



Laminitis

What is laminitis?

Laminitis - also known as founder or foot fever, is an extremely painful and debilitating condition of the hoof. It is a condition in which there is reduced blood flow to the laminae of the hoof which leads to breakdown and degeneration of the union between the horny and sensitive layers of the laminae. In people it would be equivalent to the area where our fingernail attaches to the sensitive area of the nail bed below the fingernail. Any major trauma to this area leads to a painful throbbing feeling to the finger - for the horse this painful throbbing is felt throughout the entire hoof which is why it is such a debilitating condition.

It is a symptom of a generalised metabolic disturbance and can be classified as acute (very severe), subacute (severe), or chronic (milder signs). It can develop in the forefeet only, all four feet or occasionally only in the hindfeet. Rotation of the pedal bone within the hoof may occur in longstanding chronic cases and can even perforate the sole of the foot.

What causes laminitis?

The most common cause of laminitis is ingesting excess carbohydrates (grain overload) and grazing lush pastures - especially in ponies. There is increasing evidence that horses and ponies with hormonal disturbances such as Equine Cushing's Disease and Equine Metabolic Syndrome are at greater risk of developing laminitis when grazing lush grass. The sugars in the grasses become the trigger to start a cascade of chemical reactions that culminate in laminitis. Laminitis may also occur secondarily with uterine infections after foaling and endotoxaemia from bacterial infections associated with colic, enteritis and diarrhoea. Excessive medication with cortisone will also predispose to laminitis. Occasionally laminitis can be induced with excessive exercise and concussion of the foot in an unfit horse or pony.

How do I know if my horse or pony has laminitis?

In acute cases of laminitis the following signs will be shown - the horse will be very depressed and not interested in eating due to the extreme pain being experienced. There will be an abnormal standing posture where the horse is trying to take the weight off the affected legs and an absolute refusal to walk. Heat can be felt in the entire hoof and there will be a bounding and exaggerated pulse palpated. Often there is a fever, muscle trembling and increased heart and respiratory rates. This presentation of laminitis is a medical emergency and veterinary attention should be summoned immediately for humane reasons.

Subacute laminitis will present as above but its presentation is not as severe. There is a milder stance change, reluctance to walk and not as much heat felt in the hoof. It still requires immediate veterinary attention due to the extreme pain the horse or pony is in.

Chronic laminitis can follow one or more acute attacks of laminitis - it presents as a change to hoof shape where it becomes narrow and elongated and there are bands of irregular hoof growth. There are varying degrees of lameness and a thorough examination of the hoof is needed to examine the position of the pedal bone. Veterinary attention is still needed for this presentation of laminitis in order to prevent further degeneration of the hoof and to control any pain or discomfort the horse or pony is in.

What is the link between diet and laminitis?

Excess sugars and starches are fermented in the hind gut which leads to a lactic acid buildup. This in turn kills the normal gut bacteria in large numbers leading to the release of endotoxins. The endotoxins are then absorbed into the bloodstream and travel to the hoof where they interfere with normal hoof blood flow. The blood flow is

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AUS 1300 720 377 sales@equiaustralia.com.au www.equiaustralia.com.au
NZL 0800 442 450 sales@equiaustralia.com.au www.equiaustralia.com.au

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UK 0800 334 5856 sales@lexvetsupplements.com www.lexvetsupplements.com
USA 877 215 4644 sales@lexvetsupplements.com www.lexvetsupplements.com
IRL 087 2227 382 allequestriantack@hotmail.com www.allequestriantack.com
EUR +47 9229 5555 nena.bjerke.ltd@gmail.com www.hestespesialisten.no



dramatically reduced with sludging and emboli occurring in the capillaries. The reduced oxygen perfusion means that the hoof wall starts to degenerate and break down, resulting in the clinical signs of laminitis.

It appears to be the plant fructan levels that are the most critical and some grasses store more than others eg. Perennial ryegrass can have 12% fructans but cocksfoot only 2% fructans. The amount of sugars in a plant is a highly dynamic and environmentally responsive process – it can vary from 5% to 50% of dry matter in a matter of hours. The sugars are mainly stored in the stems rather than the leaves. Sugar builds up in the grass during the day when the plant is photosynthesising and reduces overnight as the plant utilises the sugar for growth. Sugar content is highest at dusk after a full day of photosynthesising and lowest at dawn when the plant has utilised these sugars for growth overnight.

How do I manage laminitis in my horse or pony?

The most important thing to remember is that horses and ponies have evolved over eons of time to forage for and ingest large amounts of poorer quality grasses to be consumed over most of the day and night. They also evolved to be constantly on the move as they foraged. Ponies in particular have become very efficient at utilising poor quality grasses due to the environment they evolved in and are less adaptable than horses to metabolising sugars and starches. Modern horse husbandry often does not allow for constant intake of poorer quality hay or grasses and also greatly restricts mobility in many cases. A horse or pony that has had laminitis should be blood tested by a vet to see if they have Equine Cushings Disease or Equine Metabolic Syndrome.

How can I help my horse or pony that is prone to laminitis?

Feed mature grassy hay that has been soaked in water for 30 minutes prior to feeding (this reduces the sugar content). It is essential to feed a broad spectrum supplement like Equilibrium or LexveT products to all horses and ponies that receive soaked hay. Soaking hay not only remove sugars but also water soluble minerals and vitamins. Supplementing with a broad spectrum supplement will

replace the nutrients lost and top up and rebalance mineral and vitamin levels. Supplements such as Equilibrium and LexveT are ideal to feed to laminitic horses as they do not contain carbohydrates.

Have areas where there is no grass so that they can move around all day and graze only mature grassy hay.

Do not feed any grain of any kind.

Overweight ponies and horses are more prone to developing laminitis – they need exercise and low sugar high fibre forage. Being overweight could also be a symptom of insulin resistance or Cushings disease.

In addition to adjusting the diet, movement is also essential for normal hoof health. In the natural environment horses roam 8 to 26km per day. The frog of the hoof acts like a pump when the horse is moving and keeps blood circulating through the hoof. When horses are locked up or constantly shod the frog cannot function properly. Shoeing with heartbars or keeping them unshod and encouraging constant movement is important for hoof health and will pump the blood around the hoof assisting in the prevention of laminitis. To encourage movement keep water and food at opposite ends of the paddocks or yards. Bossy paddock mates will also keep horses moving. Exercising your horse for one hour in the morning and afternoon and then being locked up for the rest of the day is not going to provide any benefit for normal blood circulation of the hoof – they need to constantly move throughout the day.

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