

A white pony with a long, flowing mane is the central focus of the image. It is standing in a grassy field, looking slightly to the right. The pony's coat is bright white, and its mane is long and wispy. The background is a soft-focus green field.

# Founder Facts

***Your horse's  
health is in  
your hands***

This little book is full of lots of information to prevent your horse developing laminitis. If you have a laminitic horse in your care, it will outline a management plan to aid their recovery.

**By Jen Clingly & Marg Richardson**

***Laminitis and Founder are two terms that are often used interchangeably. Laminitis is what causes rotation to the pedal bone which is then termed founder. In this booklet, we will refer to the disease process and its outcome as laminitis.***

***Laminitis affects horses, ponies, and donkeys. It does not discriminate. To avoid confusion we will refer to the "horse" throughout this booklet, but the illness affects all equids.***

## **Laminitis – What is it?**

Laminitis is a serious disease of the equine foot that can lead to long term, crippling changes in the hoof. It is usually explained in scientific terms that can be difficult to understand.

In a healthy horse, the pedal bone inside the hoof is attached to the wall by laminae. These are like velcro. One part stuck to the bone and one part stuck to the hoof wall.

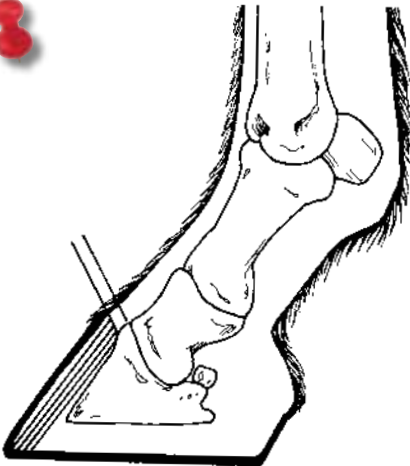
Laminitis, in very simple terms, is the breakdown of this 'velcro' (laminae). It results in the failure of the attachment between the bone and the hoof wall.

Your horse may already have mild laminitis without you knowing. Sometimes professionals call this "sub clinical laminitis" or "low grade laminitis". Commonly, horses are in this stage for a long period of time, even years. Quite often, horses that are tender footed are simply in a state of constant low grade laminitis. Any horse with a dish in its hoof wall has some degree of laminitis.

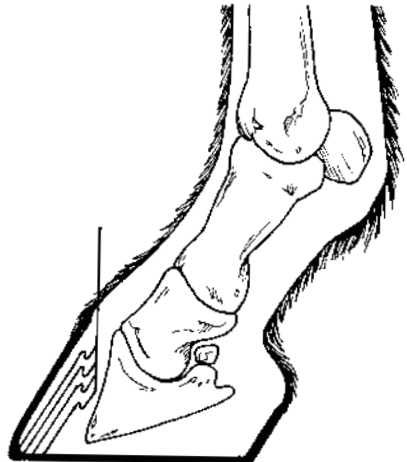
In an acute case, the horse will experience unrelenting pain and lameness as the bone tears away from the hoof wall and is driven down inside the hoof capsule by the full weight of the horse. This is referred to as pedal bone rotation or founder.

When this happens the horse owner is often devastated: feeling guilty and heartbroken at the animal's suffering and caught in a whirlwind of grief, vet bills and the major task of managing the horse's recovery.

The pictures on the left are cross sections of healthy hooves, the pictures on the right show laminitic hooves. Note the rotation of the pedal bone and its separation from the wall?



