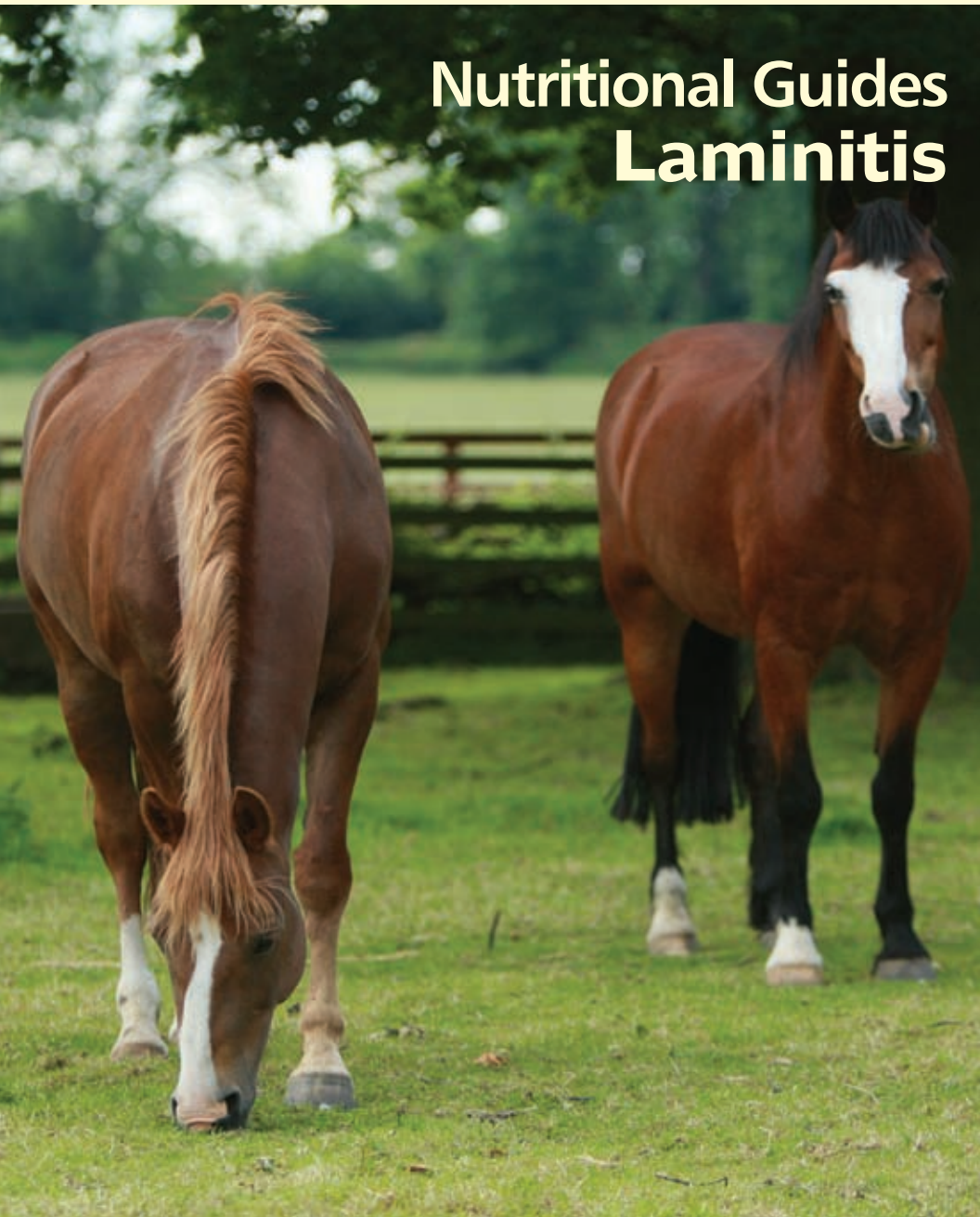


Nutritional Guides Laminitis



The Facts

There have been massive steps forward in the study of laminitis in the last 10 years and what is becoming very clear is that there is more than one nutritional cause of laminitis, although the clinical signs might be the same.

