AAEP American Association of Equine Practitioners

Horse Health Education

LAMINITIS

Prevention and Treatment

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AAEP

HORSE HEALTH EDUCATION: LAMINITIS

Every day veterinarians across the country see hundreds of cases of laminitis, a painful disease which affects the feet of the horse. What's especially alarming is that some cases are preventable. In fact, it may be that we are killing our horses with kindness.

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Consider that a common cause of laminitis is overfeeding – a management factor that is normally within our control.

By learning more about laminitis, its causes, signs and treatments, you may be able to minimize the risks of laminitis in your horse, or control long-term damage if it does occur.

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LAMINITIS DEFINED

Laminitis results from disruption (constant, intermittent, or short-term) of blood flow to the sensitive and insensitive laminae.

Also involved in the "founder" process is a disruption of the attachment mechanism between the sensitive and insensitive laminae. This may actually occur initially since cold water baths may be beneficial before clinical signs are apparent.

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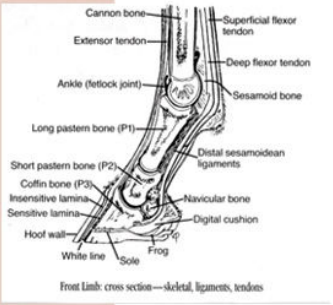
LAMINITIS DEFINED



These laminae structures within the foot secure the coffin bone (wedge-shaped bone within the foot) to the hoof wall. Inflammation can permanently weaken the laminae and interfere with the wall / bone bond.

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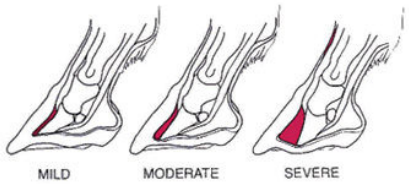
LAMINITIS DEFINED

In severe cases, the bone and the hoof wall can separate. In these situations, the coffin bone may rotate within the foot, be displaced downward, "sink" and eventually penetrate the sole.



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LAMINITIS DEFINED

Laminitis can affect one or all of the feet, but it is most often seen in the front feet concurrently.

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LAMINITIS DEFINED

The terms "laminitis" and "founder" are used interchangeably.

Founder usually refers to a chronic (long-term) condition associated with rotation of the coffin bone.

Acute laminitis refers to symptoms associated with a sudden initial attack, including pain and inflammation of the laminae.

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CAUSES

While the exact mechanisms by which the feet are damaged remain mysteries, we know certain precipitating events can produce laminitis. Although laminitis occurs in the feet, the underlying cause is often a disturbance elsewhere in the horse's body.

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CAUSES

The causes vary and may include the following:

- Digestive upsets due to grain overload (such as excessive grain, fruit or snacks) or abrupt changes in diet.
- Sudden access to excessive amounts of lush forage before the horse's system has had time to adapt; this type of laminitis is know as "grass founder."

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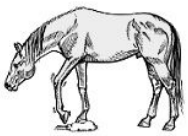
CAUSES



- Toxins released within the horse's system.
- High fever or illness; any illness that causes high fever or serious metabolic disturbances has the potential to cause laminitis, e.g., Potomac Horse Fever.
- Severe colic or diarrhea (Enteritis/ diarrhea is well-known to cause laminitis from endotoxemia).
- Retained placenta in the mare after foaling.

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CAUSES

- Excessive concussion to the feet, often referred to as "road founder."
- Excessive weight bearing on one leg due to injury of another leg, or any other alteration of the normal gait.
- Prolonged use or high doses of corticosteroids.
- Various primary foot diseases.
- Bedding that contains black walnut shavings.

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RISK FACTORS

Factors that seem to increase a horse's susceptibility to laminitis or increase the severity of the condition when it does occur include the following:

- Heavy breeds, such as draft horses
- Overweight body, cresty necks
- High nutritional plane (feeding large amounts of carbohydrate-rich meals)
- Ponies, Morgans and donkeys

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RISK FACTORS

- Unrestricted grain binges, such as when a horse breaks into the feed room (If this happens, DO NOT WAIT until symptoms develop to call your veterinarian. CALL IMMEDIATELY SO CORRECTIVE ACTION CAN BE TAKEN BEFORE TISSUE DAMAGE PROGRESSES.)
- Horses that have had previous episodes of laminitis
- Older horses with Cushing's disease

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SIGNS

Signs of acute laminitis include the following:

- Lameness, especially when a horse is turning in circles: shifting lameness when standing
- Pain in the toe region when pressure is applied with hoof testers
- Increased digital pulse in the feet

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SIGNS

- Heat in the feet
- Reluctant or hesitant gait, “walking on eggshells”
- A "sawhorse stance," with the front feet stretched out in front to alleviate pressure on the toes and the hind feet under them to support the weight their front feet cannot.