Normal laminae



Crushed laminae

# What causes laminitis?

- **Pasture high in sugars** – even skinny horses, and horses in work can get laminitis eating too much grass that is high in non structural carbohydrates (NSC's) fructan, sucrose and starch (sugars). The sugars in pasture vary seasonally ie spring or autumn flushes; throughout the day depending on levels of photosynthesis; & climatically ie drought or frost both of which stress grass and raise sugar levels.
- **Over feeding grain** – any horse can get laminitis from overfeeding or feeding products too high in non structural carbohydrates (NSC's), starch and fructan, in addition to pasture and hay. Horses that overeat in one binge ie “break in & gorge” on grain can develop laminitis rapidly.
- **Obesity** - and its metabolic consequences is one of the major causes of laminitis. Your obese horse is like a ticking time bomb!
- **Fat horses can become Insulin Resistant (IR)** Equine Metabolic Syndrome which is a condition similar to Type 2 diabetes in humans. These horses are extremely susceptible to laminitis, have high levels of blood insulin – even carrots and apples can make them laminitic – and sometimes these horses cannot be put on grass at all. This is extremely common. [www.ecirhorse.com](http://www.ecirhorse.com)







*One of the symptoms of Cushing's Disease is an extremely hairy coat "hirsutism"*

- **Cushing's disease** – associated with a tumour of the pituitary gland – found often with elderly, IR or obese horses. Horses that develop this are extremely susceptible to laminitis. [www.ecirhorse.com](http://www.ecirhorse.com)
- **Retained placenta** post foaling- can induce laminitis
- **Supporting limb laminitis** - can develop when your horse has injured one leg and loads weight for long periods of time without movement on the other uninjured leg.
- **Mechanical** - when the horse is subjected to hard work on compromised hooves (overgrown, unbalanced) it is often called Road Founder or concussive founder, this results from the mechanical lever forces pulling the lamella apart with each step.
- **Stress** – excessive travelling, competing, overtraining, illness, medications, post colic attack or post surgery can all trigger a laminitis attack.
- **Corticosteroid injections** for itchy skin, joint disease and lameness can trigger laminitis especially in IR horses

## Signs that your horse may be mildly laminitic – or in the early stages:

- Reluctance to move freely – horse is accused of being lazy, is “ouchy” on rocks “walking on egg shells”. This is worse when asked to turn or walk down hill
- Bounding Digital pulse – indicates hoof inflammation. The digital pulse can be felt in the artery behind the fetlock.
- Heat in the hooves
- Shifting weight from hoof to hoof /swaying side to side
- Horse appears sore, or may lie down a lot
- Blood visible in white line – usually seen by your farrier or trimmer.
- Horse stands depressed, unwilling to move
- Horse unwilling/unable to pick up a foot
- If your horse has been mildly laminitic for some time, the hooves will look distorted, rings are present in the hoof wall, hooves may be flared, have separation in the white line of the hoof and thin flat soles. These horses often have cracks and seedy toe infection.
- Overweight laminitic-prone horses will often show a cresty neck and fat cellulite deposits on their body (abdomen, around the tail, the withers, the sheath or udder, the girth area and may also show puffiness above their eyes)



## Signs that your horse is having an acute, (meaning sudden onset) laminitic attack:

- Founder stance – the horse adopts this classic stance rocking back to take pressure off the toes
- Horse cannot move, staggers, is severely lame
- Horse is distressed, lies down, bounding digital pulse
- Horse stops eating
- Horse is sweating profusely, with high heart rate and anxiety

All of these signs need to be evaluated in context. No single indicator would be a diagnosis for laminitis. Not all acutely laminitic horses will exhibit all these signs.



*Founder can affect any horse any size, shape and weight*

## Signs that your horse has chronic (meaning long term) laminitis –:

- Stretched white line where the hoof wall has pulled away from the bone inside – called a lamellar wedge. Seedy toe and abscessing can be expected with a stretched white line.
- Distorted hoof capsule. The hoof doesn't look normal. These hooves can grow like the classic "Aladdin Slipper" if left untrimmed or may have "high heels"
- Flat "dropped" soles. Soles may have a "bulge" under the pedal bone
- Hooves may be mismatched in size and shape. The hoof wall shows rings, ridges or ripples indicating laminitic events. You can work out when these happened counting down from the coronet, as the hoof grows approx 1cm per month
- Your horse may have a cresty neck that is hard or fallen over and floppy.





