having to rub their nose on their leg

Leaping around trying to 'box' their nose with their front feet.

Worse on sunny, breezy days

Worsens with exercise

[Click here](#) to see a horse having a flicking episode. You can also see the lush rye-grass and clover pasture that was causing it.

### **Sometimes associated :**

Photophobia where they can't stand the light

Desperately seek shade, even stuffing their head in the hedge

Eyes and nostrils screwed up, like they have a migraine.

Plunging their head in and out of the water trough

Depressed

### **My Personal Theory on the Cause:**

Based on strong anecdotal evidence. NB The science is always 5-10 years behind the anecdotal evidence or the hypothesis.

Since head-flicking coincides with many other health and behaviour issues which occur in the climatic conditions of spring and autumn, it follows that it shares the same fundamental cause. I now believe that head-flicking is caused by the pasture spikes in potassium and nitrates which occur in the cool, wet, cloudy, even frosty conditions of spring, autumn and sometimes other times of the year, depending on the weather.

These happen especially when you have rye-grass and clover (both are inherently high in potassium nitrates anyway) or any type of pasture when it has been stressed by drought, frosts or over-grazing or when it is in rapid growth mode and when it has been fertilised to increase production. Rye-grass, clover and lucerne (or alfalfa) are all potent triggers for head-flicking syndrome because they are also inherently high in potassium nitrate and low in sodium. If your horse isn't eating any grass then you would have to look at your hay as it too can be high in potassium nitrates.

### **How:**

Excess potassium nitrates are ingested with forage. This happens under certain climatic conditions, especially those of spring and autumn. These nitrates (anions) must be eliminated from the body and the means by which this is achieved is that of latching on to calcium and magnesium (cations) and being excreted with them. This leaves the horse's system extremely high in potassium at the same time extremely low in calcium, magnesium and sodium.

This represents a serious, dangerous electrolyte imbalance. The correct sodium:potassium ratio and adequate amounts of calcium and magnesium are vital for normal nerve function. In head-flicking somehow this acute imbalance causes temporary (maybe sometimes permanent?) damage to the trigeminal nerve which leads to the involuntary firing characteristic of the head-flicking syndrome. Reversing this syndrome therefore involves removing the cause (the offending pasture/hay and other feeds aggravating to the condition) while simultaneously correcting the mineral imbalances.

### **What To Do:**

Arrange somewhere for the horse to live that is not green. (A yard, stable or a sprayed out piece of the paddock) Somewhere you can completely control your horse's diet.

Feed ad lib low nitrate hay (No rye, clover, lucerne, sorghum, oaten)

Feed soaked beet with plain chaff for the purpose of replenishing with the organic minerals (Alleviate, Alleviate Xtra Cal, Supreme Australian-Horse Vit & Min) ...and extra salt (10gms per 100kg).

Over a period of 8-12 weeks the head-flicking will go away. This can be somewhat sporadic. In other words there may be a few bad days in there but eventually you will hardly feel a flick. You will have your lovely horse back!!

NB. Never make a sudden change to the diet as in 100% grass to 100% hay. Eliminate the grass over a period of a week, replacing with more and more hay.

### **Confusing syndromes:**

**Head-shaking:** This has the same cause and treatment as head-flicking. It affects the branch of the trigeminal nerve that goes up to the ears. The horse will frequently shake his ears while you are riding, sometimes cocking his head to one side and sticking one ear out and down.

**Touchy Around the Ears (Ear-Shy):** This shares the same cause and responds to the same feeding regime as for Head-Flicking. Lots of people think that their horse has been beaten around the head because they are so touchy around the ears. Not so they are affected by the same mineral imbalances, it is just showing up in a slightly different way. Naturally haltering and bridling can be an issue if the horse is touchy around the ears. These horses are very prone to PULLING BACK violently if they are tied up or restrained in any way. It is best to NOT tie them up at all until they have come right as besides the fact it is dangerous, a violent pull back can cause permanent damage to the horse. Don't worry when they are back to normal they will tie up just as well as before.

**Rhinitis:** Lots of horses suffer from a condition where the nasal membranes become inflamed and even ulcerated. Swabbing for herpes comes back negative. This is caused by inhaling fungal spores and pollens. The horse will do a lot of snorting and head-tossing especially at the start of the ride. Does not respond to the same treatment as for head-flicking.

## Case Studies:

Tracey brought Dylan along to a course back in January. He looked so miserable we retired him to the yard and carried on with a borrowed horse. Difficult tho it was, living on a dairy farm she found a way to eliminate the rye/clover and here is her story, it will give hope to any of you out there struggling with the condition.

### “Dylan becomes a Dream again!!”

Two years ago my husband and I moved properties. Shortly after, Dylan my beautiful black thoroughbred arrived. I was lucky enough to acquire him from a polo and show-jumping family who did not have time for him. After 6 months of settling in I decided it was time to take him out. Lady June Carter, a neighbor with a beautiful property has a local ride every January. Well what a major disaster! 2 hours of bucking, rearing, head flicking and absolutely crazy behaviour. I just couldn't reason with him.

While walking him home it crossed my mind that maybe he had something seriously wrong like a pinched nerve in his back. After reducing his feed, adding more fibre, having a vet check, booking a Horse Manipulation Therapist once a week I thought this might help. But the constant head-flicking and unreasonable behaviour continued. Along with the frustration came loss of confidence and I became generally afraid of him. The rears were so high, he almost went over backwards. So he was turned out as I had lost my motivation to ride him!