Fact 1

66% of laminitis is pasture associated.¹

Fact 2

Equine Metabolic Syndrome is on the increase and with it associated laminitis.²

Fact 3

Until recently researchers thought that fructans found in grass affected the hind gut in a similar manner to an overload of starch detrimentally changing the fermentation in the hind gut. However recent work has shown that the fructans do not reach the hind gut but are fermented in the small intestine of the horse.^{3, 4}

Fact 4

Laminitics have 3 times the levels of free radicals compared to non laminitics.⁵

Fact 5

Horses and ponies with a fat score >3.7 (0-5 modified score) are at greater risk of laminitis and foot related problems.^{6, 7}

Fact 6

It is likely that if a mare is on a diet deficient in protein, vitamins and minerals (suboptimum nutrition in utero) her foal will be born with insulin resistance.⁸

Fact 7

If fed in excess; high fat diets predispose a pony to insulin resistance more than high sugar diets.¹⁰

Fact 8

Ponies and horses with insulin resistance are at a higher risk of laminitis.¹¹

Fact 9

Restricting a horse's dry matter intake increases the risk of stereotypy, colics and gastric ulcers.^{12, 13, 14}

Fact 10

Exercise is protective against insulin resistance.¹⁵



Equine Metabolic Syndrome and Insulin resistance

Watching what you feed your horse or pony isn't enough on its own to minimise the risk of the life threatening disease of laminitis; you have to make lifestyle changes too... preventing laminitis is a way of life.

In fact we now know that it isn't just what you feed today or tomorrow that increases the risk but what you have been feeding over a long period of time.

Diabetes has recently been diagnosed in the horse¹⁶ and equine metabolic syndrome (EMS) is very similar to its human equivalent. As a person you don't get diabetes or human metabolic syndrome because you ate a doughnut last night, you get diabetes because you have eaten doughnuts for all of your life, become overweight and changed the way that your body is able to control glucose and insulin.it's the same for our horses.

If your horse is comfortably cuddly for several years, his metabolism will start to change and he will lay down metabolically active fat. This metabolically active fat increases his risk of becoming insulin resistant.

Insulin resistance increase the risk of laminitis as it prevents glucose being taken up by the lamellae and eventually they become weakened.

Weak lamellae cannot hold up the pedal bone within the hoof.

New research is identifying that what we feed broodmares and the way we manage the diet of foals and youngstock may be putting them at greater risk of disease and obesity later in life.

Diet can have direct effects on the genes of the foetus. The changes are not in the DNA ie the genes themselves but in the mechanism that switches the genes on or off. . . .known as epigenetics.

These epigenetic differences have the potential to affect foetal development and growth as well as influencing long term patterns of gene expression associated with the increased risk of many diseases.

So for example if a mare is fed high calories and not enough vitamins and minerals or if she is on a restricted diet (low protein, vits and mins) known as suboptimum nutrition, then her foal is likely to be born with insulin resistance and therefore at greater risk of obesity and laminitis as a mature horse.

Feeding the laminitic

Dietary insult

If your horse has developed laminitis because he has had a dietary insult that has changed the fermentation in his hind gut (e.g. a very large meal of starch) or something that has caused endotoxaemia, then it is important that the correct gut flora is re-established and the dietary cause removed.

- Discuss with your vet if a bran mash is appropriate to wipe out the bad bacteria from the hind gut
- Re-establish gut flora. Yeast improves hind gut fermentation and probiotics help re-establish the front end of the gut
- Provide B vitamins, make sure that they don't contain high levels of copper or iron as often the liver is stressed trying to remove the toxins that have leaked from the hind gut
- Feed a high fibre feed to help the re-establish the friendly bacteria in the hind gut and to keep your horse chewing whilst he is stabled
- Check he is getting enough antioxidants to reduce the adverse effects of the inflammation and damage
- Make sure he has water, at floor level if he is lying down a lot
- Feed hay on the floor, so he can nibble if he is lying down