## Common problems after Laminitis - Seedy Toe and Abscessing:

Laminitis will cause a physical change in the white line, stretching the laminae and allowing pathogens such as fungi and bacteria to easily enter. These pathogens cause abscess. Abscessing can be extremely painful for the horse and many owners believe their horse is suffering laminitis again.

Be prepared for your horse to abscess and research the many remedies for seedy toe and abscessing such as poulticing which can help draw an abscess.

For advice on poulticing and treatments, talk to your hoof care provider or veterinarian or research on the internet.



# My horse has laminitis NOW– What do I do!

Unfortunately most horse owners only realise this when the horse is well into the developmental stage of the disease and in great pain. It is important you immediately consult with your veterinarian or hoof care provider who will work with you through a management plan.

The modern horse is highly evolved and its biological makeup has allowed it to survive for millions of years. This one fact is valuable to your understanding of laminitis. Horses have simple needs and the more we complicate their lifestyles and feed, the more problems we have.

Horses can recover from laminitis and laminitis can be prevented if you are prepared to make changes to their diet and lifestyle.

*Wild horses live uncomplicated lives on simple sparse diets*



## Management Plan:

1. First aid and pain relief
2. The horses environment
3. Feeding and nutrition
4. Hoof care
5. Required exercise/movement
6. Prevention

## The Immediate Action Plan

- The most important thing – Identify and Remove the cause – eg. get the horse off the grass, stop feeding grain, don't let the horse access a fruit laden tree, stop your neighbour giving your horse treats, don't feed bread.
- Seek veterinary advice. Your veterinarian will make a diagnosis, take x rays, administer pain relief and assist you with your treatment plan. To determine the cause of the laminitis your veterinarian may need to test blood values of the horse's hormones (insulin, glucose, ACTH). Seek a second opinion if you feel uncomfortable about a diagnosis or treatment plan. There are many alternatives that practitioners may be unaware of.

*X-raying a chronic laminitic pony*



- Make your horse comfortable in a yard with soft footing – sand, shavings, carpet or similar. Padding underneath the horse's hooves will offer therapeutic relief. Foam pads taped on with duct tape or padded inserts in hoof boots can support the tender sole.
- Horses are herd animals - Company of another horse is important to their wellbeing and health



- If the potential of laminitis is detected early, soak hooves in ice water. This can help if done immediately eg after colic surgery, retained placenta, immediately after the horse has gorged on feed in the shed. But it is only a small window of opportunity to halt the process of laminitis.(during the first 48 hrs).
- Provide hay – soaked for 1-6 hours in fresh water to remove excess sugars. Don't just wet the hay, submerge it completely underwater. Equal volumes of water and hay will allow for more sugars to be pulled out. Then drain the hay and throw the sugar-laden water out. Founder horses MUST NOT be starved. This may be catastrophic for your horse. Healthy gut function must be maintained for the recovery of the horse. Fresh drinking water must always be provided for your horse. Remember if your horse will not eat the wet hay, they will when they are hungry.
- Provide minerals and salt
- In the early stages of the attack, the horse or pony may be reluctant to move at all. This is because the feet are painful and walking is agony. As the laminae heal and reform their attachment to the pedal bone, locomotion will become less painful and easier. Let the horses tell you when he is ready for exercise. When the horse is comfortable, and off pain medication, keep him in an area where he can move as he chooses. Beware of drug induced pain relief – more damage can occur if the exercise is excessive. Do not let the recovering laminitis patient gallop off with the herd!

***While it is important to take action, this is not a substitute for professional help. You will need to engage the services of a vet and a hoof care provider.***

***Laminitis is a true emergency condition and immediate first aid and removing the cause is important. Following the above simple steps will help your horse.***

## Long Term Action Plan:

Laminitis is a “whole horse disorder” therefore an holistic approach is needed to identify and correct the root cause.

### Environment:

To prevent or manage laminitis your horses environment may require a change. Your long standing beliefs regarding horse keeping may be incorrect.