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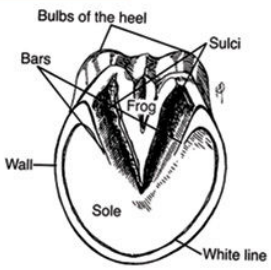
SIGNS



Hoof: from bottom

Signs of chronic laminitis may include the following:

- Rings in hoof wall that become wider as they are followed from toe to heel
- Widened white line at the quarters and toe, commonly called "seedy toe," with occurrence of seromas (blood pockets) and/or abscesses

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SIGNS

- Dropped soles or flat feet
- Thick, "cresty" necked horses are more prone to foundering, but not all cresty neck horses have had an episode of laminitis.

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SIGNS

- Dished hooves, which are the result of unequal rates of hoof growth. (The heels grow at a faster rate than the rest of the hoof, resulting in an "Aladdin slipper" appearance.) This appearance can also arise from poor hoof care or white line disease, weakening the hoof capsule.

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TREATMENT

The sooner treatment begins, the better the chance for recovery. Treatment will depend on specific circumstances, but may include the following:

- Diagnosing and treating the primary problem. (Laminitis is often due to a systemic or general problem elsewhere in the horse's body.)

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TREATMENT

- Dietary restrictions: stop feeding all grain-based feeds and pasture; feed only grass hay until advised otherwise by your veterinarian.
- Your veterinarian may treat the affected horse with mineral oil via nasogastric tube in cases of grain overload. The mineral oil may help to eliminate excessive grain from the digestive tract.
- Administration of Non-steroidal anti-inflammatories are essential in controlling pain and inflammation within the foot. Your veterinarian may also administer IV DMSO and other fluids if the horse is ill or dehydrated.

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TREATMENT

- Your veterinarian may administer other medications such as antibiotics to fight infection and administer anti-endotoxins to reduce bacterial toxicity.

Corticosteroids are inadvisable for the treatment of laminitis as they have been implicated as a possible predisposing factor in the development of laminitis.

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TREATMENT

- It may be recommended to stable the horse on soft ground, such as in sand or shavings (not black walnut), and to encourage the horse to lie down to reduce pressure on the weakened laminae.
- Sand is also used for the reason it provides superior frog and sole support that no man-made shoe can.

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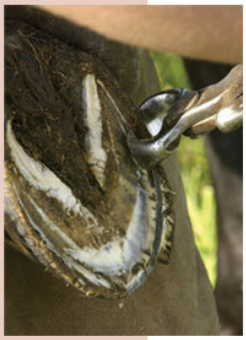
TREATMENT



- Open and drain any abscesses which may develop.
- Cooperation between your veterinarian and the farrier. (Techniques that may be helpful include corrective trimming, frog supports and therapeutic shoes or pads.)

It takes most horses 10-12 months to grow an entirely new hoof. Therefore, therapy may last up to a year or longer.

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LONG-TERM OUTLOOK

Some horses that develop laminitis make uneventful recoveries and go on to lead long, useful lives.

Unfortunately, others suffer such severe, irreparable damage that they are, for humane reasons, euthanized.

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LONG-TERM OUTLOOK

Your equine practitioner can provide you with information about your horse's condition based on radiographs (x-rays) and the animal's response to treatment.

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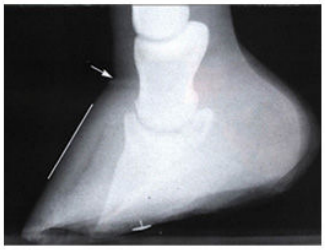
LONG-TERM OUTLOOK

Radiographs will show how much rotation of the coffin bone has occurred. This will help you make a decision in the best interest of the horse and help the farrier with the therapeutic shoeing.



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MANAGEMENT

Once a horse has had laminitis, it may be likely to recur. In fact, a number of cases become chronic as a consequence of the coffin bone rotating within the foot and also for the reason that the laminae never regains its original strength.

There may also be interference with normal blood flow to the feet, as well as metabolic changes within the horse.

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MANAGEMENT

Extra care is recommended for any horse that has had laminitis, including:

- A modified diet that provides adequate nutrition based on high-quality forage; digestible fiber (beet pulp) and fat; and avoiding excess carbohydrates, especially from grain.

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MANAGEMENT

- Routine hoof care, including regular trimming and, in some cases, therapeutic shoeing. (Additional radiographs may be necessary to monitor progress.)
- A good health maintenance schedule that includes parasite control and vaccinations to reduce the horse's susceptibility to illness or disease.

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MANAGEMENT

- Possiby a nutritional supplement formulated to promote hoof health.
- Avoid grazing lush pastures, especially between late morning and late afternoon hours, since plant sugars are the highest during these times; restrict pasture intake during spring or anytime the pasture suddenly greens up.

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SUMMARY

The best way to deal with laminitis is preventing the causes under your control. Keep all grain stored securely out of the reach of horses.

Introduce your horse to lush pasture gradually. Be aware that when a horse is ill, under stress, or overweight, it is especially at risk.

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SUMMARY

Consult your equine veterinarian to formulate a good dietary plan, with a routine health and hoof care program.

If you suspect laminitis, consider it a medical emergency and notify your veterinarian immediately.

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