Metabolic cause

If your horse has been comfortably cuddly for a long time (possibly before you owned him) and he is isn't eating starchy feed, then the reason that he has got laminitis is probably due to long term changes in the way his body handles insulin and sugar. Thus for no apparent reason he suddenly seems to become susceptible when he has a little too much grass and puts on a little more weight. In this situation, there hasn't been an insult to his digestive system, so it takes longer to resolve this and the aim is to reduce his body fat and insulin resistance

Short term

- Feed hay soaked for 12hrs to provide bulk but reduced calories
- Balance his diet especially in terms of vitamins and minerals and protein
- Provide a feed that contains antioxidants
- Add 3 tablespoons of cod liver oil to his feed

Long term

- You must get his body fat down to below fat score 3 (0-5 modified score)
- For life management see tips on the next page

Tips to minimise the risk of laminitis

- **1.** Feed according to workload, a horse in light work or at maintenance doesn't need lots of calories (energy). They will put on fat if their calorie (energy) intake exceeds their calorie use.
- **2.** Fat score your horse fortnightly and keep him at <3.7 during the spring and summer.
- **3.** Remember that our horses evolved to put on fat through the spring and summer BUT they lost it through the winter. They were the original yo-yo dieters!
- **4.** If he isn't doing much work in the winter, then don't worry if he goes down to fat score 2.5. If he loses muscle he will get a 'weak outline' don't try and improve his outline by making him fat; wait till the spring when you can ride him more and build up his outline through building muscle.
- **5.** Try and ensure that your horse gets a minimum of ½hr active walking per day. His heart rate should be 80 bpm, whilst he is doing active walk; this can be checked with a heart rate monitor.
- **6.** If he has put on fat in the summer, then make the most of the winter to lose his fat. Use a lighter weight rug, so that he burns off some of his fat keeping warm.
- **7.** Don't cut back on his bulk. Horses need bulk to maintain a healthy digestive system to reduce the risk of colics; to produce saliva whilst they chew to minimise the risk of gastric ulcers; to provide occupational therapy to minimise the development of oral stereotypies.
- **8.** Cut back his calories by soaking hay for 12hrs which reduces the sugar/calorie content¹⁷. Make sure that you feed enough to meet his dry matter requirements (2.5% of his bodyweight). Oat or barley straw are useful low calorie bulk forages.
- **9.** Make sure that the diet is balanced in terms of vitamins, minerals and protein throughout life. Remember suboptimum nutrition of the mare is likely to result in foals being born with insulin resistance.
- **10.** Monitor his grass intake. Our research has shown that some horses can eat 5% of their bodyweight as grass¹⁸, gaining 21kg in a week, (4% of their bodyweight). Grass MUST NOT be considered 'fresh air'.
- **11.** Consider a muzzle, increase the number of horses in the field or cut it weekly/twice weekly to control the amount they can eat.
- **12.** If you are restricting your horse's grass intake then feed him a low calorie, high fibre feed that is balanced in vitamins and minerals to extend the amount of time he is chewing. These are usually formulated to be fed at 500g/100kgBW and should contain extra anti-oxidants.
- **13.** If your horse has plenty of low calorie fibre, then ultimately you must balance his diet by feeding a low intake, low calorie, vitamin, mineral and anti-oxidant balancer; usually formulated to be fed at 100g/100kgBW.
- **14.** Remember a fat horse is in poor condition as he isn't fit for purpose.

Latest Research

Prevention is better than cure because once your horse/pony gets laminitis anecdotal evidence suggests that they will get it again.

We are changing the biology of our horses by the way we have kept them over the last 15yrs; it is important that we recognise the importance of a balanced diet and of keeping our horses healthy through daily, active exercise.

For a full list of references, please check out our website in the Laminitis 2010 section.



All Dodson & Horrell products that are suitable for horses and risk from laminitis carry the 'Laminitis Friendly' logo

Our products are formulated using the most up to date results from worldwide studies on laminitis, to ensure you can provide your horse with the most appropriate diet.

If you have any concerns about feeding or are worried about the threat of laminitis call our friendly expert team on **0845 345 2627** or visit **www.dodsonandhorrell.com**