- In nature horses live on diets high in roughage, low in sugars and protein and move constantly over varied terrain which promotes optimum hoof health. Once you horse is able, try to imitate this by giving your horse as much space to move as possible – be imaginative – instead of a square paddock, give him a track around the paddock – this will keep him on the move which is ideal for a horse predisposed to laminitis.

With a track, you can also control how much your horse eats and how much he has to move to graze and access water. Strip grazing or a track system can be set up using portable electric fencing with visible white tape.



*Horses on a track around the perimeter of a paddock-keeping horses moving with less grass*

- Horses are herd animals; ensure your horse has friendly equine company.
- Accept that natural changes in body condition occur with the seasons. Horse’s weight will fluctuate with weather and feed changes. Fat horses are at highest risk of laminitis.



## Feeding and Nutrition:

Keep your horses diet as natural and simple as possible.

Once your horse has developed laminitis or is recovering, it is important to follow these simple rules.

- Do not let your horse become obese. Allow weight fluctuations over winter where the horse may lose weight slightly – this is normal and allows for the weight increase in spring. Horses which are maintained in fat or obese condition over winter – are at much greater risk of foundering as the lush grass of spring can tip them over their metabolic tolerance level
- For horses that have Cushing's disease, or Equine Metabolic Syndrome (high insulin levels ), feed grass hay that has been soaked for 1-6 hours in fresh water. This removes a large percentage of the water soluble sugars. Discard the water. Roughage is important in all equine diets including those recovering from laminitis. Keep these horses off the grass unless they are being regularly (min 3 times a week) exercised and are not overweight. Manage any pasture access strictly, taking into account safer grazing times/ areas – eg. early mornings, shaded paddocks or on cloudy days and different species which are more suitable for horse grazing. Please research the listed references at the end of the booklet for more information or ask your trimmer/ farrier/vet for more information.



*Horses in shaded paddocks and where vegetation is sparse*

- As with diabetes - the parallel human condition to laminitis - exercise and a diet low in sugars and starch are the most useful tools to manage this condition in horses.

- For all other horses, suitable grass hay low in NSC's should be the staple diet, with pasture access monitored. Take caution as some hays high in NSCs may still cause your horse to be laminitic. Hay can be fed in a 'slow feeder net' to reduce gorging.
- Cereal grain should be avoided; advice should be sought on various feeds for your horse – always read the labels carefully. Request laminitis-friendly feed from your supplier. Feed companies need to realise there is a strong demand for this. Most horse feeds are sugar laden to make them palatable to your horse. Try options such as Speedibeet or Maxisoy. [www.maxisoy.com.au](http://www.maxisoy.com.au)
- A grazing muzzle can be used. Ensure it fits correctly to prevent rubbing and that it has a breakaway feature to prevent injury if it gets caught.
- Mineral and salt licks or supplements are important for your horse to access. Ensure they do not contain molasses or other sweeteners.
- Consider the use of products such as Founderguard for prevention – discuss this with your veterinarian.



*Grazing muzzles*

## **Hoof Care:**

The fastest track to rehabilitation & soundness is natural hoof care

- Regular hoof care is one of the most important aspects in your horse's health regime. Your hoof care provider can help you by noticing any changes – good or bad – that may be happening to the horse's hooves. The horse's hooves are the window to their inner health.
- Ensure your hoof care provider is trained and experienced to look after your laminitic horse.

- Boots with pads can assist with healing especially once you commence exercising your horses. Boots will protect the recovering sole from all surfaces, assist healing as there is nothing restricting the circulation, reduce concussion, and give your horse confidence to comfortably keep moving. Boots are only used when needed.
- X-rays may be needed to identify changes and any damage which may result in a permanently distorted hoof capsule eg. Ski tips, bone loss or bone remodelling. It is absolutely vital the trimmer or farrier has a solid understanding of anatomy and is skilled in hoof rehabilitation. The distorted hoof capsule of the foundered hoof can confuse many people.
- It takes time to grow a new well connected hoof capsule. Some horses may never regrow a balanced hoof again particularly if they have been foundered for any length or time or regularly foundered, as this results in the loss of the tip of the pedal bone. The aim of your hoof care provider is to manage the negative impacts of laminitis on the hooves and to ensure that the horse is comfortable
- If your management plan is working, your horse should be improving in soundness with each trim. If not, seek further advice. No horse should be kept in pain and discomfort with laminitis for long periods of time.