Having run out of ideas I was lucky enough to be invited to attend one of Jenny's nutrition evenings “There are no ‘Nutty’ Horses”. It was a brilliant evening and it all made sense. So I started feeding the Alleviate and the Premium New-Zealand-Horse Minerals (Supreme Australian-Horse Vit & Min). I realized the lush dairy pasture on our place was the real problem. That darned rye grass and clover.....

Two months went by and what a huge improvement. No bucking, rearing or general agitation. However on sunny, breezy days he head- flicked incessantly. On quiet hacks he was fine. As soon as we entered a dressage arena the flicking got worse.....

I decided it was time to build my confidence up again and take him out. I was very nervous floating him to Jenny's Horsemanship course. Especially getting him off the float as he normally shot out like a bullet. Once again luck was on my side. Jools Topp who did not know me from a bar of soap gave me a hand. We had a calm relaxed horse backing out nicely within 15 mins. I could not believe the difference... Thank you Jools!

Time to enter the inside arena and had a nervous, spooky, head-flicking horse once again. In fact he was so bad I could not ride him so he rested in the yards with hay and I continued the course with a borrowed horse. After talking with Jenny I decided to completely eliminate the rye and clover. To the point he lived on dirt and only had hay to eat. He stayed on this little track for 4 weeks. I had even purchased a new paddock mate to do show hunter, not knowing that Dylan was going to be OK again!

Wow 2 weeks later we had a completely different horse.. I could see the pain disappear from his face. Just like he had a Panadol to get rid of his migraine. Dylan is now back to a being a dream horse where we can canter without head-flicking or bucking, he has a smile on his face, and is such a pleasure to be around. Plus I have all my confidence back! My husband Ward, rode Dylan last weekend on a 2 hour trek. He was amazing! I was a little hesitant with his history as Ward is a learner rider... but was just astounded how brilliant he was!!



The odd day goes by where there might be a slight head flick as I believe the damage was quite serious and the odd grass sprout can take effect. But overall we have a calm relaxed, truly amazing horse back.

Thank you so much Emma and Jenny in assisting Dylan become a dream horse again .....

Kind regards, Tracey.

## **'PIPPEN' A Beautiful Quarter-Horse Mare**

Another Reformed Head-Flicker

Her schooling is low pressure, following my instructors program, of 'soften when they soften', in my 30 minutes, I would trot ten minutes warm up, working on guiding, straight lines etc, asking her to give every now and again, and releasing as soon as she gives, suppling exercises, shoulder and hip control, backing, and loping both ways, encouraging relaxed and happy work. She's an easy going little horse who takes everything in her stride.

Then I noticed, 'the bug up the nose' reaction, a couple of times in one day, that you think nothing of at first. Then I got two days of it in a row.... alarm bells start ringing, as I know of two others that have had huge problems with this, and have spent a fortune following various unsuccessful treatments, one uses a nose net, the other a sun-visor, with varying results.

Sometimes, on the bad days, her ears sort of fell slightly sideways, like she's trying to look down her nose, and she'll flick.

Fortunately for me, one of my best friends had been researching some information and she printed out the "Aspects of pasture that can Adversely Affect Your Horse" article she had found on the web site [horsemanship.com](http://horsemanship.com)

I sent an email off to Jenny Paterson who kindly rang me that night, and explained her experience with her horse, and with much research into other horses, all this just about blowing my mind, as she explained to me what I could try, to help this poor little horse.

Anyway, out of all the list of symptoms, my little horse was only showing the head flicking, and this seemed to come on for no reason that I am able to pinpoint, except maybe that I was letting her graze on full clover, at the end of her daily sessions, while I potted about doing this and that, sometimes she would get an hour there, sometimes half an hour. That was enough to cause it I now know. Suffice to say, I couldn't ignore her plight any longer, and desperately needed help.

I got on the phone, sourcing the things Jenny had advised me to feed, contacted a spray rep, to get advice on which spray to use to kill the clover out of my browntop paddock, bought the spray and sprayed a section of the paddock. Meanwhile Phippen thinks her throat has been cut, and took two days to even start eating the hay.....

### **Using a ten litre bucket, her feed was as follows:**

1/3 bucket of pre-soaked ezy beet

2 cups of nutri-rice all rounder

1 large ice cream container of oaten chaff

1 dessert spoon of soya bean meal

1 large tspoon of Alleviate C (organic calcium and magnesium) Xtra Cal in Australia

1 medium spoon of Tox-Defy toxin binder

1 level tspoon of Devils Claw - ONLY FOR HORSES IN PAIN (eg. Head Flickers / Laminitis)

(Geldings only as it can increase estrogen in mares, possibly causing very strong and irregular cycles)

1 scoop of Premium New-Zealand-Horse Minerals

(Supreme Australian-Horse Vit & Min)

### **One month later :**

Currently, Pippen and I are still progressing flick free. I will start her back into a schooling programme in the next few days. I have been getting her fitness up with some farm work, and a bit of long trotting, and now feel we are able to get back into it, while our grass stays firm enough to ride on!



### **Two Years Later :**

Pippen was able to continue her training and has been shown in multiple events at many Western Shows. She has competed successfully in horsemanship, trail and reining. She is an easy non fuss horse to show.

A happy ending for an ex head-flicker!!!

**Please e-mail us with your story and anything you have found that helps.  
[info@gotcha.com.au](mailto:info@gotcha.com.au)**

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