## Exercise:

Exercise is absolutely vital for a horse prone to laminitis.

In the early stages, your horse may be reluctant to move at all. Once they are comfortable (specially with the aid of padded boots or with pads duct taped to their feet), movement should be encouraged. If your horse has little or no connection of the hoof wall with the coffin bone, excess movement may cause major worsening of the damage. Previous internal damage may already be present and this is where an x-ray is extremely useful to assess the potential of your horse for rehabilitation and its prospects of recovering to soundness.

Advice from your veterinarian or hoof care provider is essential as individual requirements vary. Lunging or turning in small circles should be avoided to reduce torque and stress on the internal structures.

Once your horse has recovered from a laminitic attack, and many (especially those affected mildly and with previously healthy pathology free hooves) do recover very quickly – steady exercise daily or minimum 3 times a week for minimum 20 minutes is encouraged and can be increased gradually as long as soundness continues to improve.

Observation is the key. If you have a horse that is reluctant to speed up their gait, immediately review your management plan. Care must be taken to not overdo exercise until a new hoof has grown out.



*Regular exercise is an important part of the management plan*

## Prevention:

Preventing is a better option than repairing!

Cure and prevention lies in simplifying the horses lifestyle. There is no lasting cure if the necessary natural lifestyle changes are not addressed.

Keep your horse safe from the “founder triggers” we have highlighted.

***Laminitis is a recognised horse welfare issue and is reportable to the RSPCA.***

Checklist:

- Guilt, panic and wanting quick fixes are common – this booklet gives you a simple immediate plan to respond to an emergency..
- Research – gain knowledge. Read the websites listed in the back of the booklet for further information. Laminitis research information is readily available. Laminitis is a whole horse disorder and requires an holistic approach.
- Double check your horses environment for the cause of laminitis and remove it.
- Get your horse’s hooves regularly trimmed to maintain hoof balance
- If hooves are deformed your horse will require regular rehabilitative trimming. This will take time – up to 12 months - to grow a new healthy hoof.
- Foam padding/duct tape for support when horse is sore. Hoof boots are a great option for comfort for your horse and to keep them moving. Movement is the key to healing and prevention of laminitis.
- Companionship – herd mates are important.
- Keep feed simple. Avoid too much grass and feeds that contain grain. Give your horse the opportunity to graze all day on roughage (hay) and/or suitable pasture (low in NSC) for as much time as possible as long as correct body condition is maintained – do not overfeed hay if your horse is fat. If the horse gains too



much weight, intake must be reduced by reducing hay or grass, using a muzzle, strip grazing etc. Be especially vigilant about changes in grass ie spring grasses starting to emerge.

- Avoid sweet treats such as apples and carrots.
- Ensure your horse gets sufficient exercise to maintain ideal body weight and healthy metabolism. Don't confine your horse.
- What stresses does your horse endure? Travel, competition, foaling, illness, medication, worming, traumatic injury – all can trigger a laminitic episode
- You may need to engage the services of an equine body worker to assist full body recovery. Painful hooves can cause many upper body issues.

## Which horses are at highest risk of developing laminitis?

- Horses that have access to unlimited amounts of improved high NSC grass.
- Being fed large amounts of grain for show condition or for athletic performance
- Obese horses that don't get enough exercise.
- Horses that are insulin resistant.
- Horses that have tendency towards obesity when the rest of the herd maintain a normal condition. Ie (good doers)



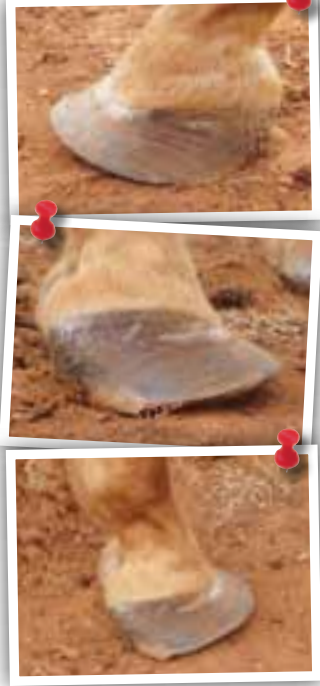
***The most rewarding thing is to see a horse come through founder and return to soundness. More rewarding is knowing YOU made the difference.***

## Final Note

Your horse's welfare is always the priority. Sometimes euthanasia is the only responsible option for an owner despite the ability of many horses to survive with ongoing pain and lameness. Not all horses recover and often horses and ponies are kept alive more for the benefit of their owner than the horse.

Your horse's comfort and quality of life should always be the highest priority. Please consult your vet or hoof care provider.

*Chronic laminitic hooves of a Thoroughbred brood mare that had to be euthanased.*



*Often the kindest thing to do for ponies such as this is humane euthanasia. Attempts for rehabilitation is sometimes unrewarding for the owner and the horse.*

## Resources

[www.wildabouthooves.com.au](http://www.wildabouthooves.com.au)

[www.safergrass.org](http://www.safergrass.org)

[www.balancedequine.com.au](http://www.balancedequine.com.au)

[www.ecirhorse.com](http://www.ecirhorse.com)

[www.hoofrehab.com](http://www.hoofrehab.com)

[www.ahf-laminitis.org](http://www.ahf-laminitis.org)

[www.naturalhorseworld.com](http://www.naturalhorseworld.com)

“Equine Laminitis: Managing Pasture to Reduce the Risk” by Kathryn Watts and Prof. Chris Pollitt <https://rirdc.infoservices.com.au/items/10-063>

“Equine laminitis: current concepts” by Prof Chris Pollitt <https://rirdc.infoservices.com.au/items/08-062>

[www.easycareinc.com](http://www.easycareinc.com)

[www.renegadehoofboots.com](http://www.renegadehoofboots.com)

[www.cavallo-inc.com](http://www.cavallo-inc.com)



[www.maxisoy.com.au](http://www.maxisoy.com.au)

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[NaturalHorseWorld.com](http://NaturalHorseWorld.com)



[www.horsewelfaretasmania.com](http://www.horsewelfaretasmania.com)

## Further Education

Wild About Hooves – Hoof Clinics

Contact: Jen Clingly [www.wildabouthooves.com.au](http://www.wildabouthooves.com.au)

Certificate course in Equine Hoof Care or to find a trimmer:

[www.australianhooftrimmers.com](http://www.australianhooftrimmers.com)



All due care has been made in the writing of this booklet using current information, but it is intended as a guide only. All horse owners are advised to immediately use the services of their vet, farrier or trimmer for advice on the best plan of action for their horse.

We would like to thank the following people for advice, photographs and information in the development of this book:

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Horses are flight animals, relying on healthy hooves for their own emotional well-being and survival. A laminitic horse will become depressed, disabled and will experience an extremely low quality of life.

**Fact:**

Laminitis is one of the biggest killers of domestic horses in the world and leaves thousands of horses crippled with lameness

**Fact:**

All horses can get laminitis, including skinny horses and horses in work

**Fact:**

Horses can get laminitis just eating grass or hay

**Fact:**

Overfeeding your horse is just as cruel as underfeeding and possibly a death sentence for your horse.

**Fact:**

Because owners can't see the internal damage, they do not realise how painful laminitis is for their horse. These people often genuinely love their horses. Laminitis is an excruciatingly painful experience for a horse.

***This book is dedicated to all the horses who have suffered laminitis and for all the horses who may in the future.***

